
Unlocking Natural Medicine - DMSO Midwestern Mercola Sept 5

Extensive research has shown natural DMSO combinations treat numerous cancers, acute and chronic infections (e.g., dental infections, COVID-19, warts, chronic wounds, and osteomyelitis), an assortment of other challenging diseases (e.g., tinnitus, Sjögren's syndrome, Down Syndrome, Alzheimer's, and scleroderma) and protects organs from otherwise fatal injuries

https://articles.mercola.com/sites/articles/archive/2025/09/05/dmso-natural-combination-therapies.aspx?ui=d738e3df52a8a14aea9298fe6ec5bc113ed0d6d7922f31861727d54a43cbe29d&sd=20121119&cid_source=dr

- Strokes, paralysis, and many other neurological or circulatory disorders (discussed [here](#)).
- Chronic pain and tissue injuries, such as sprains, burns, and non-healing wounds (discussed [here](#)).
- Numerous autoimmune and contractile disorders (discussed [here](#)).
- Head conditions, such as tinnitus, vision loss, dental problems, and sinusitis (discussed [here](#)).
- Internal organ diseases, such as pancreatitis, infertility, liver cirrhosis, and endometriosis (discussed [here](#)).
- Skin conditions, such as varicose veins, acne, hair loss, ulcers and skin cancer (discussed [here](#)).
- Many different cancers (discussed [here](#)).
- Lung disorders, including asthma, COPD, pulmonary fibrosis, and cystic fibrosis (discussed [here](#)).
- Infections, including chronic bacterial infections, herpes, and shingles (discussed [here](#)).

Varicose veins - DMSO helps - Mercola & MidWestern Doctor - made a new VDW page for V-V

https://articles.mercola.com/sites/articles/archive/2025/07/24/varicose-veins-more-than-cosmetic-concern.aspx?cid_source=takecontrol&cid_medium=email&cid_content=art1HL&cid=20250824_TC&utm_source=substack&utm_medium=email
<https://www.midwesterndoctor.com/p/dmso-is-a-miraculous-therapy-for>

One Day MD DMSO on Substack

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MY GRANDMA SWEARS BY THIS STUFF

Introduction

In 2022, Erica Eyres, a vigorous fifty-six-year-old aerobics instructor who had struggled to breathe, was given “absolutely devastating” news: She might need a lung transplant. She had never smoked, ran cross-country track in high school, and was a personal trainer for years, but, by 2024, a transplant assessment was arranged. (1)

“I decided that I will make that decision,” she said, “only if it’s the last resort, and I’m on my deathbed.”

A few months before her consultation, however, Eyres, then fifty-eight, made an appointment with a new primary care doctor for routine prescription refills. She was about to be introduced, literally and figuratively, to a new kind of medicine. It would change everything.

Dr. James Miller, a former surgeon, liked to get to know his patients, so he asked Eyres for her history. She told him of her diagnosis, thirty years prior, with a serious but manageable case of scleroderma. In 2020, however, this auto-immune disorder, which can affect skin and organs, showed exactly what it could do.

Exhausted and tethered to an oxygen tank, Eyres spent months on her couch. She took medications that had awful side effects. Her lungs were “loaded with ground glass opacities in the lower lobes,” she said, which CT scans confirm. Eyres was diagnosed in 2021 with interstitial lung disease and pulmonary arterial hypertension. Her work in physical fitness was over.

When Eyres finished her history, she got two surprises. Miller agreed it was likely that the covid shots had made her condition, he later told me, “massively worse.” He then listened to her lungs to see how bad they sounded. “Don’t rush that,” he said of the transplant, a sure sign of a doctor who believed in other options.

Eyres was ecstatic. Miller, she said, was the “first doctor that actually hears me.” Miller then offered Eyres help in the form of three easy-to-find supplements for her vaccine injury: nattokinase, bromelain, and turmeric. She soon felt better.

It was on her second visit, a month later, that Miller suggested Eyres smear a gel supplement over her chest and lung area called DMSO to help her condition. This time, Eyres “kinda gave the eye roll,”

she told me.

She was in for the biggest surprise yet.

Erica's Turning Point

In December 2023, seven months before she saw Dr. Miller, Eyres' second CT scan results were again ominous. They read in part, "Re-demonstrated diffuse centrilobular ground glass nodularity in the lungs, slightly more pronounced in the lower lobes ... Expiratory images demonstrate air trapping throughout both lungs." (Ground glass nodules, common in late-stage covid, are abnormal spots on the lungs. Air trapping is the inability to fully exhale, leading to shortness of breath.)

The diagnosis was given as interstitial lung disease or ILD.

In November 2024, Eyres went for another CT scan in preparation for a lung transplant consultation. She had been using DMSO for five months at that point, mostly topically and in the previous month, orally. The scan found, "No evidence of interstitial lung disease. No air-trapping."

The subsequent transplant consultation was swift: The pulmonologist looked at her CT results and told her she was stable, she said. "Nothing more we need to do," he said.

"We head over to the transplant center and the doctor comes in and sits down and tells me, 'You do not have ILD, your lungs on CT scan are clear!!!!'" Eyres wrote in an email to me.

"Nobody can understand or explain this," she wrote. "All I can say is, where did the ground glass go? It was there and now it's not. DMSO."

She had made her appointment with Miller only because her standing primary care doctor was not available. "BEST thing I ever did!!!!" she wrote. (1)

What is DMSO?

DMSO is a medical abbreviation for **Di**Methyl **Sulf**Oxide. DMSO is a colorless, odorless liquid derived from wood pulp during paper production. Chemically known as dimethyl sulfoxide, it was initially used as a solvent before its medical potential was discovered in the 1960s. In 1978, the FDA approved DMSO for treating interstitial cystitis, a bladder condition, but its applications may extend to pain relief, inflammation, and tissue healing, supported by preliminary research and anecdotal reports.

Modern medicine often sidelines "miracle" drugs that work too well. Despite decades of evidence showing that the naturally occurring chemical Dimethyl Sulfoxide (DMSO) is a remarkably safe and versatile treatment for a range of challenging conditions — such as strokes, head trauma, spinal cord injuries, dementia, and even Down Syndrome — it has been largely overlooked

injuries, dementia, and even Down Syndrome — it has been largely overlooked.

Dimethyl sulfoxide (DMSO) is a versatile compound with significant potential in pain management, tissue repair, and beyond. Originally an industrial solvent, DMSO has gained attention for its unique ability to penetrate biological tissues and deliver therapeutic benefits. Despite its promise, limited awareness and regulatory hurdles have kept it under-utilised. This article explores DMSO's mechanisms, diverse applications, safety considerations, and why it remains a hidden gem in modern medicine.

How Does DMSO Work?

DMSO's unique properties stem from its ability to penetrate skin and biological membranes without causing harm. Its key mechanisms include:

- **Anti-inflammatory Action:** DMSO reduces swelling by suppressing inflammatory pathways, benefiting conditions like arthritis.
- **Pain Relief:** It interrupts nerve signals, alleviating acute and chronic pain.
- **Antioxidant Effects:** DMSO neutralizes free radicals, reducing oxidative stress and protecting cells.
- **Tissue Regeneration:** It enhances blood flow and nutrient delivery, promoting healing in wounds and injuries.
- **Drug Delivery:** As a carrier, DMSO improves the absorption of topical medications, enhancing their efficacy.

These properties make DMSO a candidate for diverse medical applications, from musculoskeletal injuries to potential uses in cancer and neurological conditions.

According to Dr. Pierre Kory, a pulmonologist and former intensive care chief at the University of Wisconsin-Madison:

In reviewing the research, I think it would be a game changer in terms of the treatment of strokes and brain bleeds, two of the most devastating medical events that can happen to anyone, and which cause an immense economic toll in this country.

DMSO and Cancer

Due to the controversy surrounding DMSO, its potential anticancer properties were downplayed once early researchers discovered possible therapeutic effects against cancer. Given that unproven cancer treatments often face scrutiny from the medical establishment, this aspect of DMSO has remained relatively obscure and under recognized.

DMSO IS THE "GOLDEN KEY" TO CANCER TREATMENT

DMSO and Cancer Treatment Animal Studies

These cancer fighting properties have also been demonstrated in living organisms. For example:

- A 1967 study induced breast cancers in mice and found that drinking DMSO caused a small reduction in their rate of occurrence and prevented some of weight loss caused by the cancers. (113)
- A 1989 study of rats with aggressive (implanted) prostate cancers found that 2.5% oral DMSO significantly slowed the cancer's growth. (114)
- A 2008 MRI study evaluated the microvasculature of mice with implanted tumors before and after a week course of DMSO.¹¹⁵ It found DMSO greatly reduced cancer vascular permeability, which is potentially significant for cancer management as leaky blood vessels can support rapid irregular growth or metastasis and can compress surrounding tissues or cause inflammation and sometimes interfere with the delivery of chemotherapy to those cells. ***Note:** Many holistic schools of medicine have concluded cancers arise from poor blood flow to a tissue or poor lymphatic drainage from it. Given DMSO's remarkable ability to improve circulation, it is highly possible that this contributes to its ability to prevent cancer.* (116)
- A 2011 study found that in mice with experimentally induced Dalton's lymphoma, injected DMSO was shown to regress their tumors and upregulate TNF α and p53 in lymphoma cells, which impaired their metabolic pathways and triggered an apoptotic pathway (whereas normal white blood cells were unaffected). (117)

DMSO and Cancer Treatment Human Studies

These cancer fighting properties have also been demonstrated in humans and clinical studies:

- A 1992 study (118) conducted by an Iraqi researcher (who'd found DMSO cured a variety of challenging gastrointestinal conditions¹¹⁹) conducted a controlled trial of 198 patients who'd had surgery for colon cancer (in the sigmoid) that had spread into the local lymph nodes, and found that the long term administration of oral DMSO after the electrosurgery significantly improved their 5 year survival. (120)
- That researcher also conducted a 1992 controlled trial of 228 patients who'd just had an uneventful surgery to remove two-thirds of their stomachs (due to stomach cancer) (121). Daily oral DMSO significantly increased their survival rates in the 160 patients who could be evaluated at 5 years.
- A 1999 trial of 25 patients found intravesical DMSO treated bladder cancer. (122)

Additionally, one cancer (multiple myeloma) is characterized by the uncontrolled growth of malignant plasma cells in the bone marrow, which produce abnormal proteins (such as amyloids) that can overwhelm the body. While amyloidosis is challenging to treat **there are over 40**

studies demonstrating that DMSO prevents amyloid proteins from clumping together and instead eliminates their deposits from the body (often leading to a clinical improvement (123).

In turn, case reports have found DMSO effectively treated multiple myeloma amyloidosis in a variety of soft tissues and organs,(124,125,126,127) and in one instance in combination with chemotherapy to treat the cancer as well (128).

DMSO and Cancer: The Overlooked Therapy That Could Change Everything (2025).

ONE DAY MD · JUN 7



Dimethyl sulfoxide (DMSO) is a natural compound that has garnered attention for its potential role in cancer therapy. While still considered experimental and complementary, some patients and integrative clinics have reported promising results. This guide provides an overview of DMSO, its potential benefits, risks, and how it may be incorporated into can...

[Read full story.](#) →

DMSO and Tissue Healing

DMSO greatly improves wound healing (e.g., from burns or surgeries). For example:

- A study of 1371 chronic skin wounds that had often remained unhealed for years (e.g., infected ulcers or severe burns) found 95.04% had a rapid and complete recovery (e.g., no burn scars).¹³ Likewise, a systematic review found DMSO effectively treated ulcers. (14)
- Numerous studies show that DMSO accelerates limb regeneration in animals¹⁵ and surgical wound healing in humans.¹⁶ It also enhances the viability of skin grafts and flaps, offering benefits for plastic and reconstructive surgery. (17,18,19,20,21,22)
- Animal studies have shown DMSO increases the tensile strength of surgical scars (23,24) (which significantly improves surgical outcomes), decreases experimentally induced intestinal adhesions (25) (a common complication of abdominal surgeries) by 80%, prevents hypertrophic (excessive) scar formation. (26)
- Human studies show DMSO can flatten and loosen keloid scars (27) and gradually eliminate subcutaneous fibrosis induced by radiation. (28)
- Finally, DMSO is also sometimes used to repair keloid scars. For example, in one study of ten people with keloids, applying 50% to 80% DMSO a couple of times a day induced scar flattening with the loosening of the collagen surrounding the fibrous bundles. Similarly, another study found DMSO eliminated (through a gradual softening and reduction of it) (30).

DMSO and Musculoskeletal Injuries

Many of the early adopters of DMSO went from skeptics to believers because of the rapid and dramatic improvements they saw from it healing acute injuries (e.g., as they had patients with debilitating bursitis in the shoulder recovering within minutes of receiving DMSO).

As it was far safer and more effective than any other way to treat musculoskeletal injuries, joint disorders or chronic pain, DMSO was rapidly adopted by doctors and pharmaceutical companies across the country (e.g., millions were invested to bring DMSO products to market and hundreds of thousands of Americans had life-changing benefits from it).

Unfortunately, as DMSO's use was skyrocketing, on November 10, 1965, the FDA decided to globally ban all research on it by falsely claiming it was incredibly dangerous. Because of this, there was an explosion and then sudden disappearance of DMSO research, which sadly continued even with Congress repeatedly trying to get the FDA to overturn their indefensible prohibition of DMSO.

***Note:** A detailed review of DMSO's extensive safety data and toxicology studies can be viewed [here](#).*

DMSO and Sports Injuries

"What I like about DMSO is that you don't have to interrupt your training every time you get a minor pull or sprain. It doesn't pump you up like certain pills. It's simply a very useful thing to use for simple athletic injuries.

Some people have told me that you shouldn't use it because it might mask the pain of a serious injury, but a good athlete knows his body well. Even when I'm using DMSO, I know when I can push and when I can't." — Al Oerter, a discus thrower and the first American to win 4 consecutive Olympic gold medals (50).

One of the greatest challenges professional athletes face are sports injuries which prevent them from returning to the field, particularly since many sports injuries are a product of micro-injuries building up until a critical point is passed (e.g., from adhesions and scars in the soft tissue).

In turn, since DMSO both heals micro-injuries and rapidly treats traumatic injury (returning them to full functionality), DMSO was rapidly adopted by professional athletes once they realized what it could do for their careers (and being off the field was often devastating to their careers).

In turn, due to the voice their position afforded them, a few professional athletes (e.g., Atlanta Falcons Quarterback June Jones (51) — who now is a coach⁵²) became some of the most impactful advocates for DMSO (e.g., Jones stated in Congressional testimony⁵³ that "veterinary" DMSO was widely used but athletes were afraid of publicly discussing it). Likewise, in 2013, a Dallas Cowboys Lineman stated (54):

"You get it [from] the veterinarian and it goes right to the bloodstream. It's an ointment that's like anti-inflammatory. You put it on your skin and you put it on a muscle, and I guarantee you, in about 30

minutes you'd feel it. It wasn't on the list [of banned substances] ... we used DMSO and people knew it. Everyone knew about it."

Furthermore, in his riveting testimony, Jones provided cases that left the Congressmen in disbelief, such as a teammate with a bone chip and a torn ligament (which would require months of recovery and hence end their season) taking DMSO immediately after the injury and 7 or 8 days later returning to the field (with the bone chip remaining but no longer causing issues).

Likewise, at that Congressional hearing, the former team physician for the Oakland Raiders (55) testified that he'd used 70% topical DMSO on a careful and controlled basis for his players 20 to 30 times a year for 5 years. From this, he observed that DMSO was the most beneficial when given in the first 3 to 4 days of an acute injury where a muscle or joint had severe swelling, particularly of the extremities, especially the ankle, elbow, hands, or wrist.

Overall, he stated that DMSO provided good to excellent results 70% to 80% of the time (e.g., through reduced pain and swelling) and the players felt they were able to return to play 50% to 75% faster than they had from similar injuries in the past. Conversely, they did not find DMSO was helpful for chronic injuries, but this may have been due to it not being used long enough for the effects to kick in.

***Note:** He also emphasized that DMSO would transform the field of occupational medicine. I fully agree with his assessment, especially given just how frequently Worker's Comp fails to help its patients.*

Similarly, podiatrist Lowell Scott Weil (who was the physician for both the Chicago Bears and the United States Olympic gymnastics team) used DMSO on a regular basis (particularly injured gymnasts).

After 12 years of using it, he shared,⁵⁶ he'd seen it rapidly heal injuries (e.g., he had a gymnast who suffered an ankle sprain expected to end her season, but instead quickly recovered and made the U.S. Olympic team, and a football player who tore his hamstring but was able to rapidly return to the field).

Overall, he had a 60% treatment success rate and saw the best response to DMSO for tendinitis, myositis, and post-injury situations such as muscle pulls, ankle sprains, strains, and tears of the soft tissue (and conversely the only side effects he had were skin irritation). Additionally, he also used it for arthritic patients (especially rheumatoid arthritis) with many having dramatic relief. Many other compelling anecdotes exist.

For example, this book⁵⁷ discusses the experience of an Oregon State track coach and early adopter of DMSO who had many amazing stories of DMSO treating hamstring and achilles tendon injuries such as an athlete being able to return to the field at full capacity 3 days after a normally disqualifying hamstring injury and the story of a blind long distance runner who was able to run due to DMSO fixing musculoskeletal injuries and (according to the author) then played a pivotal role in opening the

sport to women.

***Note:** A major problem in certain sports like football is repeated concussions (which are now recognized to put them at risk for cognitive impairment and dementia later in life). As discussed in the first part of this series, in addition to treating strokes and spinal cord injuries, DMSO is also immensely helpful for mitigating the effects of concussions.*

Research also directly demonstrates DMSO's utility in sports medicine:

- A 1965 study⁵⁸ treated 47 injured athletes from a wide range of sports (e.g., tennis, diving, or wrestling) by applying 90% DMSO applied to the injured areas 3 times a day initially and then after 2 days, twice a day. The 30 acute traumas (e.g., sprains, strains, dislocations, serious cuts) were observed to rapidly resolve, sometimes "so spectacularly as to compel us to urge our patients to observe greatest caution in order to avoid further damage to a joint."

The 10 chronic conditions (e.g., tennis elbow) and 7 conditions resulting from prolonged immobilization also responded rapidly and those athletes were often able to quickly return to the field. These results and the lack of observed adverse events led the investigators to argue DMSO urgently needed to become the standard of care in sports medicine.

- A study (59) of 78 patients (mostly athletes) with overstrained tendons received Dolobene gel (15% DMSO, dexpanthenol and heparin) for 2 to 3 weeks, with over 50% having a significant improvement of symptoms and those improvements including a 94% improvement in pain, a 55% improvement of swelling, 95% improvement of redness and 92% improvement of warmth.

- A study (60) gave Dolobene gel to 30 athletes with soft tissue injuries of the upper and lower extremities twice daily for 4 weeks. There were 4 athletes with contusion of the shoulder, 8 with distortion and contusion of the knee joint, 8 with muscle, tendon and ligament lesions, and 10 with distortion of the ankle joint.

Following DMSO, 10 had an excellent response (improvement), 5 had an excellent to good response, 10 had a good response and 5 had a moderate response. Specifically, pain, inflammation, swelling, reabsorption of hematomas, tenderness and recovery time were assessed.

- A study (61) gave Dolobene gel and ultrasound to 15 subjects who had received a blunt tissue trauma (without fracture) to the lower extremity within the last 24 hours. Compared to 15 placebos, the treatment resulted in a faster relief of pain, reduction of edema, and recovery of mobility.

- A 1966 study (62) of 28 professional baseball players found that giving them DMSO after injuries caused their downtime be one third of what was observed by the treating physician in the previous year with 42 players.

***Note:** While not quite the same as getting tackled, I've also come across cases⁶³ of individuals taking DMSO immediately after getting hit by a car while crossing the street (which caused injuries but no*

fractures) and immediately fully recovering.

DMSO's Diverse Benefits (Summary)

DMSO offers a range of therapeutic benefits beyond pain relief:

1. **Pain Management:** DMSO effectively reduces pain in conditions like osteoarthritis, fibromyalgia, and neuropathic pain. A 2011 study in *The Journal of Alternative and Complementary Medicine* demonstrated its ability to alleviate pain and inflammation in arthritis patients.
2. **Anti-inflammatory Support:** By reducing swelling and stiffness, DMSO benefits inflammatory conditions like rheumatoid arthritis and sports injuries.
3. **Wound Healing and Tissue Repair:** DMSO accelerates recovery from burns, cuts, and surgical wounds by enhancing tissue regeneration, with some studies reporting high healing rates for chronic wounds.
4. **Enhanced Drug Delivery:** Its ability to carry medications through the skin makes it valuable in treatments, including FDA-approved cancer therapies like CAR-T cell therapy and trametinib for melanoma.
5. **Potential in Complex Conditions:** Early research suggests DMSO may protect against oxidative damage in neurological conditions (e.g., strokes, dementia) and enhance drug efficacy in respiratory diseases like acute respiratory distress syndrome (ARDS) or tuberculosis.
6. **Cellular Protection:** DMSO may mitigate damage from toxins, such as air pollution or wildfire smoke, when combined with antioxidants, according to anecdotal reports and preliminary studies.

DMSO Risks, Dosing Suggestions and Other Considerations

While DMSO shows promising benefits, it's important to approach its use with caution and awareness. As with any supplement or treatment, DMSO has side effects and contraindications that you need to be aware of. The most common side effect is a garlic-like taste or breath odor, which occurs because DMSO breaks down into dimethyl sulfide in your body. Some people may also experience skin irritation when DMSO is applied topically.

DMSO also increases the absorption of other substances through your skin, amplifying the effects of medications. This means you need to be careful about what comes into contact with your skin when using DMSO topically. It's also important to note that DMSO interacts with certain medications, including blood thinners and steroids.

Additionally, high concentrations may cause liver damage if used improperly. Pregnant women and those with liver disease should use caution when considering DMSO.

In summary, DMSO is generally safe when used correctly but has potential risks:

- **Skin Irritation:** High concentrations may cause redness or burning.
- **Odor:** DMSO can produce a temporary garlic-like smell on the skin or breath.
- **Drug Interactions:** Its carrier properties may enhance absorption of other substances, including harmful ones.
- **Allergic Reactions:** Rare cases of itching or rashes may occur.

DMSO lacks FDA approval for most uses beyond interstitial cystitis, and its safety in pregnant or breastfeeding individuals is unstudied. Always consult a healthcare provider before use.

Remember, while DMSO shows promise, it's not a miracle cure. It should be considered as **part of a holistic approach to health, including a nutrient-dense diet, regular exercise, stress management and other lifestyle factors that support your overall well-being**. Used responsibly and under proper guidance, DMSO could be a valuable tool in your health arsenal, particularly for its antioxidant, neuroprotective, anticancer and anti-inflammatory properties.

DMSO Dosage for Humans

DMSO is available as a gel, cream, or liquid, typically in concentrations of 50% to 99%. To use it safely:

- **Dilute Properly:** Mix with distilled water or aloe vera (e.g., 70% DMSO, 30% water) to minimize skin irritation.
- **Clean the Skin:** Wash the application area to prevent contaminants from being absorbed.
- **Perform a Patch Test:** Test a small area to check for sensitivity.
- **Use Clean Applicators:** Avoid contamination during application.
- **Consult a Healthcare Provider:** Seek professional advice, especially if you have medical conditions or take medications.

Proper product selection and dosing are key to getting the best results. [A Midwestern Doctor recommends](#) looking for DMSO that has at least 99.9% purity and, if liquid, is stored in glass.

For topical dosing, start with 70% and dilute it 50/50 with water. Gradually work your way up to the full-strength product as long as no skin irritation occurs. You can also progress to a 100% DMSO product if you have thick scars or are using it for specific health conditions.

For oral dosage, a typical starting dose is **0.5 to 1 teaspoon** (of 70% or 100%). You may gradually

increase the dose as long as you are tolerating it well. The maximum safe dosage is up for debate, but generally 3 teaspoons is considered the upper limit. Keep in mind that since DMSO has an unpleasant taste, you'll likely want to mix it with milk or juice when consuming it orally. Be sure to mix it well so the DMSO doesn't settle at the bottom.

Find DMSO Doctors

Here are some clinics and practitioners in the U.S., Canada and Mexico; known to utilize DMSO therapy:

Arizona:

- Dayspring Clinic – <https://www.dayspringcancerclinic.com> / (800)-351-5913
- Brio Medical* - Scottsdale, AZ - <https://brio-medical.com/contact/>

**Offers DMSO IV therapy as part of alternative cancer treatments and chronic Lyme disease management.*

Canada:

Dr. Kahn - Medcore Cancer Center: <https://medicorcancer.com/dms0-therapy> / +1-416-227-0037

California:

Optimal Health & Wellness - <https://opthealthwellness.com> / - Monterey Park - 626-551-5155;
Pasadena - 626-788-0023

Florida:

- Utopia Wellness Clinic – Dr. Garcia - <https://utopiawellness.com> / (800)-519-0309
- Whole Family Health Care – Dr. Mueller - <https://www.wholefamilyhealthcare.com> / (407)-644-2990

Georgia:

Advanced Rejuvenation Clinic - <https://www.advancedrejuvenationinstitute.com> / (770) 232-7883

Mexico:

Hope for Cancer - <https://hope4cancer.com> / (800)-985-2601

Minnesota:

Dr. Connor - Conners Clinic – <http://www.connersclinic.com/cancer-therapies> / (800)-209-4833

New York:

- Vital Gate Health - <https://www.vitalgate.com> / (800)-985-2601
- Dr. Pierre Kory - [Leading Edge Tele-Health Clinic](#) (Telemedicine: we consult patients in all 50 states) / (608) 400-0141

South Carolina:

Natural Healing center Myrtle Beach - <https://naturalhealingcentermb.com> / (800)-351-1914

Texas:

Kotsanis Institute - Dr. Kotsanis – <https://www.kotsanisinstitute.com/intravenous-therapy> (817)-481-6342

It's important to note that while DMSO is FDA-approved for specific uses, such as treating interstitial cystitis, its application in other medical treatments may be considered experimental. Therefore, it's crucial to consult with a qualified healthcare provider to discuss potential benefits and risks before considering DMSO therapy.

Additionally, the regulatory status and acceptance of DMSO treatments can vary by state and medical practice. Ensure that any treatment is administered by licensed professionals in compliance with local regulations.

Conclusion

DMSO is a powerful yet under-recognized compound with potential to relieve pain, reduce inflammation, promote healing, and enhance drug delivery. Preliminary research and anecdotal reports suggest broader applications, from cancer therapy support to neurological and respiratory conditions, but more studies are needed to confirm these benefits. If considering DMSO, consult a healthcare professional to ensure safe and effective use. With further research, DMSO could become a cornerstone of integrative medicine.

Disclaimer: This article is for informational purposes only and does not constitute medical advice. Always consult a healthcare provider before using DMSO.

References:

1. THE DMSO CONNECTION: A GUIDE TO USING DIMETHYLSULFOXIDE

1. [The DMSO Moment: How an Old Medicine Finds New Life](#)
2. OneDayMD. [DMSO 101: Benefits, Uses, Dosage and Side Effects](#)
3. [See all references](#)

DMSO Online Buying Guide



[Buy on Amazon](#)

DMSO Store Dimethyl Sulfoxide is purified to be very low odor by using a special cold process that helps remove any excess Dimethyl Sulfide which is the compound making it smell similar to garlic. Inferior grades of DMSO will have an offensive odor and usually indicates its industrial grade and not pure, however there will still be a small amount of DMS in all DMSO.

DMSO Store 99.995% Dimethyl Sulfoxide is made using the best technology available to manufacture the highest grade of DMSO. All DMSO Store batches are lab tested to verify its purity and ensure no heavy metals or other contaminants are present.

Where to buy DMSO from DMSO Store: *Here is the link:* [DMSO from DMSO Store](#)

DMSO for Cancer Store: [Amazon](#)

False scare by FDA in 1965 banned the use of DMSO (just after thalidomide) in the US - widely used elsewhere

<https://www.perplexity.ai/search/dms0-seems-suppressed-in-the-u-ZUnL6ltJSfmEZaRw1oOhaA>

DMSO Usage Across Countries: Contrasting Regulatory Approaches

The regulatory stance on dimethyl sulfoxide (DMSO) varies dramatically between the United States and many other countries worldwide, with the FDA's restrictive approach contrasting sharply with more permissive policies elsewhere.

FDA Suppression in the United States

The FDA's restrictive approach to DMSO stems from a pivotal decision in the 1960s that has shaped American medical practice for decades. Following the thalidomide tragedy, the FDA became significantly more cautious about drug approvals. When reports emerged of **potential eye toxicity in laboratory animals and a woman's death in Ireland** possibly related to DMSO use, the FDA took decisive action in November 1965.[mcgill](#)

The agency sent telegrams to American doctors, U.S. embassies, and the World Health Organization warning that DMSO was possibly toxic to the eye and recalling all unused doses. This effectively banned DMSO's use in humans across America, creating what many consider an overreaction that persists today. Currently, the **only FDA-approved human use** for DMSO remains the treatment of interstitial cystitis through intravesical instillation, approved in 1978.[lib.iastate+2](#)

European Union: Broader Regulatory Acceptance

Europe presents a markedly different regulatory landscape for DMSO. In **March 2014**, the European Directorate for the Quality of Medicines and Healthcare (EDQM) granted a **Certificate of Suitability to the European Pharmacopoeia Monographs (CEP)** for DMSO. This certificate facilitates drug application processes across EU countries and represents significant regulatory acceptance.[pharmtech](#)

Germany was among the first to approve DMSO, with Schering able to market DMSO there in **1965** - the same year the FDA banned it. In **Eastern Europe and Russia**, there exists a **"healthy market"** for topical products containing DMSO as an excipient. DMSO was actively used in Russian army hospitals for treating wounds, injuries, and fractures during World War I, establishing a long tradition of medical use.[gaylordchemical+2](#)

The European regulatory framework under **REACH** (Registration, Evaluation, Authorization, and Restriction of Chemicals) has successfully registered DMSO, with registration number 01-2119431362-50-0001. This comprehensive regulatory acceptance contrasts sharply with the U.S. approach.[pharmtech](#)

Canada: Progressive Natural Health Product Status

Canada has taken perhaps the most progressive approach to DMSO regulation. In **2011**, Health Canada added DMSO to its **Natural Health Products Ingredient Database (NHPID)**. This classification allows DMSO to be freely used in natural health products without a prescription for most applications.[gazette+1](#)

The Canadian regulation specifies that DMSO retains prescription status only when:

- Used for veterinary purposes
- Sold for treatment of interstitial cystitis or scleroderma in humans

All other human uses for dimethyl sulfoxide at any strength and in any dosage form are exempt from prescription status. This represents a dramatic departure from the restrictive U.S. approach.[gazette](#)

Currently, **nine prescription medicines** contain DMSO as an active ingredient in Canada, though only three (one human medicine and two veterinary medicines) are actually marketed. Licensed natural health products containing DMSO are available with claims for musculoskeletal conditions, with products like "DMSO Liquid" approved for topical use to "temporarily reduce pain associated with musculoskeletal conditions of the large joints".[health-products.canada+1](#)

Global Prescription Patterns

In **125 countries worldwide**, including Canada, Great Britain, Germany, and Japan, doctors regularly prescribe DMSO for various ailments including pain, inflammation, scleroderma, interstitial cystitis, and arthritis. This widespread international acceptance highlights the uniqueness of the FDA's restrictive stance.[dmsso](#)

Australia, Canada, and some European and South American countries commonly see doctors prescribe DMSO, though it can only be used legally in the U.S. for the single bladder condition. Time magazine reported that this international usage pattern demonstrates the isolation of American policy on DMSO.[time](#)

Japan and Asia-Pacific Usage

While specific regulatory details for Japan are limited in available sources, DMSO is listed among countries where doctors prescribe it for various medical conditions. The Asia-Pacific region shows **rapid industrialization** and growing demand for DMSO in pharmaceutical applications, with China and India emerging as key players in DMSO manufacturing and usage.[linkedin+1](#)

The **global DMSO market** was valued at USD 1.2 billion in 2024 and is projected to reach USD 2.5 billion by 2033, exhibiting a CAGR of 9.5%. This growth is driven largely by international acceptance and usage outside the restrictive U.S. market.[linkedin](#)

Veterinary Applications: International Contrast

Even in veterinary applications, international usage patterns differ significantly. While the FDA has approved various veterinary DMSO preparations since the 1970s under brands including Domoso, Domoso Gel, Synsac, and Synotoc Otic, many countries have broader veterinary applications without the regulatory restrictions seen in human medicine.[pmc.ncbi.nlm.nih](#)

Industrial vs. Medical Grade Considerations

One important distinction across countries involves the grades of DMSO available. **Medical grade DMSO** represents the highest quality and should be free of contaminants, while **industrial grade DMSO** may contain dangerous impurities. Countries with more permissive regulations often have better systems for ensuring access to pharmaceutical-grade DMSO rather than forcing patients toward potentially dangerous industrial-grade alternatives.[canada](#)

Market Impact and Future Trends

The contrasting regulatory approaches have created significant market disparities. The **European market** benefits from clearer regulatory pathways and broader therapeutic applications, while the **U.S. market** remains constrained by decades-old restrictions. As research continues to demonstrate DMSO's potential benefits with proper dosing and pharmaceutical-grade quality, pressure may mount for regulatory harmonization.

The evidence suggests that while the FDA's caution in the 1960s may have been understandable given the thalidomide tragedy, the resulting decades-long suppression of DMSO has created a unique situation where American patients have significantly less access to this potentially beneficial treatment compared to their international counterparts. This regulatory divergence continues to influence medical practice, research funding, and patient access to DMSO-based therapies across different countries.

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DMSO summary by Perplexity Aug 2025

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DMSO Benefits: A Comprehensive Overview

Dimethyl sulfoxide (DMSO) is a versatile compound with numerous observed benefits across medical, therapeutic, and research applications. This colorless liquid, derived as a by-product from wood pulp production, has demonstrated significant therapeutic potential despite being FDA-approved for only one human indication.

Anti-Inflammatory and Pain Relief Properties

DMSO exhibits **potent anti-inflammatory effects** through multiple mechanisms. Research demonstrates that DMSO suppresses the production of pro-inflammatory cytokines including IL-6, TNF- α , and various chemokines. In human blood studies, DMSO at concentrations between 0.5-2% significantly reduced inflammatory markers while suppressing key signaling pathways including ERK1/2, p38, JNK, and Akt phosphorylation. [pmc.ncbi.nlm.nih](https://pubmed.ncbi.nlm.nih.gov/16111111/)

The compound's **analgesic properties** make it particularly valuable for pain management. DMSO blocks nerve signals associated with chronic pain conditions and has shown efficacy in treating complex regional pain syndrome, osteoarthritis, and rheumatoid arthritis. Its ability to penetrate biological membranes enhances its effectiveness as both a standalone treatment and as a vehicle for delivering other medications deeper into tissues. [health+1](https://www.healthline.com/health/dmso/)

FDA-Approved Medical Applications

The only **FDA-approved human use** for DMSO is treating interstitial cystitis/bladder pain syndrome through intravesical instillation. Clinical studies demonstrate that 50% DMSO bladder installations significantly improve symptoms, with patients showing decreased Interstitial Cystitis Symptom Index scores by 5.59 points, Problem Index scores by 5.14 points, and pain scores by 3.27 points. The treatment is particularly effective for patients with Hunner lesions, where DMSO maintains and improves the effectiveness of hydrodistension procedures. [pubmed.ncbi.nlm.nih+1](https://pubmed.ncbi.nlm.nih.gov/16111111/)

Cryopreservation and Cell Banking

DMSO serves as the **gold standard cryoprotectant** for preserving biological materials including stem cells, embryos, and various cell lines. At concentrations of 5-10%, DMSO prevents intracellular ice crystal formation during freezing, which would otherwise cause fatal cellular damage. Its superior membrane penetration capabilities make it more effective than alternative cryoprotectants like glycerol. [susupport+1](https://www.susupport.com/dmso/)

The compound is essential in modern regenerative medicine applications, including CAR-T cell therapy and bone marrow transplantation procedures. Despite some cytotoxic effects at higher concentrations, DMSO has saved countless lives through successful cryopreservation protocols over the past 40-50 years. [regmednet](https://www.regmednet.com/)

Neuroprotective Effects

Emerging research reveals DMSO's **significant neuroprotective properties**. In traumatic brain injury studies, DMSO treatment improved learning, memory, and locomotor function while reducing anxiety-like behaviors. The compound enhanced the body's antioxidant defense system by upregulating genes for superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx), leading to reduced lipid peroxidation and oxidative stress. [pmc.ncbi.nlm.nih](https://pubmed.ncbi.nlm.nih.gov/16111111/)

DMSO also demonstrates effectiveness in stroke models, with studies showing **reduced infarction volume** after permanent middle cerebral artery occlusion. The neuroprotective mechanism involves preventing mitochondrial damage, preserving cellular function, and maintaining blood-brain barrier integrity. [sciencedirect+1](https://www.sciencedirect.com/)

Cancer Treatment Adjuvant Potential

Research indicates DMSO may serve as an **effective cancer treatment adjuvant** through its differentiation-inducing properties. DMSO promotes cancer cell differentiation, making malignant cells more like normal cells and potentially more susceptible to conventional treatments. Studies show DMSO can inhibit cancer cell invasion, migration, proliferation, and colony formation while enhancing the effectiveness of other cancer

therapies.[pmc.ncbi.nlm.nih.gov/10006128/](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Low-dose DMSO significantly enhanced the antiproliferative effects of interferon-alpha in lung adenocarcinoma cells, and when combined with chemotherapy, DMSO altered gene expression profiles in ways that may induce anti-tumor immunity.[pmc.ncbi.nlm.nih.gov/10006128/](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Wound Healing and Tissue Repair

DMSO demonstrates **remarkable wound healing properties** through multiple mechanisms. Low-concentration DMSO accelerates skin wound closure by promoting fibroblast proliferation via the Akt/mTOR signaling pathway. The compound enhances collagen synthesis while preventing excessive scar tissue formation, resulting in improved tensile strength of healed tissue.[naturecurefamilyhealth+1](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Clinical applications include treating pressure ulcers, where DMSO application reduces occurrence among high-risk patients, and preventing severe tissue damage from chemotherapy drug extravasation. DMSO's ability to modulate collagen fiber linking ensures proper wound healing without compromising structural integrity.[pmc.ncbi.nlm.nih.gov/10006128/](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Antioxidant and Free Radical Scavenging

DMSO functions as a **potent antioxidant**, particularly effective against hydroxyl radicals with a second-order rate constant of $8.16 \times 10^9 \text{ M}^{-1} \text{ s}^{-1}$. This free radical scavenging activity underlies many of DMSO's therapeutic effects, including its anti-inflammatory, neuroprotective, and wound healing properties.[academic.oup](https://pubmed.ncbi.nlm.nih.gov/10006128/)

The compound's antioxidant effects are concentration-dependent, typically showing benefits at concentrations $\leq 0.1\%$ while maintaining cellular viability. DMSO's ability to enhance cellular antioxidant enzyme activities contributes to its protective effects against oxidative stress-related damage.[nature](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Penetration Enhancement

One of DMSO's most valuable properties is its ability to **enhance drug penetration** through biological barriers. The compound readily crosses cell membranes and skin barriers, making it an excellent vehicle for delivering other therapeutic agents to target tissues. This property is utilized in topical formulations where DMSO increases the bioavailability of co-administered drugs.[pmc.ncbi.nlm.nih.gov/10006128/](https://pubmed.ncbi.nlm.nih.gov/10006128/)

Safety Profile and Considerations

While DMSO demonstrates numerous benefits, its use requires careful consideration of **dosage and application methods**. Most therapeutic effects occur at concentrations below 50%, where side effects are minimal. Common side effects include a garlic-like taste and odor, mild skin irritation, and potential hemolysis at concentrations above 5%.[webmd+1](https://pubmed.ncbi.nlm.nih.gov/10006128/)

The therapeutic window for DMSO is relatively narrow, with concentrations above 2% potentially causing cytotoxicity in some cellular systems. However, clinical use at appropriate concentrations has shown good safety profiles across multiple applications.[pmc.ncbi.nlm.nih.gov/10006128/](https://pubmed.ncbi.nlm.nih.gov/10006128/)

DMSO's diverse therapeutic benefits stem from its unique chemical properties, including strong hydrogen bonding capacity, membrane penetration ability, and multiple mechanisms of action ranging from anti-inflammatory effects to free radical scavenging. While more research is needed to fully optimize its clinical applications, DMSO represents a promising therapeutic agent with broad potential across multiple medical fields.

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Rebel's Guide to DMSO - July 2025

https://cosmiconion.substack.com/p/rebels-guide-to-dmso?utm_source=multiple-personal-recommendations-email&utm_medium=email&triedRedirect=true

DMSO widespread quick benefits Midwestern Dec 2024

How DMSO Treats

- Chronic Pain
- Arthritis, Bursitis, and Gout
- Sprains, Strains and Contusions
- CRPS, Fibromyalgia and Disc Disease
- Headaches and Trigeminal Neuralgia
- Scars and Surgical Wounds
- Restless Leg Syndrome
- Sports Injuries



https://www.midwesterndoctor.com/p/dms-revolutionizes-skin-care-and?utm_source=substack&utm_medium=email

DMSO Mixtures Transform Natural Medicine - Midwestern Aug 2025

DMSO is an “umbrella remedy” capable of treating a wide range of challenging ailments due to its combination of therapeutic properties (e.g., reducing inflammation, improving circulation, and reviving dying cells). It also rapidly transports substances dissolved in it through the skin and throughout the body.

- DMSO hence greatly enhances the potency and viability of many pharmaceutical drugs and many approved DMSO containing pharmaceutical preparations. Likewise, “unapproved” combinations have successfully treated challenging illnesses, including antimicrobial resistant infections, chemotherapy resistant cancers, and “incurable” chronic pain.

- These benefits are also seen when DMSO is combined with essential oils, herbs, vitamins, oxidative therapies, minerals, antioxidants, biological metabolites, amino acids, dyes, and detoxification agents. Likewise, many holistic therapies (e.g., acupuncture, meditation, physical therapy, hypnotherapy, and heavy metal detoxification) are greatly enhanced by DMSO.

- Natural DMSO combination therapies are frequently highly restorative and rejuvenating to the body. For example, many cosmetic combinations exist that significantly improve the health and appearance of the body. Others rapidly treat various skin issues, such as acne, eczema, and hair loss. Another restores osteoarthritic joints.

- These combinations also treat many challenging illnesses such as chronic fatigue syndrome, cancer, a myriad of infections (e.g., Lyme disease or toenail fungus), chronic pain, Down Syndrome, lost smell, vision issues, persistent migraines, COPD, and prostate or thyroid issues.

- This article will review the known DMSO combinations and their accompanying body of literature, how they work, and how to prepare and administer each one. Through doing so, I hope to empower you to create your own natural DMSO combinations, as this is one of the most viable paths available for truly “taking control of your own health.”

I’ve presented over a thousand studies that DMSO effectively treats:

Strokes, paralysis, a wide range of neurological disorders (e.g., Down Syndrome and dementia), and many circulatory disorders (e.g., Raynaud’s, varicose veins, hemorrhoids), which I discussed [here](#).

A wide range of tissue injuries, such as sprains, concussions, burns, surgical incisions, and spinal cord injuries (discussed [here](#)).

Chronic pain (e.g., from a bad disc, bursitis, arthritis, or complex regional pain syndrome), which I discussed [here](#).

A wide range of autoimmune, protein, and contractile disorders, such as scleroderma, amyloidosis, and interstitial cystitis (discussed [here](#)).

A variety of head conditions, such as tinnitus, vision loss, dental problems, and sinusitis (discussed [here](#)).

A wide range of internal organ diseases, such as pancreatitis, infertility, liver cirrhosis, and endometriosis (discussed [here](#)).

A wide range of skin conditions, such as burns, varicose veins, acne, hair loss, ulcers, skin cancer, and many autoimmune dermatologic diseases (discussed [here](#)).

Many challenging infectious conditions, including chronic bacterial infections, herpes, and shingles (discussed [here](#)).

and singles (discussed [here](#)).

Many aspects of cancer (e.g., many of cancer's debilitating symptoms, making cancer treatments more potent, greatly reducing the toxicity of conventional therapies, and turning cancer cells back into normal cells), which I discussed [here](#).

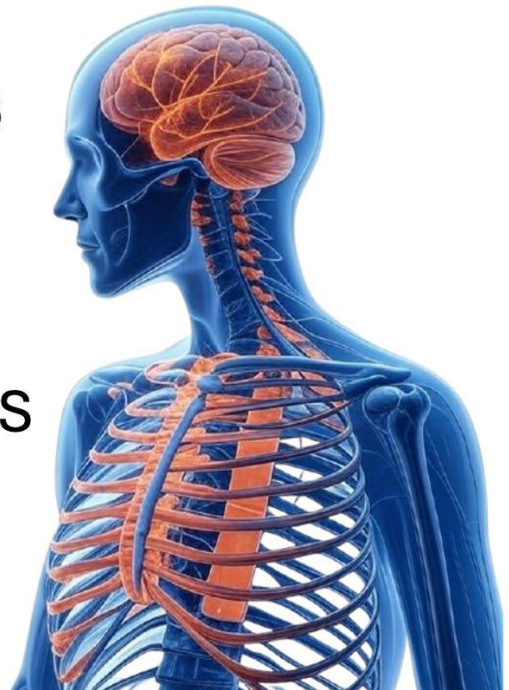
Many lung disorders, including asthma, COPD, pulmonary fibrosis, and cystic fibrosis (discussed [here](#)).

DMSO for COPD, etc

https://www.vigilantfox.com/p/the-most-powerful-lung-treatment?utm_source=post-email-title&publication_id=975571&post_id=169378233&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

How DMSO Treats

- Asthma and COPD
- Pulmonary Fibrosis
- Pneumonia and ARDS



The FDA's 50-Year War on the Safest Painkiller Ever Discovered **DMSO** VigFox Midwest

https://www.vigilantfox.com/p/the-fdas-50-year-war-on-the-safest?utm_source=substack&utm_medium=email

The FDA's 50-Year War on the Safest Painkiller Ever Discovered (Text only, no graphics)
If you thought what they did to ivermectin was bad, wait till you hear what they did to this drug.
Jul 02, 2025

The following information is based on a report originally published by A Midwestern Doctor. Key details have been streamlined and editorialized for clarity and impact. Read the original report [here](#).

If you thought what they did to ivermectin was bad, wait till you hear what they did to this drug.

In the 1960s and 70s, DMSO was hailed as a medical breakthrough for its ability to erase chronic pain and heal debilitating injuries.

But there was one problem...

Because DMSO couldn't be patented, it threatened to replace lucrative NSAIDs and painkillers with a cheap cure.

Later, the FDA declared DMSO "dangerous" and let Big Pharma keep selling toxic painkillers instead.

DMSO has been shown to treat everything from pain and arthritis to nerve damage, inflammation, and even cataracts.

Find out how this one cheap cure became medicine's best-kept secret.

DMSO (dimethyl sulfoxide) isn't just a chemical solvent—it's a medical game-changer.

It can erase chronic pain, speed up healing, calm autoimmune flares, and treat arthritis, strokes, spinal cord injuries, and more.

No wonder it once swept through America like wildfire.

The information in this article comes from the work of medical researcher A Midwestern Doctor. For all the sources and details, read the full report below.

The Remarkable History and Safety of DMSO

Exposing toxicity data and collecting testimonials on DMSO. [Read More.](#)
Doctors, pro athletes, scientists, and even politicians once demanded access.

And it wasn't just talk. Thousands of studies confirmed its effects.

Pharma companies even rushed to invest!

It was unstoppable... until the FDA stopped it.

Why would the FDA stop something so promising?

Well, they didn't even simply stop it. They launched a war against DMSO.

They stonewalled Congress and ignored their own advisory committees.

They claimed, without adequate evidence, that DMSO was "dangerous."

A Midwestern Doctor's full piece is essential reading if you want to understand how the FDA operates, how treatments are buried, and how regulatory capture shapes medicine.

Get the full story [here](#):

The Remarkable History and Safety of DMSO

Exposing toxicity data and collecting testimonials on DMSO. [Read More.](#)
The only dangerous thing about DMSO is that it threatens Big Pharma's profits.

It couldn't be patented the way Big Pharma wanted.

If people used it to heal themselves, it would break the monopoly over medicine.

That's why the FDA stepped in.

And so DMSO was erased from history.

It was quickly banned for most human uses and labeled “dangerous.”

And it worked.

Even today, most people (even those in the natural health world) have never even heard of it.

Here's what the science actually says..

There are more than 10,000 articles on its biology and more than 30,000 on its chemistry.

And decades of human use have led to millions being treated safely.

There's a long list of conditions it can help. And it's all backed by evidence.

Some of A Midwestern Doctor's readers have shared incredible stories:

Bruises gone—overnight.

Excruciating nerve pain—eliminated.

Decades of arthritis pain—reversed.

Cataracts—shrunk.

Vaccine-injury-induced spasms—vanished.

And so much more.

Want the full details?

A Midwestern Doctor's deep-dives into DMSO include hundreds of studies, safety data, patient stories, and historical context the FDA doesn't want you to see.

The Remarkable History and Safety of DMSO

Exposing toxicity data and collecting testimonials on DMSO. [Read More.](#)

The most important question to ask when dealing with anything you're planning to put in or on your body should always be: Is it safe?

For DMSO, the answer is clear.

It's a resounding yes. DMSO is among the safest drugs ever studied.

The FDA ran massive animal trials to prove it was dangerous.

But they couldn't.

Not only is DMSO not dangerous, it's nothing short of a miracle.

Here's a few of its incredible qualities:

- ✓ No cumulative toxicity.
- ✓ Doesn't damage cells—it actually protects them.
- ✓ Tolerated at absurdly high doses in animals.
- ✓ Millions of humans used it for decades with few issues.

Let's be real... While DMSO is an answer to prayer for many, it does have some side effects (as most things do).

But they pale in comparison to side effects from the drugs so many of us have been prescribed.

The most common side effects include a mild skin irritation/itching when applied topically (this usually fades quickly), a garlic-like body or breath odor (this is due to metabolism), and occasional nausea or vomiting.

Potentially serious, but very rare, side effects include allergic reactions (1 in 1,000–2,000 cases).

That's it. That's all.

Cancer? Birth defects?

Nope and nope.

DMSO protects DNA from damage and does not increase risk of cancer (in fact, it's used to treat it).

The only available evidence of birth defect risk is when DMSO is injected directly into embryos in lab tests at huge doses—not from normal use.

Everything in moderation, right?

You'd have to drink two quarts of DMSO in an hour to hit its lethal dose.

That's 10–100 times safer than many common drugs.

But according to the FDA, it was dangerous—if not deadly.

I can't help but laugh.

The only time you might run into a problem is if you're using it incorrectly.

Because DMSO is a solvent, it carries whatever it comes into contact with.

Have something on your skin before you apply DMSO? It's going for a ride.

Do some research. Be prepared.

And you're good to go.

For all the receipts—including toxicology data, LD50 charts, human trial details, and safety studies—check the original article.

A Midwestern Doctor backs every claim with sources in the full report below.

The Remarkable History and Safety of DMSO

Exposing toxicity data and collecting testimonials on DMSO. [Read More.](#)

The FDA's official line has been that there is zero evidence that DMSO works.

When in reality there are thousands of studies and millions of success stories.

It's not a conspiracy. It's not a shot in the dark.

So why don't you know about DMSO?

Because suppressing it helped Big Pharma sell billions in painkillers, NSAIDs, and other highly toxic drugs that people end up taking literally forever.

An unpatentable cure is a threat to their entire system.

The bottom line is:

DMSO is an incredibly safe, shockingly effective, and criminally suppressed therapy.

Figure 2

it could change now we treat injuries, pain, autoimmune disease, and so much more.

If only people knew.

The Truth About Salt

What They Don't Tell You About C-Sections

While you're at it, give A Midwestern Doctor a follow. No one brings more research, clinical insight, or historical context when it comes to exposing the health myths we've all been fed. This is easily one of the most valuable accounts you'll ever follow.

The Forgotten Side of Medicine

The Forgotten Side of Medicine exposes pharmaceutical corruption and remarkable therapies lost to time for the health of humanity.

By A Midwestern Doctor

hlahore@gmail.com

If you haven't subscribed to this Substack yet, take a moment to read what some of the most powerful voices in the medical freedom/truth movement have to say:

"The Vigilant Fox has been putting in a lot of work to create a news platform that shares the stories we want to hear about and brings attention to the most important things to know about. If you want a daily newsfeed in alignment with our ..."

– A Midwestern Doctor, The Forgotten Side of Medicine

"The Vigilant Fox absolutely is on top of things. We must support our fighters, and the Fox is fighting with truth."

– Tom Renz, Tom Renz's Newsletter

"Excellent capture of key video presentations on evolving pandemic science."

– Peter A. McCullough, MD, MPH, FOCAL POINTS (Courageous Discourse)

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The stories that matter the media hopes you'll never hear. Subscribe now to stay sharp and informed.

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Recommend The Vigilant Fox to your readers

Writer, video clipper, and pro-freedom citizen journalist with 12 years of healthcare experience. I focus on underreported stories that you won't often find anywhere else.

321 Likes

.

73 Restacks

Discussion about this post

Write a comment...

Barbara Charis

Barbara's Newsletter - Journey ...

Jul 2

DMSO works! I used it after I did a marathon run in 1981...and I could barely hobble. it took away the pain very rapidly. Something which many don't know...the wrong foods can cause pain, too. Since doctors don't study nutrition, when you go to them for help you will be handed a prescription for pain killer, when it would have been safer to receive info related to avoid eating the wrong foods, which created pain. Grain = Pain...I got arthritis from eating bread. When I stopped the bread the agony I experienced in my elbows and restriction in lifting my arms up...was gone within a couple weeks. A few months later, I added back the bread and in a couple weeks...the same pain and restriction occurred. so, I stopped eating grains. There is a good book called Dangerous Grains by James Braly M.D. and Ron Hoggan, M.A. which tells about the 200 diseases, which are caused by eating grains. The nightshades can also cause pain. They contain solanine, which is toxic...and can harm the joints. I experienced a problem, when I was eating jalapeno peppers...ankle got very sore and couldn't walk. I eliminated them and it took awhile, before I could walk without pain. The wrong foods must be eliminated...Pain pills remove pain, but the wrong foods will keep on harming the body.

Like (20)

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Daniela Provvedi
Jul 2
Edited

I love these articles from you, VF and Midwestern Doc. Thank you!

What I don't like is that there's never a recommendation on where to safely buy the product.

Could you please let us know?

TVM 🙄

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Judy finally feeling better: higher dose enema, DMSO ==> lymphatic system improvement

Transdermal Penetration Enhancers DMSO, etc

https://www.perplexity.ai/search/please-briefly-summarize-the-k-mjedutaYTSO_6vQwDjWuow

DMSO should IMPROVE lymph system - flow and contractability

<https://www.perplexity.ai/search/might-topical-dmso-harm-the-ly-V1xDVpTcQp.H9PI9Tyl0xg>

The FDA's 50-Year War on the Safest Painkiller Ever Discovered - DMSO, VigFox, Midwestern July 2

http://vigilantfox.com/p/the-fdas-50-year-war-on-the-safest?utm_source=post-email-title&publication_id=975571&post_id=167262333&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

DMSO + vitamin D for scalp again last evening and this morning (first day for Judy?)

First day adding Vitamin D to DMSO, Mg for my lower back May 19 2025

old nanoemulsion - discoloured

Again using DMSO and Mg to reduce backpain - May 2025

DMSO: The Forgotten Miracle Cure for Eye, Ear, Nose, Throat and Dental Disease - Virg Fox, Midwestern

https://www.vigilantfox.com/p/banned-the-forgotten-miracle-cure?utm_source=post-email-title&publication_id=975571&post_id=163517395&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

DMSO (dimethyl sulfoxide) isn't just a pain reliever.

It's one of the most promising breakthroughs in medical history.

Why? Because it boosts circulation, reduces inflammation, reactivates dying cells, kills bacteria, and so much more.

It's been used for arthritis, strokes—even injuries that nothing else could heal.

And the very best part? It's extremely safe!

So of course it didn't take long for Big Pharma and the FDA to declare war on it.

Why? Because DMSO gave people the power to heal themselves without a doctor and without drugs.

Big Pharma can't afford that.

After DMSO exploded in popularity in the 1960s, the FDA went completely scorched earth.

They spent more than 20 years suppressing it, even defying Congress in the process.

Too many people were healing outside the system. Which is a pretty big threat to the system.

Ironically, **President Lyndon Johnson himself sought out DMSO... after his own FDA commissioner spent years suppressing it.**

Oh, the irony.

But that just goes to show how powerful it is. Even the people who tried to kill it came crawling back when they needed it.

Let's talk about what DMSO can do for the eyes, ears, nose, throat, and even dental disease.

A Midwestern Doctor's deep dive reveals some truly eye-opening possibilities.

The Forgotten Side of Medicine: How DMSO Cures Eye, Ear, Nose, Throat and Dental Disease

•DMSO can often significantly improve one's vision, treat conditions such as macular degeneration, retinitis pigmentosa, and at times allow blind individuals to regain their sight. It is also often very helpful for sore and strained eyes and relieves excessive irritation and inflammation, along with many other eye conditions (e.g., cataracts...

Let's start with the eyes. 🧐

People who were using DMSO for unrelated issues started reporting that their vision was getting better.

That's when a few doctors tried it on patients with blindness, macular degeneration, and corneal disease.

And guess what? They saw results!

Some people even regained sight after decades in darkness. Wow!

One man who was blind for more than 30 years after exposure to dynamite was able to see flashes of light again.

Another person, blind in one eye, regained sight with DMSO drops.

A third person who was completely dependent on others for help, restored his vision and independence after one year of DMSO

Doctors also used it for cataracts, glaucoma, uveitis, and retinitis pigmentosa—a supposedly incurable condition.

50 patients with RP or macular degeneration received DMSO applied to the eyes. 22 of them had improved visual acuity.

9 had improved visual fields, 5 had improved dark adaptation, and 2 continued to worsen.

The rest noticed no changes, which could mean DMSO stopped the degenerative process.

All of this with no side effects.

DMSO helps the ears, too.

Used topically or orally, it improves circulation, lowers inflammation, and in some cases it restores hearing.

Yes, you read that right. Even tinnitus and chronic hearing loss have improved with DMSO therapy!

In one study, 15 tinnitus patients saw significant improvement after just 1 month of using a DMSO-based spray.

Vertigo disappeared, hearing improved, and insomnia resolved.

When a clinic in New York City treated tinnitus patients with DMSO, most experienced immediate relief and were permanently cured within a month.

Then there's the nose. 🤧

DMSO opens up the sinuses. Fast!

DMSO also helps with infections.

ENT doctors saw it mixed with antibiotics to destroy resistant ear and sinus infections. Sometimes it only took minutes.

DMSO even shrank swollen tonsils, reversed anosmia (loss of smell), and healed facial trauma faster than anything else.

Onto the teeth. 🦷

Believe it or not, DMSO is an all-star in dentistry.

Some dentists mix it with antibiotics while others use it solo.

Both strategies get results.

In a Polish study on periodontal disease, DMSO wiped out pain, bleeding, and infection.

In deeper cases, it still helped but didn't fix loose teeth.

But when combined with things like B5 or herbal extracts, DMSO's ability to heal went even further.

- For eyes: Start with 10–20% drops, slowly increasing
- For ears: 40–50% drops, or topical applications
- For sinuses: 25–40% drops or diluted nasal rinse
- For dental use: 50% swish or direct gum rub

Always start low, patch test, and go from there.

DMSO's safety has been extensively tested.

When it comes to eyes, it's safer than most over-the-counter drugs.

Even 100% DMSO applied to animal eyes didn't cause lasting damage—only brief stinging.

Human studies have shown no toxicity, even in those with glaucoma or cataracts.

So why, again, was it banned?

Because it works! And you don't need a prescription.

It's also cheap, unpatentable, and helps make Big Pharma obsolete.

Be sure to check out A Midwestern Doctor's full breakdown for protocols, sourcing tips, and case studies.

This is how we take health back into our own hands.

And if you've tried DMSO, let me know about your experience in the comments.

Scalp DMSO + NanoD Shower/shampoo: 2PM & 7PM, SS next day- beard &eyebrows first time May 8 2025

Also recent increase in supplements; Gluathione, Protein, and weekly Omega-3 since ~Jan 2025

The Effects of DMSO on Hair and Scalp: A Scientific Review

Dimethyl sulfoxide (DMSO) has gained attention in hair care circles due to its unique properties and potential benefits for scalp and hair health. This report examines the scientific evidence, mechanisms of action, reported benefits, and safety considerations of DMSO applications to the scalp and hair.

Understanding DMSO's Properties and Mechanisms

Dimethyl sulfoxide is an organic sulfur compound that was originally used as an industrial solvent before finding applications in medicine and cosmetics. What makes DMSO particularly notable is its remarkable ability to penetrate biological membranes, including the skin³⁶. This penetrating capacity allows DMSO to function as an effective carrier for other substances, potentially delivering them deeper into tissue¹⁸.

DMSO interacts with hair keratin in at least four distinct ways, according to laboratory studies: (1) it has an initial dehydrating effect on hair, (2) it produces a swelling effect, (3) it lowers the modulus (elasticity) of the hair, and (4) it promotes disulfide interchange in hair proteins². These interactions can significantly alter the physical properties of hair, which explains why DMSO has both direct and indirect effects when applied to the scalp and hair.

The Penetration-Enhancing Effect

The most well-documented property of DMSO relevant to hair care is its ability to enhance the percutaneous penetration of other substances. DMSO facilitates diffusion through the stratum corneum (the outermost layer of the epidermis), triggers the formation of deposits in the dermis, and promotes transport into local blood vessels³. This makes DMSO particularly valuable as a vehicle for delivering active ingredients to hair follicles, which are situated deeper in the skin than regular topical products can effectively reach¹².

Reported Benefits for Hair

Direct Effects on Hair Growth and Quality

There are limited but intriguing reports of DMSO directly benefiting hair growth and quality:

- 1. Case Report of Hair Regeneration and Color Restoration:** In a published medical case study, a 67-year-old male patient with amyloidosis who experienced rapid whitening and loss of hair showed remarkable improvement after DMSO treatment. Several months after beginning DMSO treatment, his scalp hair and beard not only grew back but also gradually regained their black color¹. This suggests DMSO may potentially address both hair loss and graying in some conditions.
- 2. Anecdotal Reports of Improved Growth and Thickness:** Some users report accelerated hair growth and increased thickness with regular DMSO application to the scalp. One theory suggests that DMSO improves blood flow to the scalp, which may promote hair growth⁶¹⁸.
- 3. Moisturizing Properties:** DMSO has been reported to help treat dry and damaged hair, with its moisturizing properties potentially making hair softer and smoother⁶.

DMSO as a Carrier for Hair Treatments

Perhaps the strongest evidence for DMSO's benefit to hair comes from its use as a carrier for established hair growth treatments:

- 1. Enhanced Delivery of Minoxidil:** Some scientific research suggests that DMSO may improve the absorption of minoxidil, one of the most widely used treatments for various types of alopecia¹⁸. This enhanced absorption could potentially increase minoxidil's effectiveness in stimulating hair growth.
- 2. Delivery Vehicle for Finasteride:** There is interest in using DMSO to increase the absorption of topical finasteride solutions for treating hair loss⁷. In fact, researchers have developed DMSO-modified liposomes to improve the topical delivery of finasteride for androgenic alopecia treatment¹².
- 3. Formulation with Other Active Ingredients:** DMSO can be combined with other ingredients like



Scientific Studies and Comparative Analysis

Scientific research specifically on DMSO for hair care is somewhat limited but provides some valuable insights:

1. **Effects on Hair Keratin:** Laboratory studies have demonstrated that DMSO concentrations above 80% produce a marked increase in stress relaxation of hair, with weaker concentrations behaving essentially the same as water. The changes within the hair fiber are almost reversible when DMSO is removed².
2. **Comparison with Other Penetration Enhancers:** When compared to other penetration enhancers for hair treatments like minoxidil, some studies found that methyl esters of medium chain n-alkyl fatty acids (specifically methyl nonanoate and methyl caprate) were actually more effective than DMSO⁹. This suggests that while DMSO is a good penetration enhancer, it may not be the optimal choice for all applications.
3. **DMSO-Liposomes for Hair Treatment:** Recent research has developed DMSO-modified liposomes for delivering finasteride to treat androgenic alopecia. Biological evaluation showed that these DMSO-liposomes increased follicular density and improved the anagen/telogen (growing/resting) ratio of hair follicles in testosterone-induced alopecia in rats¹².

Safety Considerations and Side Effects

Despite its potential benefits, DMSO application comes with important safety considerations:

1. **Skin Reactions:** DMSO can induce either a non-immunological immediate contact urticaria or an irritant reaction, depending on the concentration and mode of application¹⁰. The composition of the dermal cellular infiltrate varies with the concentration and number of applications of DMSO¹⁰.
2. **Allergic Reactions:** There are case reports of allergic contact dermatitis from products containing DMSO, such as minoxidil formulated with DMSO¹⁵.
3. **Proper Dilution is Essential:** Experts recommend that DMSO should never be applied to the skin or hair in its pure form. Dilution to 70-90% is recommended to minimize skin irritation¹⁸.
4. **Frequency Limitations:** Due to its strong penetrating properties and potential for skin irritation, DMSO should not be used more than once or twice a week on the scalp¹⁸.
5. **Characteristic Garlic Odor:** A notable side effect of DMSO use is the development of a garlic-like odor on the breath, which some users may find unpleasant³.

Practical Application Guidelines

For those considering using DMSO for hair care, experts suggest the following guidelines:

1. **Dilution:** Always dilute DMSO to 70-90% before application to reduce the risk of skin irritation¹⁸.
2. **Combination with Other Ingredients:** DMSO can be mixed with ingredients such as aloe vera or coconut oil to promote hydration and soothe the scalp¹⁸.
3. **Application Method:** Apply the DMSO solution to the scalp using a cotton pad or spray bottle, gently massaging to promote absorption¹⁸.
4. **Patch Test:** Conduct a patch test before use to rule out allergic reactions¹⁸.
5. **Consultation:** Consult with a dermatologist before incorporating DMSO into your hair care routine, especially if you have existing skin conditions.

Conclusion

The application of DMSO to the scalp may potentially help the hair in several ways, primarily through its ability to enhance the delivery of other hair growth treatments to the hair follicles. There are also some reports of direct benefits to hair growth, color restoration, and hair quality, though the scientific evidence for these direct effects is limited.

DMSO's most promising role in hair care appears to be as a vehicle for established hair growth treatments like minoxidil and finasteride, where it can enhance their penetration to the hair follicles. However, this same penetration-enhancing property requires careful use to avoid skin irritation and other adverse effects.

Future research focusing on the specific mechanisms by which DMSO might directly influence hair growth and developing safer formulations for regular use could help establish more definitive guidelines for its application in hair care. Until then, cautious use under professional guidance is advisable for those exploring DMSO as part of their hair care regimen.

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DMSO and Vitamin D on scalp twice today - start and end the May 5 with shampoo - months since last

search in ML for DMSO "hair then cntrl F "hair

What We Aren't Told About Osteoporosis - Midwestern Doctor May 2025

Vigilant Fox has a shorter/better? version

https://www.vigilantfox.com/p/how-osteoporosis-became-a-billion?utm_source=post-email-title&publication_id=975571&post_id=162836612&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

Story at a Glance

•A gradual weakening of the bones which predisposes one to fractures is one of the most common and significant consequences of aging. Presently, to address it, we wisely try to head off bone loss in our younger years and routinely scan the density of aging bones so that a large volume of patients can be sold drugs to increase bone density.

•This approach is misguided because the data from those scans often does not correlate to the actual strength of the bones and because simply increasing bone density often creates brittle bones that fracture under stress. Additionally, the most commonly used drugs to address bone density are notorious for their side effects.

•Anytime a large drug market exists (e.g., presently osteoporosis affects around 20% of women over 50), the medical industry will dismiss any approach to the condition which does not result in it being able to sell large amounts of lucrative medical services.

•Because of this, there is relatively little knowledge of the actual causes of osteoporosis or the most effective ways to restore the strength of the bones. The causes and treatments of osteoporosis will be the focus of this article.

Note: one of my favorite things about publishing on Substack is that I can continually revise articles as I learn new information (e.g., much has been added to the existing DMSO articles). As such, I periodically republish revised versions of the articles readers here found to be the most helpful and it is my aim to eventually unmask each of the commonly prescribed drugs that cause a lot of problems.

The years I have spent studying the medical industry have made me appreciate how often economic principles can allow one to understand its complex and contradictory behavior. For example, I believe many of the inconsistencies in medical ethics (e.g., “mothers have an absolute right to abort their children” and “mothers cannot refuse to vaccinate their children because it endangers their child’s life”) can be explained by simply acknowledging that whatever makes money is deemed “ethical.”

Sales Funnels

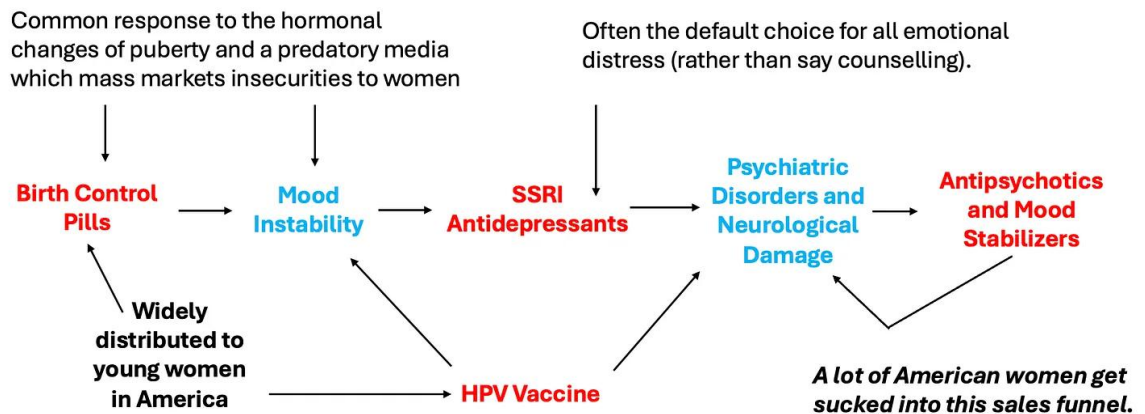
In my eyes, one of the most important business principles for understanding medicine are sales funnels, a method of selling products where you initially cast a wide net, and then successively cast smaller nets for increasingly expensive products after catching your initial customers.

Note: the term “funnels” is used to describe how the sales pipeline gets narrower as you move to more

expensive products.

I typically see two types of (often overlapping) sales funnels in medicine.

The first works by normalizing giving an “innocuous” drug to broad swathes of people and then selling increasingly expensive pharmaceutical drugs to treat the complications many experience from those drugs. One of the most insidious ones affects many of our girls and is one I’ve repeatedly tried to draw attention to:



Note: a good case can be made that many of the chronic illnesses our children suffer from now (which are very lucrative to “treat”) are a direct consequence of the ever increasing number of vaccines in the marketplace.

The second funnel works by recasting “preventative medicine” and “promoting health” as the task of screening for each person for conditions they are at risk for. The results from these universal screenings are then used to justify selling them medical services (e.g., drug prescriptions). Once that screening becomes normalized, the industry will then pivot to expanding the funnel and having far more services be sold. For example:

- What constitutes a “safe” blood pressure has been continually lowered, and as a result, more and more people are put on blood pressure medications. This in turn has created a variety of problems (discussed further here). For example, the elderly (due to the arteries calcifying with age) need a higher blood pressure for blood to reach the brain, and many hence suffer lightheadedness and catastrophic falls from their blood pressure being lowered.

- Since we started mass cholesterol screenings, what constitutes a “safe” cholesterol has also been continually lowered by the corrupt committees who create the guidelines doctors follow to practice medicine. For example, a widely used calculator which determines ones risk of a stroke or heart attack consistently concludes people are at a high risk of a heart attack and must urgently start statins, yet

almost no doctor in practice knows that [a 2016 study of 307,591 Americans](#) discovered the calculator overestimates their risk by 5-6 times. Similarly, most doctors aren't aware that beyond failing to benefit patients (in contrast to natural therapies [which do improve heart disease](#)), statins are also immensely dangerous drugs (discussed further [here](#)).

Note: the folly of this approach is highlighted by [a trial](#) which found removing on average 2.8 non-essential drugs from the elderly at one facility caused their 1 year death rate to go from 45%-21% and their hospitalizations that year to go from 30%-11.8%. As far as I know, there is no intervention on the market which offers a benefit comparable to this.

Radiographic Screenings

One of the common ways mass screenings are done is through giving lots of patients X-rays and then funneling those with abnormal imaging into being treated.

For example, women over the age of 50 are advised to get a mammogram every two years so that their deadly breast cancers can be identified and the women can be saved through early treatment for the cancers. However, whenever these screening programs are studied, they are found to not provide a net benefit because:

- Fast growing cancers (the ones you want to catch) will rarely be in the early stage at the exact same time someone gets a mammogram. Conversely, these cancers are normally noticed by doctors or patients (due to the sudden changes they create) and hence are radiographically evaluated independently of the mass screening programs.
- Slow growing cancers (which are unlikely to endanger women) are typically the ones which get caught.
- False positives are quite common with mammograms.
- A positive mammogram result is extremely psychologically stressful and frequently results in a variety of harmful treatments being performed on the women (e.g., having their breasts removed).

[Peter Gøtzsche](#) in turn conducted an exhaustive review of the evidence on routine mammogram screening which should have ended the practice (it can be read [here](#)). However, his data (which was widely publicized) had no effect on these screening programs. Many (myself included) believe that was because radiologists make so much money from mammograms they have an inherent need to justify the necessity of this routine screening.

Note: many medical specialists depend upon repeatedly performing the same billable service (e.g., vaccinating a child, performing a female pelvic exam, or reading a mammogram).

DEXA Scams

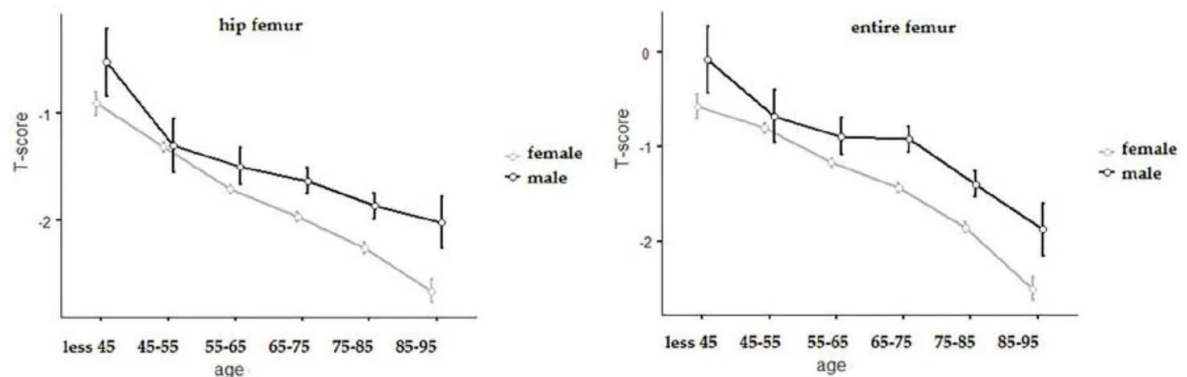
Another universal screening practice for women are dual energy X-ray absorptiometry (DEXA) scans, which calculate the density of bones and hence are **believed** to be a proxy for bone strength. It is then

compared to the average bone density of a 30 year old, and a statistical method is applied to determine how far away their density is from that value which then produces their T-score. Every medical student in turn is taught that a T-score of 0 to -1 is normal, -1 to -2.5 is on the way to being bad (osteopenia) and a T-score that is -2.5 or worse means your bones are weak enough that you have osteoporosis and must urgently begin treatment for it.

If you take a step back, a few questions should come to mind.

First, since bones naturally become less dense with age, most people will have bones that are less dense than those of a 30 year old. In turn, the current of management of osteoporosis accepts that bone loss is inevitable and reasonably *tries* to prevent that loss early on since it is so much harder to regain it later in life.

Hence, many people due to the normal process of aging will have osteopenia or osteoporosis. Consider for example what [this study](#) concluded was the **average** T-score by age of Italians.



Note: if, for instance, the average T-score for a group is -2.5, this will mean a lot of people within that group (half of them) will have a score below -2.5 and conversely, at lower “averages” even more will have osteoporosis. Additionally, T-scores are calculated utilizing the standard deviation of the bone densities in 30 year olds, a value which can be up to 50% smaller than that of older adults (making it much easier to pass the -2.5 threshold).

Second, how accurate are the scans? As it turns out, there is actually a great deal of variance in DEXA scan results depending on which machine is used, how the operator performs the test and what bones are measured, with studies often finding a 5-6% difference in bone density depending on where the test was done. More importantly, since the T-score is based off standard deviations, a 5-6% difference in bone density can, in turn, change the T-score by 0.2-0.4 (which equates to a decade of bone loss) and hence tip many over to an osteoporosis diagnosis.

*Note: a similar issue exists with blood pressure, as the stress of being a doctors office often creates enough of a BP elevation for people to be erroneously diagnosed with hypertension and started on blood pressure medications. This condition, in turn, is euphemistically known as “white coat hypertension,” **applies to 15-30% of hypertension diagnoses**, but rarely is corrected.*

Third, is there any point to repeatedly doing them? As it turns out, [a study of 4124 older women](#) found that once an initial DEXA result was obtained, there was no additional information of use gained from repeating the study over the next 8 years. Nonetheless, many guidelines often recommend getting a scan every 1-2 years, and likewise, Medicare pays for one every 2 years. As these scans typically cost between \$150 to \$300, that quickly adds up.

Fourth, do the scans accurately reflect bone strength and the risk of fractures? While they are generally predictive of the risk, they are not as accurate as is commonly believed. For example, [this study](#) found the osteoporosis status of a patient (determined by their T-score) frequently did not match what was directly observed within bones under a microscope. Similarly, [this study](#) found that when bones were deliberately weakened, DEXA scans underestimated how much strength had been lost.

Note: [a cheaper method of diagnosing bone strength](#) (which does not expose patients to ionizing radiation) is beginning to be used in Europe. It works by [sending ultrasound waves](#) into bone and then analyzing the spectrum created by those waves to assess the health of the bones. [As the attached presentation shows](#), it accurately predicts bone density, and additionally, predicts bone strength. In short, this may be a dramatically superior approach to DEXA scans, but it is unlikely we will see it enter regular use in the United States for at least a decade due to how heavily invested many already are in performing DEXA scans.

Ernest N. Curtis Ernest's Substack 2 hrs ago  Pinned

During the early years of my medical practice, there was the abrupt appearance of multiple articles in medical journals as well as popular magazines informing all of us about the scourge of osteoporosis. It was mostly directed at women and urged them to get bone density scans to assess their possible risk of this disorder. By sheer coincidence there appeared a new drug---Fosamax, the first of a new class of drugs called bisphosphonates---that we were told would substantially reduce the risk of developing osteoporosis. Naturally lots of women began asking for bone density scans but I knew little about them or where they could be obtained. Not to worry. Soon many of the local OB-GYN offices told us that they had scanning machines in their offices. When I asked where they got these scanners I was told that they were provided free of charge by---you guessed it---the manufacturers of Fosamax. I subsequently learned that this generosity had been extended to practically every OB-GYN office in southern California and, I suspected, probably the entire country.

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A Midwestern Doctor  just now  Author

I am going to add your comment to the article. What you are describing is sadly a pretty classic playbook by the industry (termed disease branding).

Note: the story above in the comment is discussed in more detail in [this NPR article](#).

Bisphosphonates

Once a patient is diagnosed with osteoporosis (and in some cases after an osteopenia diagnosis), the first line treatment is to start a bisphosphonate and continue it for up to 3-5 years depending on if the drug is administered intravenously or orally.

Note: the bisphosphonates include: Alendronate (Fosamax), Risedronate (Actonel), Ibandronate (Boniva), Zoledronic Acid (Reclast), Zoledronate (Zometa, Aclasta) Pamidronate (Aredia) Etidronate (Didronel), Neridronate (Nerixia), Tiludronate (Skelid), Clodronate (Bonefos, Loron)

A variety of factors influence the development of bone. Two of the most important ones are the cells that build bone up (osteoblasts) and the cells that break bone down (osteoclasts). Bisphosphonates in turn concentrate in the bone and work by disabling or killing osteoclasts. This thus leads to bone density increasing because the balance of bone production shifts towards building them up rather than breaking them down.

Unfortunately, there are two problems with this approach.

1. Bisphosphonates are notorious for having a large number of side effects. Commonly recognized ones include:

- Irritating the stomach and inflaming or eroding the esophagus (which can sometimes lead to esophageal cancer). This side effect is common enough that it leads many patients to not want to continue the drugs.
- Severe bone, muscle and joint pain throughout the body.
- Osteonecrosis (death of bone tissue) within the jaw. Since so many people have been affected by this (e.g., Kaiser found 0.1% of users were affected), class action lawsuits have been filed against the manufacturers for this debilitating illness (which revealed Merck's private discussions about it). This appears to be a result of bisphosphonates concentrating in the jaw reducing the jaw's ability to repair itself by around 90%. Remarkably, the American Dental Association even cautions its members to avoid working on patients who are taking a bisphosphonate (presumably due to the liability created by their increased risk of harm from a dental surgery).
- Triggering flu like symptoms when injected.
- Occasionally causing unusual fractures in the hips.
- Roughly doubling one's risk for atrial fibrillation
- Low blood calcium levels (hypocalcemia can often be quite problematic).
- Fatigue, nausea and lack of strength.
- Declining kidney function.

- Inflammation of the eyes.
- Poor healing of bones after fractures.
- Increased risk of fractures

Note: this is an understandably controversial side effect fraught with conflicting evidence, given that it's the opposite of what the drug is supposed to do, but there is now enough evidence that it is acknowledged these drugs increase the risk of certain types of fractures.

To illustrate, [a January 2008 FDA alert](#), warned physicians that all bisphosphonates may cause:

severe and sometimes incapacitating bone, joint, and/or muscle (musculoskeletal) pain . . . [which] may occur within days, months, or years after starting the medication, and in some patients, may not resolve even after discontinuing the medicine.

Note: we also find a variety of other significant issues occur. For example, we've seen many patients on bisphosphonates develop bone spurs in the jaw (which can be quite challenging for them to deal with). Similarly, [a study](#) of individuals who have had fractures after 3-8 years of bisphosphonate usage discovered that they had almost no new bone formation occurring.

2. The way bisphosphonates work is very different to how the body was designed to build healthy bone, and in effect, much of the bone they leave you with is "old bone."

Note: a variety of other newer drugs exist to treat osteoporosis. These drugs are often more effective at producing stronger bones, and often don't have the same significant side effects seen with the bisphosphonates, so quite a few of my colleagues use them. Unfortunately, those drugs tend to be much more expensive and each one still has its own set of side effects.



Keith R @KeithRPhMD · 1h

...

The terminal half-life of Fosamax is 10.5 years. Who the heck wants to take a drug that lingers in your bone for that many years? I've also seen a few cases in my practice of osteonecrosis of the jaw, which is said to be a "rare" side effect. Sure

Physiologic Momentum

One of the most remarkable aspects of the human body is its ability to gradually adapt to whatever circumstances it finds itself in. Conversely, one of the primary challenges one faces when dealing with a chronic illness is that typically by the time the symptoms of the disease emerge, the maladaptive physiologic process that gave rise to those symptoms is firmly established within the body and hence quite difficult (and time consuming) to shift.

For example, Alzheimer's disease typically is a result of the processes which create neurons slowing down and being outpaced by the processes that destroy them, hence leading to an increasing neuronal

down and being outpaced by the processes that destroy them, hence leading to an increasing neuronal loss and an increasing loss of neurological function. In turn, the only method which has ever been proven to treat Alzheimer's is to simply reverse that equation and have neuronal production outpace neuronal destruction. Unfortunately, since a drug can't be made to do that (rather it requires changing one's lifestyle) the industry has instead relentlessly focused on drugs which eliminate the plaque the brain forms to protect its neurons from injury. Thus all we have to show after decades of spending billions each year to find a cure for this disease are expensive plaque targeting that have a wide range of side effects and are useless for actually treating Alzheimer's disease.

One of the most important adaptive processes in the body is how it accommodates to the stresses and loads placed upon it. For example, the reason why weight training "works" is because muscles being stressed through overexertion gives a signal to the body that it needs to build more muscle.

However, while the adaptive process with muscles is frequently recognized, many others are not. For instance, the body continually remodels the soft tissue which connects the body together, and as a result, when someone experiences a pharmaceutical injury which damages the body's ability to rebuild those tissues, they are likely to subsequently experience a critical structural failure.

This is most well known with the fluoroquinolone antibiotics, as the drugs (which have a high degree of toxicity to the mitochondria that fuel tissue buildup in the body) frequently cause tendon ruptures to occur over a month after the drugs are stopped. Similarly, we also observe many of the other more dangerous drugs on the market over time (even if stopped) will cause the soft tissue of the body to become compromised (often to a degree which significantly impacts the patient's life), which in part may be explained by the fact the cells that create connective tissue have abundant mitochondria.

Note: a more detailed discussion of the treatments for ligamentous laxity (hypermobility is a condition that disproportionately affects the individuals who are the most sensitive to their environment and being injured by pharmaceuticals) can be found here.

Bone Remodeling

An adaptive process also continually reshapes the bones so that their architecture is arranged to optimally bear the loads placed upon them. In most cases, we never think about this process because it just works as intended. However, in certain cases, we do recognize where it has gone awry.

For example, since the bones depend upon the weight of gravity for the signal to be built up (via the electrical currents that are created when bone is compressed), that signal is lost in low gravity environments. Because of this, a longstanding problem in space travel was the rapid bone loss astronauts experienced (e.g., in 6 months they lost 6-10% of their bone density, which put them at a high risk for fractures once they returned to normal gravity and typically took 3 or more years to recover from).

Because of this, while we typically only focus on the cells which build bone, the reality is that the

osteoclasts are also immensely important, as their destruction of bone is what allows bone to assume the shape which best allows it to effectively bare the weight of gravity. In turn, when they are blocked by a bisphosphonate, bone density increases, but the bones that form are much more brittle and inflexible. Our dislike of those drugs in turn comes about from how frequently we encounter the pathologic changes they create in our patient's bones (e.g., we find that while compressive strength may be increased, bone mobility is not, and that is often far more consequential for the patients).

This in turn highlights a common problem in medicine. Frequently doctors are trained to focus on treating numbers (e.g., reducing a "high" cholesterol) under the belief that correcting those numbers creates health. Much of this comes from the fact it's much easier to conduct a study that assesses benefit through the change of a value which is assumed to be good (e.g., a vaccine creating the target antibodies) than it is to evaluate if an actual improvement occurs for patients (e.g., a decrease in the total number of people who died—which in Pfizer's studies did not occur despite the fact "lifesaving" antibodies were consistently being produced).

In short I would argue that while bisphosphonates may be effective at improving a DEXA score, they aren't necessarily good at improving health.

What Causes Osteoporosis?

Since bone metabolism is linked to many other processes in the body, a variety of things can affect it. In turn, I find that colleagues who focus on treating a specific aspect of the body are often able to provide proof their area of focus is the primary determinant of bone health. This hence makes it quite challenging to establish which area is in fact matters most. That said, there are a few factors of particular importance.

1. Mobility—since bone growth depends upon the signals generated from loading weight on the body, a good case can be made that our increasingly sedentary lifestyles are responsible for the continual increase in osteoporosis occurring in America (e.g., one study found sedentary postmenopausal women lost 2.26% of their bone mass in a year, while those who did a weight training program instead had a 1.17% increase). Additionally, sunlight exposure has been shown to increase bone density (along with providing many other critical health benefits), which further illustrates how problematic being sedentary inside can be.

Note: the contribution of immobility to osteoporosis also touches upon another challenging aspect of chronic diseases—often there is a self perpetuating downwards spiral since many of the causes worsen the others (e.g., osteoporosis increases immobility, poor circulation [which is commonly seen in chronic disease states] also creates immobility and immobility simultaneously impairs fluid circulation).

2. Hormones—in a previous article, I discussed the severe dangers of drugs like Lupron which work by disabling the body's production of sex hormones. One of the most common side effects observed from them is a significant weakening of the bones, which commonly leads those injured by the drugs to remark that they "have bones like an 80 year old" (e.g., you will hear reports of a 30-year-old leaning against a wall with their arm and that bone snapping or them learning they need to get dentures). Furthermore, in many cases these effects are often delayed, which again illustrates how a disruption of the remodeling of bone can ripple out far into the future.

Note: we have also seen cases where patients were prescribed high levels of aromatase inhibitors (drugs which prevent the conversion of testosterone to estrogen) which then appeared to trigger bone loss.

This in turn argues that hormones play a vital role in bone health, and in turn, the hormonal medicine field frequently prescribes estrogen to older women to compensate for the loss of estrogen which accompanies menopause, partly under the belief that hormonal supplementation can hence prevent menopause.

However, while supplemental estrogen appears to help prevent bone loss, we don't focus on this approach because:

- Excessive and unbalanced estrogen frequently causes cancers. While this is a contentious topic in the hormonal medicine field (e.g., many doctors who prescribe hormones insist any link between estrogen and cancer is hogwash), we have personally seen numerous cases where a patient was started on estrogen and then developed a severe cancer—especially if they were given too high of a dose. As such, in cases where we feel estrogen is necessary we take multiple precautions to do it in the safest manner possible.

- In our experience, the most important thing is not the bone's density, but rather its elasticity and mobility. When healthy bones are subject to a loading stress, they bend to accommodate that stress and then spring back into their original shape, whereas if a bone is brittle, once it begins to bend, it will break.

The primary hormone which imparts elasticity to the bones (and induces osteoblast activity) is progesterone, and like estrogen, it declines with age—particularly after menopause. In turn, we find that appropriately supplementing progesterone (which unlike estrogen is almost never dangerous), is highly effective at preventing fractures within the body.

Note: osteoporosis, while rarer, also occurs in men. We find that for men, increasing testosterone levels can also help with bone loss, however the magnitude of benefit is not as much as is seen with other hormonal interventions.

3. Inflammation—many of us have observed that patients with chronic inflammatory diseases tend to be at a greater risk of osteoporosis. In turn, the mechanism to support these observations exists as the

cytokines classically associated with those inflammatory disease states (e.g., TNF- α and IL-6) have been shown to activate key receptors (e.g., RANKL) which cause osteoclasts to dismantle bone until the underlying disease which is generating those cytokines is addressed.

4. Minerals—since bones are composed of minerals, this suggests bone strength is dependent upon the dietary intake of minerals. Our own experience has been that supplementing with the correct minerals is often what restores bone health, so I am inclined to believe this is indeed a critical point.

Since mineral deficiencies appear to be such a common issue, we've tried to identify what may be responsible for this. Presently we believe the chief culprits are:

- A stomach acid deficiency (since stomach acid is often necessary to absorb dietary minerals). Two of the most common causes of this are acid blocking medications (which have been repeatedly shown to cause osteoporosis) and the tendency for stomach acid to decline with age (which may in turn explain why osteoporosis increases with age).

*Note: a more detailed discussion on the critical importance of stomach acid (e.g., a stomach acid **deficiency** is one of the most common causes of acid reflux and of autoimmunity) can be found here.*

- The chronic depletion of essential micronutrients and minerals from the soil due to industrial agricultural practices (it's a huge problem) and the removal of the mineral rich components of food when they are processed (e.g., when changing a whole grain into a refined grain).

- The tendency for the widely used herbicide Roundup to behave as a chelating agent which binds essential minerals in the soil (particularly the +2 cations like magnesium) and hence prevents them from entering our bodies.

5. Water Fluoridation—Fluoride was originally added to the water supply because it was a toxic waste product numerous industries needed a liability free way to dispose of. Since fluoride was known to increase bone density, this was used to argue that it could protect our teeth, and hence that it could instead be viewed as a vital nutrient. These attempts were initially unsuccessful (as fluoride has a wide range of toxicities), but eventually, since fluoride was needed to produce the original atomic bombs, for national security reasons, the government relented and added fluoride to the water supply.

Unfortunately, like the bisphosphonates, while fluoride increases bone density, the bone that forms is less healthy and able to function normally. In addition to many of my colleagues believing they've observed this harm within their patients, this has also been demonstrated both by numerous studies linking fluoride to osteomalacia (a condition where the bones soften and hence are more likely to fracture) and by numerous studies finding that administering fluoride increases rather than decreased one's fracture risk. Conversely however, since osteoporosis is defined not by fracture risk but rather by the loss of bone density, I don't feel fluoride (which increases bone density) could be the primary culprit for the increasing osteoporosis rates.

Note: some of the newer research shows that fluoride decreases rather than increases bone density.

6. Pharmaceutical Drugs—In addition to the hormone blockers (e.g., Lupron) and the stomach acid blockers (e.g., Prilosec) other pharmaceuticals have also been shown to significantly increase the risk of osteoporosis, particularly the glucocorticoid steroids like prednisone (the vast dangers of which are discussed [here](#)). To illustrate—taking them doubles one's risk of a fracture (and even more so for a vertebrae), at typical doses they cause a 5-15% loss of bone each year, and in long term users, 37% experience vertebral fractures (additionally, high dose steroid use increases the risk of vertebral fractures fivefold). Glucocorticoid bone loss in fact is such a common problem that treating it is one of the few official indications the FDA provides for bisphosphonates.

Note: other drugs are also known to compromise bones. Opioids for instance have been show to delay the healing of fractures or spinal fusions and when used chronically, to lower bone density and increase the risk of a fracture by 4.13 times. Some of the other drugs which have also been show to weaken bones include the thiazolidones (which are used for diabetes), SSRI antidepressants, the anticonvulsants (which were initially developed to treat epilepsy but are now used for many other conditions), Depo-Provera, and the previously mentioned aromatase inhibitors.

7. Environmental Toxins—as the following links show, variety of widely pervasive environmental toxins (e.g., organophosphates, Bisphenol

A, aluminum, cadmium and nicotine, lead, mercury, triclosans, along with many other persistent organic pollutants) can inhibit bone formation and are linked to osteoporosis.

Note: drinking soda has been shown to significantly increases one's risk of osteoporosis and fractures.

At the same time however, I'm not completely sure these points paint the full picture because the most ancient medical texts in the world also discussed osteoporosis (at a time when, for instance, Roundup and Acid Blockers did not exist)

In addition to these mechanisms, there are a few others I suspect cause osteoporosis but I have less evidence to support those claims. In the final part of this article, I will list those mechanisms and our preferred protocols for treating osteoporosis (some of which, such as the minerals are quite simple, others like hormonal management are a bit complicated, along with some that are a more out of the box or that can be done in your younger years to head off a critical loss of bone mass in the future).

Chinese Medical Perspectives on Osteoporosis

I've always been interested in studying the oldest Chinese medical texts because:

- They provide some of the clearest records of what human health was like before the advent of modern technology (which I believe is the cause of many illnesses we face today) and hence provides a unique perspective for cutting to the root cause of illness.

- Chinese medicine developed a variety of unusual theories on health and human physiology which

Chinese medicine developed a variety of unusual theories on health and human physiology which were initially rejected by modern medical science but then gradually proven true as science advanced.

Since quite a few of the ancient Chinese medical theories still have no scientific explanation to corroborate them, I always keep on eye out for new scientific discoveries that do.

In the case of osteoporosis, the ancient Chinese texts asserted that:

- The health of the bones was dependent on the health of the “marrow.”

Note: scientific evidence also links liver disease to osteoporosis.

- The health of the marrow was dependent upon the health of the kidneys—which there is now some evidence in support of (e.g., chronic kidney disease has been strongly correlated to osteoporosis and bone fractures).

- When human beings are born they have a constitutional vitality (their Jing or essence) which initially causes their bodies to develop as it peaks and then to decline as it wanes. Jing in turn follows a 7 year cycle in women and an 8 year cycle in men which peaks at the 4th cycle (age 28 in women, 32 in men), and at each reiteration of the cycle, characteristic constitutional changes happen (described here).

Chinese medicine in turn has a variety of treatments it uses to address consequences of waning kidney energy (e.g., the acupuncture points BL-23, KI-3, and BL-11 are commonly used to support the bones). Unfortunately, Chinese medicine views the decline of Jing as an inevitable consequence of aging and can only slow or mitigate that decline but cannot reverse it.

Note: we believe one of the major issues in the modern age has been the accelerate decline of Jing, and one of our longstanding projects has been to find ways to replete it.

A variety of theories have been put forward to explain why the health of the kidneys seems to correlate with the health of the bones. Presently, I believe there are a few possible explanations.

First, since the kidneys govern the excretion of minerals from the body, when their function becomes abnormal, they can cause the body to become depleted of the components bones require to be built, and furthermore, trigger the body to break down the bones so they can replace those missing ions (e.g., calcium).

Note: a good case can also be made that many of the complications of aging result from heavy metals (e.g., lead) that were stored within the bones during childhood being released into the body as the bones breakdown with age. In parallel, many toxic metals are known to impair bone health.

Second, the kidneys regulate vitamin D within the body and vitamin D plays a key role in maintaining bone density.

Third, it has proposed that the decline of Jing is a reflection of the brain's secretion of hormones into the body as many of the effects which occur at each of the 7 (or 8) year cycles can be correlated to the presence or absence of specific hormones (discussed further [here](#)).

Fourth, since the start, it has been known the kidneys play a key role in regulating the physiologic zeta potential (as they eliminate the ions which impair it while retaining the ions that support it). Likewise, it has been shown that as kidney function declines (which is a known consequence of aging), the kidneys lose their ability to maintain the physiologic zeta potential (which in turn requires more and more adjunctive measures [to maintain the physiologic zeta potential](#)).

Zeta Potential

Presently, I believe one of the primary causes of aging is a loss of the physiologic zeta potential due to it declining with age (due to the kidneys) and it being possible to reverse many consequences of aging [by fixing the physiologic zeta potential](#).

This in turn has led me to often wonder if a loss of the physiologic zeta potential is directly tied to a loss of bone strength. Presently, I have the following to support that correlation:

- The primary agent [used to restore the physiologic zeta potential](#) is potassium citrate (due to its charge distribution). A few studies in turn have found that potassium citrate improves bone health (e.g., [this trial](#) found it reduced bone turn over and calcium loss, while [this trial](#) found it created a 1.5-2% improvement in bone density and bone architecture).

- Since the bones are relatively rigid, their blood supply travels through tightly bound bone channels and hence is more vulnerable to being impaired by a compression being created on its arteries. One of the primary factors which determines an artery's resistance to external compression impeding its blood flow is the current physiologic zeta potential. In turn, this may explain why Chinese medicine believes the kidneys are responsible for nourishing the bone marrow and why [the previously mentioned study](#) found potassium citrate improves bone marrow architecture.

Note: a more comprehensive discussion on zeta potential and circulatory compression can be found in [this article](#) about how treating it mitigates the vulnerability hypermobile patients and vaccine injured patients have to significant vascular compromises.

- The decline in bone health (and vulnerability to fractures) seen with aging parallels the general dehydration and loss of springiness in the tissues that is also seen with aging. This in turn has made me wonder if the two are connected, especially since [one of the primary correlates](#) of the physiologic zeta potential is the presence of liquid crystalline water in the body, and liquid crystalline water is one the primary things which creates the strength and resiliency of the body (discussed in detail [here](#)).

Treating Osteoporosis

Since osteoporosis is so common, a variety of different approaches have been developed for treating it. We in turn have tried to filter through them for the ones we believe are the most effective and practical to implement.

Note: For those interested Keith McCormick DC has done the most comprehensive writing I've come across on functional medical approaches for bone health (which he just published a new book on). Like many functional medicine practitioners, he advocates for a wide range of supplements and conducting numerous lab tests to identify which ones are needed. Much of his book in turn was based upon a much shorter (and in my opinion more poignant) book by Jonathan Wright.

Presently, there are a few key things we focus on to treat osteoporosis. Additionally, there are certain things that we often do (e.g., treating the physiologic zeta potential, encouraging appropriate exercise, regaining the stomach's acidity, taking patients off steroids and treating chronic inflammatory conditions) that are likely to help bone health, but we primarily do because the patient needs them for their general health rather than because we are specifically focusing on bone health. For brevity, those approaches won't be discussed going forward.

Metabolic Disorders

While osteoporosis typically arises from the normal degenerative processes of aging and the stressors we are exposed to by our environment, it can sometimes also occur from specific metabolic diseases. Typically, I find people either assume all bone loss is just osteoporosis or hyper-focus on trying to identify a metabolic disorder which could explain what a patient's bone loss rather than recognize how an unhealthy living environment is the primary agent creating a patient's bone loss.

Because of this, I feel it's important to be aware of the potential disorders which could cause this to happen (as I know numerous cases where people went through years of grief because they were missed) and to be aware when an atypical bone loss case is in front of you which calls for a broader investigation.

By far, the most common issue we run into are parathyroid adenomas (which are fairly easy to treat). For reference, when a parathyroid adenoma is present, an excessive amount of parathyroid hormone is secreted into the body which triggers calcium to be removed from the bones and dumped into the blood stream. This in turn can create a variety of significant symptoms (beyond just bone loss) such as confusion, memory loss, depression, irritability or mental confusion, kidney stones, bone pain, joint pain, general aches and pains, abdominal pain, unexpected fractures, heartburn, nausea and vomiting, constipation, high blood pressure, increased urination and heart arrhythmias.

Remarkably, even though this condition is routinely taught to medical students, we find it frequently goes unrecognized and it is hence quite rewarding to encounter a "complex" patient with an undiagnosed parathyroid adenoma whose illness can hence be easily healed. One of the easiest flags for a potential parathyroid adenoma (as sometimes their symptoms are more subtle and hard to recognize) is if a patient has persistently elevated blood calcium levels. Normally the cut off for this is

recognize) is if a patient has persistently elevated blood calcium levels. Normally the cut off for this is anything over 10 (for context the reference range of a normal calcium is typically around 8.5 to 10.2 mg/dL), and when that's the case, to order a follow up to evaluated blood parathyroid hormone levels, and if those are on the upper end of normal (e.g., 50-60 pg/mL) see if the patient has a parathyroid adenoma (which they typically do).

Note: elevated parathyroid hormone can also be triggered by things besides a parathyroid adenoma.

Exercise

A variety of exercises exist which are known to increase bone density (e.g., using a small rebounder trampoline is widely considered to be one of the best ways to improve bone density—presumably since small bounces repeatedly generate the electrical signals which tell bones to grow).

Note: vibrating plates you stand on are another popular approach. While there is some benefit to this, we don't like it because the machines are costly and we find patients don't consistently use them.

Our own perspective is that daily walking is the most practical and effective way to protect bone health (along with it also being one of the healthiest exercises for longevity in general—for example walking effectively supports the critically important fluid circulation of the body).

Unfortunately, since many compromised patients also have difficulty walking, our focus often is on improving their health enough that they can start walking again and moving towards a positive momentum of health and wellness.

Some of the tricks we've found (beyond having a manual therapist address mechanical and gait difficulties) are quite helpful here include:

- Having patients initially exercise in pools provides an excellent bridge to help patients build up the capacity to handle walking.
- Building a patient up enough that they can handle minor load bearing exercises (e.g., just carrying a 5 pound weight in a backpack) can often do enough for their bones to regain their momentum towards health.
- Improving the blood flow to the brain (e.g., by improving zeta potential) is often quite helpful for improving the neurological coordination which otherwise makes it difficult for patients to walk.
- Lax ligaments (which depending on the situation can be treated with prolotherapy or manganese supplementation) often impair one's ability to walk.
- Tai Chi is an excellent exercise for developing the coordination and balance which is necessary for walking.

Note: there is also some evidence Tai Chi improves bone density.

Hormones:

As mentioned before, we are quite cautious in using estrogen (due to its potential side effects) but will consider using it in female patients who have low estrogen levels (especially after sustaining a serious fracture that needs to heal).

Note: we find estriol (E3) or a mix of E3 and E2 to be the safest forms of estrogen. Likewise, we prefer topically applied estrogen because it does not have the same toxicities we observe with oral preparations (which we suspect is due to how the liver metabolizes estrogen pills). Finally, it's important to ensure there is adequate progesterone (as this opposes estrogen's cancer causing tendencies).

With bone health, our primary focus is on progesterone (due to it increasing the elasticity and hence resiliency of bone). Normally, our target is get it above 200 pg/mL, which we accomplish by first using a **saliva** test (e.g., ZRT labs has a good one) and then using a topical progesterone cream to get it to the appropriate level.

Additionally, since estrogen counteracts progesterone, we often find it's necessary to lower estrogen for the progesterone to function. Getting a healthy progesterone to estrogen ratio in turn often requires getting the saliva estradiol levels below 1.2 pg/mL (whereas many hormone doctors believe estrogen levels should be a bit higher).

Note: we also treat low testosterone levels as needed.

Supplements

As mentioned before, a lot of supplemental regiments exist for treating osteoporosis.

Note: our preferred brands for each supplement are linked to. Much of this list was determined by research, clinical observations and extensive muscle testing.

We find by far the most commonly needed supplement is boron.

Following that, we find manganese, zinc and strontium are the most helpful. Additionally, in patients who need to heal their bones (e.g., after a fracture) Standard Process's Biost can be quite helpful.

Following that we find vitamin K, molybdenum, and silica are the most helpful.

Following that, we find calcium, copper, iron, phosphorus, selenium, vitamin D, iron, and amino acid supplements are sometimes needed.

Specific notes about supplements:

Boron—this also is often helpful for arthritis or prostate issues.

Manganese—this mineral plays a critical role in the development of connective tissue and hence plays a pivotal role in the strength and flexibility of bone (e.g., [this study](#) found giving it to deer significantly increased the strength of their antlers while [this study](#) found it increased the vertebral bone density of human participants). When taking manganese, it works much better if it is taken every other day (3-4 times a week) rather than daily. Additionally, we also find [this brand](#) and [this brand](#) sometimes work better for patients than the one I [linked to above](#).

Vitamin K—a variety of forms of it exist (e.g., K2 is typically more potent) and we prefer this preparation by [Life Extension](#). Additionally, vitamin K often requires the other fat soluble vitamins (A, D and E) to work correctly.

Strontium—since strontium [both increases osteoblast activity and inhibits osteoclast activity](#), it has long been a popular treatment choice for osteoporosis and it provides significant benefit for the condition. Unfortunately, the drug form of it ([strontium ranelate](#)) worked but was found to increase the risk of serious cardiovascular conditions (e.g., heart attacks) and caused 2-4% of recipients to experience nausea, diarrhea, headache or eczema. Because of this, people are understandably very cautious about using any form of strontium. Currently, I suspect the toxicity observed may have been a result of:

- The medication containing aspartame (which causes all of those issues [at a similar frequency](#)).
- The strontium dose was on the higher end.
- Ranelate being more toxic than citrate (which is what most supplements combine strontium with)
- There being minimal motivation to keep the drug on the market (since it competed with the non-patentable supplement strontium citrate and because it competed with the far more expensive osteoporosis treatments). I mention this point because many doctors are extremely concerned about the side effects of strontium ranelate, but simultaneously are oblivious to the much higher rates observed with many other commonly prescribed pharmaceuticals (e.g., bisphosphonates).

Our own experience has been that there is a subset of patients who greatly benefit from it but simultaneously that toxicity can occur at higher doses, so when we use it, we stick to lower doses and monitor it closely.

Note: because of the persistent damage bisphosphonates create to bone metabolism, [it takes over 6 months](#) before the body will respond to strontium, so it is advisable to avoid it when initially stopping a bisphosphonate.

Molybdenum—this one is a bit unusual (it's only needed for about 5% of patients) and a bit unorthodox (e.g., [an observational study](#) found that at high levels it caused bone loss, and an animal study [found data](#) also suggesting it caused bone loss). Conversely, [a study](#) found when it was administered in a more biocompatible manner, molybdenum was observed to decrease bone loss, whereas when it was administered as a generic tablet it did not (which is part of why we use the form we do).

Phosphorus—like molybdenum, its effects reverse when too much of it is given, so make sure it is dosed appropriately (and on the lower end) when used.

Amino Acids—many people are amino acid deficient (e.g., because their aging stomach has lost the acidity it needs to break down protein), so we often find patients benefit significantly from amino acid supplementation. Additionally, bones specifically need alanine and glycine to increase bone density along with lysine.

Additionally, while the list I already gave you is quite long, there are many other supplements which are often recommended for bone health (as data supports their use). These include: magnesium, chloride, sodium, potassium, sulfur, many of the vitamins (e.g., A, B, C, D, E), collagen, horsetail or stinging nettles (both good sources of silica) and many of the mitochondrial support supplements or antioxidants.

Note: Jonathan Wright (who is one of the most knowledgeable people in the natural medicine field) considers calcium, boron, strontium the vitamins C, D, K, B6, B12, riboflavin and folate (along with the stomach acid to absorb them) to be the most important nutrients for preventing osteoporosis. Additionally, he believes that while low protein diets harm bones, high protein diets do as well as due to their acidity they leach minerals from the bones (which is also a problem observed with drinking soda) and believes eating green leafy vegetables are critical for bone health.

While we do not default to these supplements, I would argue it's good to be aware of them.

Lastly, a few of my colleagues who regularly use hormones and peptides have explored a variety of options for increasing bone health. They've had the most success with two peptides which function by signaling the body to release human growth hormone.

Unfortunately, since these peptides are sometimes abused (e.g., to increase athletic performance) and there is preliminary data to suggest adverse effects exist from their use, the FDA has moved to restrict their use and my colleagues have cut back on doing so as well.

Bone Broths

Bone broths have long been considered to be one of the healthiest foods you can eat, amongst other things containing a variety of nutrients (e.g., growth factors that support bone growth). About a year ago, I learned through Dr. Mercola that bone broths made from the knee joints of cows (or deer) are particularly useful for bone health and collagen repletion (provided the animals are grass fed or wild), and since then have come across many other compelling cases corroborating this. Since quality bone broths are often not available commercially, these normally need to be made at home (but fortunately, if requested, ox knee joints to make the broths are normally available).

Note: after I sent this article out, Sally Fallon informed me that they've had several cases of women, demonstrated by DEXA scans, recover from osteoporosis simply by drinking raw milk (a subject which

is discussed further [here](#)).

Conclusion

One of the things very few people appreciate is that bone is very much a living tissue, and when you can directly hold it (e.g., when you feel a piece of it that has been cut in half during an orthopedic surgery) it behaves far differently from what all the dead bones we come in contact would otherwise lead us to believe. Unfortunately, since very few people get to do that, we see bone as an inanimate structural object and nothing more.

Most of the points I raised in this article are essentially predicated on the need to see bone as something more and recognize that the way we interface with this dynamic system will directly craft how it controls our health and longevity. Many of the medical systems which preceded modern medicine were able to recognize this (e.g., in addition to the Chinese medical perspectives, many spiritual traits have been ascribed to bones and many holistic medical systems recognize the important of how connective tissues fibers interweave the bones with the rest of the body) and it is my hope this article has provided a few perspectives which can aid you in seeing bones in a new light.

I sincerely thank you for your support which makes this newsletter possible and I am immensely hopeful we have at last entered a political climate where our counterproductive medical practices will be re-examined and replaced with things that instead benefit our health.

DMSO improves Cancer Treatments in many ways - A Midwestern Doctor on Mercola) May 2 2025 (3 others)

https://articles.mercola.com/sites/articles/archive/2025/05/02/how-dmsso-makes-cancer-treatments-more-effective.aspx?ui=d738e3df52a8a14aea9298fe6ec5bc113ed0d6d7922f31861727d54a43cbe29d&sd=20121119&cid_source=dr

DMSO is a naturally occurring substance that has a variety of unique properties that have immense therapeutic potential. In turn, thousands of studies show DMSO safely treats a wide range of:

- Injuries such as sprains, concussions, burns, surgical incisions, and spinal cord trauma — discussed here.
- Strokes, paralysis, many neurological disorders (e.g., Down syndrome and dementia), and numerous circulatory disorders (e.g., Raynaud's, varicose veins, or hemorrhoids) — discussed here.
- Chronic pain (e.g., from a bad disc, bursitis, arthritis, or complex regional pain syndrome) — discussed here.
- Many autoimmune, protein, and contractile disorders such as scleroderma, amyloidosis, and interstitial cystitis — discussed here.
- Head conditions including tinnitus, vision loss, dental problems, and sinusitis — discussed here.
- Internal organ diseases such as pancreatitis, infertility, liver cirrhosis, and endometriosis — discussed here.
- A wide range of skin conditions such as burns, varicose veins, acne, hair loss, ulcers, skin cancer, and many autoimmune dermatologic diseases — discussed here.
- Many challenging infections such as shingles, herpes, chronic ear or dental infections, and osteomyelitis — discussed here.

Sadly, once the FDA realized the extent to which DMSO would transform medicine, the agency made the decision to erase it from history. As a result, millions of patients whom it helped and the thousands of studies on its therapeutic potential have been largely forgotten. Consider for example, this 1980 60 Minutes program: [Video Link](#)

Fortunately, because DMSO is effective for a wide range of conditions, it's caught on like wildfire over the last six months (e.g., I've already received over 2,000 reports of remarkable responses to DMSO, many for a variety of "incurable" conditions).

[Video Link](#)

Potentiating Chemotherapy

Due to the controversy around DMSO, its pioneers chose to downplay its anticancer potential to avoid backlash against "unproven" treatments. As a result, its cancer-fighting properties remain largely unknown. For example, earlier in this series, I presented hundreds of studies that show:

- DMSO effectively treats cancer pain (which is often very challenging to address).
- Dramatically reduces many of the complications experienced from radiation therapy and chemotherapy.
- DMSO stops cancers from growing.
- DMSO causes cancerous cells to transform back into normal cells.

One of DMSO's well recognized properties is its ability to dissolve a wide range of other substances and transport them throughout the body thereby allowing topical applications of medications that would otherwise require injection once they are dissolved in DMSO.

More importantly, once inside the body, DMSO allows substances it has dissolved to reach otherwise inaccessible places within the body (e.g., a chronic infection within the bones) and to enter cells that have shielded themselves from medications (e.g., DMSO has been shown to remove the resistance many bacteria have to antibiotics).

Many of these same challenges exist with treating cancer. Fortunately, in the same manner DMSO increases the potency of many antimicrobial therapies, it does the same for chemotherapy. This is extremely important because:

- It increases the likelihood that a cancer therapy protocol will be successful, particularly in resistant cancers.
- It allows lower chemotherapy doses to be used, which significantly decreases the toxicity to normal cells and thereby addresses one of the largest issues with conventional cancer treatments.

For example, since the blood-brain barrier shields brain cancers from chemotherapies, higher (toxic) chemotherapy doses need to be used to treat those cancers.

In turn, since DMSO passes through the blood brain barrier and concentrates inside tumors (e.g., one study found DMSO had a 1.5X increase in brain tumors¹ while another found it can detect brain tumors that cannot be detected with conventional contrast agents),² independent physicians have mixed chemotherapy with DMSO to treat brain cancers.³

Note: Since the toxicity of normal doses of chemotherapy is such a pressing issue, a variety of approaches have been developed over the years to increase its potency (a few of which we've found to be very helpful). One of the most well-known approaches is insulin potentiation therapy, which uses the higher concentrations of insulin receptors cancer cells have to trick cancer cells into consuming more of the chemotherapy.^{4,5}

Cytoplasmic Barriers

One of the major issues with treating cancers is that cancer cells can become resistant to chemotherapy. After

One of the major issues with treating cancers is that cancer cells can become resistant to chemotherapy. After observing that cancerous epidermal cells (unlike normal cells) were able to resist cytotoxic (chemotherapy) drugs entering them by creating a fibrin-like "cytoplasmic barrier," three different studies discovered that mixing the drugs with DMSO allowed them to penetrate cancerous cells.^{6,7,8} Furthermore:

- Another study found that cancer cells had a disordered cytoskeleton (which is now well recognized) and an impermeable barrier around the cell that resisted chemotherapy drugs from entering.⁹

polarized light cytoskeleton

When DMSO was added, it allowed cytoskeleton-targeting drugs to enter the cells and dramatically increased their potency (e.g., making a dose of 1/30th to 1/1000th of their usual dose needed).¹⁰

- A later 2022 study found that 1% DMSO significantly altered the cytoskeleton of melanoma cells (e.g., how they attached to their extracellular surroundings) but not normal cells,¹¹ and that when DMSO was combined with CaS (which releases ions that can trigger programmed cell death), there was no noticeable effect on the skeleton of normal cells, but there was heavy disruption to the cytoskeleton of cancerous cells.

Cancer Treatment Studies

Many animal and human studies (which I compiled here) have also demonstrated that DMSO enhances the potency of chemotherapy. For example:

- A 1975 study of 65 patients with incurable cancers (most of which had received conventional therapies) were injected with a low dose of cyclophosphamide mixed in DMSO with GABA, GABOB, and acetylglutamine.¹²

Objective or subjective remissions were obtained in 57 of the 65 patients (e.g., many went from being in extreme pain to being pain free), and almost all of those with lymphomas or breast cancers had complete recoveries, while about half of those with other incurable cancers recovered.

incurable cancers recovered

Note: This study also found that patients who could not otherwise tolerate cyclophosphamide were able to with DMSO.

- A 1975 rat study found that oral DMSO increased the potency of cyclophosphamide,¹³ which in turn required lowering the cyclophosphamide dose to avoid creating toxicity (which the authors felt could potentially make a safer and more effective dosing regimen for cyclophosphamide).

They also found DMSO increased the survival times in advanced cancers by potentiating the following drugs: 6-mercaptopurine, Methotrexate, Chlorambucil, Vinblastine, Procarbazine, CCNU, MCCNU, BCNU, Daunomycin, Nitrogen mustard, Dianhydrogalactitol, Norbornyl, and Adriamycin.

In contrast, no benefit was seen with cytosine arabinoside, vincristine, and 5-fluorouracil, all of which did not have the lowered toxicity threshold observed with cyclophosphamide.

Note: An ambitious follow-up project was made to test various other anticancer drugs. However, just as clinical trials were scheduled to start, they were halted by a jurisdictional dispute within the FDA.¹⁴

- A follow-up 1983 study then determined that DMSO did not increase the toxicity of any chemotherapy drug, but with oral administrations, did temporarily increase (for 2 to 3 hours) its initial levels in the body, thereby increasing their effectiveness.¹⁵ It also found that DMSO being added reduced the overall growth of the tumors and that certain cancers had a higher response to DMSO being added than others.

- A 1987 study of patients with cervical cancer found that applying metronidazole dissolved in DMSO to the cervix increased the tumor's regression following radiation therapy.¹⁶

- A 1988 study provides the most detailed data on how DMSO potentiated chemotherapy agents (particularly against breast cancers) along with shedding light on the innate anticancer activity of DMSO:¹⁷

anticancer activity of dms0

Note: A follow-up study by those authors found that 10% DMSO greatly enhanced the potency of a variety of anticancer drugs on ovarian cancer cells.¹⁸

- In rats treated for bladder cancer with doxorubicin, adding 10% DMSO caused a 7.1 fold increase in bladder concentration (while 50% caused a 12.1 fold increase) and a 9.3 to 9.6 fold increase in the lymph nodes. Mixing doxorubicin in 5% DMSO reduced the amount of doxorubicin needed to eliminate cancer by 44%.¹⁹

- A 2021 Ukrainian study of 52 patients with bladder cancer who had it surgically removed found that giving intravesical DMSO in conjunction with chemotherapy significantly reduced the 5-year recurrence, and there were no side effects from doing so.²⁰

relapse rates in groups

Specific Chemotherapies

•Cisplatin studies — One of the most extensively tested DMSO combinations is with cisplatin, a drug that has shown significant promise for pairing with DMSO. However, it is also a concern because DMSO can bind to platinum-containing drugs (such as cisplatin, carboplatin, and oxaliplatin) and partially inactivate them.²¹

However, when tested in cell cultures and animals, DMSO typically increases the efficacy and reduces the toxicity of Cisplatin (but in some cases reduces Cisplatin's efficacy). For example:

◦In a 1982 study of dogs with bladder cancer, mixing DMSO with cisplatin caused a threefold increase in how much was absorbed into the bladder muscle²² (which is similar to what this study found).²³

◦A 1991 rat study found that giving DMSO with cisplatin reduced its kidney toxicity (and weight loss) but did not reduce its toxicity to carcinosarcoma.²⁴

◦A 1995 study of rats with experimentally induced bladder cancer found that combining DMSO with cisplatin decreased the depth of cancer invasion compared to cisplatin alone or to placebo.²⁵

◦A 2008 study found that mixing cisplatin with DMSO reduced both its neurotoxicity and toxicity to cancer cells,²⁶ with the decrease in neurotoxicity being approximately twice the reduction in cancer cell toxicity. It also significantly decreased cisplatin's toxicity to the kidneys and slowed its elimination from the body.

◦A 2015 mouse study showed DMSO reduced the kidney toxicity of cisplatin, increased its reduction in tumor size,²⁷ and increased the survival time in animals who received it. Likewise, another study found that DMSO increased cisplatin's efficacy and decreased its toxicity.²⁸

◦A 2019 study found that DMSO doubled the toxicity of cisplatin to lung cancer cells (thereby making a much lower therapeutic dose needed) and reduced the cancer cells' resistance to chemotherapy drugs.²⁹

•Other chemotherapy studies — DMSO has also been shown to enhance the efficacy of a variety of other cancer drugs:

◦A 1986 study found DMSO increased acute lymphocytic leukemia (ALL) sensitivity to nitrogen mustard in a dose-dependent fashion (the compound cyclophosphamide is derived from).³⁰

◦A 1989 study found that DMSO enhanced the ability of cisplatin, 5-FU, and cyclophosphamide to slow aggressive (implanted) prostate cancers.³¹

◦A 1994 case report detailed two AIDS patients with Kaposi's sarcoma who were successfully treated with topical DMSO mixed with bleomycin, with no toxicity being observed.³²

◦A 1998 study found that DMSO increased the potency of 5-fluorouracil and doxorubicin.³³

◦A 2001 study found that DMSO induced differentiation in human breast cancer cells and increased their sensitivity to doxorubicin.³⁴

◦A 2004 study found that DMSO caused a 71.7% growth inhibition of breast cancer cells at 96 hours and improved the safety and efficacy of the cancer drug gemcitabine.³⁵

◦A recent study found that DMSO significantly reduced the growth of prostate cancer cells, and this effect increased when it was given concurrently with nelfinavir.³⁶

Lastly, DMSO when combined with 5-fluorouracil (5-FU), has repeatedly been found to treat skin cancers and warts. For example, a 1967 study found DMSO significantly increased 5-FU's potency and made 5% able to locally treat keratoacanthoma, superficial basal cell, and early stage squamous cell carcinoma without causing any adverse effects³⁷ and likewise, this study used DMSO to enhance 5-FU's ability to treat seborrheic keratosis.³⁸

•Photodynamic therapy — Photodynamic therapy works by combining a photosensitizer (e.g., 5-ALA) with light in tumors, generating a reactive chemical that destroys the cancer. DMSO has also repeatedly been found to enhance this treatment:

◦A 1995 study found that mixing 5-ALA with 2% EDTA and 2% DMSO eliminated 85.4% of basal cell carcinomas (BCC) in 48 patients, 100% of superficial squamous cell carcinomas (SCC) in 5 patients, partially improved 2 ulcerated SCCs, and overall to more than double the response to 5-ALA photodynamic therapy.³⁹

◦Another 1995 study treated 763 BCCs in 122 patients, using either 5-ALA, 5-ALA with DMSO as a

pretreatment, or 5-ALA plus DMSO plus EDTA. DMSO plus EDTA was shown to improve 5-ALA penetration depth significantly, doubled ALA-induced porphyrin production (a key part of photodynamic therapy), and almost doubled the response to treatment.⁴⁰

- A 2009 study found DMSO plus 5-ALA photodynamic therapy entirely eliminated 55 out of 60 basal cell cancers (with a good cosmetic outcome), of which 81% did not recur after 6 years (with 91% not recurring if two rather than one treatment was given).⁴¹

- In another 2009 study, 19 cases of Bowen's disease (early SCC) and 15 BCCs received a single course of photodynamic therapy with DMSO and EDTA. At 3 months, 91.2% of the tumors were gone, while at 60 months, 57.7% of Bowen's disease and 63.3% of BCCs had not recurred.⁴²

- Other pharmaceutical combinations — Other (less toxic) drugs have also shown promise for cancer when combined with DMSO. For example:

- Since cervical cells can easily be gently scraped off and examined, a team of researchers evaluated how a variety of substances caused them to transform into cancers or caused cancerous cells to differentiate into normal cells.⁴³

From this, they found that while DMSO alone did very little, if it was combined with a small amount of dexamethasone, within 2 to 3 weeks, it rapidly transformed the cancerous cells (e.g., carcinomas in situ or metastatic cervical cancers lesions) to normal ones and healed the surrounding tissue (e.g., malignant tissues, typically red, granular, and friable, became smooth, pink, and resilient with diminished bleeding and vascularity), and at the time of publication, reported successfully treating six out of six patients, including one with metastatic cancer.

Note: DMSO in combination with colchicine has also been used to treat skin cancer.⁴⁴

- A 2015 study found that DMSO significantly increased the toxicity of organotin polyethers on various cancer cells.⁴⁵

- One approach to eliminating cancer is using a magnetic molecule that can be heated with a magnetic field. When a 2021 study attached that substance to DMSO,⁴⁶ it was found to be an effective treatment for cervical cancer and significantly enhance the potency of the cancer drug carmustine.⁴⁷

Note: There are also many papers that found DMSO containing drugs (e.g., ruthenium-based ones) effectively eliminate cancers⁴⁸ and in some cases will selectively target metastatic tumors.⁴⁹

Natural Combination Therapies

In the same way that DMSO potentiates chemotherapy, it can also enhance the effects of natural compounds. For example:

- A 1969 study found that DMSO, when combined with heat and vitamin A, selectively targeted cancer cells.⁵⁰

- A 2018 study found that DMSO and a plant extract selectively arrested cell growth and induced cell death of colon cancer cells.⁵¹

- A 2023 study found that when fatty acids were isolated from the urine of healthy cows and mixed with DMSO, it was an effective therapy against breast cancer cells.⁵²

Currently, I believe the most promising use of DMSO is to potentiate a natural therapy, as these compounds have minimal toxicity (so little risk exists when potentiating them). Some of the most extraordinary benefits I have seen from DMSO combination therapy came from combining it with a natural therapy, which was known to be effective against cancer.

For example, numerous clinical trials have shown that when DMSO is combined with baking soda,⁵³ it not only treats cancer but also significantly decreases the pain and symptomatology experienced from advanced cancers being treated with chemotherapy, with these benefits greatly exceeding those available in the existing medical arsenal. Likewise, other natural therapies used to treat cancer (e.g., vitamin C) have also demonstrated synergistic efficacy with DMSO.

Since there are so many potential combinations with DMSO, most of them have never been tested, and many synergistic combinations remain to be discovered. Fortunately however, one remarkable one has been, DMSO mixed hematoxylin (a dye commonly used in pathology, which like DMSO, comes from a tree).

This combination selectively targets cancer cells (as it will only stain cancerous tissues once injected), has virtually no toxicity, and over the decades has shown a success rate of between 80% to 90% in treating a variety of otherwise challenging (and often "incurable") cancers

Note: This combination was discovered roughly 60 years ago, but despite the FDA receiving remarkable data on its safety and efficacy over the years, like many other promising cancer cures, it was buried. Fortunately, an underground network of practitioners kept the treatment alive, and recently one doctor who spent fifteen years refining the therapy shared all of his remarkable data with me (which is discussed here).

Conclusion

The practice of medicine is shaped by a set of deeply ingrained assumptions — many of which can be harmful to patients. For example, the blanket belief that all vaccines are "safe and effective" persists despite a vast body of evidence linking childhood vaccinations to a wide range of chronic illnesses.

In oncology, one such assumption is that cancer is an unstoppable disease that demands brutal treatments merely to offer a chance at survival. As I've aimed to show here, this belief rests on a shaky foundation, as even when conventional cancer therapies — often highly toxic — are deemed necessary, their damaging effects can be significantly reduced when combined with compounds like DMSO (while simultaneously their efficacy can be increased).

The medical establishment's excessive greed and overreach during the COVID-19 era opened many eyes, leading people to question long-held narratives. If effective treatments for COVID were actively suppressed, it's only natural to wonder: could the same be true for cancer?

This wave of critical thinking helped spark the Make America Healthy Again (MAHA) Movement, which is now working to overturn decades of harmful public health policies that have consistently prioritized profit over people. I believe we are facing a once-in-a-lifetime opportunity to reexamine the flawed foundations of modern medicine — and that this series has shown how a single, overlooked compound could dramatically reshape the way we treat cancer.

Author's Note: This is an abridged version of a longer article that reviews the point mentioned here in more detail. It also discusses how DMSO reduces cancer pain, the complications of radiation therapy and chemotherapy, and how it greatly enhances the effectiveness of both conventional and natural cancer treatments.

That article (along with guidance for using DMSO) can be read here. Additionally, a companion article on how DMSO and a natural dye can transform cancer treatment can be read here.

DMSO - miracle cure for many health problems - substack Fox. Dr, Miller

- Autoimmune disorders, • Chronic nerve inflammation, • Diabetic neuropathy, • Stroke-related disability
- Debilitating arthritis, • Vaccine injuries, • Chronic pain. • Even cancer

"If you buy it pharmaceutical grade, it still says 'not for human use,' and that really throws people off."

To ease people in, Miller usually starts patients with topical application, even in cases of systemic illnesses like lupus or rheumatoid arthritis.

"I just say, where's the part that's the most bothersome to you? Put it there," he explained. And in most cases, people begin to feel some improvement—fast.

If symptoms persist, then—and only then—does he move to oral use. But he takes it slow.

"I like people to use it topically for at least a couple of weeks first," Miller said, "so they can get used to it." That's because one of DMSO's quirks is its smell.

"To actually have DMSO be harmful, you'd have to ingest 100 times the max dose we'd recommend," he said. "A single bottle can last a person pretty much their whole life."

"If you want something into your body—like MSM cream for arthritis—just add a little DMSO," he said.

"It'll absorb so fast into your muscles, tendons, and joints. It's wonderful."

But he also issued a key warning: "If your skin is dirty, DMSO will pull whatever's on it—like cheap lotion or toxic sunscreen—straight into your bloodstream."

https://www.vigilantfox.com/p/exclusive-doctor-reveals-the-dirt?utm_source=post-email-title&publication_id=975571&post_id=161929530&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

Story at a Glance:

- The FDA was established in 1906 in response to public concern over unsafe food and drugs, such as spoiled food and counterfeit products. However, food industry lobbyists gradually gained influence, leading to the removal of the agency's original leader. As a result, numerous harmful food additives were granted "generally recognized as safe" (GRAS) status and continue to be used today.
- In 1962, the FDA was given broad powers to oversee drug safety following the thalidomide incident. Unfortunately, the new regulations created strict standards for drug efficacy that were often selectively enforced, benefiting the pharmaceutical industry. Unfortunately, the FDA increasingly targeted natural therapies, which led to many being erased from history.
- Despite numerous attempts to reform the agency, issues of inefficiency and bias within the FDA persist. This article examines these challenges and suggests potential reforms to improve the agency's role in safeguarding public health.

For most of my life, I've observed the FDA belligerently suppress natural treatments and any unorthodox therapy which threatens the medical monopoly while simultaneously railroading through a variety of unsafe and ineffective drugs regardless of how much public protest the agency meets. Consider this 2004 Senate testimony by the FDA scientist who got Vioxx banned that accurately described exactly what would come to pass with the COVID vaccines two decades later:

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Over the past year, especially since Trump's election, I've received many questions about FDA reform. To address the issue properly, I've carefully examined both sides.

In medicine, "**sensitivity**" refers to a test's ability to correctly identify those who have a condition (e.g., detecting an infection), while "**Story at a Glance:**

•The FDA was established in 1906 in response to public concern over unsafe food and drugs, such as spoiled food and counterfeit products. However, food industry lobbyists gradually gained influence, leading to the removal of the agency's original leader. As a result, numerous harmful food additives were granted "generally recognized as safe" (GRAS) status and continue to be used today.

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The FDA faces a similar challenge: it must prevent harmful foods and drugs from reaching the market while ensuring useful products aren't blocked. Though this seems straightforward, it's incredibly difficult, and the FDA has often failed at both, even with leadership dedicated to public health.

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The director of the Bureau of Chemistry (and thus the first head of the FDA), Harvey Wiley, conducted tests on food additives, proving they made healthy volunteers sick. While the public and many scientists supported his findings, the food industry fought back with powerful lobbyists and legal tactics.

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Wiley's book "The History of A Crime Against The Food Law" details much of the same abhorrent industry tactics we see happening now. For example, a series of investigative reports recently showed that the processed food industry's lobbyists worked fervently behind the scenes to block RFK's nomination and had there not been widespread public protest, would have stopped us from Make America Healthy Again.

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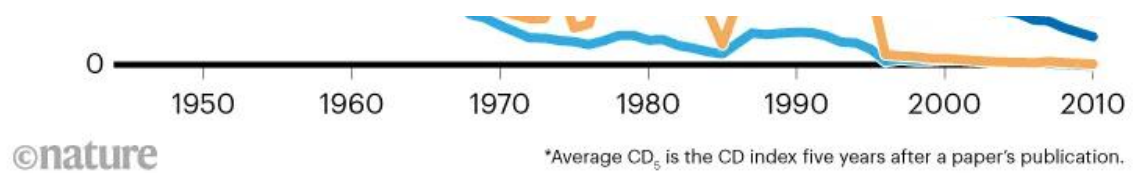
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Shortly before the election, RFK Jr. gave what I considered to be one of the most important statements in the entire campaign:



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2:25 PM · Oct 25, 2024 · **6.3M** Views

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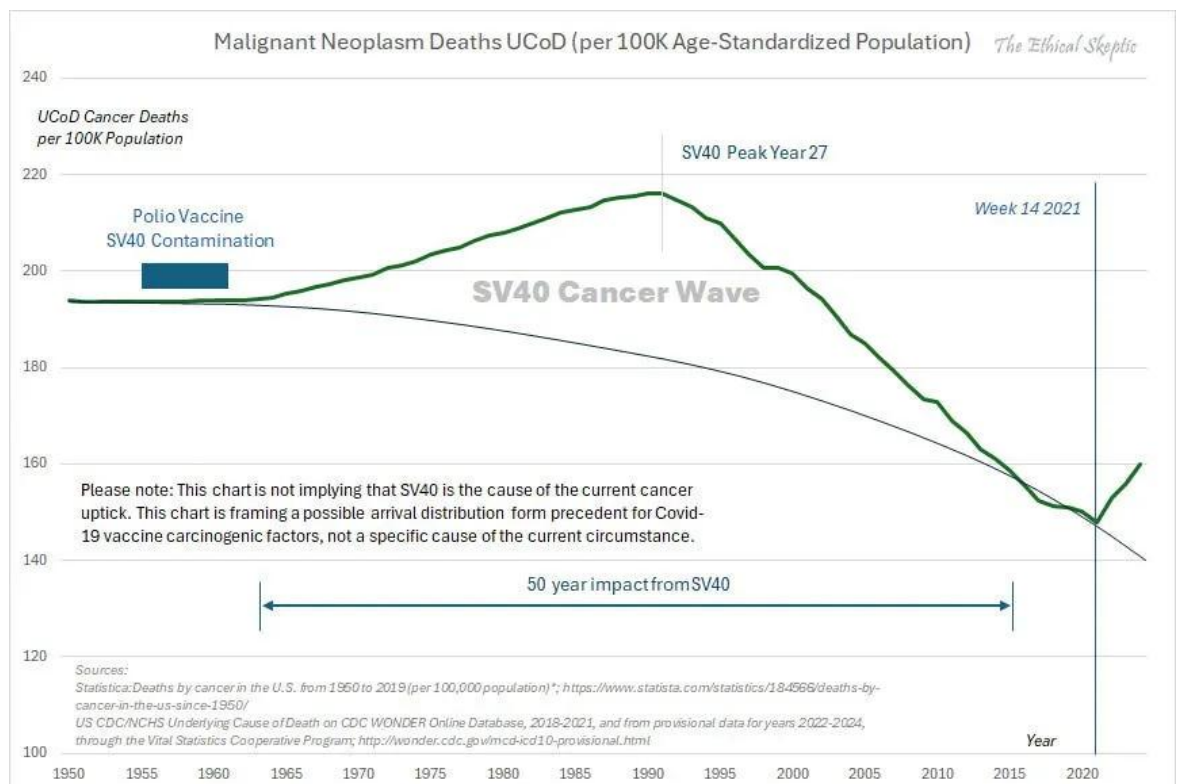
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Many have been horrified to learn that the FDA and CDC systematically ignored every possible sign the COVID vaccines were dangerous as they pushed it on more and more people (e.g., recently leaked recordings show how stubbornly the head of FDA’s vaccine division refused to acknowledge any of the evidence brought forward by a group of permanently injured vaccine recipients).

This severe betrayal of trust from our authorities thus made many ask, “How could this have happened?” In truth, this did not come out of nowhere. Rather it was simply the subsequent escalation of a longstanding tendency by the government to push vaccines they knew were unsafe and ineffective to market.

Vaccine Coverups and Failures by the FDA and CDC:

- **Historical Vaccine Disasters:** Many vaccine-related issues have been ignored or covered up by health authorities, including many deadly “hot lot” incidents.
- **Polio Vaccine Issues:** In the 1950s, defective rushed polio vaccine contained live polio viruses and caused cases of paralysis. Further, it was later discovered that the vaccine contained SV-40, a cancer-causing virus, which was also not disclosed to the public. Around 40-98 million Americans were exposed to SV-40, leading to a massive wave of cancer cases.



Note: to produce the emergency COVID vaccines at scale, a novel manufacturing process was used, which caused them to be contaminated with dangerous DNA-altering bacterial plasmids that contained part of the SV-40 virus.

- **Influenza Vaccine Failures:** In 1945, a government scientist discovered that early flu vaccines were ineffective and unsafe. Despite this, the scientist faced retaliation and the vaccines were released. This led to a 1972 Senate hearing that removed **32 dubious vaccines from the market**.
- **Swine Flu Vaccine Disaster (1976):** The swine flu vaccine, released despite evidence showing the flu posed no risk, caused hundreds of cases of Guillain–Barré syndrome, paralysis, and deaths. Like the Polio vaccines, the FDA was warned by its own scientists these vaccines were not safe but nonetheless pushed them to market. However it occurred in an era when 60 Minutes was willing to do a segment on the disaster (which has numerous remarkable parallels to what happened during COVID-19).
- **Gulf War Syndrome:** During the Gulf War, the FDA waived the protections soldiers had from experimental drugs and U.S. soldiers were given many, including a disastrous anthrax vaccine (which due to its rushed “emergency” production was contaminated). A wave of severe chronic illness (Gulf War Syndrome) followed, **affecting 250,000 veterans** (discussed further here). Despite this, the vaccine remained mandated for decades until a court overturned it in 2004.
- **HPV Vaccine Controversy:** The lucrative HPV vaccine, was approved by the FDA despite red flags throughout the clinical trials (e.g., high rates of autoimmunity, death, and it causing cervical cancer—discussed further here). Once it hit the market, a tsunami of injuries occurred, yet the FDA and CDC continued to relentlessly defend and promote the vaccine.

Other Disastrous Drug Approvals:

- **SSRI Antidepressants:** The FDA approved SSRIs like Prozac despite poor evidence for their effectiveness and known severe side effects including suicidal tendencies, emotional numbness, violent behavior and mass shootings. These risks were concealed from the public, despite extensive complaints and lawsuits later showing those dangers were detected in the trials.
- **Alzheimer's Drugs:** A new and misguided class of Alzheimer's drugs, despite failing to show efficacy and causing dangerous side effects like brain swelling and bleeding in 40% of participants, was approved by the FDA after bypassing an advisory committee's negative vote. The agency's manipulation of the approval process raised red flags, leading to widespread scrutiny.
- **Ozempic and Weight Loss Drugs:** The FDA also approved weight loss drugs like Ozempic without sufficient evidence, promoting them aggressively despite concerns over long-term safety and effectiveness. The drug's promotion has led to it being widely marketed, even for use in children.

In summary, the FDA has an established history of approving unsafe and ineffective vaccines and drugs, often suppressing evidence and protecting corporate interests over public safety.

Conclusion

At this point, I've seen a variety of proposals put forward to fix the FDA, which alternate between reforming the agency and scrapping it entirely.

In my eyes, the core dilemmas are:

1. **Inadequate Resources:** Effectively regulating foods and drugs in America is a gargantuan task that exceeds the scope of what the FDA can do.
2. **Corruption and Conflicts of Interest:** The FDA often defers to pharmaceutical companies for drug safety evaluations, leading to a pay-to-play system where approval is influenced by financial contributions rather than scientific integrity.
3. **Lack of Accountability:** Once a drug is approved, the FDA rarely revokes approval, even when evidence of harm emerges.
4. **Selective Prosecution:** The FDA targets natural medicines because they lack the resources of fight back like pharmaceutical companies, creating a (risk-free) facade of protecting the public.

Proposed solutions for restructuring the FDA include:

1. **Conflict of Interest Laws:** Legislation that retroactively nullifies votes or decisions made by regulators or panel members with current or future financial ties to pharmaceutical companies.
2. **Separate Approval Tracks:** Create two approval systems: one for conventional drugs (focusing only on safety) and another for alternative therapies with proven safety but questionable efficacy.
3. **Market-Driven Efficacy:** Allow market demand to determine a drug's efficacy rather than relying solely on FDA approval, as consumers often have better insight into what works.
4. **Public Involvement:** Involve the public and AI systems in reviewing large (anonymized) patient datasets to help identify (frequently overlooked) red flags.
5. **Transparent Data Access:** Make drug trial data publicly available to expose fraudulent or incomplete data, (e.g., the COVID vaccine trials were rife with fraud).
6. **Revocation of Drug Approvals:** Implement mechanisms to revoke approval for unsafe drugs, including allowing state-level bans and empowering courts to remove harmful drugs from the market.

Previously, implementing ideas like these was impossible, but now that platforms like Twitter (X) have broken the mass media's stranglehold on democracy and allowed leaders who want to change things to make things better, I believe it can happen (e.g., Secretary Kennedy recently moved to close the GRAS loophole and as shown above, Commissioner Makary just ended pharmaceutical representatives being on the panels which vote to approve their drugs). However, as Wiley presciently warned, that can only happen if the public becomes actively involved—something the MAHA movement (and each of you) now makes possible!

Author's note: This is an abridged version of an article about the FDA's unconscionable war against

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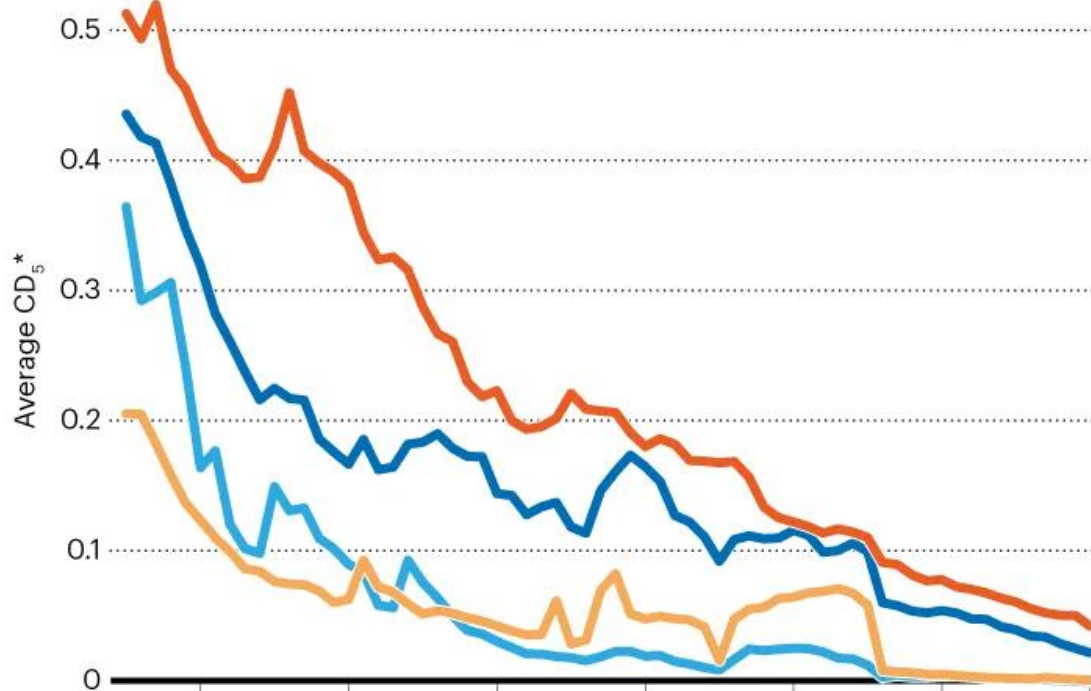
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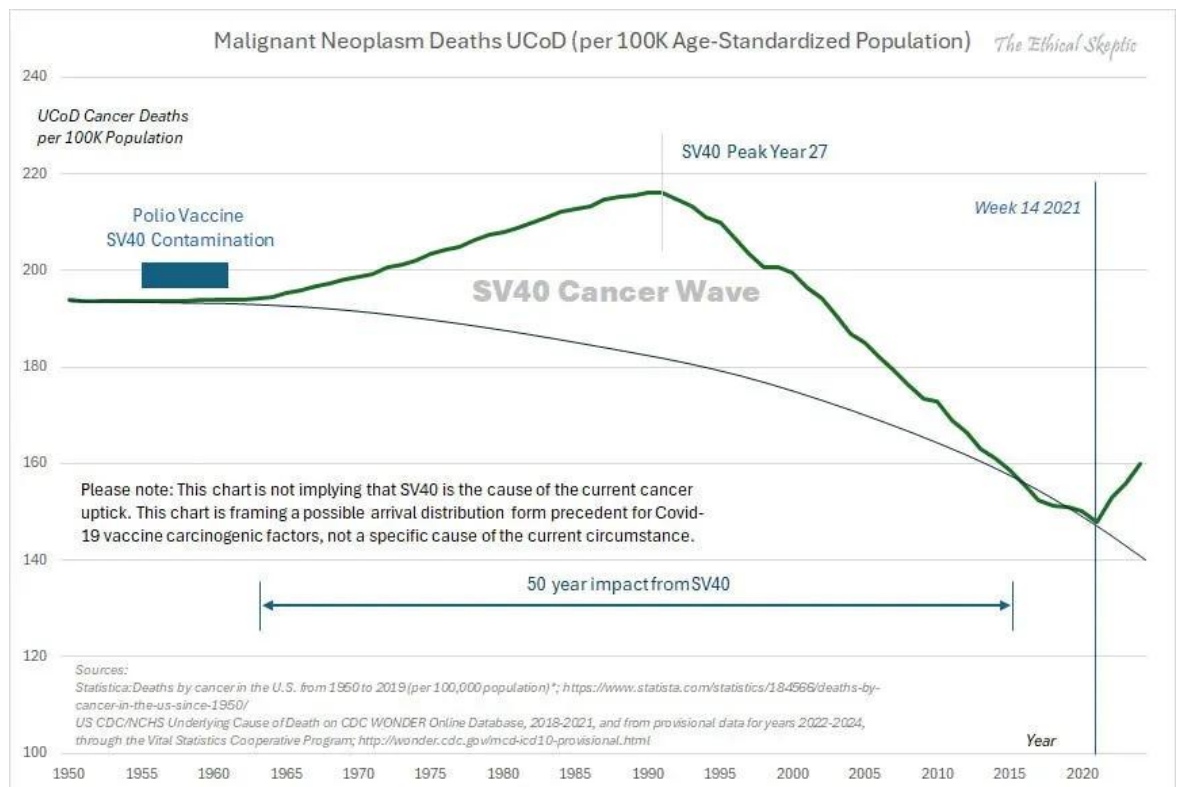
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- **Historical Vaccine Disasters:** Many vaccine-related issues have been ignored or covered up by health authorities, including many deadly “hot lot” incidents.
- **Polio Vaccine Issues:** In the 1950s, defective rushed **polio vaccine contained live polio viruses** and caused cases of paralysis. Further, it was later discovered that the vaccine contained SV-40, a cancer-causing virus, which was also not disclosed to the public. Around 40-98 million Americans were exposed to SV-40, leading to a massive wave of cancer cases.



Note: to produce the emergency COVID vaccines at scale, a novel manufacturing process was used,

which caused them to be contaminated with dangerous DNA-altering bacterial plasmids that contained part of the SV-40 virus.

- **Influenza Vaccine Failures:** In 1945, a government scientist discovered that early flu vaccines were ineffective and unsafe. Despite this, the scientist faced retaliation and the vaccines were released. This led to a 1972 Senate hearing that removed **32 dubious vaccines from the market**.
- **Swine Flu Vaccine Disaster (1976):** The swine flu vaccine, released despite evidence showing the flu posed no risk, caused hundreds of cases of Guillain–Barré syndrome, paralysis, and deaths. Like the Polio vaccines, the FDA was warned by its own scientists these vaccines were not safe but nonetheless pushed them to market. However it occurred in an era when 60 Minutes was willing to do a segment on the disaster (which has numerous remarkable parallels to what happened during COVID-19).

- **Gulf War Syndrome:** During the Gulf War, the FDA waived the protections soldiers had from experimental drugs and U.S. soldiers were given many, including a disastrous anthrax vaccine (which due to its rushed “emergency” production was contaminated). A wave of severe chronic illness (Gulf War Syndrome) followed, **affecting 250,000 veterans** (discussed further here). Despite this, the vaccine remained mandated for decades until a court overturned it in 2004.
- **HPV Vaccine Controversy:** The lucrative HPV vaccine, was approved by the FDA despite red flags throughout the clinical trials (e.g., high rates of autoimmunity, death, and it causing cervical cancer—discussed further here). Once it hit the market, a tsunami of injuries occurred, yet the FDA and CDC continued to relentlessly defend and promote the vaccine.

Other Disastrous Drug Approvals:

- **SSRI Antidepressants:** The FDA approved SSRIs like Prozac despite poor evidence for their effectiveness and known severe side effects including suicidal tendencies, emotional numbness, violent behavior and mass shootings. These risks were concealed from the public, despite extensive complaints and lawsuits later showing those dangers were detected in the trials.
- **Alzheimer's Drugs:** A new and misguided class of Alzheimer's drugs, despite failing to show efficacy and causing dangerous side effects like brain swelling and bleeding in 40% of participants, was approved by the FDA after bypassing an advisory committee's negative vote. The agency's manipulation of the approval process raised red flags, leading to widespread scrutiny.
- **Ozempic and Weight Loss Drugs:** The FDA also approved weight loss drugs like Ozempic without sufficient evidence, promoting them aggressively despite concerns over long-term safety and effectiveness. The drug's promotion has led to it being widely marketed, even for use in children.

In summary, the FDA has an established history of approving unsafe and ineffective vaccines and drugs, often suppressing evidence and protecting corporate interests over public safety.

Conclusion

At this point, I've seen a variety of proposals put forward to fix the FDA, which alternate between reforming the agency and scrapping it entirely.

In my eyes, the core dilemmas are:

1. **Inadequate Resources:** Effectively regulating foods and drugs in America is a gargantuan task that exceeds the scope of what the FDA can do.
2. **Corruption and Conflicts of Interest:** The FDA often defers to pharmaceutical companies for drug safety evaluations, leading to a pay-to-play system where approval is influenced by financial contributions rather than scientific integrity.
3. **Lack of Accountability:** Once a drug is approved, the FDA rarely revokes approval, even when evidence of harm emerges.
4. **Selective Prosecution:** The FDA targets natural medicines because they lack the resources of fight back like pharmaceutical companies, creating a (risk-free) facade of protecting the public.

Proposed solutions for restructuring the FDA include:

1. **Conflict of Interest Laws:** Legislation that retroactively nullifies votes or decisions made by regulators or panel members with current or future financial ties to pharmaceutical companies.

2. **Separate Approval Tracks:** Create two approval systems: one for conventional drugs (focusing only on safety) and another for alternative therapies with proven safety but questionable efficacy.
3. **Market-Driven Efficacy:** Allow market demand to determine a drug's efficacy rather than relying solely on FDA approval, as consumers often have better insight into what works.
4. **Public Involvement:** Involve the public and AI systems in reviewing large (anonymized) patient datasets to help identify (frequently overlooked) red flags.
5. **Transparent Data Access:** Make drug trial data publicly available to expose fraudulent or incomplete data, (e.g., the COVID vaccine trials were rife with fraud).
6. **Revocation of Drug Approvals:** Implement mechanisms to revoke approval for unsafe drugs, including allowing state-level bans and empowering courts to remove harmful drugs from the market.

Previously, implementing ideas like these was impossible, but now that platforms like Twitter (X) have broken the mass media's stranglehold on democracy and allowed leaders who want to change things to make things better, I believe it can happen (e.g., Secretary Kennedy recently moved to close the GRAS loophole and as shown above, Commissioner Makary just ended pharmaceutical representatives being on the panels which vote to approve their drugs). However, as Wiley presciently warned, that can only happen if the public becomes actively involved—something the MAHA movement (and each of you) now makes possible!

***Author's note:** This is an abridged version of an article about the FDA's unconscionable war against DMSO (which set the agency's behavior for decades to come), an article about the FDA's past vaccine*

disasters and **a longer article** which goes into greater detail on the points mentioned here along with other promising therapies the FDA has blacklisted (which can be read **here**).

DMSO appears to also treat Cancer - MidWestern Dr. April 12, 2025. Mercola April 18. 2025

https://www.midwesterndoctor.com/p/the-forgotten-cancer-cure-hiding?utm_source=post-email-title&publication_id=748806&post_id=158614659&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

https://articles.mercola.com/sites/articles/archive/2025/04/18/how-dmsso-naturally-eliminates-cancers.aspx?cid_source=takecontrol&cid_medium=email&cid_content=art1Bttn&cid=20250518_TC&utm_source=substack&utm_medium=email

The Forgotten Cancer Cure Hiding in Plain Sight

How DMSO turns a common dye into a highly potent cancer treatment that's harmless to normal tissue



A MIDWESTERN DOCTOR

APR 12, 2025 · PAID



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Story at a Glance

•DMSO is a safe and naturally occurring substance that is remarkably effective for a wide range of diseases including pain, injuries, and strokes.

•DMSO effectively dissolves a variety of medications and can transport them throughout the body. This increases their potency, makes it possible to administer them through the skin, and allows them to target things deep within the body (e.g., resistant infections) that other therapies have difficulty reaching.

•Through various mechanisms, DMSO selectively targets cancer cells and simultaneously mitigates the consequences of cancer therapies. It also brings conventional and natural cancer therapies to tumors, thereby significantly increasing the potency of these therapies (while simultaneously allowing a much lower and less toxic dose to be used).

•When DMSO is combined with hematoxylin (a dye widely used in pathology), it becomes a highly potent cancer treatment, both harnessing DMSO's intrinsic anticancer properties and directly destroying cancer cells. It is also highly specific to targeting cancers while not affecting normal cells, thereby allowing it to dissolve cancers at doses that have virtually no toxicity to the patient.

•Despite its ingredients being relatively easy to procure and producing remarkable results, this therapy (like many other alternative cancer treatments) was almost completely forgotten. Fortunately, a narrow thread of knowledge has kept this sixty-year-old discovery alive, most recently through a doctor who spent the last fifteen years refining this lost therapy and successfully treating cancer patients with it.

•This article will discuss everything known about DMSO-hematoxylin, such as its mechanisms, which cancers it responds to (e.g., it's very effective for leukemias along with their associated anemias and can often treat advanced cancers no other treatment works for), and with how to use it both at home and within a medical setting.

Over the last six months, I've worked to bring the public's attention to dimethyl sulfoxide

(DMSO) a forgotten natural therapy which rapidly treats a wide range of conditions and that many studies have shown is very safe (provided it's used correctly), and, most importantly (thanks to the 1994 DSHEA act which legalized all natural therapies) is now readily available. Since I believe DMSO has an immense amount to offer to the medical community and individual patients, I've thus diligently worked to compile the evidence that would best make the case for its rediscovery. As such, throughout this series, I've presented over a thousand studies that DMSO effectively treats:

Strokes, paralysis, a wide range of neurological disorders (e.g., Down Syndrome and dementia), and many circulatory disorders (e.g., Raynaud's, varicose veins, hemorrhoids), which I discussed here.

A wide range of tissue injuries, such as sprains, concussions, burns, surgical incisions, and spinal cord injuries (discussed here).

Chronic pain (e.g., from a bad disc, bursitis, arthritis, or complex regional pain syndrome), which I discussed here.

A wide range of autoimmune, protein, and contractile disorders such as scleroderma, amyloidosis, and interstitial cystitis (discussed here).

A variety of head conditions, such as tinnitus, vision loss, dental problems, and sinusitis (discussed here).

A wide range of internal organ diseases such as pancreatitis, infertility, liver cirrhosis, and endometriosis (discussed here).

A wide range of skin conditions such as burns, varicose veins, acne, hair loss, ulcers, skin cancer, and many autoimmune dermatologic diseases (discussed here).

Many challenging infectious conditions, including chronic bacterial infections, herpes, and shingles (discussed here).

While unbelievable, consider for a moment this 1980 report by 60 Minutes that corroborates much of that:

Fortunately, much in the same way DMSO's caught on in the 1960s, providing that evidence again has allowed it to make a rapid resurgence (e.g., I've now received over 2000 stories from readers who've often had remarkable improvements from using it).

Of the myriad of uses for DMSO, the least appreciated one is its applications in cancer due to the politics around "unproven" cancer therapies:

Dr. Stanley Jacob [the pioneer of DMSO] also is acquainted with Tucker's work. In fact, he telephoned Tucker a few days before the Mike Wallace *60 Minutes* show on CBS-TV to check out progress on the cancer treatment. Jacob plays down the DMSO-cancer connection, because he has enough trouble getting the substance recognized for all of its other special uses. He doesn't want to have to fight off the label of "cancer quackery" as well.

As such, I recently published an article on DMSO's remarkable properties for treating cancer and cited hundreds of studies showing that:

- DMSO causes a wide range of cancer cells to transform back into normal cells.
- DMSO slows the growth of many cancers.
- DMSO allows the immune system to target and eliminate cancers it previously was unable to remove.
- DMSO treats many challenging complications of cancer such as cancer pain and amyloidosis from multiple myeloma.
- DMSO protects tissue from radiation and chemotherapy injuries.
- DMSO makes many cancer therapies (e.g., radiation or chemotherapy) more potent, thereby ensuring both a higher treatment success rate and far less complications (as less toxic doses are being used).

Remarkably, despite DMSO's anticancer properties routinely being used in lab experiments (including those seeking to find anticancer agents with those same anticancer properties), the cancer field has a striking blind spot to DMSO's use, so in the existing literature, it is almost never discussed as a potential therapeutic.

Of these many uses, I believe the two most noteworthy are DMSO's ability to mitigate the challenging complications of cancer (e.g., cancer pain or protecting healthy tissue from radiation therapy) and its ability to potentiate other anti-cancer agents.

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Combination DMSO Therapies

One of the major advantages and risks of DMSO is that it can bring substances through the skin and significantly increase their potency in the body. On one hand, this is quite advantageous as it makes it possible to administer things which would otherwise require injections through the skin and for much lower doses of them to be needed to get results (e.g., as I showed [here](#), antimicrobials mixed with DMSO are often able to treat a wide range of chronic infections which otherwise resist antimicrobial therapy). However, on the flip side, it greatly increases the risk of toxicity, either by accidentally bringing toxic compounds (e.g., pesticides) into the body that were on the skin prior to applying DMSO (or that were touched afterwards), or increasing the potency of a drug taken in combination with it.

*Note: it is well known that healthcare workers who routinely administer chemotherapy periodically have accidental exposures to it (e.g., via vapor inhalation), so organizations like the CDC and NIOSH have worker guidelines about it (as these exposures increase the risk for a variety of issues including cancers). Since DMSO will cause chemotherapy drugs it is mixed with to be absorbed through the skin, it is crucial **to be extremely cautious when administering it with chemotherapy drugs** (particularly when applying it topically).*

Since natural therapies are typically much less toxic than conventional pharmaceuticals and easily available (rather than requiring a prescription) over the years, people have tried combining DMSO with many of them and frequently found significant advantages from mixing them together DMSO.

This also holds true in the field of cancer care, and from reviewing all of the ways in which DMSO has been used to treat cancer, I believe the most promising applications (and which had the strongest data supporting their human use) came from DMSO being used in combination with another natural therapy. Unfortunately, the number of substances DMSO can be combined with is almost endless, and as such, the DMSO field has only scratched the surface of what it

with is almost endless, and as such, the DMSO field has only scratched the surface of what it can be combined with to treat cancer. Many highly potent cancer treatments are likely waiting to be discovered once the right things are combined with DMSO.

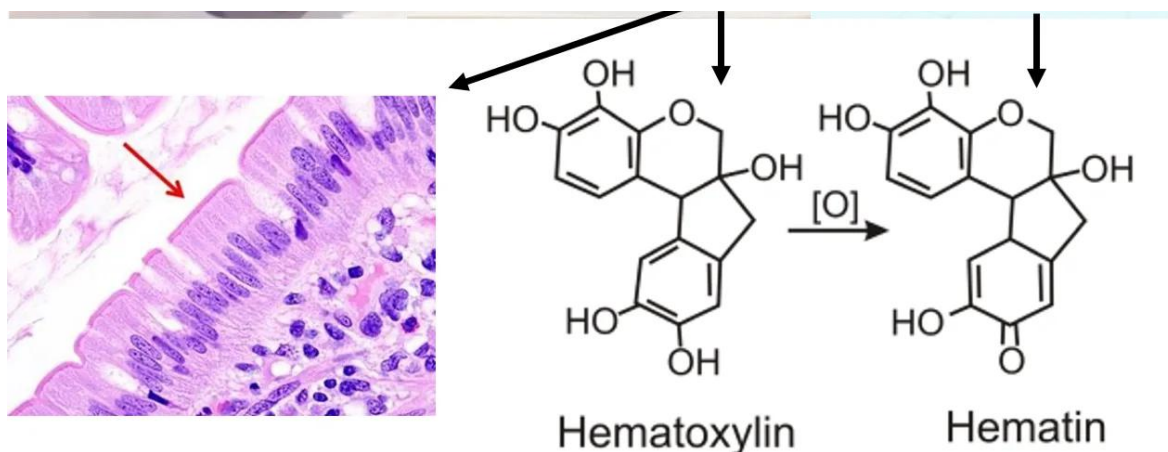
Note: somewhat analogously, in the hundreds of studies I identified that examined if DMSO could differentiate a specific tumor type or improve a particular cancer-related gene (or protein), most of them found DMSO did create an improvement. As such, many other aspects of cancer would likely also be seen to improve following DMSO if they were to be tested.

Hematoxylin

Hematoxylin is a powder obtained from the logwood tree (e.g., grinding the heartwood up, boiling it in water to dissolve the hematoxylin present, and evaporating that mixture so only the powder remains). That tree is native to Central America and was originally used by the Mayans to stain cotton and as a medicinal (e.g., to treat diarrhea and dysentery). After its discovery by the Spanish in 1502, a massive market for it quickly developed due to the textile industry's need to establish a dependable dye. Before long it began to be mixed with a variety of metal salts so it would remain in fabric (and not wash out).

Since many cellular processes are transparent and hence difficult to see without dyes that can stain them, much later (around 1830) hematoxylin began to be used in pathology where it was discovered (once oxidized into hematein and attached to a metal salt) it was remarkably effective for staining many components of cells including DNA. In turn, because of how well it works, almost two hundred years later, it remains one of the primary stains used in pathology to evaluate tissue (it's the "H" in H & E stains).





Note: like hematoxylin, DMSO is also obtained from trees. Because each of these compounds is so widely used, they are also very affordable.

Tucker's Discovery

Currently, most of the drugs we use are developed by a mechanistic system where biologically relevant targets in the body (e.g., receptors or enzymes) are identified through research, then compounds are mass screened through for their ability to affect those targets, with the ones that can elicit some type of pertinent change then run through a funnel (which can involve animal and then sometimes human testing) to identify which from that large pool of candidates elicits a benefit.

Note: compounds are sometimes custom-designed to affect receptors or identified through AI systems rather than physically testing a broad swathe of them.

In contrast, previously, drug design was much more of a hit or miss process, and frequently incredible discoveries would happen either by luck or under a completely mistaken assumption.

For example, the first antibiotic was developed by mixing a substance known to be toxic to bacteria (arsenic) with a dye that stained bacterial cell walls under the theory that the dye would allow arsenic to selectively target bacteria rather than the body (with almost all the attempts failing). After decades of attempts were made to replicate this approach, another dye that functioned as an effective antibiotic was found, but before long it was discovered that the antimicrobial agent was not the dye itself but rather a *colorless* metabolic product of it, sulfanilamide.

Similarly, one of the most remarkable therapies I know of (Ultraviolet Blood Irradiation) was originally developed under the belief that exposing the entire circulation to UV light would sterilize the bloodstream and hence treat a lethal infection. This did not work (it killed the test dogs) but before long, the inventor accidentally only irradiated a small fraction of the dog's blood and got a remarkable results as inputting a small amount of UV light into the circulation

transforms human physiology and allows the self-healing capacity of the body to treat a wide range of illnesses (e.g. UVBI is a highly effective treatment for bacterial and viral infections, circulatory disorders and autoimmune diseases).

Hematoxylin likewise follows a similar journey. Eli Jordon Tucker, Jr., M.D. was a highly respected orthopedic surgeon in Texas (with many awards and honorary status in a numerous medical societies) who had a wealth of surgical experience and had discovered a variety of pioneering orthopedic techniques from bone research he conducted as a hobby (e.g., he gained renown for discovering how to graft bones from one species to another). Tucker's bone research required him to purchase cattle from a meat packing company, and in the process, he noticed many of the cows butchers (and meat inspectors) were accepting for slaughter had large cancers covering their faces.

Observing those cancers made Tucker wonder if there was some type of cancer-resisting antibody in those cows, so he began administering extracts of their blood into lab rats and mice with cancers and observed anticancer activity for certain cancers. Since it was unclear how much of a change was occurring, Tucker looked for a dye that could stain the tumors, and eventually realized hematoxylin was the perfect dye because it stained the cancers one color and normal cells another color. Unfortunately, hematoxylin had poor solubility and could not dissolve in normal laboratory solvents or enter solutions, so his ability to use it in his experiments was limited.

So, once DMSO (a potent solvent), came into use around 1963, Tucker tried using it and quickly discovered DMSO not only dissolved hematoxylin but could dissolve a very high concentration of it (e.g., 25g of hematoxylin could be dissolved in 62mL of DMSO). Furthermore, this mixture was excellent for staining cancers and making them visible (e.g., they stood out under the microscope and in gross dissection) as it concentrated in the cancers, but DMSO simultaneously did not stain any other tissues in rats. **Most importantly** there was a "marked increase in central necrosis of the neoplasm" indicating this mixture could potentially eliminate cancers while sparing normal cells.

Note: hematoxylin (dissolved in carboxymethylcellulose), like many other compounds, had previously been screened for its anticancer activity and in the absence of DMSO, had none, which I suspect was in part due to hematoxylin rather than hematein (which hematoxylin rapidly turns into within the body) being used.

Tucker then decided to conduct toxicity studies (initially in dogs) where he found high concentrations of IV DMSO mixed with hematoxylin had **no toxicity** to any of the tissues or organs he examined (and did not accumulate in any non-cancerous tissue). Curiously the mixture he made was far less toxic than IV DMSO alone (which is extremely safe and only had toxicity issues at fairly high concentrations), with roughly four times as much IV DMSO being possible for animals to tolerate once it was mixed with hematoxylin.

Note: the only physiologic change he observed from D-hematoxylin was that blood urea nitrogen would typically drop by around 50%, indicating this mixture improved kidney function.

He then began treating spontaneous cancers in animals (e.g., in horses, dogs and cows), which included terminal cases with massive tumors (e.g., a large-cell lymphosarcoma, a small-cell lymphosarcoma, generalized malignant melanoma, a squamous cell carcinoma) along with an osteogenic sarcoma. In all of these cases, there was a prompt response, and the animal subsequently recovered.

*Note: Tucker found that hematoxylin alone had no effect on cancer cells (as did previous researchers who tested it on a carcinoma, sarcoma and leukemia cell lines) while subsequent investigators found DMSO alone had a minimal anticancer effects compared to the mixture, whereas they could not administer hematoxylin alone (as without DMSO it is essentially not soluble in an IV solution). Going forward (for brevity) I will refer to the DMSO hematoxylin mixture as “**D-hematoxylin**” (which is a term I made up while writing this).*

William Daniel, former Governor of Guam, one of Tucker’s friends, phoned and told the doctor: “E.J., I have a cancerous dog on my ranch who is suffering terribly. Could you do anything to help him, or should I have him put to death?”

“I’d love to try,” answered Tucker. “I’ll send my technician to pick up the dog right away.”

The technician brought the animal to Tucker’s veterinarian, Dr. Collins, for examination. The vet diagnosed that large-cell lymphosarcoma was permeating the dog’s body. “The poor animal is choking to death from the tumors in his throat, and he has large tumors all over his body,” said Dr. Collins over the telephone. “I don’t think he’ll live long enough to be transported to your laboratory.”

Tucker said, “Transfuse him, give him some blood fast, and let me have him for treatment.”

The physician took the dog, which was barely alive, into the laboratory and injected DMSO-hematoxylon solution intravenously. His technician took over the work and gave the injections daily. Within two weeks, all the tumors had disappeared. It seemed like a miracle to the technician.

Upon Tucker’s examination of the dog, he found that all the large-cell lymphosarcoma tumors had completely regressed. The huge masses in the neck and over the whole body of the animal had gone away, and the dog came out of the treatment completely cured.

the treatment completely cured.

The dog was thriving at the laboratory when an unlucky accident caused his death. He ate a large quantity of some meat contaminated with Malathion, an insecticide poison. Tucker performed an autopsy, which revealed no active cancer cells in the vestigial remains of the previously large lymphomatous nodules. Many ghost cells —cells that were formerly cancer but weren't any kind of cells anymore — appeared in the microscopic sections. Not a single distinguishable cancer cell remained in the dog.

Additionally, in 2019, long after Tucker conducted his toxicity experiments, to help the Ecuador team, Roger Tapia, a veterinary student conducted his own LD50 study as a graduation thesis by giving intraperitoneal injections of D-hematoxylin to 70 mice and determined that:

- The D-hematoxylin LD50 was 1257.16 mg/kg of hematoxylin ($\pm$ 159.10 mg/kg), **which is very safe** (and between 10 to 100 times less toxic than many commonly used cancer drugs). *Note: the LD50 of hematoxylin alone is also fairly low (e.g., the oral LD50 is over 2000mg/kg), but relatively little data exists on its actual LD50 as it is not intended for human consumption (e.g., data only exists for the oral LD50 and the actual LD50 is unknown as a high enough dose to be lethal to half of those exposed was never tested).*

- At lower doses (e.g., 5.5mg/kg to 550mg/kg) low activity, tremors and accelerated breathing were observed that regressed after an hour, while at higher doses, spasms, suffocation and eventually death occurred (likely due to respiratory collapse).

Note: the authors of the study suspected these symptoms were likely due to the shock of an intraperitoneal injection and it being injected too quickly (all of which can be avoided with a careful IV administration).

- In rats that died, the presence of fluid accumulation was observed in the abdominal cavity and surrounding the lungs which was attributed to vasodilation and increased vascular fragility.

- At all doses (including lethal ones), the mixture did not produce any changes in the shape, weight, or size of the internal organs (which I assumed was due to the fact D-hematoxylin does not accumulate in normal tissues).

The full study can be read here:



DMSO Hematoxylin LD50 study
2.46MB · PDF file

[Download](#)

Note: while Tucker found IV DMSO with hematoxylin was a fourth as toxic as DMSO alone, when I compared the IP (intraperitoneal) LD50 value this study obtained to the recognized

LD50 values for DMSO, I found DMSO alone was less toxic.

Tucker's Patients

From these experiments, Tucker gradually determined a workable dosing for D-hematoxylin and hence was prepared to administer it to humans. He began telling his hospital associates of his findings, and before long was approached by a colleague who had a comatose female patient on the verge of dying from inoperable fibrosarcoma. As she was his first human patient, Tucker gave her a very slow infusion, and over weeks of treatment, the tumor gradually receded until it was small enough to remove (at which point she had a full recovery).

Note: in our modern medical bureaucracy a treatment like this most likely could have never gotten approval.

Following this, he treated numerous patients, and due to the FDA banning DMSO research in 1965, conducted a small trial in Panama with a colleague. After much difficulty, in 1968, he got his cases published. There he reported on 37 patients he'd treated with recurrent cancers (excluding those who were terminal or those with markedly elevated BUN). Of them, 70.5% of those who were also on another treatment (radiation, surgery or chemotherapy such as 5-fluorouracil (5FU), methotrexate, and thiotepa) improved, 38.1% who received hematoxylin improved (typically only their symptoms but there was one case of a leiomyosarcoma regressing and being surgically removed) while only 5.4% of those receiving conventional therapy improved.

Younger patients with aggressive cancers generally responded better than older ones, as did those with minimal or no prior chemotherapy and those receiving higher total doses (e.g., 50 infusions) or combined topical and IV D-hematoxylin.

Note: over the decades Tucker was reported to have given his mixture intravenously, orally, intralesionally, intra-arterially, rectally, and topically (with topical applications of D-hematoxylin being particularly helpful for cervical cancer). Conversely, subsequent doctors I've spoken to (who found those routes of administration worked) made the obvious conclusion to try injecting D-hematoxylin into tumors, but oddly (in their limited attempts) never found that route worked.

In contrast, patients with more terminal conditions had worse outcomes (something which has held true with virtually every alternative cancer therapy—which is unfortunate since they only get approved for use in terminal cases after everything else failed). Additionally, patients with large-cell lymphosarcoma, giant-cell bone tumors, leiomyosarcoma, and adenocarcinomas of the breast or ovary showed positive responses to D-hematoxylin, while those with squamous-cell carcinomas (cervix, lung, or mouth) and adenocarcinomas (prostate, stomach) exhibited

minor positive responses but ultimately succumbed to their cancer.

Note: another author reported D-hematoxylin was effective against squamous cell carcinoma, adenocarcinoma, lymphosarcoma, lymphoma, and such associated malignancies such as Hodgkin's disease.

Many of these cases were quite noteworthy. Both large-cell lymphosarcoma cases showed complete regression with no recurrence well beyond Tucker's June 1968 report (one patient died from a heart attack ten years later, while the other remained alive decades later).

Additionally, one case of malignant giant-cell tumor, affecting about one-third of the femur, experienced complete regression alongside new bone regeneration.

•Finally, in those 37 cases, complications were minimal (including in one patient who was continually assessed over the course of 72 [2mL] of D-hematoxylin treatments). The most common side-effect in Tucker's patients was fevers in patients with large tumors (which subsided as the fever began to regress). Additionally, if D-hematoxylin was infused too quickly, a few patients developed shortness of breath (which immediately resolved if the infusion was stopped and Demerol was administered). Rashes could also sometimes occur (which were suspected to be due to the absorption of necrotic tumor material). The most severe complications occurred from absorbing large amounts of necrotic tissue matter (e.g., terminal patients with high uric acid levels would stop urinating once too much tumor necrosis occurred) so Tucker was much more cautious with these cases and used smaller doses so he did not eliminate the tumor too quickly. Finally, no changes were observed in the eyes (which was a longstanding unfounded concern about DMSO) or blood cell counts (which is a common issue with chemotherapy).

Note: since this paper (which includes many detailed patient cases) is quite hard to find online, I am including a copy of it.



Tucker Hematoxylin Article
2.39MB · PDF file

[Download](#)

Sadly, after Tucker published that article, the American Cancer Society (in 1971) published a bulletin it sent to all 58 of its divisions stating D-hematoxylin was an “unproven” remedy which provided very little of substance to refute its efficacy and simultaneously made no mention of any potential toxicity (suggesting D-hematoxylin is quite safe as any signs toxicity would have been used to discredit the therapy). Tucker sadly received so much pushback from his colleagues for using an “unapproved drug” (e.g., despite having earned great respect in the medical community, he was expelled from the staffs of two hospitals for administering the treatment and had a real fear of losing his medical license) so he never published anything further. Similarly, he became much more selective in who he would treat (e.g., only pre-terminal patients and those in a destitute state), and typically did so either for free or a very

minimal fee (but nonetheless successfully treated many cancer patients in the years that followed).

Note: Andrew Ivy (who was arguably the most influential doctor in America at the end of World War 2), like Tucker theorized there must be a factor in the blood which resisted cancer; and eventually came across a isolate (from cows injected with a cancer causing fungus who'd then recovered) which did just that. After refusing to sell out to the AMA (who frequently tried to buy out competing therapies), he was blacklisted by both the FDA and AMA, and despite having thousands of compelling and well documented cases showing it worked, effectively had his entire reputation destroyed because he'd promoted an "unproven cancer cure."

Some of Tucker's other patients included:

- A 3-year-old boy with diabetes insipidus (which requires routine vasopressin injections) who in 1972 had a terminal case of metastatic endothelioma and Letterer-Siwe disease, where solid palpable cancerous lesions had spread throughout the boy's head and body, which his doctors had given up on and expected him to die within a few years. Even worse, the father abandoned them to escape confronting the cancer, leaving the mother destitute and struggling to survive. Tucker then gave the boy's desperate mother a dropper bottle of D-hematoxylin to take 5 drops in distilled water every morning on an empty stomach and instructed her to let her doctors know what she was doing.

Mrs. Lindsey returned the next day totally distraught. Between heavy sobs and tears, she explained how the Texas Children's Hospital staff became enraged and told her never to come back if she used Tucker's medicine for her son's cancer. This meant that her supply of Pitressin for treating the little boy's water diabetes was completely cut off, since she had no money with which to buy more.

This scene took place within earshot of other patients sitting in Tucker's reception room. They passed the hat and in a couple of minutes raised \$75 for the mother to buy her child's diabetic medicine.

Fortunately, Tucker's treatment worked, the boy fully recovered (much to the shock of his ENT doctor who'd diagnosed him as terminal) and when last checked on in 1992 was a large, strong, and healthy 29 year-old boy.

- A woman who'd seen a three hour 1972 news program by anchorman Ron Stone of KHOU-TV Houston about Tucker's treatments who sought him out as she had a disseminated large-cell lymphosarcoma (e.g., sizable tumors in her lungs, the common iliac arteries, and the lymph nodes around her aorta) with an expected six month survival (which she had been on high doses of radiation and chemotherapy to no avail for and eventually had to stop the chemotherapy due to a very low white blood cell count). Tucker started her on five D-hematoxylin infusions a week, she stopped experiencing negative side effects from radiation,

and a year later was completely cured (and remained so after 28 years of follow-up).

*Note: if anyone in Houston can get a copy of that news program from the station (which I know happened as it was mentioned by multiple DMSO authors who provided different details about it), **it would be greatly appreciated.***

- A 41-year old man with a disseminated lymphosarcoma which had failed treatment with maximum radiation and chemotherapy who was expected to only survive for three more months. He received IV D-hematoxylin every other day for three months, after which the tumor completely disappeared, the man stopped further treatment, and had no recurrence up to his death eight years later (from a heart attack).

- A 44-year old man with advanced lymphosarcoma (including a massive lump on his neck) who had been treated for five years with maximum doses of radiation and chemotherapy (which amongst other things left him with an almost complete absence of white blood cells). Daily IV D-hematoxylin shrank his neck tumor from 22.5 inches to 18.75 inches (which was enough for his neck to return to a normal appearance), but he subsequently succumbed to the cancer as he had metastasis throughout his internal organs.

- A 36-year-old man with terminal grade 4 Hodgkin's disease (e.g., large cancerous nodules on his neck and face, severe swelling in his abdomen and legs, and congestive heart failure) was admitted to the hospital with a prognosis of only days to live. He received D-hematoxylin intravenously and topically over his lungs and after four days, he was well enough to return home. Without continued treatment, his breathing difficulties returned, so he returned to the hospital and had a rapid response to D-hematoxylin (e.g., initial X-rays showed on May 22 showed near-total lung obstruction, but by May 25 a slight clearing appeared, and by July 18 the cancer had disappeared entirely). Following treatment, he remained cancer free until he later died from heart failure.

- A 75-year-old man who, in 1984, had a recurrent squamous cell carcinoma on the nose (where one had previously been removed 3 year prior) applied topical D-hematoxylin and within a few weeks, the cancer disappeared and the nose was saved from a disfiguring surgery.

Later, in March 1978, Tucker was invited by a group of New York City doctors to share his treatment. En route, K.C. Pani, M.D. of the FDA, requested that Tucker share his data with Dr. Pani (Tucker had numerous records of cures, X-ray films, and slides to show).

On this trip, Tucker brought Joe Floyd, an Exxon Oil Corporate Executive, who four years earlier had had an advanced metastatic colon cancer (e.g., in the lymph nodes and liver) with a poor prognosis (particularly since it was a rare lymphosarcoma). Following surgery, he was implored to start chemotherapy (by a surgeon whose wife had the same condition) but instead sought out Tucker (as he'd seen the 1972 news program two years earlier). Tucker eventually

agreed to treat him on an experimental basis (with both IV D-hematoxylin and daily oral D-hematoxylin). While Floyd's surgeon's wife died six weeks later, Floyd "had no nausea or any of the symptoms usually accompanying chemotherapy" and after 18 months, his CEA levels (a marker for colon cancer) were far below normal, and in the years that followed never rebounded (and likewise over 15 years of followup did not either).

Doctor and patient flew to Rockville, where Tucker presented his case histories to the FDA.

When they came to Floyd's record, Dr. Pani asked, "How long did this one last, three months?"

Tucker replied, "He is sitting down in the lobby."

Pani said, "I want to see this dead man."

They sought out Mr. Floyd, and he told his story. Then the FDA official, visibly impressed, said he would be in touch with Tucker soon. He also mentioned that he was in contact with Dr. Stanley Jacob of Oregon and that he was monitoring the use of DMSO. About one week later the drug was approved for the treatment of interstitial cystitis. **Nothing further was done to follow up its use in cancer, except that Tucker received a request from the FDA for "more research."**

Note: the FDA had briefly given Tucker permission to study D-hematoxylin in 1970 but withdrew that permission later that year.

Floyd also attempted to reach many other outlets. A letter he wrote to a newspaper, for example, was published in a record of a 1980 hearing Congress held to pressure the FDA to legalize DMSO, part of which said:

While I had been taking treatments from Dr. Tucker I met many of his patients who came by for check ups that he had cured. You can imagine how excited I became over this treatment. I wanted to do something so everybody with cancer could get this drug. I preached it to my friends and acquaintances but alas when one would mention it to their personal physicians, they wouldn't touch it, especially if it wasn't approved for general use, the hospitals would not let them use it even if they wanted to. I started writing to Congressmen, would get a Thank You letter with a Rubber Stamp signature. Even when Hubert Humphrey was dying I wrote him a letter, but back came another Thank You with Hubert's rubber stamp signature.

Next I wrote Jimmy Carter, thinking someone in the White House might see the political possibilities and pass it on to him. But no, it was side tracked over to the

FDA. Excitement, the answer did have a real signature, “Harold Davis” Bureau of Drugs (HFD—35). It was the nice “Thank You for concern but we have to protect the people from quackery etc.” He even sent me a brochure by Dr’s Tucker and A. Carrizo [the other author of Tucker’s 1968 paper], the same as I am enclosing for you that Dr. Tucker gave me.

Note: in this letter, Floyd also shared that he saw many “people that started the treatment too late but died without pain, thanks to the DMSO,” an observation also made by modern doctors using D-hematoxylin, and which was demonstrated in three recent studies where IV DMSO was combined with sodium bicarbonate.

Lastly, a few other American doctors besides Tucker also used his treatment (including a few that I know did so recently). However, the only documented case I know of where someone besides Tucker used D-hematoxylin was of a 55-year-old Texas Baptist minister who in 1982 had a tennis ball-sized mass under his ribs which was diagnosed as malignant lymphoma and began receiving large numbers of daily blood draws alongside initiating chemotherapy (chlorambucil). He quickly developed multiple significant symptoms (including the previously painless mass becoming painful), at which point a health food store referred him to a natural cancer clinic (Jasper County Medical Center) where he worked with clinical nutritionist Dr. John Meyer who placed him a mix of natural therapies alongside the clinic giving him both oral and IV D-hematoxylin and proceeded to make a full recovery (during which he quickly noticed chlorambucil made him violently ill and permanently stopped taking it).

Hematoxylin Persists

When DMSO was first discovered, due to its significant positive results, it was the most requested drug in America, and many pharmaceutical companies made substantial investments in researching to bring it to market and recruited roughly 1,500 clinicians to conduct their research. In early 1965, Merck contacted the American Podiatry Association to request their top podiatrists (foot doctors) for their trials. Morton Walker DPM was selected as he’d recently won numerous awards for his scholarship and previous clinical investigations.

He began his research in the spring of 1965 and rapidly saw great benefit in the patients he treated, but unfortunately, that fall, the FDA decided to force the pharmaceutical companies to end all research into DMSO (which, as best as I can gather, was *initially* due to the fact that the agency did not want to deal with a large number of applications for the myriad of conditions DMSO treated).

This podiatric study of DMSO came to an abrupt halt November 10, 1965, when a “Dear Doctor” letter arrived advising that all research on the project must cease. The FDA demanded that the used and unused supplies of DMSO and all records

of patients for whom it was administered must immediately be returned to the sponsoring pharmaceutical company.

I didn't have to mail these items because a company representative promptly arrived to take everything away—all patient reports, supplies of DMSO, even duplicates of the records. Instructions were given to report any deleterious effects from the product's use, but there were none. No published report ever appeared in the medical literature on this four-month podiatric study of DMSO's adaptation for a variety of foot problems. All the records of clinical trial were confiscated, and what follows are strictly the impressions of this researcher twenty-seven years later. They are based on the patients' personal foot health histories with relation to their individual toe, foot, ankle, or leg problems.

Following this, Dr. Morton Walker became a holistic journalist, and arguably was one of the most prolific people in the genre, compiling dozens of books on the natural therapies being used around the country (many of which I read decades ago). Amongst other things, Walker felt it was critical for Tucker's work to be preserved, and as such, much of this article was sourced from his 1983 book on DMSO (which was written jointly with William Campbell Douglass MD—a pioneer in the alternative medical field), its 1993 revision, and his 1985 booklet on Holistic Cancer care which was written with John L. Sessions, D.O. (along with a book by journalist Pat McGrady).

On an ironic note, Dr. Tucker himself came down with a form of cancer that would have responded to his DMSO-hematoxylon treatment, but before he could administer it to himself, he fell into a coma. No one had access to his formula except the author of this book, and I did not know Dr. Tucker's attendants needed it to save his life. Dr. Tucker died [on February 7 1983] only a few months before this book was first published. Its updating and republication may save lives—I hope so!

As such, Walker was able to preserve Tucker's formula and make a thread of it available to the next generation who chose to search for it.

Jim McCann

There were a few eclectic individuals (some of whom I studied under) who were inventors with science backgrounds who dedicated themselves to collecting many alternative technologies, some of which were medical in nature. One of these men was Jim McCann, a cantankerous Canadian engineer and Jehovah's Witness born in 1932 who'd created a variety of inventions throughout his life (e.g., a more efficient automobile engine).

On the medical end, at 23, McCann also started researching cancer cures, and about a decade later, adopted DMSO as it hit America. After he learned about D-hematoxylin through Tucker's 1968 paper, he tried to get ahold of hematoxylin but initially was unable to as access was restricted at that time (and instead focused on EDTA chelation therapy). Eventually, around 1985 he did, at which point he used it on a prostate cancer patient who was on the verge of death, where unsure of what to do, he used a high dose that resulted in a full recovery.

Following this, he treated a few other people in Canada (approximately five), received significant pushback from the alternative medical community for practicing medicine without a license, and in 1995, moved to Riobamba, a town high in the mountains of Ecuador.

Initially, he used DMSO (and chelation therapies like EDTA) to treat stroke and heart conditions, but eventually began also using D-hematoxylin. Since he got results, doctors began seeking him out, and ultimately directly trained approximately 20 doctors (some of whom were not from Ecuador such as a Polish doctor and a doctor from the Philippines who attracted significant attention for successfully treating many COVID patients with ivermectin) along with many patients from around the world (and many Jehovah's Witnesses from McCann's community). As a result, Ecuador became a hotbed for alternative therapies, and in McCann's estimate, roughly 100 doctors there (many of whom he'd never directly trained) began using D-Hematoxylin.

Near the end of his life (at the age of 90) McCann agreed to conduct a lucid interview with one doctor who took ten hour bus rides to see him (which a few parts of can be listened to below).



In it McCann shared:

- Many of the D-hematoxylin doses he used (especially the initial ones) were on the high end because he felt the patient would die soon regardless, so it was worth gambling on a potentially toxic dose to cure them.
- McCann believed a key part of the treatment was D-hematoxylin inducing a 103 degree fever in the body, and that it was critical not to use a fever-suppressing medicine to treat that fever or be in air conditioned rooms. However, in cases where patients did experience a significant reaction, he would administer Benadryl.

Note: This mirrors a viewpoint within the integrative cancer field that fevers are often critical for eliminating cancers (to the point that some groups even suggest by inducing high fevers) and

for eliminating fevers (to the point that some groups cure cancer by inducing high fevers) and the anthroposophic perspective that suppressing febrile childhood illnesses with vaccination increases the risk of cancer later in life (which has been shown in quite a few studies regarding measles, mumps, and chickenpox).

- McCann felt strongly that an IV infusion of DMSO should never be combined with prednisone or a blood thinner like warfarin and heparin as this could make them far too potent (e.g., he saw this cause numerous severe adverse reactions after doctors administered mixed infusions against his advice).

*Note: the reactions McCann described I have never heard of occurring in patients who were taking DMSO and one of those medications concurrently (e.g., a few DMSO studies I reviewed used topical DMSO combined with heparin found it was a helpful **and side-effect free** intervention) and I suspect the results McCann saw were from those drugs directly being mixed together with hematoxylin in an IV.*

- He felt very strongly about the necessity of chelation therapy in cancer (e.g., to prevent subsequent heart attacks following successful D-hematoxylin treatments—which occurred years later in some of Tucker’s cases) and to that you should not give leukemia patients with anemia iron as the cancer needed that to grow (to the point he would sometimes also chelate iron in leukemic patients).

- McCann was also very focused on cultivating bacteria on a target media that would dissolve specific biological targets (e.g., he cultured bacteria from a dead cow’s cataract and then found it could eliminate other cataracts; likewise, he found this approach worked for cancer).

Note: my experience with individuals like McCann is that some of their insights are spot on while others they have a deep conviction in are ultimately not correct.

The Next Phase

Like many alternative therapies, D-hematoxylin grew up in “the Wild West” of alternative medicine. This was made possible by its very low toxicity profile, which allowed it to be used in humans at widely varying doses without significant side effects.

Fortunately, the threads keeping D-hematoxylin from being lost eventually converged in Ecuador with a doctor who’d successfully treated 44 out of 45 cases of microbiologically confirmed chronic bacterial prostatitis using DMSO combined with antibiotics that were applied directly into the bladder (much in the same DMSO is FDA approved to treat interstitial cystitis) who then tested negative for any infection 15-20 days following treatment (with no subsequent recurrences), demonstrating DMSO's ability to counteract bacterial resistance.

Note: interestingly, Stanley Jacob, was still alive when these treatments were initiated (he died

in 2019 at age 91). At the start of the prostatitis treatments, the doctor in Ecuador contacted him for advice, and Jacob encouraged the experiment, agreeing it was a good idea, even though he hadn't heard of anyone attempting it before.

As he'd heard of McCann through Ecuador's medical community, these prostatitis successes inspired that doctor to try intravesical DMSO mixed with hematoxylin for a prostate cancer patient (which was administered in the same manner and frequency as his prostatitis treatments). This worked, and he gradually began using it for other prostate cancer patients and then other cancers as well, which gradually grew into a fifteen-year research project on the therapy (which he's shared with me over the course of a few months).

Note: I also know of one individual who used D-hematoxylin intrarectally over a prolonged period to locally treat a cancer there, but the data on this approach is still limited.

Recent D-Hematoxylin Patients

That project involved treating approximately 85 patients, with the cure rate in patients who had not previously received chemotherapy averaging between 80-90%. As such D-hematoxylin is an excellent cancer treatment but **it is not perfect and will not work for everyone.**

Note: during these treatments, no significant side effects (e.g., signs of organ damage) were ever observed from D-hematoxylin.

The cancers with a good response to D-hematoxylin (some of which are otherwise extremely difficult to treat) included:

- Leukemias (particularly acute leukemia)
- Sarcomas (including soft tissue sarcomas and osteosarcoma)
- Leiomyosarcoma
- Bile duct cancer
- Non-Hodgkin lymphoma
- Ovarian carcinoma
- Mediastinal tumors
- Bladder cancer
- Cancers with a giant cell tumor phenotype

Note: myeloproliferative neoplasms (e.g., polycythemia vera, essential thrombocythemia and primary myelofibrosis) depend upon a mutant protein for survival which was shown to be susceptible to disruption by a few small compounds including hematoxylin. While D-hematoxylin has not been tested on these disorders, this study (along with the other known effects of DMSO and D-hematoxylin) suggest it could be an effective treatment for them.

The cancers with a poorer response included:

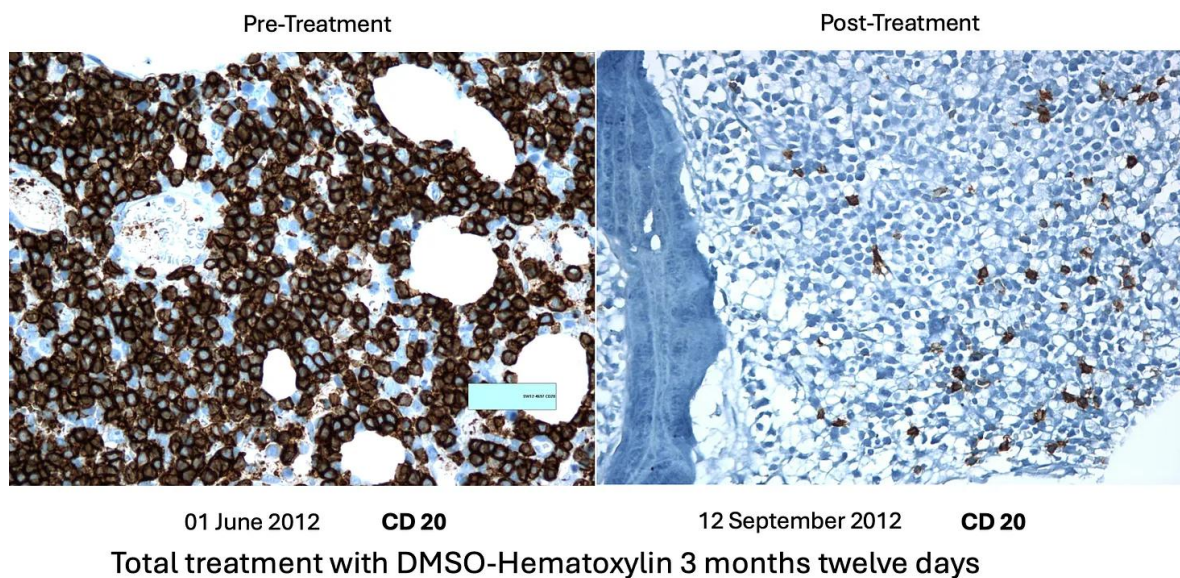
- “Solid” tumors
- Lung Cancer
- Colon Cancer
- Gastric Cancer
- Melanoma
- Bone Metastases
- Brain Cancer (requires longer treatment)

Additionally, if there is a cancer marker associated with the tumor (e.g., CEA or PSA), it will often rapidly drop, making it very easy to track the progress of D-hematoxylin.

Note: there can be an initial increase in the tumor marker (due to the cancer breaking down and releasing its components to the bloodstream) but this quickly goes down.

As the following cases show, many of the improvements were quite profound:

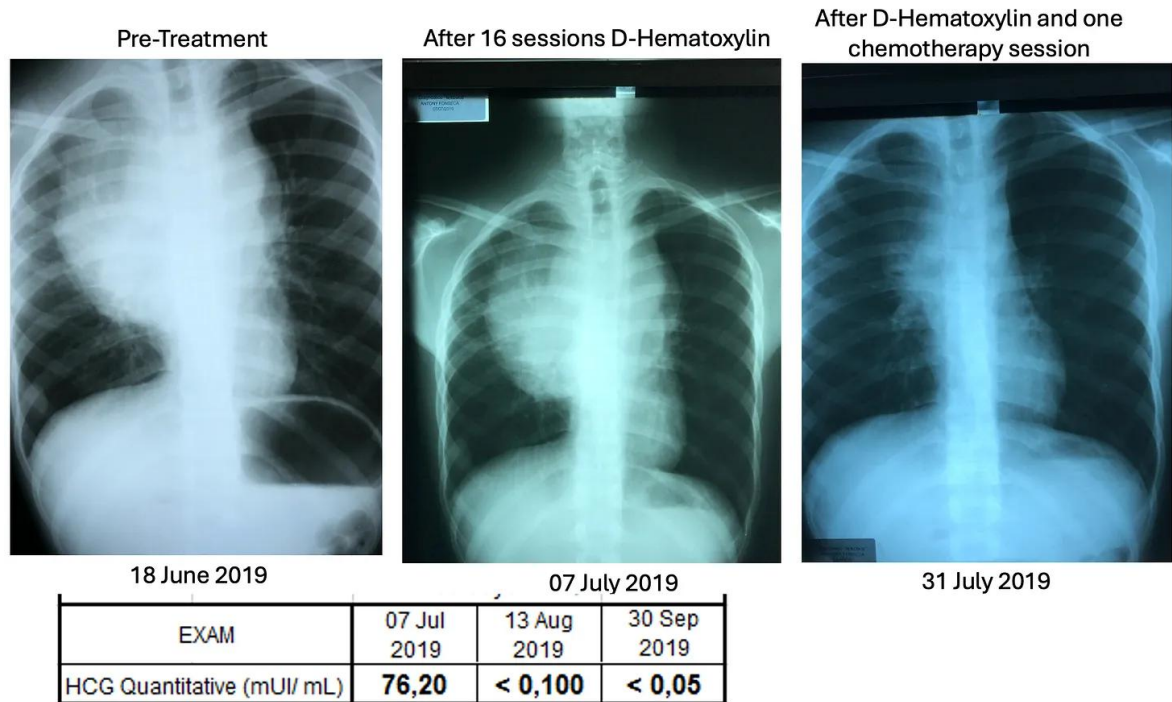
•A 54-year-old female patient with Classic Hodgkin Lymphoma which had invaded 72% of her bone marrow, with CD20-positive expression. She had a variety of symptoms (e.g., recurrent pleural effusions and anemia), but since her religion did not permit blood transfusions, she received only D-hematoxylin and EDTA and then had a full recovery (with no recurrence in twelve years of follow up). The most striking aspect of this case was the change in her bone marrow biopsy, after three months of treatment with D-hematoxylin (unlike chemotherapy) it selectively destroyed the cancerous cells, allowing normal ones to regrow and rapidly addressed her anemia.



•A 72 year old patient with leukemia who was anemic and had her anemia rapidly improve following D-hematoxylin:

After investigating, it was determined this was due to her regularly using WD40 on a daily basis (without respiratory protection) and hence having a bone marrow intoxication which was directly damaging the bone marrow (and in turn the leukemia diagnosis may have been incorrect).

•A 16 year old male with a mediastinal seminoma that received 16 D-hematoxylin infusions, 5 IV vitamin C infusions and then one chemotherapy session (on July 7) where cisplatin and bleomycin were combined with DMSO (after which he continued chemotherapy and has recovered from the cancer).



•A 63-year-old male with cholangiocarcinoma (a rare, aggressive and notoriously difficult to treat cancer of the bile duct) who received D-hematoxylin plus chelation and vitamin C (but no chemotherapy). During his successful treatment, a drain from his bile duct was also monitored for tumor markers.

Ca 72-4 Blood serum	31.70	45.0	-	145.3	-	< 8,2 UI/mL
Ca 72-4 Bile	-	113.0	41.7	16.8	15.8	< 8,2 UI/mL
16 days treatment						

Additionally, the cancer debris could be seen in the drainage tube (an internal-external percutaneous transhepatic biliary drainage catheter)—something which the Ecuador doctors now view as essential to have if D-hematoxylin will be used in this cancer:





Note: another bile duct cancer patient (a 68 year old female) received palliative D-hematoxylin while waiting for surgery and chemotherapy (which ultimately could not be done because of how advanced the cancer was). Her cancer markers levels significantly improved following D-hematoxylin (and continued to reduce during gaps in treatment), but she eventually lost the will to live and passed after 16 months.

Date	10/28/21	11/23/21	12/22/21	12/1/22
CA 19.9	94111 U/mL	14160 U/mL	831 U/mL	139 U/mL
	Preceded by 23	Preceded by a one month break and then 1	Preceded by 25 D-hematoxylin	No further D-hematoxylin infusions had occurred after

Notes	Received by 20 D-hematoxylin Infusions	Break and then 1 D-hematoxylin infusion	D-hematoxylin infusions	improvements occurred after the 12/22/21 reading
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•A 63-year-old man with B-cell lymphoproliferative disorder who received D-hematoxylin for 10 days (with no other treatment), experienced a significant drop (normalization) of his white blood cell count during that time then stopped at the advice of his hematologists, and two years later died from COVID.

AGE: 63 years

10 Days

EXAM	Pre-treatment		Treatment				
	03 Jan 2020	04 Jan 2020	06 Jan 2020	08 Jan 2020	12 Jan 2020	14 Jan 2020	15 Jan 2020
HEMATOCRIT	50	48	48	47	49	47	47
LEUKOCYTES	81500	80900	67600	58100	39900	29800	35100
LINFOBLASTOS	20	19	9	13	2	1	2
RETICULOYTES	-	-	2,5	-	6,6	4,3	-
PLATELETS	-	-	265000	230000	229000	200000	250000

•A man who had a stable bladder polyp which became cancerous following a covid vaccination (with the initial sign being a large blood clot in the urine) which when examined had spread in a large portion of the urinary tract's endothelium. It was surgically removed, but due to how far it had spread, the urologist told the patient he would only survive for two months. They then began five weeks of intravesical and IV D-hematoxylin, and in four years, the cancer never returned (which led to the urologist telling everyone about the “amazing” surgical procedure they had performed).

•A 55-year-old female who had a mediastinal tumor (type unknown as it was wrapped 560° around the aorta and hence could not be biopsied) which fully resolved after 33 daily D-hematoxylin treatments.



05 November 2019
Pre - Treatment

09 December 2019
33 days Treatment

	05 Nov 2019	08 Nov 2019	11 Nov 2019	15 Nov 2019	20 Nov 2019	25 Nov 2019	03 Dec 2019	09 Dec 2019
CA 125 < 35 U/ml	120,00	102,20	82,10	52,80	46,70	31,20	19,00	16,30

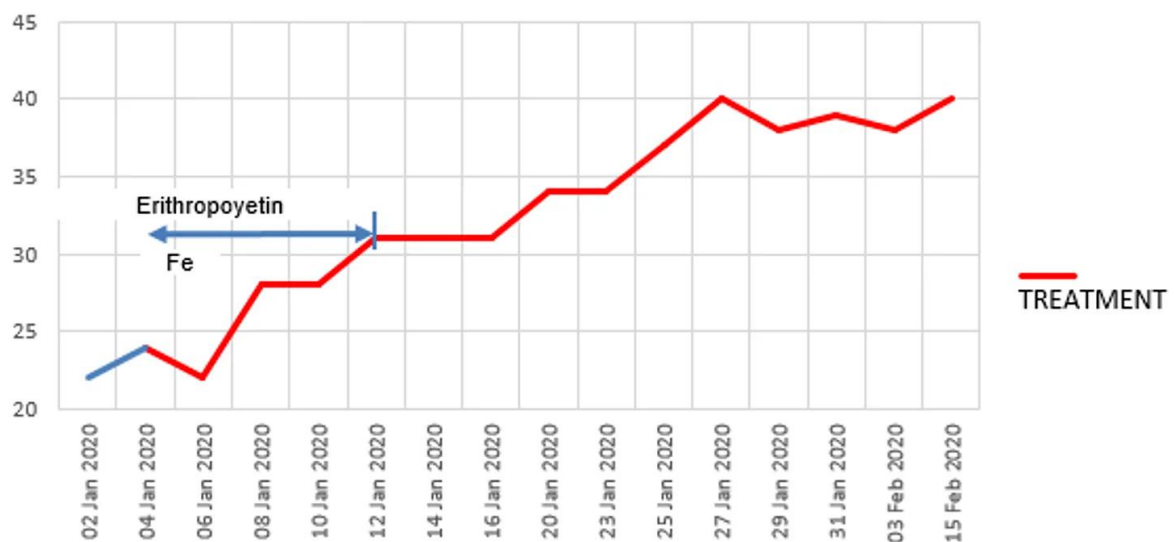
Additionally, this was the CT prior to treatment where the tumor can be seen around the aorta:

While this was the CT two weeks following the D-hematoxylin treatment:

Lastly, at five years follow up, there was no recurrence.

•A 27-year-old female with acute lymphoblastic leukemia reacted poorly to two sessions of chemo, was classified as terminal, and then was started on D-hematoxylin. She had a significant improvement in her cancer and simultaneous improvement in her anemia which continued long after conventional treatments for anemia were halted (which did not include blood transfusions as she was a Jehovah's Witness).

AGE:	27 years	← 28 sessions →														
EXAM	Pre-treatment	Treatment Fe- ERITHROPOYETIN					NO ERITHROPOYETIN - NO Fe									
	02 Jan 2020	04 Jan 2020	06 Jan 2020	08 Jan 2020	10 Jan 2020	12 Jan 2020	14 Jan 2020	16 Jan 2020	20 Jan 2020	23 Jan 2020	25 Jan 2020	27 Jan 2020	29 Jan 2020	31 Jan 2020	03 Feb 2020	15 Feb 2020
		Third Week of Treatment														
HEMATOCRIT	22	24	22	28	28	31	31	31	34	34	37	40	38	39	38	40
LEUKOCYTES	27600	7500	4900	4500	2450	2300	2500	2250	2000	3500	2200	2800	2100	2500	2200	2650
RETICULOYTES	8,3	-	7,0	-	15,1	18,1	6,9	5,4	2,9	3,1	2,8	1,8	-	1,4	1,1	1,2
PLATELETS	185000	-	160000	166000	188000	180000	228000	210000	210000	210000	230000	286000	246000	248000	222000	246000



In a before (1-2-2020) and after (2-1-2020) video I saw of this patient, she initially looked very frail and had difficulty walking, while just a month later (after 31 days of treatment), she had no difficulty walking and looked vibrant and robust. Additionally, they continued to monitor her on a monthly basis, and four years later, she'd had a healthy baby, and had her hematocrit range from 42 to 48 (which is slightly above average) indicating she had no further risk of anemia (even though hematologists in the hospital had predicted her reckless pregnancy would cause severe anemia). Additionally, her ESR (which had been significantly elevated prior to treatment) normalized (and remains normal 5 years later).

Lessons from Ecuador

in addition to observing a remarkable degree of success from D-hematoxylin, the Ecuadorian team was able to discern a variety of patterns (many of which mirrored Tucker's previous observations) that helped craft their treatment protocols. For example:

- While DMSO alone can somewhat help with cancer, the effects of DMSO combined with hematoxylin are completely different from what would be observed with DMSO alone.
- They saw many signs during their treatment protocols that D-hematoxylin selectively targeted cancer cells.
- Cancers did not develop resistance to D-hematoxylin (which is a common challenge with many chemotherapies).
- While some tumors rapidly disappear, other types frequently become avascular (which stops their growth) and dried-out, blanched, or fibrous rather than being directly shrunk (e.g., I reviewed cases where a brain cancer simply stopped growing). In many cases, those tumors are then very easy to extract surgically.

Note: to my knowledge, everyone besides that Ecuadorian team who treats with D-hematoxylin still uses Tucker's protocol and has not tried to improve upon it.

Variations in D-Hematoxylin Efficacy

On average D-hematoxylin treated 80-90% of the cases where it was used, a figure that resulted from certain scenarios having a much better response to D-hematoxylin. For example, in patients that who are fine three months post-treatment, virtually all have maintained an indefinite remission and there have been **no relapses** in all patients who'd never received chemotherapy prior to a (complete) course of D-hematoxylin.

Note: patients who have received a full round of chemotherapy prior to D-hematoxylin tend to have the worst response to it.

Additionally:

- Two cancers where D-hematoxylin seems to show great promise are bile duct cancers and leukemias. While osteosarcomas historically have had a good response to D-hematoxylin, the Ecuadorian team has not yet been able to treat any cases of that cancer and hence cannot confirm that.
- Younger patients who were going through life without issue and then suddenly were struck by a cancer (either spontaneously or immediately following another sudden health issue like a traumatic injury) tended to have excellent responses to D-hematoxylin.
- Cancers that have emotional causes tend to be harder to treat and have a poorer response to D-hematoxylin.

Note: similarly, very early on, Merck realized that patients with psychological pain did not respond to DMSO and hence instructed its DMSO investigators not to recruit those patients into the pain studies.

- While hematoxylin can treat the unusual rapid cancers seen in vaccinated individuals, its highest success rate is seen in unvaccinated patients (as in COVID vaccinated patients, cancer remission, for some reason, rather than being permanent, D-hematoxylin stops working once the regular infusions of it are stopped).

- Individuals who receive D-hematoxylin and survive tend to have a stronger desire to live (so this aspect of the treatment process should be encouraged).

Note: This observation mirrors what other doctors have shared with me over the years. I believe is both due to fluid stagnation reducing one's enthusiasm and desire for life (which is problematic as cancer frequently causes fluid stagnation—but fortunately DMSO often eliminates it) and due to the fact cancer doctors will often pronounce a death date for a cancer patient which ends up being remarkably accurate (a malignant form of hypnotic suggestion which is sometimes referred to as the nocebo effect or medical hexing).

Treatment Evaluation

Since D-hematoxylin is a largely unknown therapy, it is critical for treating physicians to demonstrate its efficacy.

Fortunately, within two weeks, D-hematoxylin consistently drops elevated tumor markers (although this may be preceded by a brief spike). This, in turn, provides a way for both a skeptical patient and physician to see that the treatment is working. As such, the ideal patients for one to first become familiar with D-hematoxylin are cancers with tumor markers that are significantly above the upper range and highly specific to the cancer.

Additionally:

- With leukemias, in lieu of using tumor markers, blood counts can be evaluated on a weekly basis (specifically absolute counts and blastocytes—which, while easy to see under a microscope, can sometimes be difficult to get through standard labs).

- The ESR is also helpful to track (particularly for leukemias).

Note: ESR strongly correlates to zeta potential, a critical parameter that DMSO to some extent improves.

- Similarly, if possible a biopsy should be conducted before and after treatment so that the D-hematoxylin induced changes can be evaluated.

Treatment Protocols

The protocols used by the Ecuador team were based on Tucker's original one and modified as additional data became available (e.g., on Jim McCann's advice, EDTA was frequently administered over the course of treatment and observed to improve outcomes).

Note: many remarkable therapies, including many for cancer, were developed in the early-to-mid 1900s as new technologies enabled significant advancements, but the medical industrial complex had not yet dominated medical research. Among these therapies, I found some were effective as claimed, others were exaggerated, some are too rare to evaluate, and many are less effective today, something I attribute to to humanity's increasing toxicity burden and declining vitality over the last century that I now believe is driven by adverse physiologic changes from certain modern technologies, particularly due to the fluid stagnation they cause in the body which impairs its innate ability to heal. DMSO with hematoxylin stands out because it remains highly effective, is easily accessible (made from two widely available compounds), and I suspect in part owes its success to DMSO and EDTA enhancing fluid circulation (e.g., appropriately dosed EDTA enhances zeta potential).

Some of the Ecuador team's key discoveries were:

- Once D-hematoxylin's LD50 was determined to be 1250mg/kg, the investigators realized they could safely raise their initial dose (8-11 mg/kg). After increasing it by 2-3 times, they discovered that an equivalent reduction in total treatment time was observed (e.g., it took 4-5 weeks to cure a patient rather than 3 months).

- The formula they settled on uses a significantly greater amount of DMSO (relative to hematoxylin) than Tucker did. This was in part because it got better results, and because they felt DMSO rather than just being a carrier for hematoxylin, played a major role in the treatment (and unlike hematoxylin could easily have its dose be significantly raised without triggering reactions such as fevers or chills whereas the total amount of hematoxylin must be carefully adjusted to the patient's system to avoid those reactions). Conversely, while some patients are not comfortable with the chills (necessitating a lower dose and hence longer course of treatment) others can tolerate them and receive higher doses that allow a more rapid elimination of the cancer. Given that these chills occur far below a toxic dose of D-hematoxylin, they serve as an excellent guardrail to ensure the safety of the procedure.

Note: these chills are only observed when D-hematoxylin is given via an IV.

- When D-hematoxylin is given to anemic patients with leukemia, their red blood cell counts will often rapidly improve, suggesting DMSO is either differentiating leukemic cells into ones that can produce red blood cells or providing the space for healthy bone marrow cells to begin producing red blood cells. For this reason (and McCann's view that supplemental iron was unwise in leukemia), the doctor has explored treating anemia from leukemia with D-hematoxylin and found it works better than iron.

Note: low red and white blood cells are a major issue with chemotherapy as chemotherapy targets rapidly dividing cells, which characterizes cancer cells, and the bone marrow (which rapidly divides to produce your blood cells). D-hematoxylin hence offers a significant benefit over many existing cancer therapies as it not only doesn't reduce critical blood cells but also reduces the dose of the chemotherapy agents that deplete blood cells, while sometimes also being able to directly increase blood cell counts (e.g., in leukemia).

- While D-hematoxylin is safe, it is important to titrate the dose, as if the dose is too high, patients can experience chills, fevers or shortness of breath. Since the “high” dose varied from patient to patient (or even sometimes for the same patient), the doctor needs to carefully monitor them during treatment and typically the infusion is continued until the patient starts feeling hot or cold. Additionally, hot-cold alternating sensations often occur during the first two sessions, while from the third on, chills are often experienced—all of which can require a doctor to walk the patient and their family through what is occurring so there is no cause for concern (particularly since the chills while harmless can be quite concerning)—which again touches upon how important patients communication is when administering this therapy.

Note: from looking through all of this data, I am relatively sure much higher (and likely even more effective) doses could have been used but were not because they were not willing to risk any possible adverse effects from the therapy (whereas in contrast chemotherapy is routinely given at doses which create significant toxicity and reactions).

Chemotherapy and Radiation

Since cancers are often treated in combination with conventional therapies, they also monitored how D-hematoxylin interacted with them, discovering:

- There were no issues combining D-hematoxylin with radiation therapy.
- Patients who had already been treated with cytotoxic chemotherapies by the time they received D-hematoxylin tended to have a much poorer response to D-hematoxylin. However, if cytotoxic chemotherapy was started at least three weeks after they'd initiated D-hematoxylin, **they were much more likely to have a successful cancer treatment.**
- In more difficult cases (e.g., D-hematoxylin was started too late and they'd already had significant chemotherapy), like the DMSO-NaHCO₃ studies, D-hematoxylin was not curative but rather significantly decreased their pain and improved their remaining quality of life.

How Does D-Hematoxylin Work?

In the first half of this series, I compiled the extensive volume of literature which elucidated the mechanisms behind many of DMSO's anticancer properties. However, while compelling, those

mechanisms are not sufficient to explain why this mixture is so effective in treating cancer (particularly since D-hematoxylin's rapid elimination of cancers is not observed with DMSO alone).

Note: when D-hematoxylin is placed into the blood, it will rapidly change color, suggesting hematein (oxidized hematoxylin) is the active agent. Further strengthening this observation, when hematoxylin was sterilized by the Ecuador team through exposing it to ozone (a powerful oxidizing agent), prior to being mixed with DMSO and then infused, D-hematoxylin's efficacy is not impaired (however exposing powdered hematoxylin to ozone did not evidently change its color so it's unlikely ozone exposure fully oxidizes it).

Since no definitive mechanism for D-hematoxylin exists, there are a large number of possible explanations for why D-hematoxylin destroys cancer, and presently, my best guess is that for some reason, D-hematoxylin has a high affinity for cancerous DNA and either due to its persistence around the cancerous DNA or it having a specific toxicity to cancerous DNA then destroys it (which in turn eventually eliminating the tumor). However, in many cases, the damage to the nucleus of cancer cells is gradual rather than immediate, so rather than being directly toxic to cancer DNA, once there, D-hematoxylin may initiate some type of process which eventually destroys the cancer's DNA. Furthermore, while D-hematoxylin will travel to cancers and then eliminate them, it is not effective if put directly into a cancer, which again implies a non-standard form of toxicity is occurring.

That said, I am not sure why that affinity for cancers exists or why D-hematoxylin neither harms normal cells nor even stays in them.

Note: when hematoxylin is bound to a metal salt, it (and hematein) becomes able to bind to and hence stain DNA (which is why most commercial hematoxylin are combined with an often toxic metal). DMSO likely imparts that ability to hematoxylin as well, although it does so through a different mechanism than the mordants (which are simply positively charged metals that bridge negatively charged molecules (e.g., hematein and DNA) together.

Thomas Rogers

After Tucker began having success in human patients, a graduate student, Thomas D. Rogers, saw the importance of figuring that question out and thus decided to conduct his dissertation on the effects of D-hematoxylin on tumors (which can be viewed [here](#) and has many pictures of cancers affected by D-hematoxylin).



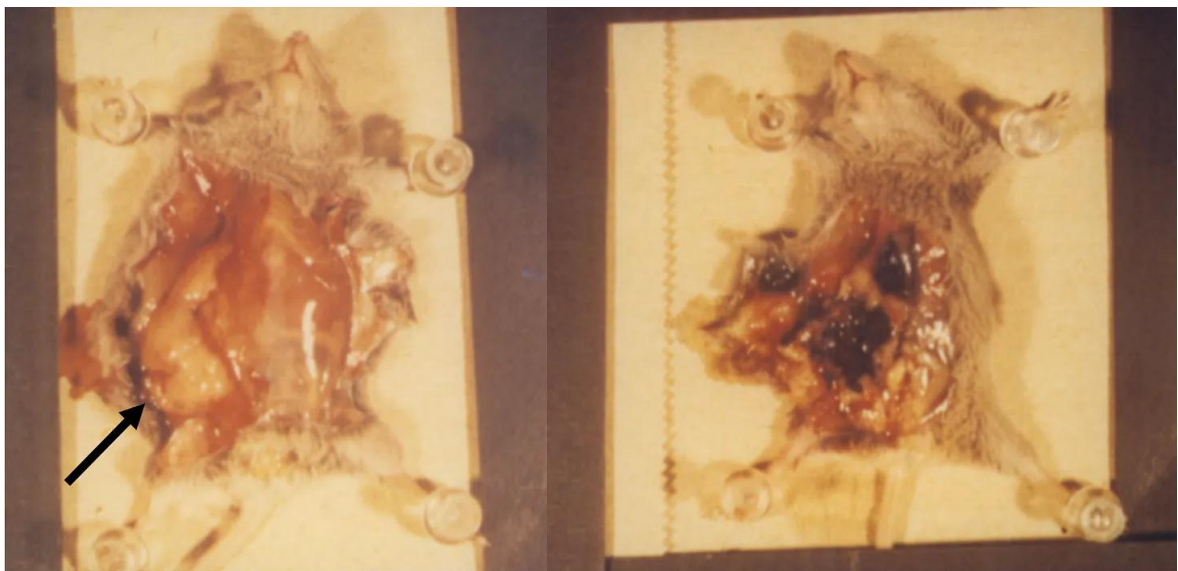
Dmso Hematoxylin Thesis
9.45MB · PDF file

[Download](#)

To do so, Rogers implanted mice with rapidly growing lymphosarcoma cells (which typically

resulted in death 11 days), then sacrificed and dissected them shortly before their expected time of death and visually examined everything (including under both a light and electron microscope). The mice in turn received either nothing, DMSO alone, hematoxylin alone (which was dissolved in saline through heating and agitation), or varying doses of D-hematoxylin (0.2mL of 90% DMSO mixed with either 2, 5, 8 or 12mg of hematoxylin in DMSO). DMSO and hematoxylin alone were observed to have no side effects, but also do not affect the growing cancers, while D-hematoxylin inhibited the cancers in a dose dependent fashion (and did so without side effects **or affecting non-cancerous tissue**).

*Note: since IVs (which are typically the most potent way to administer DMSO or D-hematoxylin) are challenging to give to mice, Rogers instead administered the treatments through intraperitoneal or subcutaneous injections and oral feeding (and likewise Tapia in his LD50 study only did intraperitoneal injections). There, Rogers discovered that subcutaneous and intraperitoneal D-hematoxylin gave similar notable results, while **oral D-hematoxylin produced similar but less extensive results** (which dovetails with Tucker's observation he could also obtain clinical results with oral D-hematoxylin).*



An untreated lymphosarcoma 11 days after being implanted. It grows so rapidly, it has no opportunity to metastasize before the animal dies

This mouse was given abdominal hematoxylin and 14 days post implantation, the subcutaneous lymphosarcoma has barely grown. Additionally, **the hematoxylin only stains the tumor.**

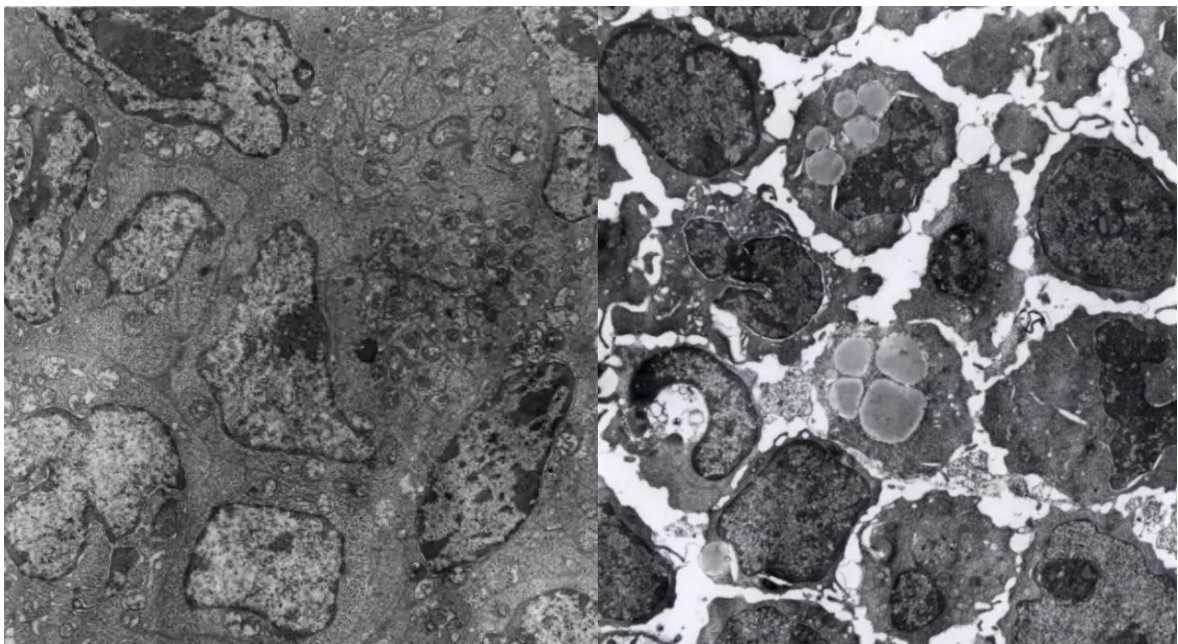
With intraperitoneal D-hematoxylin, the lowest 2mg dose caused slight alterations of the tumor cell morphology, 5mg caused the same changed but in a larger area, 8mg sometimes shrank the tumor, while 12mg caused a complete destruction of the tumor and shrank the tumor by approximately 33% (which extended the mice's lifespan by approximately 27%). Additionally, while the mice were typically sacrificed four days after completing five D-Hematoxylin treatment, in one case they were instead sacrificed a day after, and there, early stages of degeneration were observed, **demonstrating D-hematoxylin initiates a therapeutic process that continues long after the treatment has been discontinued.**

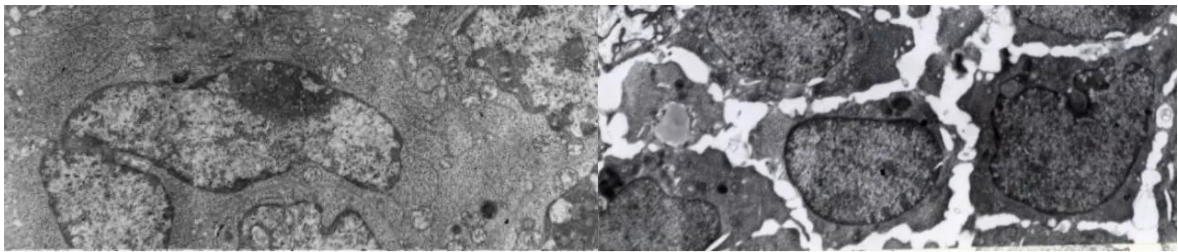
Additionally, at all doses, D-hematoxylin was found to affect the tumor's center first, then spread outward, sparing the periphery from the effects observed throughout the rest of the tumor. However, at higher doses (8 or 12 mg), minor changes were also detected in the peripheral regions. This pattern is highly unusual, as chemotherapy agents typically target the cancer from the periphery inward (along with a smaller number that destroy the cancer in a more scattered and heterogeneous manner). This in turn suggests D-hematoxylin is able to penetrate the barriers which normally allow cancer cells to resist chemotherapies (which as I showed previously DMSO has been demonstrated to do for other chemotherapies).

Similarly, when individual cells were observed, the damage initially began in the nucleus (with the appearance of nucleolar lesions and loss of peripheral chromatin nuclei), suggesting D-hematoxylin had an affinity for DNA (which hematein does). Following this, the cancer cells, in successive stages, began to break down and digest themselves (autolysis), a death process different from the apoptosis typically observed when DMSO alone eliminates cancers (that was potentially due to DMSO releasing digestive enzymes from lysosomes). Finally, as this progressed, debris from other tumors increased and white blood cells began to invade the tumors to eliminate them.

Note: in the mice, if cancer debris increased too quickly, it could cause kidney failure (as there was too much for the kidneys to process).

Subsequently, Morton Walker analyzed that dissertation and concluded that D-hematoxylin was dissolving the extracellular matrix (which can also been seen in many other pictures within the study) and that this matrix dissolving deprived the cancer cells of necessary nutrients, causing them to starve (which likewise could explain the gradual degenerative process D-hematoxylin initiates in cancer cells starting from the center rather than the periphery).





Untreated Control

Treated with D-Hematoxylin
for 5 days (12g)

6250X Magnification

Note: other processes could also explain these changes (e.g., anoikis, a form of cell death triggered by detaching from the extracellular matrix rather than starvation, could trigger cell death beginning in the center of the tumor; or alternatively, the loss of the ECM could be an effect of cell death rather than a cause and not play a contributing role to the changes observed).

Sadly, other than Rogers' dissertation (which just scratches the surface of what was happening), no one has conducted the cellular experiments to determine why D-hematoxylin works. Fortunately, a team in Ecuador (where research is fairly affordable) is presently trying to get the funding to do that research, so **if anyone could help support funding that research**, please let us know (e.g., in the comments below).

Note: the only other study I have been able to locate that assessed the effects of DMSO combined with hematoxylin was a study that found DMSO effectively washed hematoxylin away from starch granules in pollen cells but not from the nucleus, again implying D-hematoxylin has a special affinity for the nucleus of cells. This study, in turn, was conducted because hematoxylin would consistently darkly stain starch granules, making it impossible to see out the pollen cell's nucleus.

Protein Kinase CK2

Protein Kinase CK2, when dysregulated, has been implicated in hundreds of diseases (e.g., viral infections including COVID-19, autoimmune diseases, and neurological conditions). Of those, its best known for playing a key role in cancer (e.g. its activity is often elevated in various cancers, which contributes to tumor progression and poor prognosis). Some of its carcinogenic effects include:

•CK2 phosphorylates hundreds of proteins which allows it to both activate key cancer signaling pathways such as PI3K/Akt, mTORC1, and β -catenin^{1,2} (which promotes cancer cell proliferation, survival, angiogenesis, invasion, and metastasis) and to inhibit key tumor suppressors like PTEN and p53.

- CK2 modulates the warburg effect, hence triggering a metabolic switch where cancer cells stop relying on oxygen for energy production (something many over the years believed is a root cause of cancer). Additionally, CK2 also preserves mitochondrial function to support the high energy demands of growing tumor.

- Cancer CK2 activity suppresses the immune system's ability to eliminate cancer cells, while numerous studies show that inhibiting CK2 activity enhances the immune system's ability to eliminate cancers.

- CK2 makes cancer cells resistant to programmed cell death and hence makes them continue to proliferate. Additionally, CK2 makes cancer cells resistant to anoikis (which as mentioned above otherwise should be triggered when the ECM around a tumor disappears), suggesting that beyond DMSO removing a cancer cell's resistance to hematein, hematein might remove a cancer cell's resistance to DMSO to eliminating it after DMSO partially dissolves its surrounding ECM.

Note: CK2 also makes cancer cells resistant to many chemotherapies—which as mentioned above, D-hematoxylin does as well.

For these reasons, CK2 inhibitors have shown promise in preclinical and clinical studies for treating cancers, and is FDA approved to treat a few cancers (e.g., bile duct cancer).

Hematein in turn, has been shown to inhibit CK2 with a high degree of selectivity^{1,2,3} (as a non-competitive allosteric inhibitor) via binding to CK2 α , a subunit that is over expressed in many cancers,^{1,2,3} correlates with a poor prognosis,^{1,2} and when inhibited causes cancer cells to undergo programmed cell death.^{1,2}

Multiple studies (e.g., this one, this one, and this one) have shown that hematein has anti-tumor effects and can trigger programmed cell death in cancers, and it does so in a manner that has a greater inhibitory effect on cancer cells than normal cells.

Note: CK2 inhibitors have also been shown to increase the sensitivity of cancers to chemotherapy,^{1,2} something also seen with D-hematoxylin.

In turn, most of the cancers which are highly susceptible to D-hematoxylin are also highly dependent on CK2 (particularly blood cancers^{1,2}—which CK2 inhibitors have repeatedly demonstrated efficacy against^{1,2,3}). However, some of the cancers D-hematoxylin has poorer efficacy against are also highly dependent on CK2. In those instances, one potential explanation for those discrepancies is that the centers of the tumors are harder to reach (e.g., because they are thicker or deep within bone), and as a result (at least at the lower doses which have been used so far), D-hematoxylin is not able to bring the DMSO to the center of those cancers.

Note: inhibiting CK2 could potentially explain the delay in cell death following D-hematoxylin administration, but the cancer death CK2 inhibition causes (apoptosis) is different from what was observed by Rogers (autolysis).

Lastly, since CK2 mediates many other diseases, it is quite possible that D-hematoxylin (or the fevers it induces) could cure other diseases, but to my knowledge, neither hematein (or D-hematoxylin) has never been tested on a non-cancerous condition.

Other Mechanisms

Having extensively pondered the available data (**all of which you now have access to**), I believe we have somewhat of an idea of what D-hematoxylin does to cancer cells. However, other than D-hematoxylin being able to reach the cancers and inhibit CK2, we have much less clarity on why those changes occur. What follows are a few other guesses I've come up with to explain this (that **I do not at all feel confident in**). As such, I welcome any other insights you can share that could explain what is occurring. My remaining theories are as follows:

1. One forgotten school of medicine (in the past known as chromotherapy and currently under the umbrella of biophysics) argues that specific frequencies of light exert different effects on the body. There is quite a bit of evidence for this, most of which was compiled through either putting living organisms in different colored rooms or exposing them to specific light frequencies (e.g., red light for the mitochondria) as biology is quite sensitive to specific light frequencies. In turn, I have long wondered if, in addition to externally applying light, if substances which create colors within the body (e.g., dyes) also have to some extent biological effects due to their optical properties.

Note: two key things helped create this hypothesis. First, many parents over the years have observed red and (to some extent yellow) food dyes worsen their child's ADHD and many of the behavior changes ascribed in color therapy to red (and to a lesser extent yellow) mirror the changes seen in worsening ADHD. Second, a 1972 paper (which helped created the field of biophotonics) observed that two fairly molecules (one of which is a carcinogen and one of which is not) observed that the carcinogenic one would optically distort a specific frequency light which went through it, while the non-carcinogenic one did not, and then later discovered that very faint emissions of that frequency of light were routinely used by the body to communicate with the environment, hence suggesting chemicals which changed light within the body could cause significant biological effects.

Since hematoxylin (or more specifically hematein) is a strong dye, could potentially be creating an anti-cancer frequency of light within the body (which in turn would explain the gradual cell death it selectively creates in cancers). I was thus curious what type of optical properties it had so that they could be compared to the known effects of those frequencies. Unfortunately, when I looked into it, I found out hematoxylin and hematein's properties greatly change depending

on what it is mixed with. No one has ever studied how it behaves when mixed with DMSO (so it's currently not possible to assess this theory). Likewise, its optical properties can change depending upon the pH (e.g., the more acidic environment in cancer cells). As such, it is my hope that future research will be able to elucidate the optical effects of D-hematoxylin (as it could potentially explain how D-hematoxylin affects a wide range of cancers).

2. Many potential mechanisms exist for the fevers and chills experienced from D-hematoxylin. Of these, the most probable is an immune activation, which in turn is either due to the immune system reacting to dead cancer cells entering the circulation or D-hematoxylin exposing the surface of cancer cells so that their antigens become visible to the immune system and an immune response can be mounted against it. In turn, I can see five potential reasons for why this happens:

- The immune activation is a consequence rather than a cause of D-hematoxylin cancer elimination (as once debris emerge from dead cancer cells, the immune system will be drawn to eliminate them).

- By removing the extracellular matrix (ECM) around cancer cells, it becomes much easier for immune cells to reach the tumors and eliminate them.

Note: removing the ECM increases the immune system's ability to eliminate cancer cells and has been explored as an approach to treat cancer.

- D-hematoxylin removes the cytoplasmic barrier around cancer cells, exposing hidden antigens to the immune system.

Note: in the first part of this series I showed DMSO alone has been demonstrated to expose cancers to the immune system (which in some cases allows the immune system to eliminate cancers), and to remove a cytoplasmic barrier around cancer cells (which is likely part of the ECM) that protects them from chemotherapies. In turn, it is possible D-hematoxylin for some reason significantly enhances this exposure (by directly destroying the ECM).

- D-hematoxylin exposes tumor antigens (e.g., by damaging the membrane and causing them to leak into the bloodstream), making it easier for the immune system to primed to target them

- Rather than decreasing a cancer's ability to evade the immune system, D-hematoxylin directly activates the immune system, causing it to then attack cancers (e.g., the energy UVBI applies to the circulation does this, and it's possible the spectrum of light D-hematein emits does as well).

Note: the fever and chills could also be due to D-hematoxylin doing something which significantly increases the metabolic rate (e.g., via the mitochondria).

3. As mentioned in the first part of this series, many in the alternative cancer field have concluded hard to detect bacteria (resembling mycoplasma) which frequently change their morphology cause many cancers (and likewise many autoimmune disorders). Because of this,

I've suspected DMSO's ability to improve these diseases comes from its ability to affect those minute organisms (particularly since smaller bacteria are more susceptible to DMSO).

In turn, since logwood extracts (including from the heartwood which contains hematoxylin) have shown broad spectrum antimicrobial activities,^{1,2,3,4,5,6,7} including against mycoplasma,^{1,2} and DMSO enhances the antibacterial activity of antibiotics, this has made me wonder if D-hematoxylin eliminating those bacteria accounts for its anti-cancer properties. On one hand, this could explain how DMSO causes a delayed death in the cancers (as those changes would follow the death of the bacteria). However, I feel this is unlikely as I have not come across any other antibiotic-DMSO combination demonstrate anticancer properties (which may be because those combinations were never tested against cancer) and because most of the changes D-hematoxylin creates directly destroy cancers rather encouraging them to transform back to normal cancers (something frequently seen when DMSO alone is used—although it's possible differentiation does occur within the bone marrow as we do not yet have any data which can assess that).

Note: while hematein has some antibacterial properties, many of these antibacterial properties have been attributed to other compounds present in logwood. This touches upon another important point—since hematoxylin is an extract of everything in logwood, it is entirely possible that something besides hematoxylin is the actual anticancer agent.

4. Given how low DMSO's toxicity is, I find it quite odd mixing it with hematoxylin dramatically decreases its IV LD50 (to roughly a quarter of what it was), particularly since DMSO IV toxicity arises primarily from osmotic injuries (created by very high concentrations of DMSO) and adding hematoxylin to DMSO would further increase its osmolarity. Presently (assuming that data is correct), I can only think of two explanations for this.

First, hematoxylin has such a low toxicity that it effectively “dilutes” the virtually negligible toxicity of DMSO.

Note: while this is unlikely, it is possible, as the LD50 of hematoxylin exceeded the doses tried and hence could be a very high value.

Second, D-hematoxylin catalyzes a process within cells which both protects cells from death and selectively eliminates cancers. If this is occurring, it is likely either a result of a change in the cytoplasm or cytoskeleton (the evidence for which was discussed in the first half of this series) or it directly increasing mitochondrial function (e.g., by providing a light frequency which increases mitochondrial function, by serving as an oxidative catalyst through its ability to transfer electrons or generate reactive oxidative species—a property of both polyphenols and quinones).

Note: another forgotten cancer therapy (I have some direct experience with and helped conditions besides just cancer) utilized quinone based catalysts to restart oxidative metabolism

conditions besides just cancer) utilized quinone based catalysis to restart oxidative metabolism within the body. While not a quinone, the polyphenol hematein is considered to be a “quinone-like” and shared certain properties with them. Interesting, the few people I knew who used the Koch catalysts all felt very strongly that the user could not concurrently be exposed to solvents (e.g., by pumping gasoline) as this would inactivate the catalysts, and as mentioned above, there was a case in Ecuador of WD40 (which is full of toxic inhalable solvents) preventing D-hematoxylin from treating a case of leukemia almost identical case to one that D-hematoxylin did treat. Conversely however, DMSO itself is a solvent, and it does not interfere with hematoxylin treating cancer, so assuming this is true, D-haematoxylin (due to it being “quinone like” rather than a quinone) is much less sensitive to catalysts.

5. Since hematein can have a high affinity for DNA, there is also a possibility that it is potentiating DMSO’s anticancer properties by bringing it into the nucleus.

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Using D-hematoxylin

Writing this DMSO series (which I began last May) has been an exhaustive endeavor that required many personal sacrifices. One of my primary motivations for doing this was because I felt the D-hematoxylin story needed to be told as virtually no one knows about it despite it being one of the most easily available, safe and (likely) effective alternative cancer therapies out there (particularly since it can treat a variety of otherwise very challenging cancers).

My motivation, in turn, for doing all that I could to create a robust and comprehensive case for D-hematoxylin (which first required each of the previous articles I’ve written in this series) was so that:

- D-hematoxylin would have the best chance of seeing the light of day and being rediscovered.
- Enough people would see this series, and someone with direct experience in using D-hematoxylin would contact me.

To my great fortune, that not only happened, but the doctor I connected with shares my conviction that D-hematoxylin must be something for all of humanity rather than being bought, patented, and locked away in a box.

Note: many of the therapies the AMA blacklisted in the mid-1900s were initially offered buyouts, but once the buyout was declined, a massive campaign (assisted by the FDA) was launched against them that eventually mostly erased each one from the public's memory regardless of how strong the case was for the therapy.

In turn, that doctor has spent the last 15 years researching and refining the therapy, developing modern protocols for its use, and over the last four months, sharing everything he knew on the subject with me.

In the final part of the article I will discuss:

- What we now know about how to use hematoxylin (both for personal home use and at an integrative cancer clinic)
- How D-hematoxylin can be safely prepared for either application (including which cancers or prostate conditions like BPH and prostatitis can be treated D-hematoxylin or DMSO alone, but do not require IV administration **and hence can be done at home**)
- Which doctors patients can currently go to for DMSO treatments (including D-hematoxylin cancer treatments)
- General protocols for many of the other conditions DMSO treats (along with where to source DMSO).

DMSO Doctors

Whenever a physician does a non-standard therapy to treat patients, they expose themselves to a significant amount of risk for doing so, and as such, those that do typically never publicly advertise what they are doing (which hence makes one of my most challenging dilemmas here how to give referrals to readers who request them), particularly since most of my colleagues who practice the forgotten sides of medicine have told me they can't afford the risk referrals from here would create. As such, I've tried to provide all of the information one needs to know about each therapy mentioned here so patients can either do it themselves or work with an open-minded doctor to try and utilize the therapy.

Note: I discussed the solutions I've found for patients seeking holistic doctors (e.g., the best directories I've found) here.

Presently, I know two options that exist for patients seeking direct DMSO and cancer guidance.

The first is to enroll in Pierre Kory and Scott Marsland's telemedicine practice, which specializes in treating COVID vaccine injuries and cancer and now also focuses on using DMSO to treat a variety of conditions. Being a telemedicine practice makes it much more accessible, but simultaneously, it does not make it possible to utilize certain therapies that must be done in person (e.g. intravenous DMSO)

or done in person (e.g., intravenous DMSO).

Note: I further discussed Pierre Kory's approach to treating cancer [here](#).

The second option is to see Lance Grindle, a kind and mild-mannered American M.D. who now practices in Quito, Ecuador, at a clinic his father helped him build. Like me, Lance has long been fascinated with the forgotten sides of medicine (e.g., during COVID he successfully treated well over 100 patients, many of whom were seriously ill, by infusing ozonated blood and then 45 minutes later infusing DMSO).

*Note: during COVID, while doctors around the world successfully treated COVID-19 with ozone, but I do not know of anyone besides Lance who combined it with **subsequent IV DMSO**, an approach I believe has merit as DMSO treats many of the things associated with severe COVID (e.g., [ARDS](#)) and one study showed [an intranasal combination DMSO spray treated the infection](#).*

After Dr. Grindle learned about DMSO, he felt he had to use it on his patients (and in addition to the previously mentioned prostatitis and cancer cases he treated, had also used it for other things on a transected lumbar spinal cord where he was able to spare the patient from a life of paraplegia). As such, he actively sought out every resource he could (e.g., he traveled across Ecuador to see Jim McCann several times and conducted the interview I shared parts of above) and amongst other things, self-funded the D-hematoxylin LD50 study so that it could be possible to treat patients with the mixture (as he was able to show the dose he was using was far below one with any measurable degree of toxicity).

1x

0:00

-0:34

1x

0:00

-4:39

1x

0:00

-7:53

Lance strongly believes D-hematoxylin needs to be available to the world, but sufficient testing is also needed to demonstrate its safe and effective applications, so that's essentially been his project over the last 15 years (and during this time, other doctors, including some in America, have learned from him and successfully used his protocols here).

At this point, Lance faces two key dilemmas:

The first is that a significant amount of research still needs to be done on D-hematoxylin to elucidate its mechanism (which could be done for under \$100,000.00 in Ecuador). Due to his

reticence to commercialize the therapy with an investor or charge patients more than what they can afford the treatment (which is quite unusual), he is still waiting to be able to fund that research. As such, if any of you wish to support that research, it would be greatly appreciated.

The second is that the moment there is public attention on the therapy, it will create pushback that may preclude him from being able to continue to offer the therapy (e.g., to his current cancer patients depending upon him for it) or even practice medicine. At the same time however, everything he has been doing up to this point has been specifically to bring public recognition to D-hematoxylin so others can use it, so to some extent, that problem is unavoidable and the best option hence is to bring enough awareness to it so when he publicly announces it that it won't be possible to sweep it under the rug (and hence be consigned to the dustbin of history like so many other alternative cancer therapies the AMA went after).

After extensively discussing the topic with Lance, I was able to persuade him to agree to step out of the shadows and offer the treatments to patients who wanted them provided:

- I presented the therapy and all the background on it in a manner that gave it the strongest chance of being recognized and adopted, and simultaneously was as accurate as possible so there would be no misconceptions about what it could and could not do.
- When revealing it, I did so in a manner which would allow as many people as possible to know about the therapy (hence creating a big enough splash that it could not be swept under the rug).
- I limited the audience who receive his direct information (e.g., paid subscribers to the newsletter) so that there would be a partial buffer to protect his practice, so that he would not initially be overwhelmed with patients (e.g., this newsletter has over 200,000 public subscribers) and so that the right people would seek him out (which I feel characterizes the community this newsletter has formed). Conversely, he requests that if you or a loved one is interested, you contact him directly but **do not** publicly promote him.

Note: Dr. Grindle's current email is dms0.0zone.md@gmail.com and his Ecuador phone number is 5932-2-080501.

Preparing Injectable DMSO Hematoxylin

Over the years, many different approaches (some of which could be performed at a compounding pharmacy) have been used to prepare hematoxylin.

Note: when preparing D-hematoxylin, if it is administered topically or orally, the primary concern is ensuring no toxic chemical (e.g., a heavy metal mordant) has not been combined with the hematoxylin (as infectious organisms are too big for DMSO to pull into the body).

However, when preparing for injectable administrations (e.g., IVs), it becomes critical to ensure there is no microbial contamination or solid particulate matter present.

Presently, the most refined approach I know of (which has consistently produced both a safe and effective) injectable product is as follows:

- Obtain pure hematoxylin (from a producer who obtains extracts directly from a logwood tree rather than from a reseller or pharmaceutical company who potentially adds unsafe chemicals or mordants to it) and high purity DMSO (which ideally, like [this brand](#), has been tested as being Endotoxin and Pyrogen free).

Note: many individuals (e.g., Tucker) used hematoxylin products produced by chemical companies without issue, but it is still ideal to get the purer product to avoid any potential risks.

- Pass ozone gas at a 70 mcg/mL or higher concentration through a glass container (with a small exhaust hole for the ozone gas to exit through) containing the dry hematoxylin for 20 minutes to sterilize it.

- In a sterile glass bottle of 200-300 ml capacity mix 1500 mg (1.5 gram) of sterilized hematoxylin for each 12 ml of pure DMSO.

- Warm to between 104°F and 122°F for 10 minutes and then agitate.

- Leave in a cool, dark place for a few days. A sludge will form on the bottom, the amount and color of which will depend on the quality of the hematoxylin batch.

- Carefully decant the liquid into a separate sterile glass bottle (so it is separated from the sludge).

- Put that mixture into a centrifuge, and again decant it (to eliminate any remaining solid residues).

- Filter the mixture through a 0.80 micron and then a 0.22 micron millipore filter (which uses a DMSO-resistant material like PTFE).

- Store it in a sterile glass bottle (e.g., 100 ml ones with wide mouth rubber stopper are ideal), filling nearly to the top (leaving as little air as possible) and then draw vacuum.

- Store in refrigerator (not freezer) until use, while using, keep at room temperature.

Note: this modified dosing was initially based on Tucker's formula (which an early version of can be found in Tucker's 1968 paper and a later version in Morton Walker's books)

In turn, I am providing these instructions for two reasons:

First, in the hopes that researchers or a compounding pharmacy will be able to use them as a starting point for preparing D-hematoxylin.

Second, because while intravenous applications require significant work to ensure sterility and safety, oral or topical applications of D-hematoxylin do not. As such, for those non-intravenous applications, this series of steps provides a starting point for those seeking to prepare a mixture themselves.

Note: the effects of D-hematoxylin for Dr. Grindle were fairly consistent despite different batches of hematoxylin being used to make D-hematoxylin, suggesting that any clean (direct from the tree) batch of hematoxylin will work.

Finally, DMSO will to some degree leach plastic used in many IVs, and in Lance's case, early on, he had a few patients who developed a reduced cardiac output after a prolonged course of IV DMSO. After discovering [a study](#) that found clinically relevant DHEP levels can inhibit heart cells contracting, he switched to using DHEP free IV bags and saw the cardiac output return in patients undergoing that therapy.

Note: DHEP, a common component in IV equipment, has been linked to a variety of issues (including cancer), and in 2024, California enacted a ban on it that goes into full effect in 2030. Since DMSO can leach certain plastic tubings, I discussed which IV equipment is DMSO resistant in the first part of the DMSO series.

Dosing D-Hematoxylin

Once this solution (1.5 grams of hematoxylin in 12mL of DMSO) is prepared, it is typically dosed at 2ml of the solution diluted in 250 or 500mL normal saline (given **as a slow drip** over 2-3 hours and 500mL bags used for higher doses). Depending on how the patient responds, it can be raised. Typically, the jump from 2mL to 3mL can be done on the second day of treatment. In contrast, each successive raise (e.g., from 3mL to 4mL) usually should only be done after several days of treatment, where the patient's response is continually monitored (and sometimes done as a 0.5mL rather than 1mL increase). The maximum useful dose greatly depends on the patient (e.g., for many patients it is 5-6mL, some patients can go up to 12mL, while Tucker typically only went up to what would be the equivalent of 4.5mL of this solution).

Note: Tucker gave D-hematoxylin in 5% dextrose (except for diabetic patients who received saline), whereas McCann and Dr. Grindle concluded it was preferable to give everything in saline.

According to Tucker, when D-hematoxylin is taken orally, the same total dose that would be taken with IV (which is higher than Dr. Grindle's dose) was added to about 2 ounces of water

(which is drunk first thing in the morning with no food eaten after midnight the night before). However, if a patient has stomach or intestinal cancer, this cannot be done as the cancer's rapid disappearance can create a hole in the gastrointestinal lining (similar to an ulcer) which will then bleed, and those cancers should instead be treated with IV D-hematoxylin.

Additionally, Morton Walker shared the following applications for D-hematoxylin he'd learned from Tucker in his 1983 book

For lung cancer, use the Bennett Respirator Machine [which I believe was that time's equivalent of a nebulizer] and install 2 mL of saline solution and 4 drops of DMSO-hematoxylon solution. Inhale the mixture for about 10 minutes twice a day. Use this inhalation therapy when not receiving an IV. Make sure that intervals of at least two hours occur between treatments.

For bone cancer, take the intravenous infusion, but also swallow at least 2,000 mg of bone meal tablets each day.

For facial cancer, reduce the solution by half with distilled water and apply it to the skin, using a cotton-tip applicator. Paint the skin twice daily. Gradually increase the strength of the applied solution as long as the patient does not show any allergic reaction. The therapeutic solution can also be taken orally for facial cancer.

Note: all the above protocols by Dr. Tucker reference a D-hematoxylin combination of 25 grams of hematoxylin in an 80mL container of DMSO (which typically Tucker gave 2mL of each day).

Cancer of the cervix in the preterminal stage receives the greatest benefit only from local application. The symptoms become less severe. There is very little local regression of the tumor itself in advanced squamous-cell carcinoma of the cervix. However, the patient feels marked relief of pain and a diminution of bleeding and odor, especially when the DMSO-hematoxylon solution follows local radiation treatments.

Vaginal packing with a 15-percent concentration of the Tucker solution has been found to be most effective in controlling hemorrhage and odor from irradiation slough. A small saturated pack is placed against the cervix and left for three hours and then removed.

Topical application has been used in many open lesions of malignancies with encouraging results. A 15-percent solution of hematoxylon and DMSO is made fresh and applied over the sloughing malignancy.

Note: I believe this represents a mixture, which if 100mL, would be composed of 4.6875g of hematoxylin, 15mL of DMSO and 85mL of water.

Lastly, if EDTA is given concurrently with the treatment, Dr. Grindle has found it best if it's given on alternating days prior to infusing D-hematoxylin (with a twenty minute break between the two infusions).

Local Prostate Treatments

When treating prostatitis, BPH or prostate cancer, a variety of administration routes for DMSO have successfully treated these condition (e.g., topically on the perineum for BPH, intrarectally for either BPH or prostate cancer or directly into the urinary tract with a catheter for all three conditions). When Dr. Grindle treated chronic bacterial prostatitis, he chose to do an intravesical administration where DMSO combined with an antibiotic.

That treatment (which takes ten minutes) administered DMSO via a small (#6 or #8) Nelaton catheter inserted into the urethra, so that DMSO could be put into (and held by) the bladder. Dr. Grindle employed six different antibiotics, such as 1 gram of ceftriaxone or 160 mg of gentamicin, all of which proved effective despite many patients having antibiotic-resistant bacterial infection. Three treatments per week (totaling twelve treatments) was sufficient to eliminate the symptoms and presence of bacteria in the prostatic fluid.

When treating prostate cancer, Dr. Grindle essentially did the same approach (with hematoxylin being mixed with DMSO rather than an antibiotic) as this was effectively a local treatment and hence avoided potential concerns about IV administration of an untested substance (hence making it be an extremely appealing choice for doctors who wish to familiarize themselves with D-hematoxylin).

For those prostate cancers (including cancers from the prostate that have locally spread to the lymph nodes surrounding the prostate), Dr. Grindle combined 2 ml of the standard preparation of D-Hematoxylin plus 6 ml of pure DMSO and 8 ml of normal saline (16 mL total) into a sterile syringe. With sterile technique, much in the same way he treated prostatitis, a catheter is advanced into the urethra until urine is produced, at which point the bladder is drained of urine and the 16mL solution is introduced into the bladder, held for fifteen minutes then removed. That entire procedure is done three times a week for a total of 30 sessions, with tests (e.g., biopsies and laboratory exams) being done before and after treatment to establish that the cancer has remitted.

Ideal Treatment Candidates

Since D-hematoxylin is a relatively unknown therapy, for practitioners or patients (especially

Since D-hematoxylin is a relatively unknown therapy, for practitioners or patients (especially the initial ones who use it), initially the best candidates should be selected so that D-hematoxylin does not produce unsuccessful results that prevent further adoption of it (which is why I've mentioned so many of the differentiating factors throughout this article). Dr. Grindle believes the best candidates (and those any doctor considering this therapy should try to start with) are those that are:

- Without significant medical issues prior to the cancer suddenly appearing.
- Someone who had a good network of emotional support from their family.
- Has a cancer type which consistently responds to D-hematoxylin (e.g., leukemia but also others).
- Has a cancer where it is very easy to track the treatment progress (e.g., with elevated serum markers in the blood).
- Has not previously received chemotherapy.
- Does not appear to have a cancer with a significant emotional component.

Standard DMSO Protocols

Whenever I write these articles, I receive numerous inquiries as to how DMSO can be used for a variety of conditions. While there are some nuances (e.g., DMSO often needs to be applied in the vicinity of the affected area), in many cases, the approaches are quite similar. For specific conditions, in addition to cancer, I have discussed each of the known uses in the previous articles:

- Strokes, traumatic brain injuries, spinal cord injuries, developmental delay, Down Syndrome and many circulatory disorders.
- All types of pain, arthritis and acute or chronic tissue injuries (e.g., burns, scars and sprains).
- Autoimmune and connective tissue disorders.
- Eye, ear, sinus, and dental conditions (e.g., tinnitus and blindness).
- Internal organ disorders (e.g., pancreatitis and cirrhosis).
- A wide range of skin conditions.
- Acute and chronic infections including shingles and herpes.

Sourcing DMSO:

Since there are a lot of options when purchasing DMSO, I've frequently received many questions on the best brands to use. Of them, I've long believed these are the three best options

questions on the best brands to use. Of them, I've long believed these are the three best options (and I've included Amazon links to purchase them).

Note: unless you feel confident you can dilute them correctly, get the 70% dilution, since that concentration typically works for people.

- Jacob Lab (e.g., [this gel](#) or [this liquid](#))—which is 99.98% pure.
- The DMSO Store (e.g., [this gel](#) or [this liquid](#))—which can also be bought directly from www.DMSOstore.com)—which is 99.995% pure (and hence often the most popular for internal applications).
- Nature's Gift (e.g., [this gel](#) or [this liquid](#))—which is 99.9% pure.

Note: dmsa.store is a completely different company than dmsostore.com.

When buying liquid DMSO, I believe it should always be sold in a glass container unless the plastic container is DMSO resistant (which many are not—hence why I only recommended buying glass bottles) and likewise have a DMSO resistant cap. If you buy gel, it's okay if it's sold in plastic.

Note: many people have used liquid DMSO from plastic containers without issue, but I have personally always avoided doing so because glass DMSO has always been affordable and readily available so less thinking is involved to ensure it's sold in a DMSO resistant plastic.

The unexpected problem I ran into was that many of the people who ordered glass DMSO from the links I recommended then informed me they had been shipped in plastic (which is likely either because those parties were resellers or because everyone ran out of glass bottles and the DMSO market is currently trying to rebuild that inventory).

Of the currently existing options, I believe the best choice is to either:

- Buy DMSO directly from the [DMSO store](#) (DMSOstore.com).

Note: the website DMSO.store is for a completely different company.

- Buy it directly from [Jacob lab](#) (which readers have informed me is also shipping DMSO in plastic they claim is DMSO resistant—which it likely is since Stanley Jacob's son runs the company and from talking to him we know he is very dedicated to continuing his father's work).

DMSO dosing:

One of the things that's very challenging about using DMSO is that there is a significant amount of variation in what each individual will best respond to. Because of this, in the [first](#) and [second](#) parts of this series, I attempted to provide a very detailed explanation that

could try to account for each possibility which may have been too complicated (but I would still advise reading).

In short the primary consideration is how strong of a dose you want to use. This is because if you use too high a dose, you risk the chance of having a bad reaction, which will make you not want to use DMSO anymore, whereas if you use too low of a dose, the effect will be much less than desired. In turn, I've had many people here who:

- Applied 100% DMSO topically and had trouble believing anyone couldn't tolerate that.
- Applied 70% DMSO topically, had a bit of irritation but thought it was manageable.
- Applies 30% topically and felt it was too strong.

Similarly with oral dosing, I've had people who:

- Thought 1 teaspoon was decent but quickly took more for a greater effect.
- Found **a few drops** was the optimal dose for them (and greatly benefitted), whereas 1 teaspoon while initially good, ended up feeling like it was too much for them and caused their sensitive system to react.

Because of this, you essentially have two options, and have to decide which is right for you:

- Be patient and start with a low dose you build up.
- Start a strong dose and agree not to hold it against me or DMSO if you don't tolerate it.

In the previous articles, I've advocated for the former. Still, many understandably started with a high dose as they did not want to wait for the results, a few of whom then shared they'd had a skin reaction that made them hesitant to continue using DMSO.

Similarly, when using DMSO, there are two common routes of application, orally and topically. Orally, it is much stronger, but likewise, the GI tract is more sensitive to higher concentrations of DMSO. For this reason, I typically suggest starting with topical DMSO before doing oral DMSO. Likewise, there is a very small risk (1 in 1-2000) of an allergic reaction, so it's generally advised to begin by patch testing DMSO on the skin before taking it orally.

So, What is Patch Testing?

Patch testing is a method used to determine how the application reacts to a product. It's a smart way to test a small area first before applying the product to larger areas, which helps to identify any adverse reactions.

How to Patch Test:

- Select a Small Area:** Choose a discreet spot.
- Apply a Tiny Amount:** Use a small quantity of the product.
- Wait and Observe:** Leave it on for 24 hours unless you notice irritation sooner.
- Proceed if All's Good:** If there's no reaction, feel confident to use the product as intended!

**If in contact with the skin: Some experience itching and tingling sensations, which are normal. If there's any redness or swelling, wash the area immediately and discontinue use.*

That said for general DMSO use (without going into all the nuances and additional details), I advise the following:

1. Start with 30-50% DMSO and see how you tolerate it. If applying to the face, make sure all makeup has been washed off (and ideally that you are only using natural cosmetic products).
2. If you have no issue, raise it to 70%.
3. Only raise it past 70% if you are certain you are one of those people who is fine with 100% or you are using it for a specific application that can justify a higher concentration (e.g., a collagen contracture, a scar, an internal adhesion or an acute stroke).
4. Until you are comfortable with topical applications, don't do oral applications, and only if you think you need them.
5. For oral dosing, start with a teaspoon of 70% or 100% DMSO mixed into a glass of water (you may also want juice or milk to eliminate DMSO's taste), as a heavily diluted solution is best to start with
6. If you have issues with that, lower the dose to half a teaspoon and then to a quarter teaspoon.
7. Otherwise, stay at a teaspoon for at least three days, and then if you think you need a stronger effect, go to 2 teaspoons.
8. More than 3 teaspoons in a glass of water is excessive, and at that point, you are better off dividing the dose throughout the day.
9. With both topical and oral DMSO, people generally find that as time goes on, their tolerance to it improves. Conversely, if it's used too frequently, a tolerance can develop, so it's generally advised not to take it 1-2 days a week.

Note: more detailed instructions on oral (and IV) DMSO use can be found [here](#), while more detailed instructions on topical uses can be found [here](#).

Regarding the concentrations used, I generally advise buying 70% DMSO because people rarely react to it (e.g., the DMSO felt it was the concentration that had the best balance between safety and efficacy). It doesn't require any significant calculations to dose appropriately (e.g., you can apply it topically as it is, or mix it with equal parts of purified water to get it to roughly 35%). However, you can also do all of that with 100% DMSO (e.g., dilute it to roughly 50% rather than 35% by mixing it with equal parts of purified water or to roughly 33% by mixing it with two parts of purified water). Finally, certain parts of the body, **particularly the face**, tend to be more sensitive to higher concentrations of DMSO, so you should start at lower strengths in those areas

If you are putting DMSO on the face, start at 30% and **do not start with a stronger one** as this can cause significant skin irritation to the face. For example, I had one reader who started with a 70% gel on the face contact me about a reaction they had (although after the surface layer of skin peeled off her face underneath did look much younger).

Additionally, the one tricky thing about dosing DMSO is that it weighs slightly more than water (1 mL of DMSO is 1.1004 grams). Since DMSO has a fairly wide range of tolerability, I've bypassed that issue by treating it as having the same density as water and suggesting a slightly lower oral dose.

Note: when DMSO is taken by mouth, the total concentration should always be kept to 20% or less, and ideally, it should be taken slowly after eating a meal.

When applying DMSO topically, there are two options. The first is to use a liquid that you directly apply (e.g., I like to use paintbrushes made from natural hairs to dab it on, but sometimes when needed, I just dip my finger in it and then rub it onto the target area, whereas the DMSO field often used sprays for sensitive skin conditions). The second is to use a gel which is rubbed into the skin.

When applying DMSO to the body, it is important to clean the area it will be applied to beforehand, and to ensure DMSO dries before putting anything in contact with it. This is because DMSO will pull things from the surface of the skin into the body, and if a toxic chemical is on the skin, it will hence be dragged into the body. This is very rare, but there are known instances of this happening and harming the individual.

I personally prefer the liquids because it's easier to control the total dose with them, more gets into the body, and liquid DMSO tends to be less irritating. That said, gels hold the advantage of continually releasing DMSO into the body over a prolonged period and are much easier to

apply. Because of this, whichever one you use is largely a question of personal preference.

In most cases, if an area bothers you, you are better off applying DMSO to that area (provided there is no open wound), but if the issue feels systemic, you may also need to take oral DMSO.

Conclusion

This DMSO series has been an incredible amount of work (which I know has now reached into thousands of hours). It's been an incredible joy to see how it's been able to take off across the health community and help a lot of people since it came out at a time when the public was open to learning about it (due to egregious overreach which occurred due to COVID). In turn, I've tried to do all that I can to give it the best chance to succeed, and much of that is only possible because many before me also saw the incredible promise DMSO offered and did all they could to keep the torch of knowledge alive.

Along these lines, if you can do anything to facilitate this process (e.g., obtain additional information I was unaware of, such as other studies that potentially elucidate its mechanism or the 1972 news program) I would greatly appreciate it and will add those contributions to this effort. Likewise, Dr. Grindle is happy to help anyone sincerely interested in the therapy and beyond treating patients in Ecuador, will mentor doctors interested in adopting this therapy.

Lastly, for those interested, in addition to me continually updating the existing articles as I come across studies that were missed, the remaining parts of this series are:

- A summary of how DMSO can be combined with a variety of other (mostly natural) therapies—some of which create rather extraordinary effects.
- A compilation and summary of the more than 2000 reports I've received from individuals who decided to take DMSO.
- A discussion of the therapeutic effects of MSM (DMSO's odorless primary breakdown product), which dovetail with some (but not all) of DMSO's effects.
- An abridged summary of the entire DMSO series.

Current research suggests that 2-deoxy-D-ribose (2dDR), a sugar closely related to D-ribose, has potential for stimulating hair regrowth, particularly in animal models. Studies have shown that 2dDR promotes hair growth by enhancing angiogenesis (formation of new blood vessels) around hair follicles, improving blood supply and follicular health. In mice models of androgenic alopecia (male pattern baldness), 2dDR demonstrated effects comparable to the FDA-approved drug minoxidil, including increased hair follicle density, length, and melanin synthesis in the hair bulbs[1][2][6].

The mechanism appears to involve elongating the anagen phase of the hair growth cycle, during which follicles are actively growing. Additionally, 2dDR may protect hair follicles from oxidative stress and inflammation, which are common contributors to hair loss[5]. The sugar's ability to stimulate angiogenesis and improve blood flow is thought to be central to its effectiveness[3][6].

However, while these findings are promising, they are based on animal studies. Currently, there is no clinical evidence confirming the effectiveness or safety of 2dDR for human hair regrowth[4]. Further research is required to determine whether similar results can be achieved in humans and whether D-ribose itself (as opposed to 2dDR) might offer similar benefits.

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2-deoxy-D-ribose (2dDR) helps regrowth of hair on mice. Might a cream of DMSO with D-Ribose help regrow hair in humans as well - Deep Research

2-Deoxy-D-Ribose and DMSO for Hair Regrowth: Scientific Analysis and Potential Applications

Recent research has revealed promising results regarding 2-deoxy-D-ribose (2dDR) for hair regrowth in mice, raising questions about potential applications in humans and possible synergistic effects with other compounds like DMSO. This report examines the current scientific understanding of these substances and evaluates whether a DMSO and D-ribose combination might be effective for human hair regrowth.

2dDR Research: Breakthrough Findings in Hair Regrowth

Scientists from the University of Sheffield and COMSATS University Pakistan have discovered that 2-deoxy-D-ribose (2dDR), a naturally occurring sugar in the human body, demonstrates remarkable potential for treating androgenic alopecia (male pattern baldness). This discovery occurred serendipitously during wound healing studies when researchers noticed accelerated hair growth around healing wounds treated with 2dDR[7][11].

In their animal model study, researchers prepared an alginate gel containing 2dDR, polypropylene glycol, and phenoxyethanol. They tested this formulation on mice with testosterone-induced androgenic alopecia (AGA), comparing it with minoxidil (a standard FDA-approved treatment) and control groups[1][5]. The results were striking:

Key 2dDR Effects on Hair Growth Parameters

The 2dDR treatment demonstrated comprehensive improvements across multiple hair growth parameters:

- Increased hair shaft length and diameter comparable to normal controls[2][10]
- Enhanced hair follicle density and size[5]
- Improved anagen/telogen ratio (more growing versus resting hair follicles)[2][5]
- Increased area of hair bulb covered in melanin[1][5]
- Significantly increased number of blood vessels in the dermis[5][10]

Most remarkably, the effects of 2dDR were approximately 80-90% as effective as minoxidil, the FDA-approved drug widely used for hair loss treatment[1][5]. The combination of 2dDR with minoxidil did not show significant additional benefits over using either treatment alone[1][5].

Mechanism of Action: Angiogenesis and Hair Growth

The primary mechanism behind 2dDR's effectiveness appears to be its ability to stimulate angiogenesis—the formation of new blood vessels. This enhanced vascularization improves blood supply to hair follicles, which is critical for stimulating the hair regrowth cycle[1][3][5].

Professor Sheila MacNeil from the University of Sheffield stated: "Our research suggests that the answer to treating hair loss might be as simple as using a naturally occurring deoxy ribose sugar to boost the blood supply to the hair follicles to encourage hair growth"[11][13]. This mechanism is significant because reduced blood flow to the scalp is believed to play an important role in hair loss conditions[3].

DMSO: Potential as a Carrier Agent

Dimethyl sulfoxide (DMSO) is an organic solvent with unique properties that has gained attention in alternative medicine and cosmetic applications. Key characteristics relevant to potential hair treatments include:

DMSO Properties and Applications

- Functions as a penetration enhancer that can deliver other substances deeper into tissue[4][8]
- Possesses anti-inflammatory properties that might benefit scalp conditions[8]
- May improve blood circulation when applied topically[8]
- Sometimes used in homemade hair treatments combined with other ingredients[14]

One case report from 1987 documented an interesting observation where a 67-year-old male patient with amyloidosis experienced regrowth and blackening of hair after DMSO treatment[12]. However, this represents a specific medical condition and cannot be generalized to typical pattern baldness.

DMSO with D-Ribose: Analyzing the Potential

The question of whether combining DMSO with D-ribose might help regrow hair in humans requires careful consideration of several factors:

Important Distinctions and Considerations

Important Disclaimers and Considerations

1. ****2dDR vs. D-Ribose****: The research specifically demonstrates effects from 2-deoxy-D-ribose (2dDR), not standard D-ribose. These are related but distinct compounds with potentially different biological activities. 2dDR has a hydrogen atom replacing a hydroxyl group at the C-2 position, which may be crucial for its specific effects[5].
2. ****Delivery Mechanism****: The researchers used an alginate gel for delivering 2dDR in their successful mouse studies[1][5]. While DMSO could theoretically enhance penetration of active ingredients into the scalp, there's no research evidence specifically testing this combination.
3. ****Species Differences****: The promising 2dDR results come from mouse models, and human hair biology differs in significant ways. Human studies would be necessary to confirm similar effects in people[11].
4. ****Safety Considerations****: DMSO has potential side effects including skin irritation and a distinctive garlic-like odor after application. It can also potentially carry unwanted substances through the skin barrier[8].

Conclusion

The research on 2dDR for hair regrowth shows promising results in mouse models, with effects comparable to FDA-approved minoxidil. The mechanism involving enhanced blood vessel formation provides a sound theoretical basis for its effects. However, there are currently no published studies examining the combination of DMSO with either 2dDR or D-ribose for hair regrowth.

While DMSO's penetration-enhancing properties could theoretically improve delivery of active ingredients to hair follicles, it's important to recognize that:

1. The specific compound shown to be effective is 2dDR, not standard D-ribose
2. Human studies on 2dDR for hair regrowth have not yet been published
3. The safety and efficacy of combining DMSO with these sugars remains untested

For those interested in hair regrowth treatments, following the development of clinical trials using 2dDR would be advisable rather than experimenting with untested combinations. As Professor MacNeil noted, "The research we have carried out is at a very early stage but the results are promising and warrant further investigation"[16].

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DMSO and Cancer - Midwestern Doctor Mercola April 2025

How DMSO Eases Cancer's Hidden Burdens — Chemo, Pain, and Radiation Relief

Analysis by [A Midwestern Doctor](#)

April 04, 2025

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STORY AT-A-GLANCE

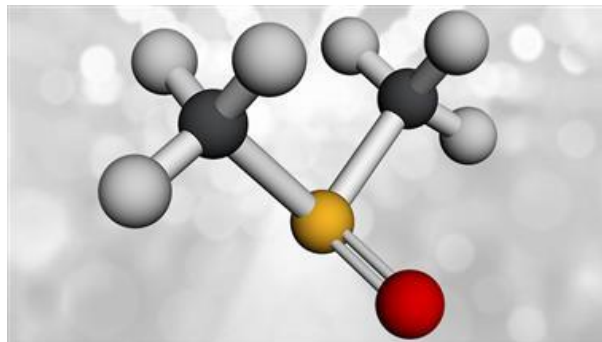
Dimethyl sulfoxide (DMSO), a forgotten gem from the 1960s, effectively treats a broad spectrum of conditions, including strokes, tissue injuries, autoimmune inflammation, a myriad of skin diseases, and many challenging infections

One of the least-known benefits of DMSO is that it also eliminates cancers (especially when combined with another therapy) and protects the body from damage created by conventional cancer therapies

In dozens of experiments, DMSO has been shown to prevent the damage radiation does to cells, animals, and humans and to heal existing radiation injuries — something relevant not only to cancer patients but also to those receiving CT scans

DMSO effectively prevents many of the illnesses and complications that follow chemotherapy. Likewise, it also protects patients from accidental chemotherapy injuries where the medication leaks into the tissue

DMSO heals surgical wounds (which prevents many complications from cancer surgeries) and significantly extends the survival of patients whose tumors were surgically removed



DMSO is a remarkable naturally occurring substance that (provided it's used correctly¹) safely and rapidly improves a variety of conditions medicine struggles with — particularly chronic pain. For example, thousands of studies show DMSO treats a wide range of:

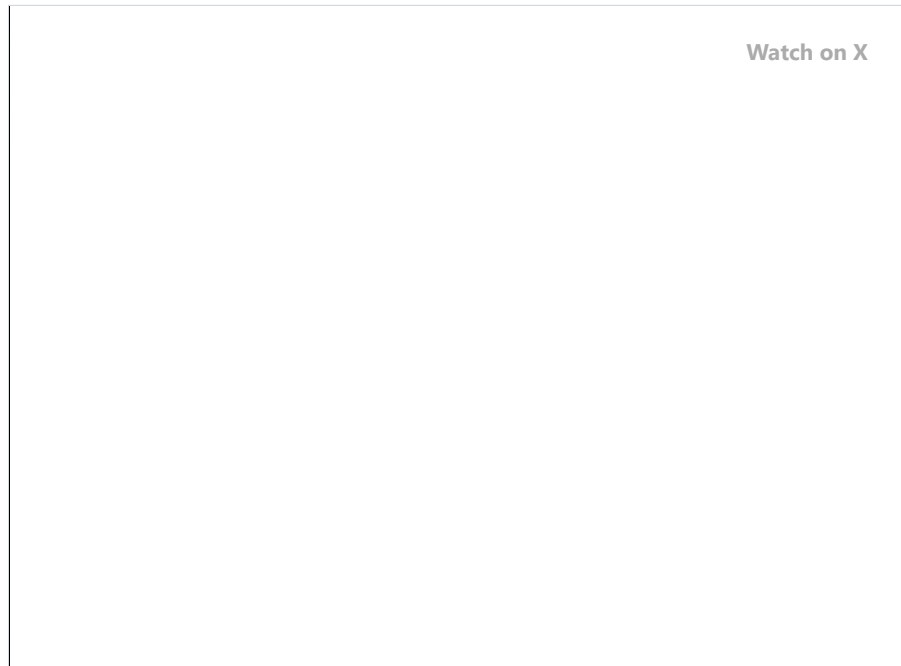
- Injuries such as sprains, concussions, burns, surgical incisions, and spinal cord injuries (discussed [here](#)).
- Strokes, paralysis, many neurological disorders (e.g., Down syndrome and dementia), and numerous circulatory disorders (e.g., Raynaud's, varicose veins or hemorrhoids), which were discussed [here](#).
- Chronic pain (e.g., from a bad disc, bursitis, arthritis, or complex regional pain syndrome), which was discussed [here](#).
- Many autoimmune, protein, and contractile disorders such as scleroderma, amyloidosis, and interstitial cystitis (discussed [here](#)).
- Head conditions, such as tinnitus, vision loss, dental problems, and sinusitis (discussed [here](#)).
- Internal organ diseases such as pancreatitis, infertility, liver cirrhosis, and

endometriosis (discussed [here](#)).

- A wide range of skin conditions such as burns, varicose veins, acne, hair loss, ulcers, skin cancer, and many autoimmune dermatologic diseases (discussed [here](#)).

Many challenging infections such as shingles, herpes, chronic ear or dental infections, and osteomyelitis (discussed [here](#)). In turn, since I started this series, it struck a cord, and I have received [over 2000 reports](#) of remarkable responses to DMSO, and many readers have had for a variety of "incurable conditions."

This begs an obvious question — if a substance capable of doing all of that exists, why does almost no one know about it? Simply put, like many other promising therapies, it fell victim to a pernicious campaign by the FDA, which kept it away from America despite decades of scientific research, congressional protest, and thousands of people pleading for the FDA to reconsider its actions. Consider for example, this 60 minutes program about DMSO that aired on March 23, 1980:



[Video Link](#)

DMSO Is Curing Pain and Cancer but No One's Talking

[Video Link](#)

DMSO and Cancer

Since there is a longstanding tendency for any "unproven cancer therapy" to be targeted by the medical industry, once the pioneers of DMSO realized early research showed DMSO was also remarkable for cancer, a decision was made not to focus on that research as a justifiable fear existed that doing so would bury DMSO (particularly since DMSO was already in a precarious position with the FDA). As a result, there is very little knowledge of how DMSO changes the cancer paradigm. For example:

- [There are hundreds of studies](#) showing DMSO routinely transforms cancerous cells into noncancerous ones.
- [DMSO directly inhibits](#) the growth of a wide range of cancers.
- DMSO allows the immune system to regain the ability to target cancerous cells that have evaded the immune system,² which not only eliminates cancer [but also can create permanent immunity to cancers](#).
- [DMSO makes many conventional cancer therapies much more potent](#), both making a cure more likely and a far lower (and thus less toxic dose) dose needed to achieve it.
- Many natural therapies become dramatically more potent when combined with DMSO (e.g., [one DMSO combination](#) ranks amongst the most effective cancer treatments I've ever encountered).

Furthermore, in addition to directly eliminating cancers, DMSO's remarkable ability to heal and protect the body can also make challenging cancers far more manageable. In my eyes, the suppression of DMSO's uses as an adjunctive cancer therapy represents the most egregious aspect of this story as in those instances, it's not even competing with cancer treatments — it's just reducing the suffering they cause (which if anything should be good for the cancer business).

DMSO and Radiation Therapy

Many of DMSO's remarkable properties result from it effectively protecting cells from a variety of otherwise lethal stressors (e.g., burns,³ freezing,⁴ blood loss,⁵ asphyxiation,⁶ UV light,⁷ and soundwaves⁸) and it significantly accelerates healing from injuries (e.g., sprains⁹ or burns¹⁰).

In addition to protecting cells from other sources of injury, as early as 1961,¹¹ DMSO was also recognized to protect cells and tissues from radiation exposure, and by 1967,¹² to protect the skin. This is because DMSO prevents radiation from:

- Breaking apart chromosomes,¹³ DNA, RNA, proteins,¹⁴ and the mitochondria.¹⁵

- Creating damaging oxygen species¹⁶ and free radicals.¹⁷
- Triggering an immune response (e.g., by reducing IL-1, IL-6, TNF- α , and TGF- β ¹⁸), chronic inflammation, fibrosis, and adhesions.
- Putting cells into senescence¹⁹ (a state of permanent growth arrest).
- Causing normal cells in the vicinity of the affected ones to die as well (e.g., when only 1% of cells are exposed to radiation, approximately 30% of non-irradiated cells will exhibit similar toxic effects too²⁰), a fascinating phenomenon I believe is mediated through mitogenic radiation emissions.

Since cancer radiation therapy frequently creates a variety of acute and chronic injuries such as burns, fibrosis, and internal tissue adhesions (all of which DMSO treats), DMSO is incredibly valuable for cancer patients undergoing radiation therapy — particularly since DMSO not only prevents radiation damage but also rapidly heals the injuries radiation creates.^{21,22}

Most importantly, DMSO's protective effects are specific to normal cells. In contrast, many studies show it increases cancer cells' susceptibility to radiation.²³

***Note:** I believe our focus on radiation therapy ultimately resulted from mining magnate James Douglas devising a way to produce cheap radium and then giving a large donation (along with subsequent donations) to America's premier cancer institute to create a program for developing cancer radiation therapy that then spread across the world.^{24,25}*

DMSO horses - perplexity

I have heard the DMSO has been used for horse leg liniment. Is that true, is it still being used in that way?

<https://www.perplexity.ai/search/might-dms0-help-with-bone-heal-l6UlnVJCRQeeGUv3l8aGLw>

Yes, DMSO (dimethyl sulfoxide) is indeed used as a liniment for horses, and it continues to be a popular treatment in equine care today. Here are some key points about DMSO's use as a horse leg liniment:

1. DMSO is widely used as a topical anti-inflammatory for horses, particularly for treating leg injuries and reducing swelling⁶.
2. It's commonly applied as a gel, liquid, or roll-on formulation to treat physical trauma and symptoms of arthritis in horses⁷.
3. DMSO is often used to "sweat" a horse's leg, a technique for managing equine leg injuries. It's typically mixed with other ingredients like anti-inflammatories and applied with plastic wrap and bandages³.
4. Veterinarians and horse owners use DMSO to reduce inflammation, improve blood circulation, and alleviate pain in soft tissue injuries like strained muscles and tendons⁴.
5. DMSO is particularly valued for its ability to penetrate the skin quickly and deeply, which allows it to reach injured tissues effectively¹⁴.
6. It's still actively used and sold by equine supply stores and pharmacies, indicating its ongoing popularity in horse care⁶⁷⁹.
7. However, it's important to note that DMSO should be used under veterinary guidance, as improper use can lead to side effects or complications⁴.

While DMSO has been in use for decades, it remains a common and trusted treatment for various equine leg and muscle issues, demonstrating its enduring role in horse care.

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12-point summary

1. **Fundamental Discovery and Properties:** DMSO, discovered in 1866 and developed medically in 1961, is a natural compound with unique abilities to penetrate cellular membranes, cross the blood-brain barrier, and act as the most powerful known free radical scavenger.
2. **Safety Profile:** Through extensive studies, particularly the Vacaville prison trials, DMSO has demonstrated remarkable safety even at doses 3-30 times normal therapeutic levels, with no documented fatalities or serious adverse reactions despite millions of users worldwide.
3. **Emergency Medicine Impact:** DMSO shows crucial effectiveness in emergency situations, particularly stroke and brain injury treatment, where immediate application can prevent secondary damage and improve recovery outcomes significantly.
4. **Cancer Treatment Enhancement:** Studies show DMSO can make chemotherapy more effective while reducing its toxicity, enabling lower doses with better results. The Chile study demonstrated 57 out of 65 terminal cancer patients showed improvement when DMSO was combined with conventional treatment.
5. **Neurological Applications:** Research demonstrates significant effectiveness in treating various neurological conditions, including Alzheimer's, where 18 patients showed notable improvements in memory and cognitive function within three months of treatment.
6. **Anti-inflammatory Properties:** Unlike conventional anti-inflammatory drugs, DMSO reduces inflammation without harmful side effects, showing particular effectiveness in arthritis treatment where studies demonstrated 85% improvement in osteoarthritis patients without the risks associated with traditional medications.
7. **Tissue Penetration Benefits:** DMSO's unique ability to penetrate tissue and carry other medications with it makes it an exceptional delivery system, enhancing the effectiveness of antibiotics, pain medications, and other therapeutic agents.
8. **Treatment Timing Significance:** While immediate treatment provides optimal results, particularly in acute conditions, DMSO has shown effectiveness even in treating long-standing conditions, demonstrating value in both emergency and chronic care situations.
9. **Economic Healthcare Impact:** The potential for reduced medication dosages, prevented complications, and shortened recovery times suggests significant possible healthcare cost reductions through widespread DMSO implementation.
0. **Mental Health Applications:** Studies in Peru showed remarkable improvement in mental health conditions, particularly in acute cases, with 14 out of 14 acute schizophrenic patients showing significant improvement and hospital discharge within 45 days.

1. **Preventive Medicine Role:** Regular DMSO use may prevent various conditions through its free radical scavenging properties and ability to improve circulation, potentially extending life expectancy and maintaining better health into advanced age.
2. **Legal Status Evolution:** Court decisions have established that once approved for one condition (interstitial cystitis in 1978), doctors can legally prescribe DMSO for other conditions according to their professional judgment.

50 Questions & Answers

1. What is DMSO and how was it discovered?

DMSO (dimethyl sulfoxide) is a natural chemical compound derived from trees as a byproduct of paper manufacturing. It consists of two methyl groups and a sulfur and oxygen atom. Russian chemist Alexander Zaytsev first synthesized it in 1866, though it remained largely ignored for over 80 years. During the late 1940s, industrial chemists began investigating its solvent capabilities, leading to commercial development in the 1950s by Crown Zellerbach, which became the largest producer of DMSO worldwide.

The medical applications of DMSO were discovered when Robert J. Herschler, supervisor of applications research at Crown Zellerbach, met Dr. Stanley Jacob in 1961. Dr. Jacob, head of the organ transplant team at Oregon Health Sciences University, was searching for a way to preserve transplant organs at low temperatures without ice crystal formation. This meeting led to the discovery of DMSO's remarkable medical properties.

2. What are the primary mechanisms of action that make DMSO effective as a medical treatment?

DMSO operates through several unique mechanisms that make it extraordinarily versatile in medical treatment. It functions as one of the most powerful free radical scavengers known, helping prevent cell damage throughout the body. This action can prevent the development of various ailments and slow the aging process. Additionally, DMSO has an immune normalizing effect, making it valuable in treating autoimmune diseases while helping the natural immune system fight off various infectious diseases.

The compound also acts as a vasodilator, increasing blood flow and allowing blood to more easily reach damaged areas. This property is particularly important in injury treatment, as decreased blood flow to an injury site often causes additional damage beyond the initial trauma. DMSO can pass through the skin and other cellular membranes of the body, and is one of the few substances able to cross the blood-brain barrier, allowing it to carry other beneficial compounds with it.

3. How does DMSO's ability to cross the blood-brain barrier impact its medical applications?

DMSO's ability to cross the blood-brain barrier makes it uniquely valuable in treating various neurological conditions and brain injuries. This property allows it to deliver medications directly to brain tissue that would otherwise be inaccessible due to the protective nature of the blood-brain barrier. When treating conditions such as stroke, traumatic brain injury, or Alzheimer's disease, DMSO

can carry therapeutic agents directly to affected areas of the brain.

The blood-brain barrier crossing capability also means DMSO can help reduce brain swelling and improve oxygen delivery to brain tissue. In cases of stroke or head trauma, this ability becomes crucial as it allows for immediate intervention to prevent secondary damage caused by swelling and oxygen deprivation. This property has made DMSO particularly valuable in emergency medicine, where rapid delivery of therapeutic agents to brain tissue can mean the difference between recovery and permanent damage.

4. What are the main ways DMSO can be administered to patients?

DMSO can be administered through multiple routes depending on the condition being treated and the urgency of the situation. The most common methods include topical application directly to the skin, oral consumption mixed with juice or water, intravenous administration via slow drip, and intramuscular injection. For specific conditions like eye problems or dental issues, it can also be applied as drops or used as a mouth rinse.

The concentration and method of administration vary based on the condition being treated. Topical applications typically use concentrations ranging from 50% to 90%, while oral consumption usually involves lower concentrations mixed with liquids. Intravenous administration is often used in emergency situations or for severe conditions, with dosages carefully calculated based on body weight. Multiple administration methods can be combined for maximum effectiveness in treating certain conditions.

5. How does DMSO function as a free radical scavenger and why is this important?

DMSO acts as one of the most potent free radical scavengers known to medical science. Free radicals are unstable charged molecular fragments that attack other molecules, causing severe damage to cells throughout the body. This disrupts normal organ functioning and can lead to various degenerative conditions. DMSO's ability to neutralize these harmful molecules makes it uniquely valuable in preventing and treating numerous ailments.

The free radical scavenging property is particularly important because free radical damage accumulates over time, potentially leading to conditions such as cancer and arthritis, while also contributing to premature aging. Regular use of DMSO may prevent some serious ailments by consistently neutralizing free radicals before they can cause significant cellular damage. This protective effect has been demonstrated in various studies, particularly in cases involving radiation exposure and inflammatory conditions.

6. What role does DMSO play in the treatment of brain injuries, and why is timing crucial?

In brain injuries, DMSO provides multiple beneficial effects that can prevent permanent damage. It reduces edema, acts as an anti-inflammatory agent, increases oxygen supply, and as a free radical scavenger helps protect cells from mechanical damage. When infused, DMSO causes an immediate increase in blood flow to the brain, crucial because much permanent damage in head injuries is caused by reduced blood flow resulting in oxygen deprivation to brain tissue.

Treatment timing is critical because brain tissue is extremely fragile and can deteriorate rapidly when deprived of oxygen. While the best results occur when treatment starts within minutes of injury, there is no absolute time limit. DMSO can help remove excess blood that compresses the brain and reduce water accumulation, causing pressure on vital brain areas. Studies in Turkey showed significant

water accumulation causing pressure on vital brain areas. Studies in Turkey showed significant reduction in intracranial pressure when DMSO was administered to patients with closed head trauma.

7. How does DMSO differ from conventional arthritis treatments, and what makes it potentially more effective?

Unlike conventional arthritis treatments that primarily focus on pain reduction through potentially harmful medications, DMSO addresses multiple aspects of arthritis. While NSAIDs and other conventional treatments can actually inhibit cartilage production while blocking inflammation, DMSO reduces inflammation without harmful side effects. It improves blood flow to damaged areas, provides biologically available sulfur to damaged joints, and acts as a powerful free radical scavenger.

A significant study in Brazil confirmed the relationship between free radical synthesis and arthritis, showing a 66% decrease in free radical production after DMSO administration. The study demonstrated good clinical improvement in 85% of osteoarthritis patients and 77% of rheumatoid arthritis patients, achieved without using steroidal or non-steroidal anti-inflammatory drugs. These results were long-lasting and obtained without the negative side effects associated with conventional treatments.

8. What evidence exists for DMSO's effectiveness in treating cancer, particularly when combined with conventional treatments?

A major cancer study conducted in Chile between 1969 and 1971 demonstrated significant results when DMSO was combined with cyclophosphamide and amino acids. Of 65 terminal cancer patients who had not responded to conventional treatment, 57 showed objective or subjective remission. The study revealed that DMSO not only reduced the toxicity of chemotherapy but also enhanced its anti-cancer activity, allowing for lower, safer doses while maintaining effectiveness.

Laboratory studies have shown DMSO's direct anti-cancer properties. Dr. Charlotte Friend at Mt. Sinai Hospital found that when DMSO was added to test cultures, cancer cells changed and became like normal cells. Nova University research showed that combining DMSO with cyclophosphamide produced strong anti-cancer activity without lowering white blood cell counts, a common side effect of conventional chemotherapy. When treatment started early enough, implanted cancers were eliminated and some rats were considered cured.

9. How does DMSO protect against radiation damage, and what are its practical applications in this area?

DMSO provides protection against radiation damage through multiple mechanisms, including free radical scavenging and direct DNA protection. A study at Kyoto University showed that even low concentrations (0.5%) of DMSO could protect DNA from radiation damage by helping repair double-strand breaks. This protective effect works not only against therapeutic radiation but also against environmental radiation exposure, making it valuable for both medical and emergency applications. Russian studies demonstrated DMSO's effectiveness in preventing radiation burns in cancer patients receiving radiation therapy. When applied topically before treatment, patients showed none of the normally expected radiation burns or toxic reactions. This makes DMSO particularly valuable for radiation therapy patients and potentially for people exposed to radiation from nuclear accidents. The compound can be administered through various methods including topical application, oral consumption, or injection, depending on the type and severity of radiation exposure.

consumption, or injection, depending on the type and severity of radiation exposure.

10. What are the documented safety studies of DMSO, particularly the Vacaville prison studies?

The Vacaville State Prison Hospital conducted two major toxicology studies in 1967 and 1968, consisting of both short-term (14 days) and long-term (90 days) evaluations. These studies used 80% DMSO applied topically at rates 3 to 30 times higher than normal treatment doses. The short-term study involved 65 subjects receiving DMSO and 33 controls, while the long-term study included 40 patients completing treatment and 16 controls.

Both studies showed remarkable safety profiles with no serious side effects beyond minor skin drying and scaling, which resolved within three weeks of treatment cessation. Comprehensive physical examinations, blood work, and ophthalmological testing showed no significant negative changes. Most importantly, these studies definitively proved that the concerning eye lens changes seen in certain animal species did not occur in humans, even at extremely high doses over extended periods.

11. How does DMSO's interaction with other medications enhance their effectiveness?

DMSO's unique ability to penetrate cellular membranes and carry other substances with it makes it an exceptional delivery system for various medications. When combined with antibiotics, chemotherapy drugs, or other therapeutic agents, DMSO can enhance their effectiveness by improving delivery to target tissues. This property is particularly valuable in treating deep-seated infections or tumors that might otherwise be difficult to reach with conventional delivery methods.

The enhancement effect also allows for lower doses of potentially toxic medications while maintaining or improving therapeutic results. This was demonstrated in cancer studies where combining DMSO with cyclophosphamide allowed for reduced chemotherapy dosages while achieving better outcomes. The combination therapy approach has shown success in treating various conditions, from skin infections to brain tumors, with improved results compared to single-drug treatments.

12. What is the significance of DMSO in treating stroke patients?

DMSO's effectiveness in stroke treatment stems from its ability to cross the blood-brain barrier and its multiple therapeutic actions. It helps remove excess fluid from the brain, reducing dangerous pressure that can cause additional damage after a stroke. The compound also improves blood flow to affected areas, helping restore oxygen supply to damaged tissue and potentially preventing further cell death. Treatment timing is crucial, but unlike many stroke interventions, DMSO can still provide benefits even when treatment is delayed. Numerous cases document significant recovery in stroke patients treated with DMSO, including patients who remained in comas for extended periods. The compound's ability to reduce swelling, improve circulation, and protect brain tissue makes it valuable in both immediate stroke intervention and long-term recovery.

13. How has DMSO demonstrated effectiveness in treating Alzheimer's and other forms of dementia?

DMSO has shown remarkable potential in treating Alzheimer's disease through its ability to dissolve amyloid proteins, which are consistently present in the brain lesions of Alzheimer's patients. A significant study presented at the Fourth International Conference on Alzheimer's Disease showed that 18 patients treated with DMSO demonstrated notable improvements in memory, concentration, and communication after just three months, with even more significant improvements after six months.

communication after just three months, with even more significant improvements after six months. The compound's ability to increase blood flow in the brain and help neurons communicate more effectively makes it valuable for treating various forms of dementia. DMSO also causes immature brain cells to mature in laboratory settings and can help prevent the deterioration of mental capabilities with age. Regular use may help maintain cognitive function into advanced age by ensuring adequate blood flow and nutrient delivery to brain tissue.

14. What role does DMSO play in athletic injury treatment and prevention?

DMSO serves both therapeutic and preventive roles in athletic injuries. It can reduce inflammation and prevent much of the damage that occurs after the initial injury due to free radical activity. Athletes have successfully used DMSO before and after competition to minimize injury risk and speed recovery. The compound's ability to reduce swelling and improve blood flow makes it particularly effective in treating both acute injuries and chronic conditions resulting from repeated stress.

Numerous success stories support its effectiveness, including cases from professional sports and Olympic athletes. Coach Sam Bell from Oregon State University was one of the first to use DMSO for athletic injuries, helping his athletes recover from chronic conditions that had previously prevented them from competing effectively. The compound's ability to prevent secondary damage and promote healing has made it valuable in both immediate injury treatment and long-term recovery programs.

15. How does DMSO help in treating mental illness and what studies support this?

A major study in Peru involving 42 patients with various mental health conditions demonstrated DMSO's effectiveness in treating psychiatric disorders. The study included patients with schizophrenia, manic-depressive psychosis, alcoholic psychosis, and severe anxiety states. Treatment with DMSO resulted in rapid improvement, particularly in acute cases, with many patients showing dramatic reduction in agitation and other symptoms within days of starting treatment.

The results were particularly impressive for acute schizophrenic patients, with 14 out of 14 acute cases showing significant improvement and being discharged within 45 days. Even chronic cases showed some improvement, though less dramatically than acute cases. The study demonstrated that DMSO could provide effective treatment for various mental health conditions without the side effects associated with conventional psychiatric medications, particularly in early intervention cases.

16. What makes DMSO effective in treating skin conditions and wound healing?

A major study in Chile involving 1,371 patients with chronic skin ulcers demonstrated DMSO's remarkable healing properties when combined with antibiotics and anti-inflammatory agents. The treatment showed a 95.04% success rate, with patients completely recovering and resuming normal activities. The effectiveness stemmed from DMSO's ability to penetrate tissue, carry other medications deeper into affected areas, and promote healing through improved circulation.

The compound's success in treating various skin conditions, from diabetic sores to infected wounds and burns, illustrates its versatility in dermatological applications. Even cases that had resisted conventional treatment for years showed improvement, often within weeks of starting DMSO therapy. The treatment proved particularly effective for deep wounds and chronic ulcers, with many patients experiencing complete healing after decades of unsuccessful conventional treatments.

17. How does DMSO contribute to the treatment of Multiple Sclerosis?

DMSO's effectiveness in treating multiple sclerosis varies depending on the type of MS present. In the

DMSO's effectiveness in treating multiple sclerosis varies depending on the type of MS present. In the remitting form, Russian studies showed significant positive results, including remyelination, reduction in edema, and improved communication between nerve cells. These improvements were particularly notable because they addressed the fundamental problems of MS by helping restore the myelin sheaths around nerve cells.

While results were less dramatic in progressive MS cases, DMSO still showed benefit. The treatment protocol typically involves both systemic and local application, with some patients receiving regular injections combined with oral consumption. Many patients who were previously confined to wheelchairs or beds have shown remarkable improvement, regaining mobility and function, though results vary significantly between individuals.

18. What is the relationship between DMSO and pain management?

DMSO demonstrates exceptional pain-management capabilities across various conditions, from post-surgical pain to chronic conditions. A controlled study at Pennsylvania Hospital in Philadelphia showed that patients receiving DMSO after open chest surgery required only half the normal amount of pain medications and experienced fewer complications such as nausea and vomiting. The compound proved particularly effective in treating phantom limb pain, where conventional pain medications often fail.

The pain-relieving properties of DMSO work through multiple mechanisms, including reducing inflammation, improving blood flow, and addressing the underlying causes of pain rather than just masking symptoms. Unlike many conventional pain medications, DMSO doesn't just block pain signals but helps heal the underlying condition causing the pain, making it particularly valuable for chronic pain management without the risks of addiction or organ damage associated with traditional painkillers.

19. How does DMSO help in treating respiratory conditions?

A significant study in Chile involving 60 babies with severe bronchiolitis demonstrated DMSO's effectiveness when combined with conventional treatments. When administered as an aerosol spray containing DMSO, antibiotics, and anti-inflammatory drugs, 80% of babies showed improvement in sensorial and coughing symptoms within 30 minutes, and 75% demonstrated decreased respiratory rate and improved breathing ability. The treatment proved particularly effective in decreasing inflammatory processes and reducing the viscosity of respiratory secretions.

DMSO's effectiveness in treating respiratory conditions extends beyond infant care to adult respiratory problems, including asthma and other chronic conditions. Its anti-inflammatory properties, combined with its ability to carry other medications deeper into tissue, make it particularly valuable in treating both acute and chronic respiratory conditions. The compound helps reduce inflammation while improving oxygen delivery to affected tissues.

20. What is the significance of DMSO in emergency medicine?

DMSO's versatility and safety profile make it ideally suited for emergency medicine applications. Its ability to reduce swelling, improve circulation, and protect cells from damage makes it valuable in treating various emergencies, from trauma to stroke. The compound can be administered through multiple routes depending on the situation, allowing for flexible treatment approaches in emergency settings.

Despite its proven benefits, DMSO remains underutilized in emergency medicine. Medical professionals argue that all ambulances and emergency rooms should carry DMSO, as it can provide immediate benefits in various emergency situations without risk of harmful side effects. Its ability to prevent secondary damage in traumatic injuries and its effectiveness in treating various acute conditions make it particularly valuable in emergency settings.

21. How does DMSO treatment affect cirrhosis of the liver?

Studies with terminal cirrhosis patients demonstrated significant improvement when treated with DMSO in aloe vera juice. In one study, eight out of twelve patients who continued treatment for six months showed greatly improved liver function tests and reduced symptoms, including decreased vomiting and overall health improvement. These patients, initially given less than a year to live, survived beyond the one-year mark with improved quality of life.

However, DMSO treatment for cirrhosis requires commitment to lifestyle changes, particularly the cessation of alcohol consumption. The compound helps heal liver tissue naturally, but cannot overcome continued damage from alcohol or other harmful substances. The treatment typically involves regular oral administration of DMSO, often combined with other therapeutic agents.

22. What role does DMSO play in treating diabetic complications?

DMSO has shown particular effectiveness in treating diabetic neuropathy and circulation problems common in diabetic patients. The compound's ability to improve blood supply by dilating small blood vessels makes it especially valuable in preventing and treating diabetic-related amputations. Numerous cases document the prevention of scheduled amputations through DMSO treatment, particularly when combined with proper diabetic care.

While DMSO doesn't replace insulin in diabetic treatment, it can help reduce insulin requirements in some patients and significantly improve quality of life by addressing complications. The compound's ability to improve circulation and reduce neuropathy symptoms makes it particularly valuable as a complementary treatment for diabetes, especially in preventing severe complications that often lead to amputation.

23. How does DMSO help with eye conditions and what studies support this?

Dr. Robert Hill's pioneering studies demonstrated DMSO's effectiveness in treating various eye conditions, particularly retinitis pigmentosa. In a study of 50 patients with either retinitis pigmentosa or macular degeneration, 22 showed improved visual acuity, nine had improved visual fields, and five showed improvement in dark adaptation. Only two patients continued to deteriorate, while the remainder maintained stable condition.

The treatment protocol typically involves using a 40% DMSO solution applied directly to the eye. Despite initial concerns about potential toxicity to the eyes based on animal studies, human applications have proven both safe and effective. Many patients with various eye conditions, from macular degeneration to general vision problems, have reported significant improvement with regular DMSO treatment.

24. What is the legal status of DMSO and how has this evolved?

The legal status of DMSO was clarified through a significant court case involving Dr. H. Ray Evers. The case established that once a drug is approved for one condition, physicians have the legal right to

use it for other conditions according to their professional judgment. This ruling came from the Federal District Court for the Middle District of Alabama, establishing an important precedent for DMSO use in medical practice.

After DMSO's approval for interstitial cystitis in 1978, doctors gained the legal right to prescribe it for other conditions. The court ruled that the FDA has no right to interfere with private medical practice by limiting doctors from treating according to their best judgment. This decision effectively protected doctors' rights to use DMSO in treating various conditions beyond its initial approved use.

25. How does DMSO help in treating mental retardation, particularly Down's syndrome?

A major study in Chile involving 55 children with Down's syndrome demonstrated significant improvement when treated with DMSO and amino acids. The study divided children into two age groups and showed marked improvement in motor skills, language development, and cognitive function. Children under 3½ years showed particularly impressive gains, with motor index scores improving from 56 to 72 after one year of treatment.

One of the most notable success stories involved Billy King of Portland, Oregon, who was treated by Dr. Stan Jacob. Starting treatment at age 14 with the mental capacity of a 10-month-old, Billy progressed to having the mental abilities of a seven-year-old after two years of treatment. He gained the ability to speak, write his name, and identify 269 Peabody flash cards, demonstrating the potential for significant improvement in cognitive function through DMSO treatment.

26. What makes DMSO effective in treating scleroderma?

DMSO is the only effective treatment for scleroderma, a condition that calcifies body tissue and can attack internal organs. A landmark study at the Cleveland Clinic involving 43 patients demonstrated significant results. Of these patients, who had suffered from scleroderma for 1 to 25 years, 26 showed good to excellent progress after treatment periods ranging from 3 to 23 months. Three patients became symptom-free after one year of treatment, while nine others had symptoms return only after discontinuing treatment.

The treatment involves applying DMSO concentrations of 30 to 100 percent to various areas of skin or the entire body. Patients with early-stage scleroderma typically show the most dramatic improvement. Even in advanced cases where conventional medicine offers little hope, DMSO has demonstrated the ability to halt disease progression and improve quality of life, as evidenced by cases like the Santa Barbara woman who recovered from severe symptoms after consistent DMSO treatment.

27. How does DMSO help with dental and gum disease?

DMSO's effectiveness in treating periodontal disease was demonstrated in a Polish study involving 32 patients with various stages of gum disease. The treatment, using 30 percent DMSO compresses for 10 minutes every other day, showed significant improvement in all patients with superficial disease. Pain elimination, reduced bleeding, and tightening of loose teeth were observed in many cases, though very loose teeth did not respond as well.

Beyond treating existing conditions, DMSO shows promise in preventive dental care. Regular use as a mouthwash or in tooth brushing has demonstrated positive results in maintaining gum health and preventing bacterial growth. DMSO's ability to penetrate tissue and carry other medications makes it particularly effective when combined with antibiotics for treating deep gum infections.

28. What is the significance of DMSO in treating burns?

DMSO demonstrates remarkable effectiveness in treating burns, particularly when combined with aloe vera. Treatment results show faster healing, reduced pain, and minimal scarring compared to conventional treatments. A notable case involved a cook who suffered second-degree burns from hot grease; treatment with a 50% DMSO and 50% aloe vera lotion resulted in complete recovery with no scarring, and the patient returned to work within two days.

The compound's effectiveness extends to various types of burns, from thermal to sunburn. DMSO lotions can prevent blister formation when applied quickly after minor burns and provide significant pain relief. The treatment protocol typically involves multiple applications in the first few hours following the burn, with continued application over subsequent days as needed.

29. How does DMSO help with carpal tunnel syndrome?

DMSO provides multiple benefits in treating carpal tunnel syndrome by reducing inflammation without the harmful side effects of conventional anti-inflammatory drugs. Its ability to improve circulation in the affected area and reduce pain makes it particularly effective for this condition. Some patients who had unsuccessful surgical interventions have reported dramatic improvement with DMSO treatment.

The treatment typically involves topical application to the affected area, often twice daily. DMSO's anti-inflammatory properties help reduce compression on the median nerve, while its ability to improve circulation aids in healing. Many patients report immediate relief, with continued improvement over time, often avoiding the need for surgery or other invasive treatments.

30. What role does DMSO play in treating lupus?

DMSO has proven to be one of the most important treatments for lupus, providing symptom relief without the side effects associated with conventional treatments like cortisone or methotrexate. While it doesn't cure lupus, it significantly reduces symptoms and allows patients to live more normal lives. The treatment helps prevent severe episodes and can protect internal organs from damage commonly associated with lupus.

Treatment protocols often involve regular DMSO injections combined with vitamin therapy and topical application to affected joints. Many patients report dramatic improvement in their condition, with some able to maintain full-time employment and normal activities. The treatment has shown particular effectiveness in reducing pain and inflammation while helping to prevent the severe episodes characteristic of lupus.

31. How does DMSO affect digestive problems and ulcers?

Studies under Dr. Aws Salim's direction demonstrated DMSO's effectiveness in treating various digestive problems, particularly in preventing and treating stress-induced gastric mucosal injury. In a study of 177 patients, those receiving DMSO showed significantly lower rates of gastric injury compared to control groups. The compound's effectiveness as a free radical scavenger proved particularly valuable in preventing and treating duodenal ulcers.

Research involving 302 patients showed that DMSO was more effective than conventional treatments in preventing ulcer recurrence. The relapse rate for patients treated with DMSO was only 13%, compared to 65% for placebo and 30% for conventional treatment with cimetidine. These results

demonstrate DMSO's superior effectiveness in both treating acute digestive problems and preventing their recurrence.

32. What is the significance of DMSO in treating ear and hearing problems?

DMSO has shown remarkable effectiveness in treating tinnitus and other ear disorders. A Chilean study presented at the New York Academy of Sciences showed that of 15 patients treated with DMSO spray combined with other medications, nine completely recovered from tinnitus with no symptom return during the following year. Four others experienced significant reduction in symptoms, while two had lower intensity of symptoms.

Treatment methods vary but often include ear drops containing 40% DMSO and topical application around the ears. The treatment not only addresses the primary ear problems but often helps with related symptoms such as headaches and insomnia. The study noted increased ear temperature after treatment, indicating improved blood flow to the inner ear, which may explain the broad range of improvements observed.

33. How does DMSO help with fibromyalgia?

DMSO has demonstrated significant effectiveness in treating fibromyalgia symptoms when conventional treatments have failed. The treatment typically involves slow-drip DMSO administration combined with oral consumption. A notable case involved a 75-year-old Los Angeles woman who showed dramatic improvement after ten weeks of treatment, experiencing significant pain reduction and improved quality of life.

The compound's effectiveness likely stems from its multiple mechanisms of action, including anti-inflammatory properties, improved circulation, and pain reduction. Patients often report immediate improvement after treatment begins, with continued benefits through ongoing maintenance therapy. Many are able to reduce or eliminate their dependence on conventional pain medications and experience lasting relief from fibromyalgia symptoms.

34. What role does DMSO play in treating fungal infections?

DMSO has proven particularly effective in treating various fungal infections, from athlete's foot to more severe conditions like jungle rot. The compound's ability to penetrate tissue deeply makes it especially valuable in treating persistent fungal infections that resist conventional treatments. Veterans suffering from jungle rot, a particularly difficult-to-treat condition, have reported significant relief with DMSO treatment.

Treatment protocols typically involve topical application of DMSO in concentrations ranging from 50% to 90%, often combined with other anti-fungal agents. While some conditions may require ongoing maintenance treatment to prevent recurrence, many patients experience immediate relief from symptoms. DMSO has also shown effectiveness in treating nail fungus and preventing foot odor associated with fungal growth.

35. How does DMSO affect hair and scalp problems?

DMSO demonstrates effectiveness in stimulating hair growth and treating various scalp conditions. Its ability to act as a vasodilator increases blood supply to hair follicles, potentially promoting new growth. Patients who have recently lost hair typically show the best results, with the last areas that lost hair being the first to regrow. The treatment has shown particular effectiveness in helping cancer

patients regrow hair more rapidly after chemotherapy.

Topical application of DMSO lotions has also proven effective in treating various scalp conditions, including infections and seepage. A notable case involved an 80-year-old Oklahoma man who avoided surgical scalping through DMSO treatment of a severe scalp infection. Regular use may also help maintain natural hair color and prevent hair loss, though results vary among individuals.

36. What makes DMSO effective in treating headaches?

DMSO's effectiveness in treating headaches stems from its ability to address both muscle spasms and blood vessel changes that often cause head pain. Treatment is particularly effective when administered during the early stages of a migraine headache, potentially reversing the condition before it fully develops. The compound works by reducing muscle tension in the neck and improving blood flow to affected areas.

Application methods typically include topical treatment to the head and neck, sometimes combined with oral consumption or injection for enhanced effectiveness. A unique case in Newport Beach demonstrated that proper dosing is crucial - while the treatment is remarkably safe, following prescribed protocols yields optimal results. Patients often report immediate relief, particularly when treatment begins at the first sign of headache symptoms.

37. How does DMSO help with various types of infections?

DMSO enhances infection treatment both independently and in combination with antibiotics. Its effectiveness stems from its ability to penetrate deeply into tissues, carrying antibiotics and other medications to infection sites that might otherwise be difficult to reach. A notable example involved a Los Angeles man with severe osteomyelitis who recovered completely when DMSO was combined with antibiotics, avoiding threatened amputation.

The compound's versatility in treating different types of infections is particularly valuable in cases where conventional antibiotic treatment alone proves insufficient. Studies suggest that combining DMSO with antibiotics can improve treatment outcomes while potentially reducing the required antibiotic dosage. This combination approach has proven especially effective in treating deep-tissue infections and antibiotic-resistant cases.

38. What is the significance of DMSO in treating inflammation?

DMSO functions as a potent anti-inflammatory agent without the harmful side effects associated with conventional treatments like steroids or NSAIDs. It works by increasing the effectiveness of cortisol, the body's natural anti-inflammatory hormone, while also providing direct anti-inflammatory effects. Dr. Aws Salim's research demonstrated its effectiveness in treating NSAID-induced gastritis, showing significant healing in cases where conventional treatments had failed.

The compound's anti-inflammatory properties extend beyond symptom relief to actually addressing underlying causes of inflammation. Studies show it can protect cells against inflammatory damage even when natural cortisol levels are reduced. This makes it particularly valuable in treating chronic inflammatory conditions where long-term use of conventional anti-inflammatory medications might pose significant risks.

39. How does DMSO help with interstitial cystitis?

DMSO gained FDA approval for treating interstitial cystitis in 1978, marking it as the first effective

treatment for this condition. While traditional protocol involves catheter installation directly into the bladder, many doctors now successfully use oral administration, having patients drink DMSO in cranberry juice once or twice daily. This simpler approach often provides immediate relief while eliminating the need for frequent clinical procedures.

Both methods have shown significant success in treating this painful condition. Patients often report rapid improvement in symptoms, including reduced pain and decreased urinary frequency. The treatment's effectiveness extends beyond just symptom relief to actually addressing the underlying inflammation of the bladder lining, often providing long-term improvement rather than just temporary relief.

40. What role does DMSO play in treating shingles and herpes?

DMSO demonstrates significant effectiveness against viral infections, particularly herpes zoster (shingles) and herpes simplex. Dr. William Campbell Douglas's clinical study of 46 shingles patients showed remarkable results using DMSO concentrations ranging from 50 to 90 percent on skin lesions. The treatment proved particularly effective when started early in the disease process, often preventing the development of postherpetic neuralgia, a painful long-term complication.

The compound's effectiveness is enhanced when combined with other treatments, such as lysine, which has been proven to inhibit viral replication. Treatment protocols typically involve both topical application and oral administration, with many doctors reporting successful outcomes using this dual approach. Early intervention appears crucial for optimal results, though benefits have been observed even in established cases.

41. How does DMSO help with spinal cord injuries?

DMSO's effectiveness in treating spinal cord injuries stems from its multiple therapeutic actions, including reducing edema, improving blood flow, and protecting against free radical damage. While it cannot repair a completely severed spinal cord, it can significantly reduce secondary damage that often occurs after the initial injury due to swelling and reduced blood flow to the injured area.

The treatment typically involves intravenous slow drip administration, though it can also be given orally or applied topically to the spinal area. While immediate treatment provides optimal results, cases document improvement even years after the initial injury. The compound's ability to cross the blood-brain barrier and carry other beneficial substances with it makes it particularly valuable in treating these complex injuries.

42. What contribution did Dr. Stanley Jacob make to DMSO research and development?

Dr. Stanley Jacob, as head of the organ transplant team at Oregon Health Sciences University, first discovered DMSO's medical potential while searching for a way to preserve transplant organs without ice crystal formation. His 1961 meeting with Robert Herschler led to the recognition of DMSO's remarkable medical properties, initiating decades of research into its therapeutic applications.

Jacob became known as the father of DMSO, dedicating his career to researching and documenting its various medical applications. His work established many of the protocols still used today, and his commitment to investigating DMSO's potential helped establish its safety and effectiveness across a wide range of medical conditions. His research laid the groundwork for modern understanding of DMSO's mechanisms of action and therapeutic applications.

43. How does DMSO's penetration ability affect its medical applications?

DMSO's unique ability to penetrate cellular membranes makes it an exceptional delivery system for other medications. This property allows it to carry various therapeutic agents deep into tissues that might otherwise be inaccessible. The compound can pass through skin and other biological barriers, including the blood-brain barrier, making it valuable in treating conditions affecting deep tissues or protected areas of the body.

This penetration ability also enhances the effectiveness of other medications when combined with DMSO. Studies show improved outcomes when antibiotics, anti-inflammatory drugs, and other medications are administered with DMSO, likely due to improved delivery to target tissues. This property has made DMSO particularly valuable in treating deep-seated infections, tumors, and various neurological conditions.

44. What is the significance of DMSO's combination with laetrile in cancer treatment?

The combination of DMSO and laetrile has shown promising results in cancer treatment since the 1970s. This combination works through a unique mechanism where laetrile becomes activated specifically at cancer sites due to the presence of beta glucuronidase enzyme, while normal cells are protected by the rhodanese enzyme. DMSO's ability to carry the laetrile directly to cancer cells enhances this targeted approach.

Clinical results have shown significant success, particularly in cases where conventional treatments had failed. The treatment can be administered through various methods, including intravenous slow drip, intramuscular injection, or topical application directly to accessible tumors. Multiple case studies document positive outcomes, including cases involving brain cancer, prostate cancer, and other forms considered terminal by conventional standards.

45. How does DMSO concentration affect its effectiveness in different applications?

DMSO concentration plays a crucial role in treatment effectiveness and varies depending on the condition being treated and the method of administration. Topical applications typically range from 50% to 90% concentration, while oral consumption usually involves lower concentrations diluted in liquids. For eye treatments, a 40% solution has proven both safe and effective, while some skin conditions respond best to higher concentrations.

The choice of concentration must balance maximum effectiveness with patient comfort and safety. While higher concentrations might provide more rapid results in some cases, they may also cause temporary skin irritation or discomfort. Professional guidance in selecting appropriate concentrations for specific conditions helps ensure optimal outcomes while minimizing any temporary discomfort.

46. What are the long-term effects of DMSO use?

Studies and decades of clinical experience indicate that DMSO is one of the safest medical products ever used. The Vacaville prison studies demonstrated its safety even at doses 3-30 times higher than normal therapeutic levels. Long-term users, including medical professionals and researchers, have reported no adverse effects over decades of regular use. Many long-term users actually report better health outcomes than their peers who don't use DMSO.

Evidence suggests that regular DMSO use might actually extend life expectancy due to its powerful free radical scavenging properties. Users have reported maintaining better health, mental clarity, and

physical capability into advanced age. The author's personal experience of using DMSO for over 49 years, along with Dr. Stanley Jacob's continued professional activity into his 90s, provides anecdotal support for its long-term safety and potential benefits.

47. How does DMSO compare to conventional treatments in terms of side effects?

DMSO demonstrates a remarkably benign side effect profile compared to conventional treatments. While traditional medications like NSAIDs and steroids often cause serious side effects including gastrointestinal bleeding, kidney problems, and immune system suppression, DMSO's only consistent side effect is a garlic-like breath odor. Even this effect is temporary and completely harmless. Some users may experience minor skin irritation with topical application, but this typically resolves quickly. The compound's safety profile becomes particularly significant when comparing it to treatments for conditions like arthritis, where conventional medications often cause serious long-term complications. DMSO not only avoids these harmful effects but can actually help heal damage caused by other medications. This makes it particularly valuable for patients who have experienced adverse reactions to conventional treatments or who require long-term therapy.

48. What role does timing play in DMSO treatment effectiveness?

Timing proves crucial in DMSO treatment, particularly in acute conditions like stroke, brain injury, or severe trauma. While the compound can provide benefits even when treatment is delayed, immediate administration typically yields optimal results. This is particularly evident in cases of brain injury or stroke, where early treatment can prevent secondary damage and improve long-term outcomes. However, DMSO's effectiveness isn't limited to immediate intervention. Chronic conditions have shown improvement even when treatment begins years after onset. The key factor appears to be consistency of treatment once begun, rather than just timing of initial administration. This makes DMSO valuable both in emergency medicine and in treating long-standing conditions.

49. How has DMSO research evolved since its discovery?

DMSO research has progressed from its initial discovery as an industrial solvent to recognition of its diverse medical applications. Early research focused primarily on its ability to penetrate tissue and preserve organs. However, subsequent studies revealed its effectiveness as a free radical scavenger, anti-inflammatory agent, and therapeutic delivery system. Despite a temporary setback in 1965 due to concerns about eye damage in animals, research has consistently demonstrated its safety and effectiveness in humans.

Modern research continues to uncover new applications and mechanisms of action. Recent studies, particularly in radiation protection and DNA repair, have revealed previously unknown properties and potential applications. The evolution of research has also led to better understanding of optimal concentrations, administration methods, and combination therapies for various conditions.

50. What are the economic implications of DMSO use in healthcare?

DMSO's potential economic impact on healthcare is significant, particularly in reducing treatment costs for chronic conditions and emergency care. Its ability to enhance the effectiveness of other medications while reducing their required dosages could lead to substantial cost savings. Additionally, its effectiveness in preventing complications and reducing recovery time could significantly decrease overall healthcare expenses.

The compound's versatility in treating multiple conditions with minimal side effects could potentially reduce dependency on multiple medications and their associated costs. Its use in preventive medicine could also lead to reduced long-term healthcare expenses by preventing or minimizing the progression of various conditions. However, these economic benefits remain largely unrealized due to limited implementation in mainstream medical practice.

4:20 AM Dec 3 back sore when I got up - had not used the DMSO for 12 hours

DMSO can slow or block C-fiber nerve conduction, which may account for its pain-relieving properties

Large bundles (>20 axons) exist near the **L5** dorsal root ganglion (lowest)

<https://www.perplexity.ai/search/might-dms0-reduce-some-forms-o-ZrXuHfXvT8SqlEe6ihaLWg>

Perplexity <https://www.perplexity.ai/search/might-dms0-reduce-some-forms-o-ZrXuHfXvT8SqlEe6ihaLWg>

Try DMSO for backpain Dec 1,2 2024 (after reading ML about benefits I had Oct 4 (2 months ago)

DMSO Revolutionizes Skin Care and Dermatology Midwestern

- DMSO has a variety of unique therapeutic properties that allow it to address the root causes of many different illnesses—including those of the skin.
- DMSO effectively protects the skin from damage (e.g., radiation, chemotherapy, freezing, blood loss) and rapidly heals skin injuries (e.g., burns, chronic wounds or surgical incisions).
- DMSO addresses many circulatory disorders such as hemorrhoids, varicose veins, venous and diabetic ulcers, and Raynaud's.

- DMSO also effectively addresses many common (but often challenging) dermatological conditions such as hair loss, psoriasis, shingles, herpes, skin cancer, skin infections, nail issues, acne, eczema, pruritus, mastitis, insect and animal bites, sunburns and skin growths.
- This article will review DMSO treatment protocols for those conditions (along with non-DMSO approaches we utilize for them) and provide general DMSO information for those looking to use DMSO for their own health.

The American medical industry has accomplished a remarkable feat; each year it consumes a greater portion of the national budget (currently over 17.3% of GDP) yet it continues to have some of the worst outcomes in the developed world (despite spending 2-4 times as much on healthcare). This is made possible by a vast medical monopoly that prevents economical therapies from out-competing the medical industry's cash cows and systemic corruption that makes the government unwilling to confront the sources of illness in our society (e.g., processed food companies or vaccine manufacturers).

In the months leading up to the election, I decided the most helpful thing I could do would be to bring attention to suppressed medical therapies that could directly impact people's health (so people could begin to grasp just how much these predatory tactics had directly harmed them), and to conclude this process by drawing a lot of attention to an easily accessible therapy that provided immediate and dramatic benefits. As it so happened, RFK Jr. had a similar thought process and shared this very controversial message shortly before the election:



Robert F. Kennedy Jr.  
@RobertKennedyJr

FDA's war on public health is about to end. This includes its aggressive suppression of psychedelics, peptides, stem cells, raw milk, hyperbaric therapies, chelating compounds, ivermectin, hydroxychloroquine, vitamins, clean foods, sunshine, exercise, nutraceuticals and anything else that advances human health and can't be patented by Pharma. If you work for the FDA and are part of this corrupt system, I have two messages for you: 1. Preserve your records, and 2. Pack your bags.

2:25 PM · Oct 25, 2024 · **6.3M** Views

The therapy I decided to focus on, dimethyl sulfoxide (DMSO), was an ideal choice for this task,

as it's very safe (provided you use it correctly) and rapidly improves a variety of conditions medicine struggles with—particularly chronic pain (discussed here). As such, I've received many reports of life-changing benefits from it that left even the reader in disbelief:

I have been dealing with chronic neck and lower back pain for over 10 years and tried so many treatments with little success. I tried DMSO and it stopped about 90% of the pain in less than a half hour...I literally started laughing because I couldn't believe it!"

...finally one night he dared me to rub it on his head. I did so and all of a sudden he got real quiet and a funny look appeared on his face. His mom told him it tingles, but that would go away. He got up and left the room. Ten minutes later he came back and asked how long ago since I rubbed it on him. Then he said, "I taste it in my mouth, but my bad headache and neck pain is GONE! I am so relaxed and mellow right now." He was laughing in relief.

He has near constant neck/head pain and his migraines have been getting so bad he broke down recently and very reluctantly started taking a pill. I had no idea this would work as well as it has for him.

However, while profound, DMSO's remarkable ability to treat pain is just one small facet of what this substance can do, and in this series I've thus far shown how it:

- Treats strokes, traumatic brain injuries, spinal cord injuries, and many circulatory disorders (discussed here).
- Treats a variety of acute and chronic tissue injuries (discussed here).
- Treats a variety of "incurable" autoimmune and connective tissue disorders (discussed here).
- Treats a variety of challenging (and often incurable) eye, ear, sinus, and dental conditions such as tinnitus and blindness (discussed here).
- Treats a variety of difficult internal organ disorders (discussed here).

Many of those remarkable results (which in many cases exceed anything conventional medicine has to offer) stem from DMSO being uniquely suited to address common root causes of illnesses (e.g., inflammation, microclotting, cells getting trapped in the cell danger response), and those myriad of diseases in turn simply being unique manifestations of those same processes gone awry.

✓ Subscribed

DMSO and the Skin

One of DMSO's unique properties is that it (and anything mixed with it) rapidly spreads throughout the entire body regardless of the route of administration. Since DMSO is uniquely suited to address the root causes of illness, that means individuals who take it for one issue will frequently observe other issues fix themselves as well (e.g., I deliberately avoided mentioning that DMSO improves sleep in the hope unbiased readers would voluntarily share it was causing them to have more vivid dreams

—which a few did—and far more shared once I alerted them to this effect).

As DMSO is frequently applied directly to the skin (so it can be absorbed systemically), it should thus come as no surprise, DMSO users rapidly noticed DMSO's positive effects on the skin. For example, one reader recently shared:

We got DMSO about three weeks ago for my wife's swelling. She has had swelling since she had a c-section almost two years ago. Her feet were so swollen she could hardly walk and were painful every single day. One day of DMSO and the swelling reduced by 90-100%. It came with a few "side effects", such as clearer skin, more energy and improved mental clarity. She then used it on the c-section scar, and it improved immensely. It was a giant knot of pain and hardness that she had tried to treat with massage and essential oils for over a year with no improvement. After only few days of DMSO it lost inches of bulk. I tried it on an old injury on my finger and noticed improvement the first day with being able to extend my finger more than I had been able to in years.

Likewise, the DMSO field soon noticed DMSO helped a lot of skin conditions, to the point some doctors began using DMSO as their default treatment for challenging skin lesions when they weren't sure what else to do (as it often worked and posed no risk to their patients).

In turn, I've received a large number of reports from readers that DMSO greatly helped a variety of skin conditions such as:

- DMSO causing aging skin to be rejuvenated and look much younger and healthier (e.g., it happened in a few days to a 101 year old grandmother, another reader reported incredibly smooth skin, and another reported smoother skin on her face despite not applying it there and another reported it improved crepey skin on the neck and sun damaged skin on the chest).
- A dramatic improvement of chronic hemorrhoids (e.g., this reader, this reader and this reader).
- A dramatic improvement of varicose veins (e.g., this reader, this reader, this reader, this reader, this reader, this reader, this reader, this reader, this reader, this reader).
- Severe burns healing (e.g., a reader astonished by the complete recovery of a ten year old third-degree finger pad burn, a reader who had it rapidly treat blistering burns on the thighs, and a reader whose father recovered from a severe electrical fire burn). This reader, this reader, this reader, this reader, this reader, this reader, this reader, and this reader also reported that applying DMSO after a burn (e.g., from cooking) takes away the pain and promotes rapid healing.
- Using it for sunburns (something DMSO has long been recognized to help provided any toxic sunscreen has been cleared away before applying DMSO).
- DMSO consistently treating herpes type 1 and type 2 viral eruptions.
- DMSO treating mastitis.
- DMSO treating psoriasis**.
- Hidradenitis suppurativa (a challenging skin condition that lacks safe or effective treatment options) responding to DMSO.
- Using it to treat the skin issues (e.g., oozing cysts) that developed on an aging Golden Retriever.
- It accelerating the healing of bruises (also reported by this reader who's done that for years, this reader who used it for bruising from IV lines this reader who had a traumatic fall shortly after reading

- ~~_____~~ who was not coming from it, ~~the _____~~ who had a horrible rash, and reading a DMSO article here, and [this reader](#) whose elderly mother fell on her face and fractured parts of it) [along with it dissipating](#) capillary bleeds under the skin (also reported by [this reader](#)).
- DMSO [accelerating the healing of an ear surgery](#) and significant leg rash ([that followed a traumatic impact](#)).
 - [It treating](#) poison ivy.
 - [It treating](#) a “miserable autoimmune skin condition which NOTHING else has worked on, including the "standard of care" prescription steroids.”
 - In a week, [it permanently eliminating](#) blackish plaques on her mom’s legs multiple dermatologists were unable to treat.
 - [It treating](#) recurrent facial seborrheic dermatitis flare-ups (also reported by [this reader](#)).
 - [A chronic skin eruption](#) completely disappearing.
 - [This reader](#), [this reader](#) and [this reader](#) reporting it treating bacterial and fungal skin infections.
 - It being [miraculous for fire ant bites](#) (also reported by [this reader](#)), and another reader [using it for a black widow bite](#).

As I will show in this article, those same effects have also been reported throughout the medical literature—yet remarkably, the dermatologic profession remains unaware of it.

Note: some of the reports I’ve received are instead quoted throughout the article. The complete list of reports I’ve received (now over a thousand) can be viewed (and added to) [here](#).

How DMSO Treats the Skin

One of the most significant challenges of being a dermatologist is being able to recognize a large number of skin diseases ([over 3,000](#)). In parallel to this, dermatologists also learn how many specific skin lesions can represent unique diseases within the body, and hence can diagnose illnesses other physicians fail to identify.

While I very much agree the skin can tell us an immense amount about the body, I believe that rather than associating a specific skin lesion with a specific disease, it’s ideal to have a broader view that tries to grasp what type of underlying problem could cause the skin issue currently being observed and then deduce what might be causing that underlying issue or what other diseases it might be creating in the body.

Note: Chinese medicine often does this.

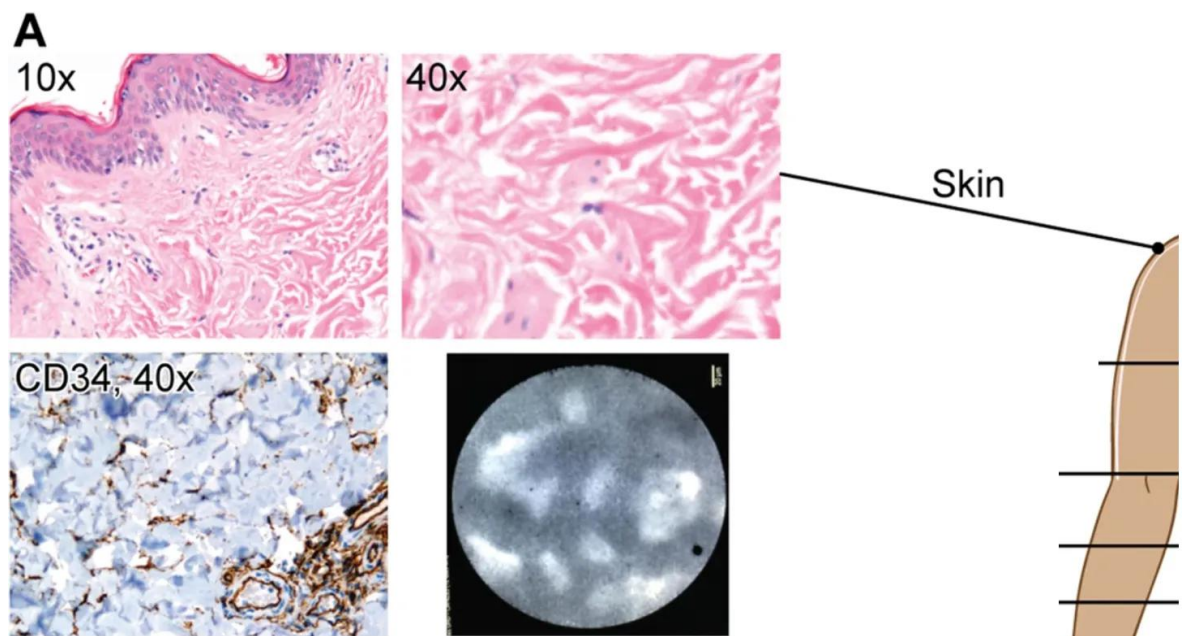
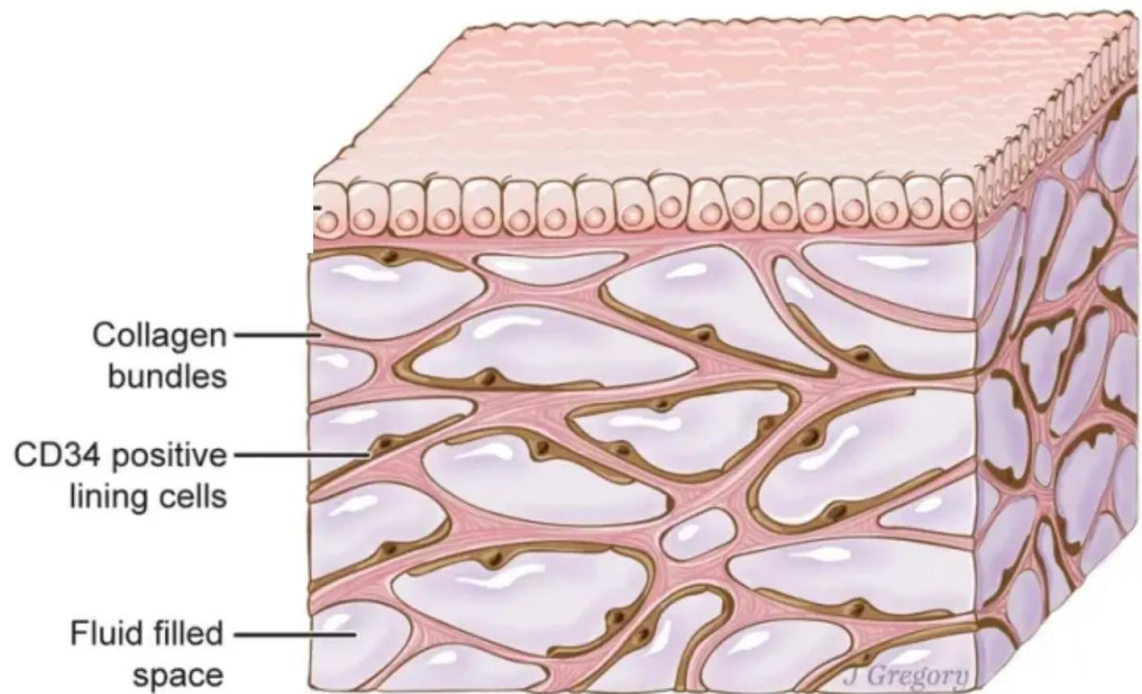
This framework also helps explain how DMSO is able to help a wide variety of skin issues as DMSO’s potent mechanisms of action (e.g., [being anti-inflammatory](#), [improving circulation](#), [rescuing cells trapped in the cell danger response](#), and [stabilizing proteins](#)) underlie many dermatologic conditions.

One of the things I have always marveled at with the body is how much is hiding in plain sight in front of us, and how as the years go by, profound discoveries continue to be made about it that rewrite our understanding of physiology. [In 2018](#), one such discovery made a lot of observations I’d made about the skin come together.

Briefly, researchers (using advanced imaging technology) [noticed](#) when they placed a dye into the bile

duct, it diffused out in a spider web-like pattern, suggesting it was traveling within an unknown vessel system (they termed the interstitium). Eventually, the researchers discovered that a delicate web of collagen strands travel throughout the body and form vessels the interstitial fluid travels in—something which was missed because those strands initially appear to be disorganized inconsequential debris on pathology slides.

While this network travels throughout the body, what immediately caught my attention was that it was consistently found in the dermis.



Note: the above picture shows how the interstitium's conduits are right under the skin, that they match the reticular pattern and the CD34 stain observed in it throughout the body, and the usage of a specialized imaging technique (confocal microscopy) which shows these structures indeed function as

a conduit with a reticular pattern.

This led me to theorize that many dermatologic diseases result from congestion within the interstitium. For example, a primary function of the interstitium is to dissipate energy the skin absorbs (e.g., sunlight) and transfer it into the body. When this cannot happen, the body becomes malnourished. Likewise, if the transfer is impaired, the skin becomes easily overloaded (e.g., more sensitive to sunburns). Likewise, various approaches (besides sunscreen) have been discovered that make the body much more able to tolerate prolonged sunlight exposure—many of which coincidentally also improve movement within the interstitium.

Note: systemically or locally, improving the physiologic zeta potential can often benefit a wide range of skin conditions. I believe this is in part due to the structure of the interstitium (e.g., the vessels are small and it has no external pump), making it highly susceptible to becoming obstructed by an impaired zeta potential.

In turn, I believe that beyond DMSO protecting the skin's blood supply and reducing inflammation, a major reason why it can help so many different skin conditions is because it removes obstruction from within the interstitium.

Note: one of the significant questions in Traditional Chinese Medicine has been what its 12th organ, the Triple Burner represents in the body. I would argue that it is likely the interstitium, as the two share many unique characteristics (and oddly, many of DMSO's therapeutic properties counteract pathologies associated with Triple Burner dysfunction).

Additionally, DMSO has been shown to increase light's ability to penetrate the skin. This was done to improve the ability of optical systems to diagnose the skin. Still, it likely could also enhance the body's ability to absorb natural light (a critical nutrient that typically can't enter through the skin).

Note: DMSO in combination with sodium chloride, has also been shown to reduce skin electrical conductance and in combination with lactated ringers, to decrease the electrical potential across the skin.

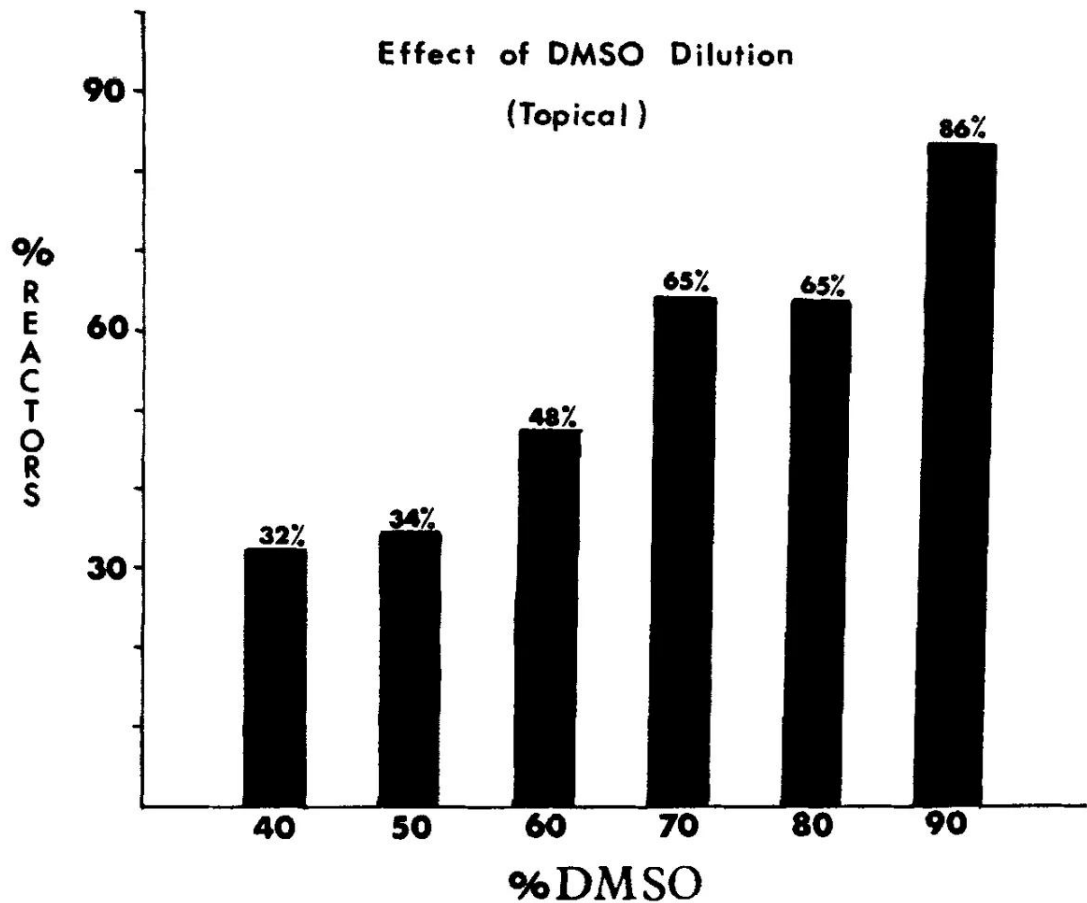
Topical DMSO Safety

Generally speaking, DMSO is a very safe substance (e.g., the most common side effects, skin irritation and an unpleasant odor, are not dangerous). These two primary concerns with it, and not applying it to skin that has a toxin on it (as DMSO will drag it (absorb) into the body), are rarely an issue for users. Also, avoid it if you are allergic (which affects roughly 1 in 2000 people **and must be ruled out before taking too much DMSO**).

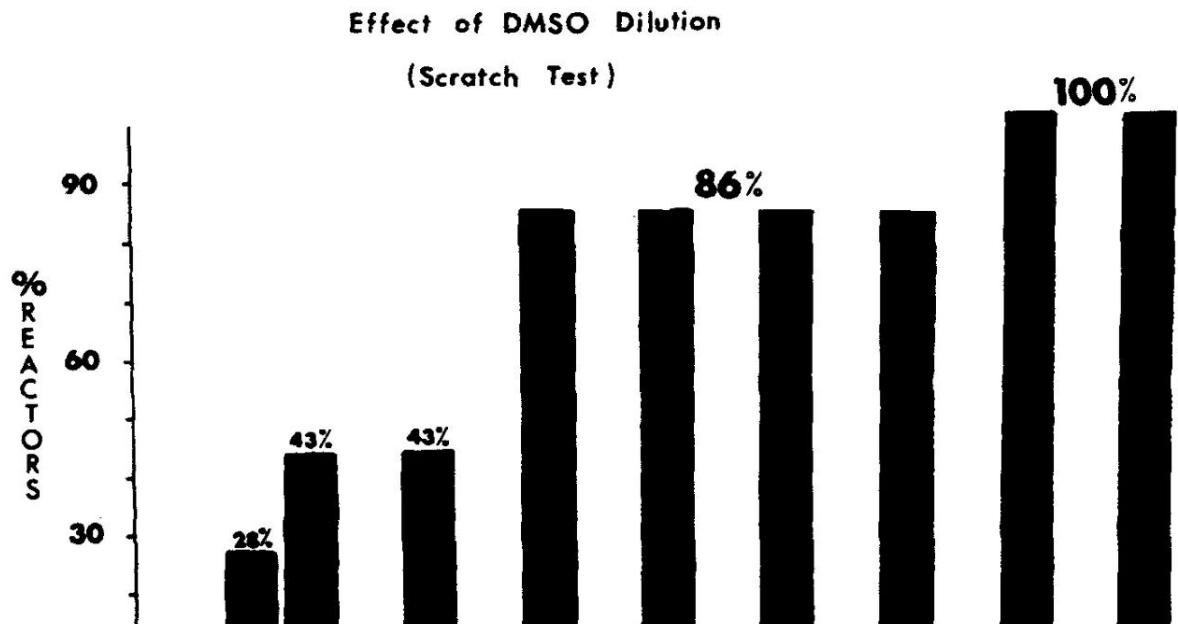
In turn, virtually every published study emphasizes that DMSO was safe for the participants, and a large body of evidence (compiled here) shows DMSO is safe for skin applications. For example, one dermatologist who treated 613 patients successfully with 50% topical DMSO combined with the steroid triamcinolone acetonide reported that out of 363, no systemic reactions occurred except for one patient who felt “jittery,” after use over a large area, along with two cases of contact dermatitis and temporary complaints of burning. Likewise, another team of dermatologists reported that in more than 1 315 cases, no systemic toxicity arose from topical DMSO.

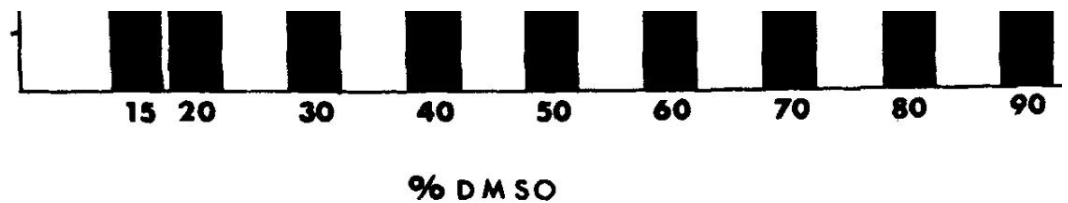
1,515 cases, no systemic toxicity arose from topical DMSO.

As such, the primary effect to discuss is skin irritation, which becomes more common as higher strengths are used (and which typically decreases with prolonged use, but in some cases can also result in changes to the skin). The best illustration I've seen of this concentration dependent irritation came from this [study of 64 healthy male volunteers](#):

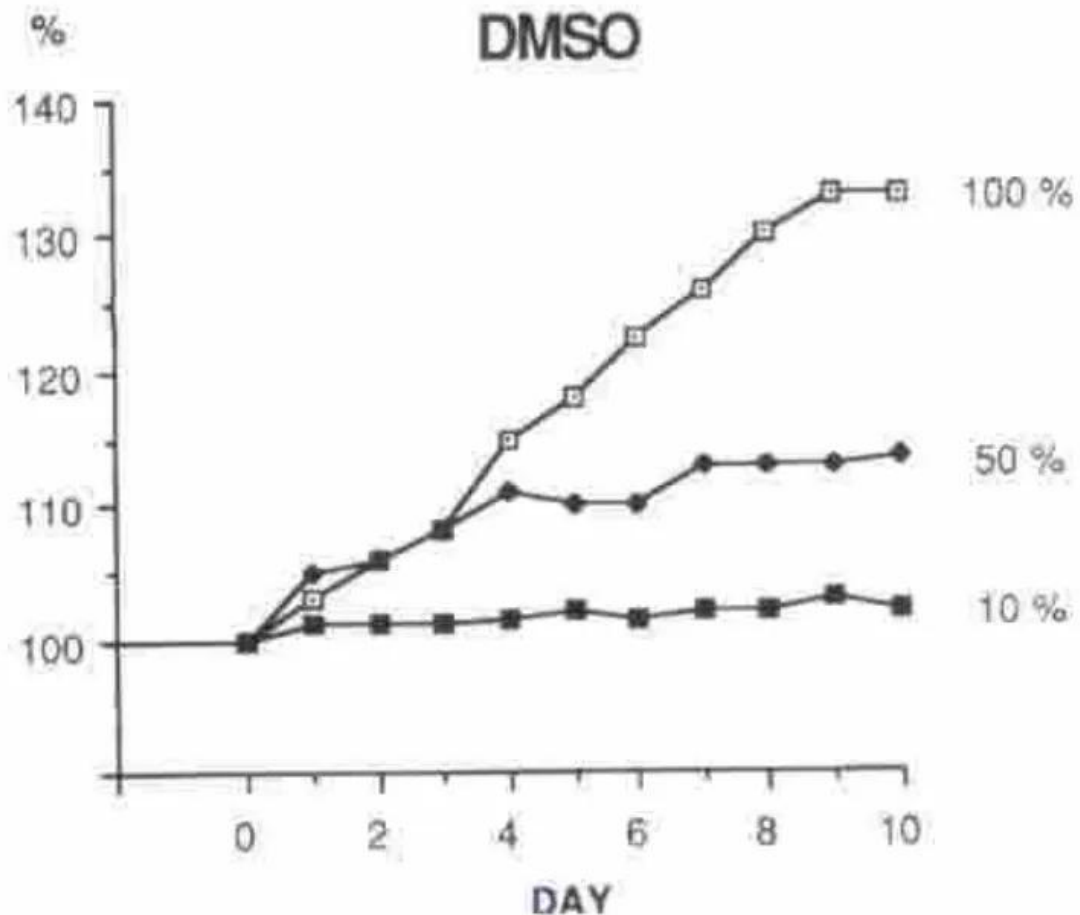


Furthermore, when DMSO was applied under the skin (e.g., through a scratch), [this sensitivity to an immediate reactions significantly increased](#):





Likewise, this guinea pig study exposed their skin daily to various irritants and then assessed if the skin became thicker (as that is a sign of inflammation and edema). While these results do not exactly match what's seen in humans (as many individuals can tolerate 70% DMSO without any skin changes, and in many cases skin tolerance increases with time), they do generally demonstrate what's observed:



Note: when concentrated DMSO is diluted with water, it will heat up (this is a normal process). In some cases, this results in the DMSO applied to the skin being quite warm (but does not increase skin irritation).

Additionally:

- DMSO has not been shown to create allergic tendencies. For example, when it was mixed with a variety of common allergens (e.g., dust mites or pollens) and applied to the skin, it didn't create sensitivities or reactions (whereas a serious issue with certain childhood vaccines is that they can create allergies to other things the child is simultaneously exposed to like ragweed pollen). However, when DMSO was mixed with a potent allergen (e.g., penicillin in someone with a penicillin allergy or the castor bean allergen), a more severe reaction occurred when DMSO was mixed with the substance and applied to the skin, than when DMSO was applied alone.

and applied to the skin, than when DMSO was applied alone.

- Individuals with eczema are not more sensitive to DMSO (unless the skin is already irritated).
- The face is more sensitive than the rest of the body. As such, a significantly lower concentration should be applied there.
- For those who react to topical DMSO, repeated applications of DMSO (but not always) decrease their reactivity.
- DMSO is often used as a vehicle to bring other drugs into the body. Propylene glycol can also be combined with topical steroids to bring them into the body, but while less irritating, it is also much less effective.

Protecting the Skin

DMSO's therapeutic properties come from its ability to protect tissues (e.g., the brain and the internal organs) from danger and death. Numerous studies in turn, corroborate DMSO's ability to protect the skin:

- Many chemotherapy drugs are destructive to tissue, so when they leak out of blood vessels into the wrong place, they will cause challenging-to-treat ulcers. Many studies (which I compiled here) have found that DMSO will treat this tissue damage.
- DMSO has been found to be a protective agent during the freezing and thawing of mouse skin (e.g., see this study and this study). Likewise, there have been cases of DMSO saving the fingers of individuals with severe frostbite that would otherwise require amputation. DMSO has also been shown to protect cells from freezing damage, and to protect rabbit ears and thighs from frostbite induced by immersion in a -42°C bath.
- A variety of studies (which will be covered in a later article) have found DMSO protects the skin from being damaged by chemotherapy drugs. One unusual use for chemotherapy drugs is to inject one into the muscles of an excessively spasming eyelid (as they destroy the muscle), but this approach has the side effect of also killing skin in the vicinity of the injection. In one study, mixing DMSO with the chemotherapy drug protected the eyelid from tissue death.
- A significant body of evidence shows DMSO protects cells from radiation damage. In turn, DMSO was shown to protect skin cells from dying after exposure to gamma radiation, and numerous studies have reviewed DMSO's ability to protect the skin from radiation (e.g., this one, this one, this one, this one, this one).
- Pulsed Ruby lasers are often used in dermatology to remove unwanted things from the skin but can irritate the skin. One investigator found that DMSO (or DMSO with a low dose of a topical steroid) significantly reduced the reactivity that was created.
- Surgically created skin flaps are at an increased risk of dying due to poor blood perfusion. Numerous studies (e.g., this one, this one, this one, this one, this one, this one, this one, this one, this one, this one, and this one) have shown DMSO protects vulnerable skin flaps (including in a rat model of smokers), which makes it a shame it is not used in fields that could greatly benefit from this innovation (e.g., plastic surgery).
- Likewise, skin grafts, even from the same person, often fail. Fortunately, DMSO happens to

address the common causes of skin graft failures. To illustrate, a Ukrainian plastic surgeon documented that in over 500 transplants dressings moistened with 30% DMSO solution for 3-5 days enabled grafts to take and survive in badly burned patients and victims of elephantiasis (e.g., there was no skin necrosis, no inflammatory changes, no keloids, and no hypertrophic scars). Similarly, a study of 120 rabbits demonstrated the DMSO significantly improved the viability of a skin or cartilage graft. *Note: in rabbits, DMSO was shown to reduce tissue carbon dioxide levels, and when mixed with hydrogen peroxide, increase oxygen levels, but this effect was not seen in rats or pigs.*

•Studies have found skin flaps treated with DMSO had increased glucose utilization and increased oxygen utilization, suggesting DMSO increases mitochondrial function (and may in part explain how DMSO can protect cells with an impaired blood supply as numerous studies such as this one and this one have also found DMSO can maintain mitochondrial function in these stressful situations).

Burns

The protective mechanism of DMSO which most commonly applies to the skin is its remarkable utility for burns (e.g., consider the 12 reports I shared above from readers).

DMSO in turn has been shown to treat a variety of burns (e.g., superficial burns or partial thickness burn wounds) without being prone to producing infections (e.g., a 1985 study by Russian burn specialists, in adolescents, found DMSO was superior to the other treatment options [nitrofurazone, trimecaine, and monomycin] while another study also found DMSO prevents burns from becoming infected).

This includes severe acid skin burns (along with preventing their progress), and both acidic and alkaline burns that erode the esophagus (e.g., by inhibiting the destructive inflammatory response following those esophageal burns) or alkali burns to the eye.

There are also countless cases of severe burns that within minutes of DMSO stopped hurting (a major problem with burns), didn't blister, and subsequently fully recovered (e.g., no skin contractures)—many of which can be found in the reader reports I shared.

One of the most extraordinary ones (reported by William Campbell Douglass) involved six year old girl who'd slipped her index finger in a light socket for a prolonged period, after which it was cooked through and burned ash white at the tip. Within 30 minutes Douglass got the finger into a full-strength DMSO bath, and after 20 minutes, the searing pain had disappeared, the next day the finger turned pink, and then rather than be lost, fully recovered.

Note: DMSO has also been shown to be very helpful for sunburns.

Venous Disorders

Presently, I believe many venous disorders arise from a combination of weakened blood vessels which is often due to inadequate nutrition (discussed further here) and an impaired physiologic zeta potential which creates congestion in the veins (that becomes much more problematic if the blood vessels are weakened—a very common issue in individuals with hypermobility due to them also

having looser blood vessel walls).

I have been following your zeta potential protocol for the past month, and I am using liquid DMSO for a slight neck tremor and for an allergic, itchy skin rash and spider veins. The skin rash is largely healed with the exception of some peeling of the skin around my nose and the palms of my hands. However, what is absolutely remarkable and unexpected is that the two clusters of unsightly spider veins on my right calf and thigh are almost completely gone. If things keep going like they have been my legs should look flawless within a month's time. Fingers crossed. I wanted to share this with you because spider veins are a woman's worst enemy they are expensive to have blocked and they always come back within the year of having the procedure, and I have been told by a vascular surgeon that it is dangerous to do repeatedly.

In turn, like the above reader, we've found a variety of venous disorders (e.g., hemorrhoids, varicose veins, and venous stasis dermatitis) respond quite well to addressing those two issues.

Note: in this article, I will list numerous studies showing DMSO's utility for varicose veins. However, while Stanley Jacob (the pioneer of DMSO) treated hemorrhoids with DMSO, another author uses DMSO to treat them, and Merck reported it improved recovery after their surgical removal. I am not aware of any studies that directly assessed DMSO's use for hemorrhoids.

Since DMSO is venotropic (enhances venous function), anti-inflammatory, and eliminates pain, a group of investigators tested if it could enter and penetrate diseased tissue (which typical agents have difficulty doing), finding that DMSO could also bring other substances with it.

Later, they found they got the best results when using three other therapeutics together (rather than just one), a standard spray containing 20% DMSO, 5% diphenylbutazone, 0.2% sodium-rutin sulfate, and 0.5% prednisolone was tested over the course of three years, finding:

TREATMENT OF ACUTE OR CHRONIC VENOUS DISORDERS OF THE EXTREMITIES				
Group	Condition	Good	Results Fair	Poor
1	Spontaneous superficial phlebitis (varicophlebitis, thrombophlebitis)	14	3	4
2	Phlebitis after infusion treatment	16	3	8
3	Subjective complaints due to chronic venous disorders (mostly varicose veins)	29	10	8
4	Postphlebitic leg with dermatosclerosis, indurations, hyperkeratosis, etc., and subjective complaints	17	6	9
5	So-called additive factors in chronic venous insufficiency (tendo-periostitis, myogelosis, arthropathy of the knee joint, static insufficiency)	6	2	4
Total numbers (overall total 139)		82 (59%)	24 (17%)	33 (24%)

TABLE 2
DOUBLE-BLIND TREATMENT OF ASEPTIC SUPERFICIAL CUBITAL PHLEBITIS
AFTER INFUSION THERAPY

Treatment	Good	Results Poor	Total
DMSO-compound spray	16	7	23
Placebo spray	10	14	24

Other physicians have also used this spray successfully. In one double-blind study, it improved subjective complaints and subcutaneous indurations in patients who had recovered from deep vein thromboses (which can cause lasting damage to the veins). Another team found it decreased the visible hyperpigmentation and indurations in post-thrombotic patients and that after veins have been operated on (e.g., stripping or ligating them), it caused the wound healing to be smoother and have almost no pigmentation (discussed further here).

My 80 year old mother...has been using DMSO on her legs for several weeks now and has noticed a huge reduction in pain, discomfort, swelling, and discoloration of the skin.

Lastly, I was recently sent a picture showing someone's leg before DMSO and then 24 hours after:



Wound Healing

I dropped the edge of a washing machine on my wife's finger, it went behind her fingernail down to the bone. She soaked it in DMSO on for 3 min. It healed completely in 1 week, on bruise or scar & no nail loss.

As shown in this article and with the data I've presented here, DMSO is remarkably effective at healing tissue throughout the body (e.g., surgical incisions).

For example:

- A veterinary school reported that painting DMSO onto open wounds of horses stimulated "fantastic"

healthy granulation during the first few days, reduced excessive granulation to normal in a month, and disinfected badly contaminated wounds (without pus formation) with a protective film forming over the wound surface.

Note: this paper included before and after pictures of the wounds.

- DMSO was found to accelerate wound healing in both diabetic and non-diabetic mice. Also it has been found to increase the biomarkers of tissue regeneration in burned skin.

Note: DMSO has the unique property of accelerating the speed at which newts regenerate lost limbs by approximately 2-3 days (see [this paper](#) and [this dissertation](#)).

- Authors of a 1998 Russian paper stated that they routinely apply DMSO to surgical wounds as it accelerates healing and provides general infection control. This is congruent with the studies mentioned earlier in this article that show DMSO improves the healing of surgical wounds.

- At low concentrations, DMSO has been shown to increase the proliferation of skin fibroblasts (which repair damaged tissue), but at high concentrations to inhibit it, results consistent with DMSO being able to accelerate wound healing and prevent adhesions and eliminate scars.

- A large number of studies (which I compiled [here](#)) also show that DMSO can prevent surgical incisions from developing adhesions or keloid scars, and in many cases reduce or eliminate scars.

Note: similarly, many studies (which I compiled [here](#)) show DMSO can reduce excessive collagen deposition that causes challenging contractile disorders such as Scleroderma, Peyronie's disease, and Dupuytren's contracture. Lastly, there are also [case reports showing](#) DMSO treats one of the most challenging diseases in medicine, fibrodysplasia ossificans progressiva (a very rare disease where the connective tissue of the body turns into bone).

Ulcers

DMSO's ability to both heal tissue and restore tissue blood supply (e.g., [it frequently treats Raynaud's disease](#)) makes it uniquely suited to treat chronic non-healing ulcers (an issue many physicians struggle with). As such, many physicians used DMSO to treat chronic ulcers, and a significant body of evidence exists supporting that approach:

- A study evaluated the use of local DMSO for 20 diabetics with peripheral neuropathy and perforating foot ulcers (a challenging condition to treat). Complete healing occurred in 14 (70%) patients after 4-15 weeks of daily treatment, whereas in controls receiving conventional treatment, only 2 out of 20 recovered.

Note: DMSO also frequently [helps diabetic peripheral neuropathy](#).

- A study (discussed below) also reported on 67 patients with chronic varicose ulcers, who had a remarkable response to DMSO.

- A study reported on the 1371 Chilean dermatologic patients they treated over 22 months who received a DMSO spray also containing the anti-inflammatory agents y-ketophenylbutazone, p-hydroxy phenylbutazone, and hydrocortisone, the antimicrobial agents moroxydine hydrochloride and dequalinium hydrochloride and the hemostatic n-butanol.

TABLE 1
TYPES OF SKIN AFFECTIONS TREATED AND NUMBER OF CASES RECORDED

Condition	Number of Cases
Ulcerations of legs, feet, and/or upper extremities	401
Infected wounds of diverse localizations (including 7 due to urticaria and 8 from mosquito bites)	747
Infected dermatomycosis on feet and/or hands	50
Second- or third-degree burns on hands, feet, and/or legs (most were infected)	173
Total number of cases treated	1371

Of those patients, 1,313 (95.04%) were completely restored or cured, and the patients were enabled to return to their usual activities—a dramatic effect that could not be obtained by any other available therapy. The other 4.96%, for various reasons, prematurely suspended treatment, and hence were no longer possible to observe and assess.

The average number of applications of the DMSO spray needed for the various conditions were as follows:

- 9.41 were needed for a complete cure of infected ulcers
- 6 applications were needed for a complete recovery of infected wounds
- 19 applications were needed for infected mycosis
- 7 applications were needed for the healing of burns.

Note: in chronic alcoholics and chain smokers, the therapeutic results, although favorable, were less rapid.

With diabetic ulcers, remarkable improvements were seen (e.g., one who'd had ulcers develop over 15 years was completely healed after 20 days of DMSO).

Note: DMSO has also been used in combination with antibiotics to treat bed sores with tissue necrosis.

With varicose ulcers, rapid healing (and immediate cessation of pain) occurred in ulcers that had not responded to years of conventional treatments. Additionally, some patients who suffered from intense joint pains from other causes reported the pain rapidly disappeared following DMSO application (an effect commonly reported by DMSO users).

Note: rapid healing was also observed in ulcers from fungal infections, which have persisted for over three years despite conventional care.

Of the burn patients, 100% recovered, with none having the deforming scars typically seen after severe burns.

No adverse reactions were noted except for temporary severe pain when DMSO was applied to deep wounds (which did not interfere with the treatment), something that was likely due to them using a lower DMSO concentration in all applications.

Note: this study also included three cases of patients with severe and debilitating illnesses who had rapid and dramatic improvements from DMSO.

- A study found that 80-90% DMSO combined with 0.025% fluocinolone (a topical steroid) caused no

toxicity when put over the entire body (although around 27% discontinued it due to skin irritation—typically from higher DMSO concentrations) and performed equivalently to 0.2% fluocinolone in treating the following conditions:

TABLE 2
LESIONS STUDIED WITH DMSO-FLUOCINOLONE

Disease	Duration of Therapy	Average Daily Dose (ml)
Scleroderma	months	20–30
Psoriasis	months	3–40
Atopic dermatitis	months	10–20
Dyshidrosis	weeks	5–12
Granuloma annulare	weeks	1–2
Necrobiosis lipoidica	weeks	1–5
Balanitis xerotica obliterans	months	1–2
Lichen sclerosus et atrophicus	months	2–10

Note: this study also found that 1% hexopyrronium bromide in 90% DMSO was of value in the treatment of dyshidrosis (blistering eczema) and hyperhidrosis (excessive sweating).

•Finally, a systematic review examined the efficacy of topical DMSO on wound healing and noted that decubitus ulcers were the most frequently studied condition. Overall, the review found that DMSO was beneficial for wound healing and analgesia (and had low toxicity).

Note: this analysis included a 1985 study where 20 older diabetic patients with chronic (treatment-resistant) perforating ulcers received DMSO, and 14 had a complete recovery in 4-15 weeks of treatment (whereas in contrast, only 2 of the 20 controls who received conventional treatment did), a double-blind trial where DMSO was used as adjunctive therapy for refractory duodenal ulcers and was found to increase the cure rate from 60% to 100%, and an unpublished trial where 39 elderly patients with first stage pressure ulcers received 5% DMSO for 36 months and had a very positive response to the treatment.

General Dermatology Studies

Since many of the published dermatologic DMSO studies evaluated a variety of conditions, I could not place some of them under a specific category. Those three studies (along with an animal one) are as follows:

1. A study reported on 152 patients with a wide range of dermatologic conditions who received a topical DMSO spray (with no side effects except temporary intense pain in two of the recipients). These included:

•Varicose ulcers (67)—many had taken years to develop, and had received numerous (ultimately unsuccessful) surgical treatments. DMSO caused a rapid healing of the microbial infections, significant edema, pain, and patient’s inability to conduct their daily activities. Typically, the scars

shrunk between 3 and 4 mm per week and patients experienced a recovery far faster than any existing treatment.

- Shingles (7)—all 7 had dramatic results within 48 hours (often completely disappearing).
- Herpes simplex (4 on the penis, 4 on the lips, 2 on the cheeks)—all 10 had dramatic results within 48 hours (often completely disappearing).
- Impetigo (8)—Improvement took up to 48 hours (impetigo is a skin infection).
- Pityriasis versicolor (42)—disappeared within a week (compared to it typically taking at least 2 months to recover).
- Ingrown toenails and infected nails (6 caused by candida, 3 caused by trichophyton)—significant improvement occurred, but it only lasted for 24 hours after the application of the spray.
- Pityriasis rosea (2)—both permanently resolved in a week (whereas this issue typically recurs).
- First and second degree burns (3)—none of the patients developed the typically expected keloids.
- Skin grafts (4)—DMSO significantly improved the final outcome.

Note: in addition to treating herpes, DMSO has also been observed to be an effective treatment for other small ulcers within the mucus membranes of the mouth and genitals.

The paper also included photographs of some of these results:



A case of Herpes 48 hours before and after DMSO

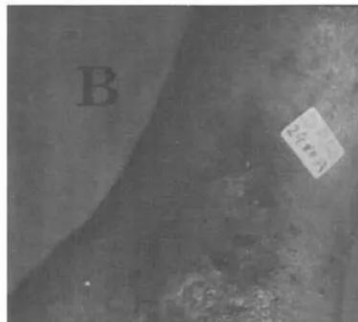
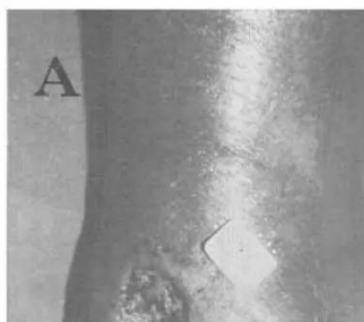




FIGURE 3. A varicose ulcer (case no. 35). A shows the ulcer at the beginning of treatment (June 9, 1973), B the ulcer after 15 days' treatment, and C the cicatrized ulcer after 60 days.

Significantly more graphic ulcers that improved are also included in the study.

2. A German study reported that DMSO yielded positive results for 75 of 106 dermatology patients. Specifically it helped:

- 16 of 23 keloid and hypertrophic scars
- 1 out of 3 Peyronie's disease cases
- 6 of 9 of Dupuytren's contracture cases
- 3 of 4 scleroderma cases
- 4 of 7 sclerodermic changes in post-thrombotic syndrome
- 17 of 21 eczema tyloticum (palmoplantar keratoderma—a challenging and incurable condition where thick plaques form on the palms and bottom of the feet) cases.
- 6 of 9 infiltrative processes of the lower limbs
- 3 of 5 granuloma anulare
- 3 of 4 hypertrophic lichen planus
- 2 of 4 verrucae vulgaris (common warts)
- 4 of 4 combustion (lesions from burns)
- 10 of 11 shingles and post shingles neuralgia cases
- 2 fibromas

3. A group of Russian clinicians reported that DMSO had become the standard of care at their hospital for trauma and orthopedic conditions. They then published a report detailing the skin conditions they had treated with DMSO:

CONDITIONS TREATED WITH DMSO, ALONE OR IN ANTIBACTERIAL COMBINATIONS

Condition	Number of Patients Treated
Suppurative wounds	153
Trophic ulcers of the leg	97
Abscesses	48
Carbuncles and furuncles	43
Paronychia	33
Osteomyelitis	31
Phlegmonous ulcers	22
Thrombophlebitis	21
Lower extremity gangrene	16
Mastitis	15
Erysipelas	8
Burns	7
Parotitis	2
Epididymitis	2
Sarcoid	1

Unfortunately, other than specifying that 11 patients had side effects (8 had dermatitis and 3 had nausea and vomiting), very little data was provided, so it was unclear what percent of these cases responded to DMSO (although, based on comparable data from other studies it was likely the majority of them).

4. A veterinary practice using 90% DMSO reported that:

- In 25 dogs with mammary gland engorgement (which commonly leads to mastitis), applying DMSO three times daily to the affected area generally resulted in cessation of lactation and significant reduction of enlargement within three days (where standard treatments took 5-7 days).
- Interdigital cysts are a common issue in certain breeds of dogs but are challenging to treat (especially since they recur). In six cases, DMSO and nitrofurazone (an antibiotic) were applied daily, with prompt improvement occurring within 3 days, with four having a complete recovery in 3 weeks, one improving but plateauing, and one not being able to complete the program due to inconsistency on the part of the owner.

- DMSO was found to treat chronic local inflammatory reactions to vaccines (causing a significant reduction in one week and a complete resolution in two compared to the slow disappearance typically seen over several weeks).

- In 20 cases where a dog or cat had an allergy to flea bites, giving DMSO and something to eliminate the fleas resulted in prompt reduction in inflammation and healing of the animal's lesions.

- In 9 cases of severe dermatitis involving the feet and nail beds (where both pathogenic fungi and bacteria were cultured), a combination of equal parts of DMSO, nitrofurazone, and nystatin was applied to the area three times a day, with prompt improvement occurred in all cases. Eight made complete recoveries, and one (particularly sick) remains under treatment for one foot, which the animal persists in chewing. In many cases, these conditions become chronic because the animals will chew or lick them (as they itch), something DMSO fortunately reduces.

Note: another author reported on a feline with severe skin problems (e.g., the hair on a large part of her body was falling out, and the skin was raw and bleeding). Nothing veterinarians provided helped, but after a DMSO lotion was tried, pain seemed to be reduced within minutes, the cat quit scratching herself, everything healed, and two months later, she was a beautiful healthy cat.

Common Conditions

DMSO has also been shown to help a variety of other common skin conditions.

Note: the other data for DMSO's use in herpes and shingles will be discussed in a later part of this series that focuses on DMSO's utility in infectious diseases.

Hair loss

Hair loss is a pressing concern for many (especially now that it's a common COVID-19 vaccine injury). Unfortunately, the existing pharmaceutical options leave much to be desired. For example, one of the most commonly prescribed hair loss drugs, finasteride (which blocks the conversion of testosterone into another form of the hormone the body utilizes) is fairly toxic and there are a significant number of people who have been permanently disabled by it.

Note: DMSO has also been combined with finasteride, so that finasteride could be administered locally to regions of hair loss (and thus reduce its systemic toxicity). When this was done in rats, it was found to significantly increase hair density in the treated regions.

For over 40 years, DMSO has proven to be a potent hair loss treatment, something likely due to it improving the microcirculation and rescuing hair producing cells from the cell danger response.

Initially, this began with Stanley Jacob having a patient incidentally regrow their hair after receiving DMSO for another head condition. At that point, he tried giving it to 5 other balding men. This in turn, caused a fine fuzz to appear on the heads in the areas where they'd last had hair, and over time, then caused hair growth to begin in areas that had stopped producing hair earlier on (a pattern others subsequently observed). Because of this, the best results are typically seen when DMSO is used earlier in the hair loss process.

Additionally:

- Individuals who took DMSO for another reason sometimes report dramatic improvements in their hair (e.g., this author cited a case of someone who was saved from severe frostbite with DMSO who then had her hair grow back richer and darker than before).
- DMSO is often beneficial for the hair loss experienced from chemotherapy (although it's not our default treatment for this issue).
- There are many reports of animals (e.g., cats) regaining lost hair from DMSO.

Unfortunately, I have only been able to locate one published paper on DMSO and hair loss—a Japanese case report that described a 67-year-old male patient with rapid progression of whitening and loss of hair in the past 2 months, who after being worked up, was discovered to be suffering from amyloidosis. After starting DMSO, the scalp hair and beard grew and turned to black gradually several months after dimethyl sulfoxide (DMSO) treatment.

Acne and Eczema

Note: much like the common treatment for hair loss (finasteride) is quite dangerous, the common acne treatment (Accutane) is extremely dangerous, and in most cases, the “benefits” it creates are outweighed by the long-term harm it causes.

Many individuals have reported DMSO treats acne (or reduces the scarring from chronic acne).

However, to the best of my knowledge, no published studies exist on the subject. Instead, the only reference on it was found within the guidance Merck gave their clinical investigators for DMSO, which stated that for acne “There have been some encouraging results. Long-term administration has been necessary.”

Additionally:

- An early (unpublished) study by Stanley Jacob found that when 9 cases of dermatitis were treated

with DMSO, all improved.

- DMSO has also been used to successfully treat suppurative diseases of the skin (conditions that cause painful bumps, boils, or abscesses that drain pus).
- Studies do exist on the usage of DMSO for acute pustular diseases.

Psoriasis

• A 1967 study of 45 patients given 40-80% topical DMSO 2-3 times each day (either by immersion or with a cotton applicator) found that the 18 with psoriasis had a marked improvement over the first week, but then after 7-10 days either did not improve or significantly worsened (which was attributed to excessive administration of too high a concentration of DMSO). That study also found those with scleroderma greatly improved, and a variety of other skin conditions, including traumatic and burn keloids, hypertrophic scars, atopic eczema, and lichen amyloidosis, improved in varying degrees.

Note: the key point of this study is that if you use DMSO for psoriasis, it needs to be done at a lower concentration and stopped if the condition worsens.

• A 1973 study of 33 patients with severe psoriasis (25 with psoriasis vulgaris 7 with psoriasis guttate 1 with psoriasis pustulosa) found that an extract of camptotheca nuts dissolved in 70% DMSO was a "quick, effective and convenient treatment," as a year later, 21 had a complete resolution of the disease, while the remaining 12 had greatly improved (but a few eruptions still could be found along with discolored patches of skin, especially on the lower legs where lesions had previously been reported).

Typically, within five minutes, the patient usually felt an itching, stinging, or burning pain, which subsided in another five or ten minutes, then within three days, the slight rash at the application site subsided. The pimples began to shrivel up and disappear, with most skin eruptions being gone in two or three weeks.

Finally, in some cases, the ointment was only applied to one side of the body, and in those cases, only that side improved.

• A 1989 study of 35 male patients with psoriasis plaques (that had persisted for 2-5 years and did not respond to routine therapy) found giving an ointment of heparin and 15% DMSO under an occlusive dressing yielded positive results after being applied for 41.2 +/- 5.9 days. Complete resolution of the rash was observed in 19 (54.3%) patients, partial regression in 14 (40%), and no effect in 2 (5.7%) patients.

Note: due to its negative charges, heparin is an excellent agent for restoring the physiologic zeta potential.

• A 2009 study found DMSO, combined with topical corticosteroids, was very effective in treatment-resistant plaque-type psoriasis and could completely clear it in 3–4 weeks.

Additionally, at the time Merck was conducting large scale tests of DMSO (before the FDA unjustly banned all DMSO research), they sent all of their investigators an advisory memorandum on what they had learned about DMSO's uses which included:

psoriasis—Pilot studies are underway. Results may be better with DMSO/Decadron than with DMSO

alone. Long-term therapy is necessary.

Severe Itching (pruritus)

Many have reported DMSO significantly improves itching. Unfortunately, this area remains relatively unstudied. However:

- Amyloidosis can frequently cause very itchy deposits in the skin (known as macular [MA] and papular [PA] amyloidosis) that are resistant to treatment and worsen once scratched (making the condition quite challenging to treat. One study found daily DMSO provided significant relief for MA and PA patients (with pruritus resolving in an average of 4.1 weeks). A separate randomized controlled trial of MA patients found that DMSO decreased the pigmentation and significantly decreased the pruritus, even by the first follow up appointment.

Note: numerous studies (compiled here) have shown DMSO is an effective treatment for amyloidosis (an otherwise fairly challenging disorder to treat).

- The pioneer of DMSO research reported that 70% DMSO had a 90% success rate in treating pruritus ani (extremely uncomfortable anal itching) when applied to the itching areas.

Mastitis

A few of my colleagues use topically applied DMSO to treat mastitis in lactating women.

This use is supported by a double-blind study that applied topical DMSO to women with chronic cystic mastitis for one month. In it, DMSO was found to cause a statistically significant improvement (in terms of cyst size and mammography results).

A variety of bovine studies have also shown that DMSO helps mastitis such as:

- This one where DMSO plus antibiotics helped cows with chronic mastitis due to a *Staphylococcus aureus* infection.

- This one where 37 affected quarters of 26 infected cows were given DMSO plus an antibiotic. After 10 ten days, bacteria were no longer present in 10 of the 13 quarters infected with *Staphylococcus aureus*, 10 of the 13 infected with *Staphylococcus epidermidis*, 5 of the 6 infected with *Streptococcus agalactiae*, and all 5 infected with *Streptococcus lactis* or *Streptococcus faecalis*.

- This one where antibiotics, 90% DMSO, and 0.005% flumetasone together were found to treat 87% of acute mastitis cases.

- This one where 136 acute parenchymatous mastitis (from *E. coli*) received 0.25-0.5 mg flumethasone dissolved in 90% DMSO, with the addition of an appropriate antibiotic and 95% recovered (with the best results seen if treatment was initiated early). When it was caused by a streptococcal infection, there was a 90% recovery rate in acute cases, whereas in chronic cases, 46% of lactating quarters recovered and 24% of non-lactating ones did.

•This one where DMSO plus antibiotics was found to eliminate *Staph. aureus* from the milk of 42 of 49 lactating cows and 9 of 14 dry cows with chronic mastitis (with much lower success rates when alternatives to DMSO were combined with the antibiotics).

•This one where DMSO and EDTA were found to significantly lower how much antibiotics (gentamicin, ciprofloxacin, and norfloxacin) were needed to eliminate pseudomonas aeruginosa strains isolated from bovine mastitis.

Bites:

One author has found DMSO frequently quite helpful for insect and dog bites, and as mentioned above, multiple readers have seen the same.

According to this paper, DMSO has also been helpful in the treatment of snake bites in animals.

Note: this reader reported that “DMSO absolutely prevents the sloughing that typically accompanies pit viper bites. I even had a 13 pound terrier struck by a copperhead in the throat, who required critical care for the overwhelming venom, but as first aid I made sure the poultice was applied and she recovered with no sloughing or scarring.”

Skin Growths and Cancers

Many like these readers have also observed DMSO can eliminate unwanted skin growths:

I use the horse DMSO gel on my face after washing. Within days I noticed how smooth my skin was. Then I started applying it all over my body after my shower. All little lumps bumps skin tags disappeared after a month or so.

I am a physician ophthalmologist... I created my own DMSO solution that contains green tea extract (EGCG), turmeric (curcumin), and some other natural goodies. I have used it topically on myself and my children safely. I applied it daily to a couple of my benign skin lesions (seborrheic keratosis-type lesions) which regressed completely after approximately two months.

Likewise, according to one author, studies showed that DMSO cleared up benign skin growths of the eyelids and neck by dissolving the oil fats that caused them.

Furthermore, another author shared that rubbing DMSO on mole like growths on their neck reduced their size by 2/3rds (while a newer one was completely eliminated).

Similarly, as mentioned before, applying DMSO to keloid scars can flatten them and cause some discoloration to disappear.

Note: DMSO has significant value in the treatment of skin cancer. This will be discussed later in this series (in the upcoming article about DMSO and cancer).

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Treating the Skin with DMSO

In the final part of this article, I will review how DMSO is used to treat the conditions listed throughout this article (e.g., for acne, hair loss, hemorrhoids, sunburns and varicose veins), along with a few other integrative approaches we use for those conditions (e.g., for hair loss, acne, and mitigating the effects of chemotherapy). Additionally, I will also provide a set of simplified instructions for DMSO product sourcing and the general (safe) use of DMSO.

DMSO Protocols

Note: when utilizing these approaches, it is important to make sure you use the correct concentration (especially in a sensitive area). Additionally, if a spray is used rather than direct application (e.g., with a natural fiber paintbrush), the skin can typically better tolerate DMSO. Since the face is sensitive, particularly to gels, you do not want to apply a strong amount (e.g., 70%) to the face. Instead, it's better to start at 30% with a liquid and gradually increase it. Finally, if you apply to the head or scalp, you must ensure the areas are clean (e.g., no makeup or hair products).

For most of these conditions, the approach is reasonably straightforward—topically apply DMSO you can tolerate to the area 1-3 times a day and watch how it improves in the next few days or weeks.

However, there are a few nuances that can help you get the best possible outcome.

Acne: this often responds to being dabbed with DMSO (typically starting at 50% and gradually raising to 75% as tolerated), and if done as spots emerge, it can cause them to regress. Additionally, applying hydrogen peroxide solutions to the area can help as well.

Eczema: in most cases, the ideal solution for eczema is to identify the offending allergen (e.g., a detergent) and eliminate exposure to it. However, in many cases, that's not possible. Typically, with DMSO, if a 40-65% solution is applied (ideally sprayed and, if not then dabbed on), it can cause a rapid soothing of the skin.

Hair loss: While DMSO can be applied anywhere for hair loss, it gives the best effects if applied directly to the scalp (which requires the scalp to be free of cosmetic residues—and preferably only to use natural hair products while undergoing this protocol). When this is done, 40-50% is typically used (depending on how sensitive the individual is). Initially, the rate at which hair falls out will slow (before it improves, becoming thicker having more luster). Additionally, many people report improved mood and cognition (presumably due to some of the DMSO from the scalp reaching the brain).

Hemorrhoids: typically, you get the best results if you apply DMSO directly onto the hemorrhoid, but when it's put onto the skin in the area or taken orally (e.g., 1 teaspoon a day), it also can often help. When applied directly to the hemorrhoid, 40% DMSO is typically advised.

Sunburns: these often respond best to being sprayed with a 30-60% DMSO solution every 3 to 5 hours as needed (but at the same time, any tolerable regimen can work), and as the skin heals higher concentrations (e.g., 70%) can be used. When this is done, it is important to make sure the skin is

clean (e.g., no remaining sunscreen) so those chemicals are not pulled inside the body.

Varicose Veins: while topical DMSO works, if it can be done, IV DMSO (especially to a vein that feeds the affected area), tends to be the most effective treatment option.

Integrative Protocols

Acne: we find acne is frequently dietary in nature, although precisely what it is often varies (so in many cases, you will need to do an elimination diet). Various (similar) food lists (e.g., [this one](#)) exist that can help you identify which foods to prioritize cutting out. Additionally, many people I know have successfully used topical flagyl (metronidazole) to treat acne, which is used under the theory that acne is an allergic reaction to facial mites (which flagyl eliminates). I don't know if this is actually why this approach works (as often the mechanism proposed for treatment is incorrect), but as [research](#) demonstrates, it is much safer than taking Accutane.

Hair loss: besides DMSO, I have found three treatments that are particularly helpful for hair loss. The first (and most effective but also most expensive) option is to inject exosomes (ideally derived from amniotic fluid) into the scalp where you wish to bring the hair growth back. The second is to use one of the blue light pads made by [this company](#) (which is not as effective as the other options). The third is to use the correct Chinese herbal formulas (which can be challenging, e.g., I've heard of many successes and failures over the years, but I know of one that consistently worked, and I unfortunately have not yet been able to locate a source for it—although I feel hopeful I will).

Chemotherapy mitigation: as discussed here, getting chemotherapy shocks cells (which in turn will cause them to die in the future). Two of the few agents that can reverse this are DMSO and ultraviolet blood irradiation (of which I believe UVBI is more effective in this instance). In turn (as discussed in [this article](#)), we find that giving it 1-2 days after chemotherapy significantly reduces the side effects of it.

In addition to it increasing the likelihood that a cancer treatment (e.g., chemo) will work, our own experience has been that one of the things UVBI is the most helpful for is mitigating the side effects of chemotherapy (which to a lesser extent I have also seen ozone therapy do for patients on chemo). We believe this is in part due to chemotherapy triggering the [cell danger response](#) and putting cells into a dormant state (which eventually becomes fatal for them), which UVBI instead awakens them from. Because part of the toxicity of chemotherapy is due to the blood stasis, it creates throughout the body (which UVBI also antidotes). Because of this, we find that giving it 1-2 days after chemotherapy often significantly reduces its side effects (which concurs with Dr. Douglass's previously mentioned case).

Sourcing DMSO:

There are a lot of options when purchasing DMSO. Of them, I've long believed these are the three best brands (which I've included Amazon links to purchase them):

- Jacob Lab (e.g., [this gel](#) or [this liquid](#))—which is 99.98% pure.
- Nature's Gift (e.g., [this gel](#) or [this liquid](#))—which is 99.9% pure.
- The DMSO Store (e.g., [this gel](#) or [this liquid](#))—which is 99.995% pure.

Note: unless you feel confident you can dilute them correctly, get the 70% ones, since that

concentration typically works for people.

When buying liquid DMSO, I believe it should always be sold in a glass container unless the plastic container is DMSO resistant (which many are not—hence why I only recommended buying glass bottles) and likewise have a DMSO resistant cap. If you buy gel, it's fine if it's sold in plastic.

Note: many people have used liquid DMSO from plastic containers without issue, but I have personally always avoided doing so because glass DMSO has always been affordable and easily available so less thinking is involved to ensure it's sold in a DMSO resistant plastic.

The unexpected problem I ran into was that many of the people who ordered glass DMSO from the links I recommended then informed me they had been shipped in plastic (which is likely either because those parties were resellers or because everyone ran out of glass bottles and the DMSO market is currently trying to rebuild that inventory).

Of the currently existing options, I believe the best choice is to either:

- Buy DMSO directly from the [DMSO store](https://DMSOstore.com) (DMSOstore.com).

Note: the website DMSO.store is for a completely different company.

- Buy it directly from [Jacob lab](https://JacobLab.com) (which readers have informed me is also shipping DMSO in plastic they claim is DMSO resistant—which it likely is since Stanley Jacob worked with them for years).

DMSO dosing:

One of the things that's very challenging about using DMSO is that there is a significant amount of variation in what each individual will best respond to. Because of this, in the [first](#) and [second](#) parts of this series, I attempted to provide a very detailed explanation that could try to account for each possibility which may have been too complicated (but I would still advise reading).

So the primary consideration is how strong of a dose you want to use. This is because if you use too high a dose, you risk the chance of having a bad reaction, which will make you not want to use DMSO anymore, whereas if you use too low of a dose, the effect will be much less than desired. In turn, I've had many people here who:

- Applied 100% DMSO topically and had trouble believing anyone couldn't tolerate that.

- Applied 70% DMSO topically, had a bit of irritation but thought it was manageable.

- Applies 30% topically and felt it was too strong.

Similarly with oral dosing, I've had people who:

- Thought 1 teaspoon was decent but quickly took more for a greater effect.

- Found a few drops was the optimal dose for them (and greatly benefitted) whereas 1 teaspoon while initially good, ended up feeling like it was too much for them.

Note: in most cases, skin conditions are treated with topical DMSO.

Because of this, you essentially have two options, and have to decide which is right for you:

- Be patient and start with a low dose you build up.

- Start a strong dose and agree not to hold it against me or DMSO if you don't tolerate it.

In the previous articles, I advocated for the former. Still, many understandably started with a high dose as they did not want to wait for the results, a few of whom then shared they'd had a skin reaction that made them hesitant to continue using DMSO.

Similarly, when using DMSO, there are two common routes of application, orally and topically.

Orally, it is much stronger, but likewise, the GI tract is more sensitive to higher concentrations of DMSO. For this reason, I typically suggest starting with topical DMSO before doing oral DMSO.

Likewise, there is a very small risk (1 in 1-2000) of an allergic reaction, so it's generally advised to begin by patch testing DMSO on the skin before taking it orally.

So, What is Patch Testing?

Patch testing is a method used to determine how the application reacts to a product. It's a smart way to test a small area first before applying the product to larger areas, which helps to identify any adverse reactions.

How to Patch Test:

- Select a Small Area:** Choose a discreet spot.

- Apply a Tiny Amount:** Use a small quantity of the product.

- Wait and Observe:** Leave it on for 24 hours unless you notice irritation sooner.

- Proceed if All's Good:** If there's no reaction, feel confident to use the product as intended!

**If in contact with the skin: Some experience itching and tingling sensations, which are normal.* If there's any redness or swelling, wash the area immediately and discontinue use.

That said for general DMSO use (without going into all the nuances and additional details), I advise the following:

1. Start with 30-50% DMSO and see how you tolerate it. If applying to the face, make sure all makeup has been washed off (and ideally that you are only using natural cosmetic products).
2. If you have no issue, raise it to 70%.
3. Only raise it past 70% if you are certain you are one of those people who is fine with 100% or you are using it for a specific application that can justify a higher concentration (e.g., a collagen contracture, a scar, an internal adhesion or an acute stroke).
4. Until you are comfortable with topical applications, don't do oral applications, and only if you think you need them

you need them.

5. For oral dosing, start with a teaspoon of 70% or 100% DMSO mixed into a glass of water (you may also want juice or milk to eliminate DMSO's taste).
6. If you have issues with that, lower the dose to half a teaspoon and then to a quarter teaspoon.
7. Otherwise, stay at a teaspoon for at least three days, and then if you think you need a stronger effect, go to 2 teaspoons.
8. More than 3 teaspoons in a glass of water is excessive, and at that point, you are better off dividing the dose throughout the day.
9. With both topical and oral DMSO, people generally find that as time goes on, their tolerance to it improves. Conversely, if it's used too frequently, a tolerance can develop, so it's generally advised to not have it 1-2 days a week.

Note: more detailed instructions on oral (and IV) DMSO use can be found [here](#), while more detailed instructions on topical uses can be found [here](#).

Regarding the concentrations used, I generally advise buying 70% DMSO because people rarely react to it (e.g., the DMSO felt it was the concentration that had the best balance between safety and efficacy). It doesn't require any significant calculations to dose appropriately (e.g., you can apply it topically as it is, or mix it with equal parts of purified water to get it to roughly 35%). However, you can also do all of that with 100% DMSO (e.g., dilute it to roughly 50% rather than 35% by mixing it with equal parts of purified water or to roughly 33% by mixing it with two parts of purified water). Finally, certain parts of the body, **particularly the face**, tend to be more sensitive to higher concentrations of DMSO, so you should start at lower strengths in those areas

If you are putting DMSO on the face, start at 30% and **do not start with a stronger one** as this can significant skin irritation to the face. For example, I had one reader who started with a 70% gel on the face contact me about a reaction they had (although after the surface layer of skin peeled off her face underneath did look much younger).

Additionally, the one tricky thing about dosing DMSO is that it weighs slightly more than water (1ml of DMSO is 1.1004 grams). Since there is a fairly wide range of tolerability to DMSO, I've bypassed that issue here by treating it as having the same density as water and suggesting a slightly lower oral dose.

Note: when DMSO is taken by mouth, the total concentration should always be kept to 20% or less, and ideally, it should be taken slowly after eating a meal.

When applying DMSO topically, there are two options. The first is to use a liquid that you directly apply (e.g., I like to use paintbrushes made from natural hairs to dab it on, but sometimes when needed I just dip my finger in it and then rub it onto the target area, whereas the DMSO field often used sprays for sensitive skin conditions). The second is to use a gel which is rubbed into the skin.

When applying DMSO to the body, it is important to clean the area it will be applied to

beforehand, and to ensure DMSO dries before putting anything in contact with it. This is because DMSO will pull things from the surface of the skin into the body, and if a toxic chemical is on the skin, it will hence be dragged into the body. This is very rare, but there are known instances of this happening and harming the individual.

I personally prefer the liquids because it's easier to control the total dose with them, more gets into the body, and liquid DMSO tends to be less irritating. That said, gels hold the advantage of continually releasing DMSO into the body over a prolonged period and are much easier to apply. Because of this, whichever one you use is largely a question of personal preference.

In most cases, if an area bothers you, you are better off applying DMSO to that area (provided there is no open wound), but if the issue feels systemic, you may also need to take oral DMSO.

Note: for many of the conditions described here (e.g., interstitial cystitis) even though DMSO was primarily given through catheters that emptied it into the bladder, many clinicians have found it works just as effectively when taken orally (and did not subject the patient who were already so irritated they could not tolerate a catheter going in).

Conclusion

When I started the DMSO project, I was a bit reluctant to do it (as I knew how much work it would require), but despite that, I am incredibly grateful I did, as it's helped a lot more people than I could have imagined.

Now more than ever, that is important because if a sufficient amount of attention can be brought to the forgotten sides of medicine, a once in a lifetime window exists to bring them into the public consciousness. For that reason, if you are able to share this article with anyone you know (who could benefit from it) or able to share your own stories of how DMSO has benefitted you (ideally at [this thread](#) so I don't have to copy them over to it), that would be deeply appreciated as I believe there is a very real chance to reintroduce DMSO to medicine.

Truthfully, I never imagined something like this could be possible, and I am profoundly grateful to each of you for your support and for giving me the voice to get that message out.

Hospitals should use DMSO, IV Vitamin C. UV blood irradiation. Zeta Potential, amino acids- Midwestern Doctor

For example, [here](#), I presented a strong case ultraviolet blood irradiation would profoundly improve a wide range of hospital outcomes, [here](#) I made the case that DMSO would do the same (for a narrower set of conditions), and [here](#) I presented some of the evidence that routine IV vitamin C could dramatically reduce the death rate from sepsis (which is the number one killer in our hospitals).

For example, we believe an [impaired zeta potential](#) (which leads to microclotting and fluid congestion throughout the body) is a root cause of many diseases, and typically, one of the most common reasons patients are hospitalized is because their illness tipped them over into a zeta potential collapse. In many cases, giving IV saline (but not oral fluids) can address this (especially if patients are dehydrated—which is often the case for hospitalized patients), and as such, we advocate for routine IV saline for hospitalized patients. Typically, for an average person, my colleagues have found an appropriate dose is around 80-120 mL/hr, although as they dehydrate, more can be required to avert a zeta potential collapse.

In turn, we believe that if IV **amino acids** (100ml to 250ml daily of a preparation that is around 8-10% amino acid by weight) were given to patients daily or every other day once they were admitted, it would save a large number of lives and be one of the most effective protocols hospitals around the country could implement.

Unfortunately, most pharmacies will not give IV nutrition (TPN) without it also containing glucose, salts, fats, and certain vitamins or dietary minerals, but in many cases, those other constituents are not helpful. As such, you have to specifically get the amino acids (which are sold as IV preparation) rather than the TPN mix most hospital pharmacies typically stock.

Ultraviolet Blood Irradiation: as I showed in [a previous article](#), UVBI can help for almost every condition patients are hospitalized for. However, when using it in a hospital setting, there are few nuances. First, three different spectrums of UV light are typically used for UVBI, one of which, UVA is normally used for autoimmunity. In most cases (unless the patient has been hospitalized for an autoimmune condition), UVA is not helpful, and it's better to use two UVB and one UVC bulb to irradiate the blood. Secondly, the dose needs to be catered to a patient, which is typically 20, 30 or 40 mL of blood being irradiated daily (or every other day for sensitive patients).

Note: in most cases 40 mL is appropriate.

DMSO: while this can be used for many things (e.g., [pain or post operative recovery](#)), its primary utility is for any type of vascular issue, and **DMSO can produce truly remarkable results for CVAs (strokes or brain bleeds), transient ischemic incidents (pseudo-strokes), post-cardiac cases** (e.g., after a heart attack) or atrial fibrillation. In [a previous article](#) listing the benefits of IV DMSO for these conditions, the research I cited used a much higher dose than the one we find is typically necessary to help these cases (3-6ml of 100% DMSO diluted in saline).

DMSO protects against many internal diseases MidWestern Doctor

heart attacks, liver cirrhosis, gallstones, ARDS, lung damage from inhaling smoke, pulmonary fibrosis, pancreatitis, diabetes, nephritis, kidney stones, polycystic kidney disease, cystitis, epididymitis, genital pain, prostatitis, urethral syndrome, enlarged prostates, tubal infertility, endometrial inflammation, and fibrosis.

Dimethyl sulfoxide (DMSO) is a remarkably safe compound that can treat a variety of challenging conditions. Since DMSO is remarkably effective for treating chronic pain, arthritis, and injuries like sprains or burns (discussed further [here](#)), it quickly spread across America as a miracle drug. Thousands of studies were conducted to confirm its value, and before long, hundreds of thousands of people considered it to be the most important therapeutic ever discovered. Unfortunately, due to various negative political factors, the FDA went from embracing DMSO to going to war against it, and eventually, the pharmaceutical industry reluctantly followed suit. Sadder still, the FDA refused to relent even once:

- DMSO was shown to effectively treat strokes, traumatic brain injuries, spinal cord injuries, and many circulatory disorders (discussed [here](#)).
- DMSO was shown to cure a variety of “incurable” autoimmune and connective tissue disorders (discussed [here](#)).
- DMSO was shown to treat a variety of challenging (and often incurable) eye, ear, sinus, and dental conditions such as tinnitus and blindness (discussed [here](#)).

Since publishing those articles, I’ve received roughly a thousand reports from people of the remarkable effects DMSO has had on them (which can be read [here](#)), which while unbelievable, **are almost identical** to what people experienced in the 1960s before the FDA erased DMSO from the public’s memory.

Likewise, I’ve received almost as many questions (which is why I am trying to make these articles as thorough as possible). One of the most common questions I’ve received is if DMSO can help with various disorders of the internal organs. After realizing I did not have enough data to answer some of them within my drafts for this series, I spent a few weeks going through search engines combining each permutation of DMSO (e.g., dimethylsulfoxide) and each organ or the common diseases of them so I could identify the pertinent studies to share here. Despite my best efforts, I likely missed some, so if you are aware of any that should be added, please send them my way.

As you review these studies, you will notice a few patterns.

First, many were animal studies (something that always makes me sad), which used research protocols existing at the time to induce common diseases and then see if DMSO could prevent them. For example, cutting off the blood supply to tissues in the body will injure them, particularly when the blood flow comes back, so this can be modeled by clamping an artery that feeds the organ (typically for around an hour) and then unclamping it, creating what is known as an ischemia-reperfusion injury. Second, DMSO has many benefits for other parts of the body (e.g., reducing autoimmunity, increasing blood circulation, and healing injured tissues). One disease process (which I haven’t discussed for over a year) is particularly important to understand since, like poor circulation, it underlies many illnesses:



Hits Body

and Stop
Working

Degenerative
Process

Permanently
Compromised

There are a few key points about this model:

- Typically, more potent stressors make it progress faster (e.g., strokes rapidly kill brain cells). In contrast, weaker and more chronic stressors make it progress slower (e.g., I previously discussed [how the cell danger response](#) underlies many “inexplicable” chronic diseases).
- The further down this progression a tissue is, the harder it is to reverse (but with the correct therapy it can almost always be done).
- [Many regenerative therapies](#) essentially work by getting “shocked” cells to come back to life and start working again, which in many cases is critical for overall health since those tissues not working can disrupt the entire body.
- DMSO can reverse this process (discussed further in [the first part of this series](#)), but it is typically more helpful for the rapidly progressing instances coming from a significant stressor (e.g., a stroke or a severe injury or ingesting a poison). This in turn, explains why DMSO can sometimes give motor function back to people who were paralyzed by strokes years ago, but it is dramatically more effective if given shortly after a [stroke, traumatic head impact or spinal cord injury](#), and likewise why individuals on DMSO suddenly “notice” things in their body that had stopped working come back.
- For slower and more chronic versions of this process which have already progressed, one typically needs a systemic regenerative therapy (discussed further [here](#)).

Let’s now look at what DMSO does for each organ.

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Heart

Most of the studies discussing DMSO’s interactions with the heart regard its ability to protect it from permanent ischemia-reperfusion injuries (e.g., heart attacks):

- [In a 2012 study](#), rat hearts had their blood supply cut off for 30 minutes and then were reperfused for 120 minutes. DMSO being given beforehand was found to reduce the resulting tissue necrosis (death) significantly and left ventricular dysfunction, particularly if it was given for a few days beforehand, rather than just immediately preceding the blood supply being cut off. Similar results were reported [in 2010](#) and [in 1981](#) when a heart attack was simulated. Additionally, [a 1987 study](#) found that DMSO increased the heart’s cardiac output during a heart attack (and how much blood was able to get to the brain).

- A rabbit study found that if hydrogen peroxide (H_2O_2) was given concurrently with DMSO immediately after cutting off the blood supply to the heart, the damage the heart experienced was further reduced, presumably due to H_2O_2 providing oxygen to the heart tissue.
- When ischemic hearts are reperfused with a calcium ion containing solution, significant damage occurs. A rat study found that if DMSO was given in conjunction with the calcium solution, that damage was significantly reduced. A related rat study found DMSO prevented ischemia-reperfusion injuries from causing severe contractures in heart cells and the formation of contraction bands, and that this seemed to be linked to DMSO reducing the oxygen induced creatine kinase release from cells.
- One mechanism to explain the damage that occurs in heart cells after a shock or stressful conditions (e.g., heart failure) is that the t-tubules within the heart cells will seal and remodel. In one study, 1% DMSO (but not 10% DMSO) was found to prevent this from occurring and this process was hence hypothesized to at least in part explain DMSO's ability to protect heart cells from significant stressors. Additionally:
 - Isoproterenol can cause heart damage similar to that seen after a heart attack. Giving rats DMSO after giving the isoproterenol was found to reduce the resulting myocardial fiber necrosis, prevent ventricular aneurysms and cardiac rupture, and result in a smaller residual area of myocardial fibrosis.
 - A key component of regenerative medicine is using stem cells (which have the potential to differentiate into many different cells) to replace damaged tissues (particularly those within critical organs). DMSO (especially with another medication) was shown to cause stem cells to differentiate into heart cells.
 - When heart cells were exposed to low concentrations of DMSO (less than 0.5%), their respiratory control ratio and cellular viability relative to the control cells were enhanced (whereas at 3.7%, DMSO became harmful to them).
- DMSO was found to prevent heart damage caused by dietary copper deficiency.
- DMSO can also increase or decrease the force of heart contractions (e.g., a 70 mM DMSO concentration or less has a positive inotropic effect, while a higher one can do the opposite or create a mild hyperpolarization that prolongs the action potential) in a manner independent of beta-adrenergic receptors, and does not alter cardiac rhythm.

Intestines and Stomach

Most of the research I know that has been done in the gastrointestinal tract was for using DMSO to heal irritation, inflammation, and bleeding of the gastrointestinal tract (with the only exception I know of being a study that showed DMSO increased the stomach's sensitivity to vagal stimulation). For example, in a previous article, I mentioned that my colleagues use DMSO for irritable bowel syndrome and cited a 1968 patent that stated DMSO had helped a significant number of people with acute or chronic gastritis, peptic ulcers, enterocolitis, and mucomembranous colitis). The other gastrointestinal studies are as follows:

- A double-blind, randomized study evaluated patients with recurrent attacks of proctosigmoidal ulcerative colitis that were not being prevented by their prophylactic medical regimen, three different combinations of standard therapies, or a standard therapy with DMSO (46) or allopurinol (45). After two weeks, 51% recovered from a standard regimen (sulfasalazine or prednisolone), while 84% of those using DMSO or allopurinol recovered. Over the next year, those treatments were continued and it was observed that the standard treatment (sulfasalazine) had a 25% relapse rate, whereas that rate was only 5% of those taking DMSO or allopurinol.
- A study evaluated hospitalized patients with pelvic fractures or hypovolemic shock who were at risk for a stress induced gastric ulcer. Of the 58 controls, 22% developed one, whereas of the 57 receiving DMSO, only 4% did (along with 3% of 62 who received allopurinol). Additionally, none of those receiving DMSO deteriorated or required emergency surgery, whereas 8 controls and 1 allopurinol recipient did (of whom 3 then died).
- A study randomized 302 consecutive patients with previous symptomatic duodenal ulceration that was shown to have healed, and who were smokers and social drinkers, to receive four different treatments. Of the 220 available for evaluation, 65% who received a placebo had a recurrence of the ulcer, 30% of those who received cimetidine, 12% of those who received allopurinol, and 13% of those who received oral DMSO.
- A randomized double-blind study of 363 consecutive patients whose duodenal ulcers that did not heal despite 3 months of treatment with cimetidine (and who were cigarette smokers or social drinkers), were given either cimetidine twice a day alone or with DMSO or allopurinol. In 315 patients who were evaluable for analysis, at 8 weeks, 60% of those who had cimetidine recovered, whereas 100% of those who received DMSO or allopurinol recovered. Additionally, the one year relapse rate was 29% for cimetidine alone, 8% for those who took allopurinol, and 7% in those who took DMSO.
- A randomized double-blind study took 238 patients with symptomatic acute duodenal ulceration who were smokers and social drinkers were randomized to receive for 8 weeks cimetidine or 8 weeks of a half dose of cimetidine plus oral DMSO (400mg two times a day) or allopurinol. After 8 weeks, 69 of the 87 (79%) who only received cimetidine recovered, whereas all of the 85 who received DMSO and 84 who received allopurinol did. Additionally, 67% of those who received cimetidine over the next year relapsed, compared to 6% of those who took DMSO and 5% of those who took cimetidine.
- A randomized study took 101 patients presenting with hematemesis (coughing up blood) due to erosive gastritis (a fairly dangerous condition). It gave them either saline or oral allopurinol and DMSO orally every 6 hours for 5 days. Of the 50 controls and 48 who were treated (along with 2 who left because they could not tolerate the treatment), 29% of the controls and 8% of who were treated had further episodes of hematemesis (with three of the controls requiring subsequent surgery—one of whom died). Of those who remained stable, a subsequent endoscopy showed evidence of hemorrhagic inflammation in 44% of controls and 9% of those who treated

Note: the six previously listed studies were conducted in Iraq between 1990-1994. What many don't know is that prior to the harsh economic sanctions on Iraq and subsequent bombing campaigns, the country was regionally recognized for its robust medical system (which then collapsed), a situation almost identical to what happened to Libya's healthcare system after NATO toppled its government.

- Another author reported on a doctor who had 5 patients with recurrent duodenal ulcers and were social drinkers he gave DMSO to. They were examined once a month for a year, and all 5 had no recurrence of ulcer symptoms (along with having better health than expected and excellent attendance at work). He also highlighted the case of a 55 year old woman with severe digestive tract (e.g., internal bleeding leading to her being anemic with a hemoglobin of 5.0), weakness, fainting and shortness of breath. After receiving an emergent blood transfusion and being diagnosed with angiodysplasia in her GI tract, she was started on IV iron (which is not pleasant and did not help her causing her to progress to being terminal). She was then started on injected DMSO and B-12, recovered, and over the six years of follow-up, did not require any subsequent blood transfusions.

Note: this type of chronic internal bleeding is quite challenging to treat (e.g., the only other approach I know of that consistently helps here is a Chinese herbal formula).

- Cutting off the blood supply to the small intestine will rapidly cause the tissue there to die and often rupture (leading to fatal peritonitis). In rats, giving IV DMSO to rats after 30-60 minutes of the intestinal blood supply being cut off, resulted in 28 out of 29 not developing gangrene, and within 24 hours, there was no evidence of ischemic damage to the intestines.

Liver and Gallbladder

Many different facets of DMSO's interactions with the liver, gallbladder, and biliary system have also been researched:

Liver Injury

- A rabbit study, found that DMSO reduced ischemia-reperfusion injuries to the liver that resulted from clamping its artery.
- A rabbit study found DMSO reduced the injury to the liver that resulted from clamping its portal vein.
- In rats, drinking 2 mL/kg of DMSO daily for 4 weeks was seen to prevent dimethylnitrosamine induced liver damage without any major side effects. Specifically, it prevented body and liver weight loss and the induction of hepatic fibrosis and the expression of mRNA for type-1 collagen in the liver. Additionally, DMSO was also found to inhibit LPS induced TNF-alpha and nitric oxide production (e.g., TNF-alpha mRNA levels were reduced).
- A rat study found DMSO inhibited liver necrosis and oxidative stress triggered by injecting D-Galactosamine and restored liver vitamin C levels.
- A rabbit study found that DMSO and tocopherol prevented the liver damage caused by injecting carbon tetrachloride.
- A Brazilian study found that DMSO reduced the oxidative stress that followed part of the liver being surgically removed.
- A study found giving DMSO to rats 10 hours after they were exposed to halothane (an inhaled anesthetic that was phased out of the richer nations due to its toxicity profile), chloroform, or

bromobenzene and was found to prevent liver damage these toxicants typically cause. Additionally, they also found DMSO prevented chloroform's **kidney toxicity** (renal tubular necrosis) and that none of these benefits resulted when DMSO's metabolite dimethyl sulfide was given instead. A followup study instead gave DMSO 24 hours later found DMSO reduced the resulting liver damage 4-fold (which without treatment within 48 hours would have occupied 40-50% of the liver) and ALT levels 8-16 fold.

Liver Failure

- This author reported on a study with 12 patients who had terminal liver cirrhosis who agreed to stop drinking all alcohol for the duration of the program and were put on daily oral DMSO and aloe vera. Of the 8 who chose to continue the program for 6 months, **all had improved health, significantly reduced vomiting, and improved liver function tests, and rather than all being dead within one year as expected, they were in better condition than they had been at the start of the study.**

Note: if using DMSO for cirrhosis, it is critical to stop consuming alcohol, as DMSO can slow the metabolism of alcohol.

Gallstones and Jaundice:

- A rat study created obstructive jaundice by ligating (cutting off) the common bile ducts and found that DMSO mitigated the pathologic effects of this (e.g., it normalized laboratory values).
- A Japanese study found that injecting 90% DMSO mixed with 5% hexametaphosphate into the biliary tract effectively dissolved gallstones within the liver and was safe for the patients.
- One study injected DMSO directly into the biliary tree of mice (as sludging of bile in this region can lead to challenging gallstones). That study found that 50% DMSO caused no irritation, but 65% did (e.g., liver enzymes were elevated and necrosis, inflammation and fibrosis were observed). However, the irritation caused by 65% was transient and the rest of the bowel was not affected. Given that direct injections of 50% DMSO caused no issues and typically much lower concentrations of DMSO will contact the bile tract, this suggests DMSO is safe to administer to the biliary tract.

Note: the purpose of this study was to determine if they were harmless agents which could be used to develop treatments for biliary disease (something which can often be quite challenging to deal with).

Lungs

DMSO protects the lungs from injuries and also helps with a few challenging conditions.

Lung Injuries

- DMSO was found to prevent ischemia-reperfusion injuries to the lungs.
- In rats, DMSO was found to prevent lung injury from hemorrhagic shock (significant blood loss) and transfusing lost fluids back into the circulation.
- Giving DMSO before alloxan (a toxin) was found to prevent the inflammation, cellular damage, and edema alloxan causes in the lungs.

Note: this study also found DMSO prevents acute pulmonary edema.

- DMSO was found to prevent the oxygen deprivation and inability to exchange gasses through the lungs which results from an Ehrlichia ruminantium infection (which is typically fatal).
- In rats, DMSO was found to prevent the significant inflammation and tissue injury which follows a significant traumatic impact to the lung.
- After sheep experienced a lung injury from inhaling smoke, nebulized DMSO (with heparin) was found to reduce the damage to their lungs significantly.

Note: as I have shown in this section, studies exist that show that nebulizing DMSO can be quite beneficial to the lungs. In contrast, a rabbit study found that inhaling 25-50 ml/hr of DMSO for an hour each day for 8 weeks caused pathologic changes in the liver and lungs. While this was a high dose, nebulizing DMSO has nonetheless been advised against in the DMSO field (which I believe was due to that rabbit study). The best conclusion I can draw from these conflicting data points is that DMSO should only be used for acute injuries in the lungs but not chronically nebulized.

Acute Respiratory Distress Syndrome (ARDS)

ARDS is quite challenging to treat (and a common reason people end up on ventilators), so DMSO's potential to help the condition is quite noteworthy:

- In hamsters, an inflammatory peptide was put into the airway to trigger ARDS (a severe lung condition that often results in ventilation). When DMSO was subsequently given, it was found to reduce the inflammation and fluid in the lungs significantly.
- A similar mouse ARDS study that used bacterial LPS to injure the lungs also found DMSO reduced lung inflammation and fluid leak along with damage to the lining of the lungs.
- A third mouse study found that DMSO prevented LPS damage to the lungs, kept all treated mice from dying (whereas 58% of controls died), and maintained the ability of the lungs to produce ATP.

Note: a few studies have found that DMSO makes a part of the mitochondria able to synthesize ATP (the source of cellular energy) without the rest of the mitochondria being present. This, in turn, hints at the possibility DMSO can allow compromised cells to continue producing ATP (and thereby play a role in preventing cell death).

In the one human study where DMSO was used for ARDS (given intravenously at concentrations under 10%) it was found to produce a dramatic improvement in all three patients who received it (e.g., one patient's lungs were completely normal after a week) and prior to receiving DMSO all three were near death. Additionally, in the one case when DMSO was nebulized, the improvement occurred in 1 hour.

TABLE 1

Patient		pH	paCO ₂	paO ₂	HCO ₃ ⁻	% O ₂ Sat.
1	pre-DMSO	7.37	50	60	29	89.0
	1 h post-DMSO	7.35	43*	91*	26	95.0*
2	pre-DMSO	7.36	51	58	29	87.6
	8-h post-DMSO	7.33	52	86*	27	94.5*
	5 days into therapy	7.37	34*	84*	19	94.5*

3	pre-DMSO	7.32	48	66	24	89.9
	8-h post-DMSO	7.27	45	95*	20	94.9*

*Asterisks used for emphasis.

Note: another study found that DMSO reduced immune cell infiltration of a lung infection, which can both be beneficial (as it explains how DMSO prevents the immune system from attacking the lungs), but also problematic as it loses the ability to fight off a significant infection. That study, hence suggests that DMSO should never be used alone as a treatment for bacterial pneumonia (whereas later in this series I will discuss how DMSO can increase the potency of antibiotics).

Chronic Lung Diseases

DMSO was found to reduce chronic pulmonary fibrosis, and this beneficial effect was increased when it was mixed with zinc.

For older patients with chronic respiratory insufficiency (leading to chronically low blood oxygen levels, elevated carbon dioxide levels and an abnormal acid base balance, especially during exercises) due to issues in the lungs or bronchi, daily intramuscular DMSO was found to bring about a recovery without the need for hospitalization in 35/43 (81%).

Note: DMSO has also been shown to treat asthma.

Pancreas

DMSO also shows promise for diabetes and pancreatitis.

Diabetes

Some Type 1 and Type 2 diabetics have reported that DMSO reduces (but does not eliminate) their need for insulin and that DMSO is particularly helpful for the condition since it can also alleviate the pain from diabetic peripheral neuropathy. Studies in this area include:

- Alloxan is toxic to the insulin producing cells of the pancreas and can be used to induce diabetes. A 1977 study found that if DMSO was injected prior to administering alloxan, they did not develop diabetes (although a higher dose of alloxan caused the dose of DMSO only to provide partial protection against diabetes).
- Type 1 diabetes results from the immune system attacking the insulin secreting cells of the pancreas. One strategy for treating type 1 diabetes is to transplant healthy insulin secreting cells into the pancreas. Unfortunately, this strategy often fails because the immune system will attack the transplanted cells too. However, in a mouse study, DMSO was found to protect those transplanted cells by decreasing IFN- γ expression and the number of dendritic, CD8, and Th1 immune cells while increasing Treg cell differentiation—all of which showed DMSO prevents suppresses spontaneous diabetes and autoimmune recurrence of type 1 diabetes.

Note: while type 2 diabetes (the more common form) is not considered to be autoimmune in nature, we have seen many compelling cases suggesting that autoimmunity plays a role in it as well.

- GLP-1 is a key hormone the body uses to regulate satiety and blood sugar (and which diabetes drugs

like Ozempic mimic). One study found that 0.5-2.5% DMSO increased GLP-1's production of insulin by 2-2.5 times more times. The study's findings suggest DMSO could help treat diabetes or allow GLP-1 users to use a lower dose of the medication.

- Exposing insulin secreting cells to DMSO was found to enhance glucose-induced and tolbutamide-stimulated insulin secretion without significant effects on basal secretion or potassium responsiveness. Conversely, another study found that at high doses, DMSO would inhibit insulin secretion (however that inhibitory dose is much higher than a DMSO user's pancreas would ever be exposed to).

Pancreatitis

Another condition, pancreatitis is often quite challenging and dangerous (as there are no conventional treatments for it outside of cases where an obstruction causes it—rather hospitals can only support the patient until they recover). Fortunately, DMSO (and ultraviolet blood irradiation) have been shown to be quite effective for treating it. For example:

- After inducing pancreatitis in rats, DMSO was found to improve pancreatic microcirculation and reduce ICAM-1 expression (a key part of the disease process) and subsequent leukocyte adhesion.
- Another mouse study found DMSO significantly reduced the pancreatic edema resulting from dietary induced pancreatitis.
- A rat study found DMSO protected the pancreas from cerulein induced pancreatitis (e.g., through inhibiting lipid peroxidation in pancreatic tissue, reducing pancreatic edema, reducing how many digestive enzymes leave the pancreas and reducing the pathologic vacuolization of the pancreas's acinar cells).
- A randomized double-blind trial took 78 patients with chronic recurring pancreatitis (and no other confounding gastrointestinal disorders) who presented within 2 hours with signs of pancreatitis but did not have signs of generalized peritonitis. Of them, 26 received 10% DMSO rectally, and at least 57% were free of pain after 12 hours (compared to 17% of controls), and all were free of pain after 24 hours (whereas 48% of controls were still in pain. As a result, all DMSO subjects were discharged within 3 days, whereas only 22% of controls were discharged after 5 days of hospitalization.

Note: one German author advocates combining IV DMSO with chlorine dioxide (given at a much slower drop rate) for pancreatitis.

Kidneys

Many different facets of DMSO's interactions with the kidneys have been researched:

Safety

- A rabbit study found that rabbit kidneys perfused for 60 min with DMSO was unaffected by 1.4M (10.8%) DMSO, but higher concentrations (2.1 and 2.8 M) produced appreciable toxic effects to the kidneys.

A study of paraplegics found that IV DMSO caused no alteration of urinary function or urinary sediment (other than a transient increase in blood cells if osmotic hemolysis occurred from too high of

an IV DMSO concentration).

- This study of 7 people found 10-40% IV DMSO caused no acute toxicity to the kidneys.
- A dog study found that in dogs with chronic kidney disease, unless they had stage 4 CKD, DMSO had no adverse effects, and in less severe cases, some improvements were observed.

Note: DMSO often functions as a potent diuretic (although the effects are highly concentration dependent). For example, one dog study found after 1 hour 40% IV DMSO caused a fivefold increase in urination, a rat study found giving it topically five times a day increased urine volume 10-fold, and human study also found 40% IV DMSO caused significant urination. Conversely, this diuretic function is often extremely helpful (e.g., it will take excessive fluid outside of regions it has leaked into) and accounts for some of the significant benefits seen from DMSO.

Ischemia-Reperfusion Injuries

- In a rat study, renal ischemia was induced by cutting off the blood supply to the kidney for 1 hour, after which, DMSO or saline was given intravenously. All the saline treated rats had significantly worsened kidney function and died within seven days, while all the DMSO treated rats survived and had near normal kidney function. A similar experiment was then done in dogs, where DMSO again preserved a near normal kidney function (whereas in the saline treated dogs, 1 died and 4 had transient renal failure).
- Another rat study also found DMSO prevented ischemia-reperfusion injuries.
- A nuclear magnetic resonance imaging study of rat kidneys (a method which makes it possible to detect minute and otherwise invisible changes) found that DMSO protected the kidneys from the damage that occurred when their access to oxygen was cut off, but it did not prevent the transient drop in kidney function which occurred during this period.

Toxic and Dietary Injuries

- A mouse study found if DMSO was given within 3 hours of injecting mercury subcutaneously, it prevented the kidney damage which typically resulted over the next two days (however at 5 hours it was too late). Additionally, the results suggested this protection was not due to DMSO chelating mercury.
- A rat study found DMSO prevented the kidney damage caused by gentamycin, and that (like the previous mouse study) it also restored the levels of GSH and SOD enzyme activity to near normal.
- DMSO was found to protect rats from radiation induced kidney damage.
- In rats with dietary copper deficiencies, DMSO was found to attenuate the increase in blood urea nitrogen and significantly decrease in gamma glutamyl transferase caused by the copper deficiency.

Kidney Function

- When kidney tissues were frozen, DMSO was found to greatly increase the conductivity of the tissue.
- DMSO was found to increase rabbit kidney's flow rate and changed the GFR, but did not change Na^+ reabsorption or fractional water excretion, leading the investigators to conclude DMSO may shift the regulation of urine flow rate from tubular reabsorption.

- Many studies and case reports (listed in [this article](#)) have found that DMSO improves renal function in patients with amyloidosis. For example, [this study](#) of 15 patients with amyloid A amyloidosis resulting from autoimmune conditions improved the kidney function in 5 out of 10 renal amyloidosis patients but could not help severe cases, while [this study](#) of two people with renal failure found both had a dramatic improvement from DMSO.

- DMSO was also found to inhibit the kidney's $\text{Na}^+\text{-K}^+\text{-ATPase}$ pump in a comparable degree to Ouabain or atrial natriuretic peptides (ANP), but did so in a manner independent from how either functioned.

Note: Ouabain or its derivatives are often used in integrative cardiology, while ANP is a naturally occurring hormone that protects both the heart and kidneys.

A rabbit study found DMSO caused an increase in filtration fraction, and at high concentrations, a decrease in renal blood flow and urine volume.

- Exposing kidney cells to 10-20% DMSO was found to increase their metabolism, while higher concentrations (which are never used in humans) was found to be toxic to the kidneys.

Autoimmune Diseases

- Many kidney autoimmune diseases result from immune deposits in the kidneys (one of which is Heymann nephritis, an experimentally induced form of nephritis where antibodies that target the kidneys are injected causing immune deposits on the glomerular walls). In a rat study of Heymann nephritis, DMSO was found to reduce protein leaking into the urine, suggesting it prevents autoimmune kidney damage. Another rat study (which was more detailed) also had similar results, as did a third rat study.

- A study of 56 DMSO treated rats (and 48 controls) with lupus nephritis found that those who received DMSO had nearly normal kidneys, whereas the controls had significant damage to their kidneys.

Kidney Stones

- A study of 6 patients with kidney stones (5 of which were confirmed by ultrasound) found IV DMSO resolved the condition in 2-3 treatments (although one patient had a complete resolution after a single infusion).

Note: I located a rat study which I believe found similar results, but I could not find the actual study to verify this.

A 1967 study fed rats a diet designed to create kidney stones, and found that after two months, 40 of the 45 water-drinking rats had developed stones in the kidney, bladder or ureter, while only 11 of the 46 DMSO group did.

Note: the author of that study later conducted another study that strongly suggested DMSO eliminated kidney stones by improving their colloidal dispersion (zeta potential). We in turn, have had a great deal of success treating kidney stones by improving the physiologic zeta potential.

Genitourinary Disorders

In a [previous article](#), I presented a wealth of evidence that DMSO (either consumed orally or directly administered into the bladder) with a catheter is often extremely helpful for inflammation of the bladder, particularly “interstitial cystitis” (also known as painful bladder syndrome), a challenging condition which results in very frequent, painful (and often bloody) urination. DMSO, however can also help many other parts of the urinary tract. For example, consider [this 1967 study](#):

TABLE 1
TOPICAL THERAPY WITH DMSO IN VARIOUS GENITOURINARY DISORDERS

Disease Entity	No Pts Treated	No Pts Improved
Peyronie’s disease	13	6
Interstitial cystitis	15	2*
Epididymitis	12	7
Herpes progenitalis	5	2
Polycystic kidneys	2	2
Incisional pain, flank	3	3
Vague genital pain	14	1

***Intravesical instillation of definite value in some pts, not responding to topical therapy.**

Interstitial cystitis requires oral or intravesical DMSO administration.

Likewise, [a study](#) (which can be viewed [here](#)) of inflammatory conditions of the urinary tract, in addition to showing significant benefit for interstitial cystitis, also found:

- Of the 12 patients with radiation cystitis (e.g., from prostate cancer therapy) 50% had a positive response to it (3 “excellent,” 2 “good” and 1 “fair”).
- Of the 35 patients with chronic prostatitis, 75% benefited significantly, with 12 having a “excellent” response, 14 a “good” response, and in 90% of cases, inflammation of the prostatic urethra improved. [Another study](#) gave 4 men with chronic excessive (and untreatable) urination due to either chronic prostatitis, chronic cystitis, tuberculous contracted bladder and interstitial cystitis DMSO. Three of the four had an excellent response to treatment, with the one non-responder having an unclear disease process (the doctors’ best guess was that it was chronic cystitis).
- Finally, [a Polish study](#) found urethral syndrome (chronic irritation of the urethra without signs of an infection) responds to DMSO being put into the urethral tract.

There are also many anecdotal reports of DMSO being remarkably helpful for these conditions (e.g., [one author shared](#) that DMSO made it possible for men to resume sexual intercourse where previously pain or urethral blockage made it impossible).

Note: in [a previous part of this series](#), I provided evidence that DMSO can treat Peyronie’s disease, an unfortunate contractile condition that causes a gradual curvature of the penis and significant pain during intercourse.

However, most of the anecdotal reports for DMSO's use for the urinary tract are in regards to it helping the prostate. For example, Stanley Jacob MD (the pioneer of DMSO) would recommend DMSO for enlarged prostates that were making it difficult to urinate (which as one man shares allowed him to be able to sleep through the night), Pierre Kory recently shared a case of it curing a patient's prostatitis, this reader found it helped prostate pain, and this reader found it helped difficulty urinating from an enlarged prostate). However, the most compelling account I heard came from this physician with extensive experience using DMSO:

DmsO is indeed marvelous. We gave 50 grams of DmsO i.v. daily for five months to a person who severed her lumbar spinal column. No organ damage noted from the DmsO and she can now drive and walk albeit slowly. Approximately forty (out of forty) patients with confirmed bacterial prostatitis have eliminated the bacteria in their prostate with a single dose of antibiotic dissolved in DmsO administrated via catheter three times a week for 4 weeks. No recurrences.

Note: Jacob also shared with an author that a physician in Texas some years earlier had reported injecting DMSO plus progesterone into enlarged prostates and that biopsies, examined under the microscope, indicated a return toward normal (which seems plausible as like DMSO, progesterone has been reported to shrink enlarged prostates).

Ovaries and Uterus

A few studies also show DMSO can help the reproductive tract:

- A rat study found that DMSO plus erythropoietin protected the ovaries from ischemia-reperfusion injuries.
- A 1975 Chilean study at a Navy hospital took 69 women who were infertile due to an obstruction in their fallopian tubes and injected a DMSO mixture into their fallopian tubes via ascendent hydrotubation (the specific mixture was 5ml of DMSO, dexamethasone, and chlorpheniramine diluted in 20 ml of distilled water). A series of 6 DMSO hydrotubations was given (every 3 days) followed by temporary breaks of varying lengths, and then an evaluation to determine if the tubes had opened. Once the tubes were opened, the patient was instructed to lead a normal sex life, and then repeat the hydrotubations if they had not gotten pregnant.

The authors reported carrying out a total of 426 DMSO hydrotubations in 69 patients, of whom 47 were available for analysis at the time the article was published. Of those 47, 27 (57.4%) subsequently became pregnant, including one who got pregnant twice (without any further assistance). Of the 27 pregnancies, 12 resulted in successful deliveries, 7 had a normal pregnancy at the time of publication, 4 patients chose to have abortions, and 3 had spontaneous abortions, and 1 had an abnormal pregnancy requiring a surgical intervention, and 0 had ectopic pregnancies (one of the risks of surgically opening the fallopian tubes). Additionally, in the 426 DMSO hydrotubations, 4 experienced discomfort and fatigue during the procedure, and 2 had psychiatric changes (in one case a sensation of anguish with difficulty breathing and in the other hypothyroidism and psychomotor agitation). These rare side effects (occurring in 1.5% of intubations) did not require suspending the treatment, and did not increase

overtime.

Note: 25-35% of infertility is due to tubal obstructions (typically from inflammation there). The current surgical approach for opening a tubal obstruction and restoring fertility (which bears some risks) has a 10-30% success rate (figures on this vary widely, but are almost always under 50%).

- This horse study and this horse study) found that applying DMSO directly into the uterus does not harm its lining (the endometrium).

Note: there are many studies showing DMSO prefers the function and structure of tissues that get frozen (e.g., this one of a horse's uterine lining).

- One study administered 10-30% DMSO into the uteruses of horses that could not get pregnant. It found no harm occurred to the lining of the uterus and that 18 out of 27 had significant improvement to the lining of their uterus (compared to 2 out of 18 who received a saline placebo), such as a reduction of chronic inflammatory cell infiltrates and reduction of periglandular fibrosis. Additionally, there were signs their fertility improved, but the trial's design made it impossible to be sure this improvement occurred.

Note: these results suggest administering DMSO directly into the uterus could help a few challenging gynecologic conditions, but I do not know of anyone who has tried this approach.

A New Therapeutic Principle

When DMSO was discovered, Stanley Jacob quickly realized that it represented a new therapeutic principle since it made so many things which had previously seemed impossible in medicine suddenly possible—and even more remarkably, 60 years later, many of the things DMSO can address still remain a perpetual challenge for the current medical paradigm. As such, I find it remarkable that in the brief time DMSO was in widespread use and being researched worldwide, so many different uses for it that are still just as applicable today were discovered.

For example, much in the same way I recently showed how DMSO could significantly improve surgical outcomes, the data here makes good case that DMSO should be a mainstay therapy whenever someone is at risk of organ failure from being poisoned (e.g., due to a drug overdose). Likewise, the data here shows how numerous immensely challenging diseases that require a hospital or intensive care admission could be dramatically improved with DMSO.

However, while this stonewalling is immensely unfortunate, I am extremely hopeful that we will soon see a paradigm shift on this issues as:

- Much of the public (and much of the medical profession) has lost faith in the medical orthodoxy's verdict on what does and does not work.
- Twitter (X) now allows the rapid diffusion of information, making it impossible to censor the medical truths the public is craving.
- The incoming administration (particularly RFK Jr.) are strongly committed to this issue.



Robert F. Kennedy Jr.  
@RobertKennedyJr

...

FDA's war on public health is about to end. This includes its aggressive suppression of psychedelics, peptides, stem cells, raw milk, hyperbaric therapies, chelating compounds, ivermectin, hydroxychloroquine, vitamins, clean foods, sunshine, exercise, nutraceuticals and anything else that advances human health and can't be patented by Pharma. If you work for the FDA and are part of this corrupt system, I have two messages for you: 1. Preserve your records, and 2. Pack your bags.

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As such, my goal is now transitioning to trying to support this paradigm shift.

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Protocols

In the final part of this article, I will discuss how DMSO can be used to treat the conditions listed throughout this article (e.g., cirrhosis, prostate enlargement, GI ulcers, ulcerative colitis), along with a few other integrative approaches we use for those conditions (e.g., for ARDS, heart attacks, gallstones, gastric bleeds, and smoke inhalation). Additionally, I will also provide a revised set of simplified instructions for the product sourcing and general use of DMSO (as I've received a lot of useful feedback over the last few weeks that has provided some important hints for ensuring safety).

Specific Conditions

ARDS: during COVID, we discovered the type of lung damage and respiratory distress it frequently caused (that often put patients on ventilators) responded remarkably well to exosomes, and saw numerous causes of it immediately improve from a single exosome infusion. Fortunately, DMSO is much cheaper than exosomes. Likewise, one's survival with ARDS while on a ventilator is highly dependent upon the skill of the doctor, so it's essential the right person is doing that (and I believe one of the reasons there were so many ventilator deaths during COVID-19 was because there weren't enough well-trained doctors to properly supervise the ventilators in the hard-hit areas).

Cirrhosis: there are a few different schools of thought on this one. Some believe that DMSO is best consumed orally (e.g., in the successful cirrhosis study I mentioned above, they were given one teaspoonful of [presumably 100%] DMSO in one ounce of aloe vera juice two times a day for a period of six months). Alternatively, others believe you want to avoid taking DMSO orally for liver diseases since things you consume orally typically have to pass through the liver's portal system before

entering the bloodstream, and hence advise using IV or topical DMSO for cirrhosis. In practice, we find certain things work much better for the body if they bypass the portal system (e.g., we prefer topical estrogen and progesterone to ingested forms). However, I'm not actually sure if this is applicable here (e.g., oral DMSO may still bypass the portal system). Like many other conditions, it's best to start at a low dose and gradually build up as appropriate (e.g., for cirrhosis start at 0.1 gram of DMSO per kilogram of body weight).

Gallstones: there are a lot of approaches to gallstones, but the simplest ones I've seen work was to take taurine (a common supplement) regularly as this aids the body in dissolving them.

Gastric or Intestinal Bleeding: there is a well-known Chinese herbal formula (Yunnan Baiyao) that is incredibly effective for stopping bleeding (in a future article I will share some of the remarkable stories we have about it). Early in my career, I had a friend who had chronic gastrointestinal bleeding (which led to them requiring iron infusions and frequently becoming deathly anemic). Knowing what Yunnan Baiyao could do, I suggested it and got my friend their life back. Since that time, I've researched the herb and found out it works for these types of situations.

Heart Attacks: there are a lot of approaches I have learned over the years for treating heart attacks (e.g., quite a few people have had luck with drinking Cayenne pepper solutions). Within the scope of what I've discussed so far here, DMSO can often help (drink it on the spot and apply it over the heart), but we've also seen heart attacks resolve on their own by having someone drink a properly diluted zeta aid mixture.

Note: you want to get emergency help as soon as possible here and not do anything to delay it, but we have seen these therapies immediately end heart attacks—so exactly how you'd use them would very much depend on the situation and how far the heart attack had progressed.

Kidney Stones: I strongly suspect the value of DMSO will vary depending on the type of kidney stone present (which to the best of my knowledge was never researched). Typically, we address kidney stones by focusing on zeta potential (since kidney stones are simply the result of poor zeta potential causing their components to clump together). In less severe cases, kidney stones can be treated by drinking zeta aid and deionized water. In more serious cases, IV EDTA (at a low dose) is the most effective agent we have found for dissolving them.

Prostate Enlargement: We've found topically applying it to the perineum often works. Dr. Jacob however found a more invasive approach to be more effective.

Dr. Jacob tried DMSO with a series of prostate massages. The pressure disappeared. I no longer had to get up during the night; I sleep until six-thirty or seven-thirty in the morning without having to go to the lavatory I have no discomfort whatever. That was sixteen or seventeen months ago. I still get treated occasionally But that condition is under control.

Prostatitis: Patients with prostatitis often respond to other routes of DMSO. However, in the study I cited with the highest success rate, this was the approach they used (which was essentially an attempt to get DMSO more directly to the prostate).

Here, a Robinson catheter of 14-16 F was passed gently to the level of the membranous urethra, and

the medication was slowly instilled directly into the prostatic urethra and then into the bladder. In some cases the panendoscope was passed under direct vision to the level of the membranous urethra, and the medication instilled through the panendoscope directly into the prostatic fossa. In occasional patients with severe symptoms, this appeared to afford the greatest relief, although admittedly part of the good results could have been psychologic in nature.

Smoke Inhalation: While I do not have that much experience nebulizing DMSO for it, we have found that nebulized glutathione (discussed further [here](#)) is extremely helpful for individuals who have been injured by wildfire smoke.

Gastrointestinal disorders (e.g., ulcerative colitis or duodenal ulcers): In the studies I reference, the oral DMSO dose was 500mg of DMSO 4 times a day (which is approximately half a teaspoon of 100% DMSO four times a day).

Genitourinary disorders: in the studies I referenced, these were either treated with intravesical administrations or topical administration (of 50-100% DMSO) over the problem areas.

Sourcing DMSO:

There are a lot of options when purchasing DMSO. Of them, I've longed believe these are the three best brands (which I've included Amazon links to purchase them):

- Jacob Lab (e.g., [this gel](#) or [this liquid](#))—which is 99.98% pure.
- Nature's Gift (e.g., [this gel](#) or [this liquid](#))—which is 99.9% pure.
- The DMSO Store (e.g., [this gel](#) or [this liquid](#))—which is 99.995% pure.

Note: unless you feel confident you can dilute them correctly, get the 70% ones, since that concentration typically works for people.

When buying liquid DMSO, I believe it should always be sold in a glass container unless the plastic container is DMSO resistant (which many are not—hence why I only recommended buying glass bottles) and likewise have a DMSO resistant cap. If you buy gel, it's fine if it's sold in plastic.

Note: many people have used liquid DMSO from plastic containers without issue, but I have personally always avoided doing so because glass DMSO has always been affordable and easily available.

The unexpected problem I ran into was that many of the people who ordered glass DMSO from the links I recommended then informed me they had been shipped in plastic (which is likely either because those parties were resellers or because everyone ran out of glass bottles and the DMSO market is currently trying to rebuild that inventory).

Of the currently existing options, I believe the best choice is to either:

- Buy DMSO directly from the [DMSO store](#) (DMSOstore.com).

Note: the website DMSO.store is for a completely different company.

- Buy it directly from [Jacob lab](#) (which readers have informed me is also shipping DMSO in plastic they claim is DMSO resistant—which it likely is since Stanley Jacob worked with them for years).

DMSO dosing:

One of the things that's very challenging about using DMSO is that there is a significant amount of variation in what each individual will best respond to. Because of this, in the first and second parts of this series, I attempted to provide a very detailed explanation that could try to account for each possibility which may have been too complicated (but I would still advising reading).

So the major consideration is how strong of a dose you want to use. This is because if you use too high a dose, you risk the chance of having a bad reaction, which will make you not want to use DMSO anymore, whereas if you use too low of a dose, the effect will be much less than desired. In turn, I've had many people here who:

- Applied 100% DMSO topically and had trouble believing anyone couldn't tolerate that.

- Applied 70% DMSO topically, had a bit of irritation but thought it was manageable.

- Applies 30% topically and felt it was too strong.

Similarly with oral dosing, I've had people who:

- Thought 1 teaspoon was decent but quickly took more for a greater effect.

- Found a few drops was the optimal dose for them (and greatly benefitted) whereas 1 teaspoon while initially good, ended up feeling like it was too much for them.

Because of this, you essentially have two options, and have to decide which is right for you:

- Be patient and start with a low dose you build up.

- Start a strong dose and agree not to hold it against me or DMSO if you don't tolerate it.

In the previous articles, I advocated for the former. Still, many understandably started with a high dose as they did not want to wait for the results, a few of whom then shared they'd had a skin reaction that made them hesitant to continue using DMSO.

Similarly, when using DMSO, there are two common routes of application, orally and topically.

Orally, it is much stronger, but likewise, the GI tract is more sensitive to higher concentrations of DMSO. For this reason, I typically suggest starting with topical DMSO before doing oral DMSO.

Likewise, there is a very small risk (1 in 1-2000) of an allergic reaction, so it's generally advised to begin by patch testing DMSO on the skin before taking it orally.

So, What is Patch Testing?

Patch testing is a method used to determine how the application reacts to a product. It's a smart way to test a small area first before applying the product to larger areas, which helps to identify any adverse reactions.

HOW TO PATCH TEST:

- Select a Small Area:** Choose a discreet spot.
- Apply a Tiny Amount:** Use a small quantity of the product.
- Wait and Observe:** Leave it on for 24 hours unless you notice irritation sooner.
- Proceed if All's Good:** If there's no reaction, feel confident to use the product as intended!

**If in contact with the skin: Some experience itching and tingling sensations, which are normal. If there's any redness or swelling, wash the area immediately and discontinue use.*

That said for general DMSO use (without going into all the nuances and additional details), I advise the following:

1. Start with 30-50% DMSO and see how you tolerate it.
2. If you have no issue, raise it to 70%.
3. Only raise it past 70% if you are certain you are one of those people who is fine with 100% or you are using it for a specific application that can justify a higher concentration (e.g., a collagen contracture, a scar, an internal adhesion or an acute stroke).
4. Until you are comfortable with topical applications, don't do oral applications, and only if you think you need them.
5. For oral dosing, start with a teaspoon of 70% or 100% DMSO mixed into a glass of water (you may also want juice or milk to eliminate DMSO's taste).
6. If you have issues with that, lower the dose to half a teaspoon and then to a quarter teaspoon.
7. Otherwise, stay at a teaspoon for at least three days, and then if you think you need a stronger effect, go to 2 teaspoons.
8. More than 3 teaspoons in a glass of water is excessive, and at that point, you are better off dividing the dose throughout the day.
9. With both topical and oral DMSO, people generally find that as time goes on, their tolerance to it improves. Conversely, if it's used too frequently, a tolerance can develop, so it's generally advised to not have it 1-2 days a week.

Note: more detailed instructions on oral (and IV) DMSO use can be found [here](#), while more detailed instructions on topical uses can be found [here](#).

Regarding the concentrations used, I generally advise buying 70% DMSO because people rarely react to it (e.g., the DMSO felt it was the concentration that had the best balance between safety and efficacy). It doesn't require any significant calculations to dose appropriately (e.g., you can apply it topically as it is, or mix it with equal parts of purified water to get it to roughly 35%). However, you

can also buy 100% DMSO, which is more expensive, but if you want to use 100% DMSO, you can

can also do all of that with 100% DMSO (e.g., dilute it to roughly 50% rather than 33% by mixing it with equal parts of purified water or to roughly 33% by mixing it with two parts of purified water). Finally, certain parts of the body, **particularly the face**, tend to be more sensitive to higher concentrations of DMSO, so you should start at lower strengths in those areas.

Additionally, the one tricky thing about dosing DMSO is that it weighs slightly more than water (1ml of DMSO is 1.1004 grams). Since there is a fairly wide range of tolerability to DMSO, I've bypassed that issue here by treating it as having the same density as water and suggesting a slightly lower oral dose.

Note: when DMSO is taken by mouth, the total concentration should always be kept to 20% or less, and ideally, it should be taken slowly after eating a meal.

When applying DMSO topically, there are two options. The first is to use a liquid that you directly apply (e.g., I like to use natural hair paintbrushes to dab it on, but sometimes when needed I just dip my finger in it and then rub it onto the target area). The second is to use a gel which is rubbed into the skin.

When applying DMSO to the body, it is important to clean the area it will be applied to beforehand, and to ensure DMSO dries before putting anything in contact with it. This is because DMSO will pull things on the surface of the skin into the body, and if a toxic chemical is on the skin, it hence will be dragged into the body. This is very rare, but there are known instances of this happening and harming the individual.

I personally prefer the liquids because it's easier to control the total dose with them, more gets into the body, and liquid DMSO tends to be less irritating. **That said, gels hold the advantage of continually releasing DMSO into the body over a prolonged period and are much easier to apply. Because of this, whichever one you use is largely a question of personal preference.**

In most cases, if an area bothers you, you are better off applying DMSO to that area (provided there is no open wound), but if the issue feels systemic, you may also need to take oral DMSO.

Note: for many of the conditions described here (e.g., interstitial cystitis) even though DMSO was primarily given through catheters that emptied it into the bladder, many clinicians have found it works just as effectively when taken orally (and did not subject the patient who were already so irritated they could not tolerate a catheter going in).

Conclusion

I hope you have appreciated this series so far. I have put a lot of work into it, and based on all the reports I've been coming across (from both readers and colleagues), it seems to be doing much more for the world than I ever expected it could. Fortunately (for me) we're at last over halfway through it. For those of you who are wondering, the **remaining parts of this series will be:**

- How DMSO can be used for challenging diseases of the skin and the related issues like hairloss.
- How DMSO transforms the treatment of cancer and infectious diseases.
- How DMSO can be mixed with a variety of other therapeutics.

•How DMSO can be mixed with a variety of other therapeutics.

- A summary of all the reader DMSO feedback I've received.

- A summary of this entire series.

The FDA's War Against DMSO and America MidWestern

Over the last month, I have been diligently working to alert the public to the decades of evidence demonstrating the remarkable therapeutic potential of DMSO. In turn, quite a few of my colleagues have shared patients are now asking them about DMSO, and a few are shifting their practice to focus on it (e.g., [Pierre Kory](#) has done so and is already having numerous amazing results).

Likewise, I've now received hundreds (often unbelievable) reports of it it being life changing for people (which can be read [here](#)), and it now seems there is a temporary supply shortage of DMSO because so many people (and their friends) have been [buying the brands I recommended](#).

For those who have not read the series, thus far I have made the case that:

- DMSO treats many circulatory and neurological disorders (e.g., Reynaud's and varicose veins) and profoundly transforms the outcomes of some of the most challenging conditions in medicine (e.g., strokes and spinal cord injuries)—to the point millions would have been spared from a life of disability or paralysis had it been adopted (discussed [here](#)).
- DMSO is a miraculous therapy for chronic pain, wounds (e.g., burns or surgical incisions), injuries (e.g., sports injuries) and all types of chronic pain (discussed [here](#)).
- DMSO is highly effective for treating a variety of challenging autoimmune disorders (discussed [here](#)).
- DMSO is highly effective for treating a variety of connective tissue issues such as scars and adhesions, collagen contractures, scleroderma, FOP (discussed [here](#)).
- DMSO is able to treat a variety of protein misfolding diseases (e.g., amyloidosis) including genetic disorders (e.g., Down Syndrome) which are classically considered to untreatable (discussed [here](#)).
- [DMSO is incredibly safe](#), having only a limited number of known and manageable side effects alongside no risk of toxicity or death (provided it is used appropriately).
- There are thousands of studies that demonstrate both the safety and efficacy of DMSO (making it one of the most researched medical substances in history).

In contrast, most of the previously mentioned diseases have lackluster conventional options available for treating them, many of which are highly toxic, kill tens of thousands of Americans each year and simultaneously cause far more non-fatal injuries. Worse still, many of them simply are “untreatable” and have no option for what can be done with them.

In short, if what I've said so far is true, the fact that DMSO has been kept from us is so egregious, it's understandably hard to believe. It's specifically for this reason, that despite the fact I knew it could help a lot of people I really wanted to help by broaching this subject sooner, I had to wait until I had built a decent degree of credibility here before I spent hundreds of hours to begin trying to put the case for DMSO together, then once I did so, do so in a very specific order. Nonetheless, I still do not think anyone would have believed me or had the courage to try DMSO had they not just witnessed almost every medical authority in the world collude to suppress safe and widely used drugs (e.g., ivermectin and hydroxychloroquine) so that dangerous and ineffective (but incredibly lucrative) pharmaceutical products could monopolize the COVID-19 market.

In turn, while I still desperately want to cover DMSO's utility for a variety of other challenging conditions (e.g.,

vision loss, tinnitus, cancer, chronic infections, shingles, and a wide range of skin disorders), I feel I first must touch upon another question—why did the FDA keep it from us, and how were they able to do it to something so much of the public and the scientific community demanded they legalize?

In my eyes, this story is critically important to understand because it:

- Helps us to understand the origins of the mentality within the FDA that to this day continues to ruin people's lives by burying promising therapeutics that compete with the medical industrial complex. Despite my best efforts over the last two years (e.g., with [ultraviolet blood irradiation](#), [AIDS treatments](#), or [GHB for insomnia](#)), I've still only scratched the surface of this (e.g., what's been done with cancer is really depressing).
- Provides a window into the remarkable dedication of a group of Americans which illustrates what our scientific apparatus could be capable of doing for us if it was not shackled by politics.
- Provides some context to why this recent statement from RFK Jr. is so, so, important:



Robert F. Kennedy Jr.  
@RobertKennedyJr

..

FDA's war on public health is about to end. This includes its aggressive suppression of psychedelics, peptides, stem cells, raw milk, hyperbaric therapies, chelating compounds, ivermectin, hydroxychloroquine, vitamins, clean foods, sunshine, exercise, nutraceuticals and anything else that advances human health and can't be patented by Pharma. If you work for the FDA and are part of this corrupt system, I have two messages for you: 1. Preserve your records, and 2. Pack your bags.

2:25 PM · Oct 25, 2024 · **1.7M** Views

Note: a significant portion of the first half of this article is an abridged version of the history detailed within [DMSO the Persecuted Drug](#) (internet archive link [here](#))

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The Discovery of DMSO

The simple compound dimethyl sulfoxide [can be found throughout nature](#), and is [present in many fruits and vegetables](#). It was first synthesized by Russian chemist Alexander Zaytsev [in 1866](#). It was essentially forgotten until the 1940s, when industrial chemists, looking for more solvents were curious if this waste product from producing paper could be used instead of being thrown away.

Note: this chronology has been compared to how fluoride (an industrial waste product from aluminum and

note. this chronology has been compared to how fluoride (an industrial waste product from aluminum and phosphate production) entered the water supply. The critical difference was that disposing of fluoride (due to its toxic and corrosive nature) was a major expense and liability for these industries (e.g., it regularly severely injured workers). As such, the desire to get it into the water supply was done to absolve the industries from their liability (e.g., "How could it have injured a worker if it's safe enough to put in the drinking water"). Initially, due to its evident toxicity, the government opposed this. Still, due to fluoride being necessary to produce original atomic bombs and destructive leaks of it creating immense damage to the surrounding areas, for national security purposes, the government relented (all of which is detailed here). In contrast, DMSO was simply looked at as a potential source of revenue that was being erroneously thrown away.

In the 1950s, Crown Zellerbach, a large American paper manufacturing company, began producing DMSO and soon became the world's largest producer. Curious if uses existed for DMSO besides being a highly effective solvent, Zellerbach assigned Chemist Robert J. Herschler to research it and other tree derived chemicals. Through a lab accident, he discovered that DMSO mixed with a dye would bring the dye into the skin, and before long verified it could be used to bring antibiotics and antifungals into plants.

Eager to share this discovery in 1961, he connected Stanley Jacob MD, a renowned surgeon with dozens of publications (in hours, he could produce first-rate papers that took others months to write) and professional memberships who taught at Oregon Health Sciences University (located across the river for Herschler). Jacob (whose brief biography can be read here), was searching for ways to preserve organs and had recently learned of DMSO's ability to function as an anti-freeze agent. After Herschler shared DMSO's unusual property, Jacob decided to test it by mixing it with iodine, noticed he could taste it, and realized that not only did DMSO bring things into the skin but also spread them throughout the body.

As this delivery method revolutionized pharmacology, Jacob immediately shifted his focus to it, and the next day topically applied it to his lab staff (the 1960s were a different time), many of whom then developed its characteristic odor. As DMSO dried the skin and wet skin often causes burns to become infected, he decided to test it on rats that were burned and saw a potential therapeutic effect, which then inspired Herschler to try it after a subsequent significant chemical burn. Since it gave immediate relief, Herschler then tried it on a sprained ankle in a lab assistant (where it also gave immediate relief) and then for an arthritic thumb (where it also gave immediate relief).

This early data convinced Jacob to put all his focus into DMSO (which was possible since his intellectual capacity allowed him to rapidly produce the high quality lectures required for his actual job). In turn, after many sleepless nights, and many tests on himself, Jacob became certain DMSO would revolutionize medicine. In turn, he began carrying DMSO on him to give to anyone in need (the 1960s were a different time), and quickly had numerous miraculous cures (e.g., headaches, sports injuries, cold sores, sinusitis, crippling rheumatoid arthritis). Simultaneously he also realized making a standardized dose was almost impossible because people's response to it was so variable and the timing often was critical (e.g., it only prevented adhesions in rats if given before surgery but not after).

Once Jacob had exhausted his personal funds on DMSO (e.g., he often treated people for free) another remarkable serendipity happened—rather than shoot his research down (as physicians at the medical school had predictably already begun complaining about Jacob doing something unorthodox), his dean decided to approve funding for Jacob's research (which almost any other dean then and particularly now would have rejected).

Note: it's hard to describe how extraordinary this confluence of events was. Had a single piece come together like it did we likely would have never heard of DMSO

The Thalidomide Era

As Herschler now puts it, "If there is such a thing as a Murphy's law of new drug development, DMSO proves it. Everything that could go wrong did go wrong."

Discovered in 1952, thalidomide began being marketed in 1957 (initially over the counter) by a German company (Chemie Grünenthal) as a miracle cure for morning sickness, insomnia, colds, and headaches, and before long 14 pharmaceutical companies were selling it in 46 countries under at least 37 trade names. Reports soon emerged of infants born with defects, in 1959 it was observed to cause peripheral neuritis, and at the end of 1961, it was taken off the German market in November and then globally in December after an Australian Obstetrician published a letter in the Lancet about its birth defects.

Note: during its brief availability in Germany, thalidomide was estimated to have caused over 10,000 birth defects and the deaths of approximately 2,000 children.

Thalidomide's adoption in America was slower since the initial company Grünenthal approached (GSK's predecessor) found it lacked any efficacy in their preliminary trials and hence didn't want to market it. By the time a second company began testing it across America at the end of 1960, concerns existed about thalidomide. This led the FDA reviewer assigned to thalidomide, Frances Oldham Kelsey, to repeatedly stall its approval (despite it already being approved in Canada). As a result, roughly American 20,000 women received it during the extended clinical trials (with many injuries being observed throughout that period by the FDA). Still, it was kept away from the general population (excluding doctors who gave it to their personal circle because the manufacturer had not told them it was still experimental).

Kelsey's actions resulted in only 17 American birth defects occurring (from the preliminary testing done across America) and earned her a presidential medal from Kennedy on August 7, 1962. More importantly, Congress to unanimously pass the 1962 Kefauver-Harris Amendment to address the concerns about the FDA's inability to block dangerous drugs (Kelsey had insistence stalled thalidomide's approval) by requiring drug manufacturers to prove their drugs were "safe and effective" and accurately disclose each drug's side effects.

While well intentioned and necessary (e.g., it gave the Secretary of Health and Human Services clear authority to deny the approval of any drug which had not adequately proven its safety), the act also allowed approval to be denied (or for it to be pulled from the market) if:

There is a lack of substantial evidence that the drug will have the effect it purports or is represented to have under the conditions of use prescribed, recommended, or suggested in the proposed labeling thereof.

The term 'substantial evidence' means evidence consisting of adequate and **well-controlled** investigations, including clinical investigations, by experts qualified by scientific training and experience to evaluate the effectiveness of the drug involved, on the basis of which it could fairly and responsibly be concluded by such experts that the drug will have the effect it purports or is represented to have under the conditions of use prescribed, recommended, or suggested in the labeling or proposed labeling thereof."

All of this led to a few major problems.

First. Kelsey's actions dramatically increased the prestige of the FDA. both emboldening the agency and

simultaneously leading to many other jealous officials wishing to get the recognition she did for stopping the next thalidomide (which DMSO conveniently fit the profile of). Because of this, the pace of new drugs entering the market dramatically slowed, and ever since then, a consistent complaint of Congress has been the FDA blocking medical therapies the public needs.

Secondly, it galvanized the FDA into rapidly establishing its authority and creating numerous divisions to “police” questionable drugs without the organization being structured to effectively or appropriately administer that authority (which led to perpetual mismanagement, chaos, and frequent abuse of that power).

Third, the FDA **chose** to define “well-controlled” as a double-blind trial (to the point they clung to this specific argument in 1980 when Congress and the Senate grilled them over their decision to stonewall DMSO).

This was a huge issue because:

- I believe it was what enshrined the scientific supremacy of randomized controlled trials (RCTs).
- RCTs are extremely expensive. As such, most can only be done by the pharmaceutical industry, which due to their cost, consistently frames them (presented in favorable ways, ignoring or adjusting harmful data) to protect the company’s investment (which leads to RCTs frequently being highly inaccurate). This in turn, rapidly increased the cost of drug approval, effectively turning drug approval into a pay-to-play type situation (e.g., currently, the cost to bring a new drug to market is estimated to be between 0.98-4.54 billion dollars, which makes it impossible for any un-patentable product ever to get FDA approval).
- RTC fundamentalism is highly misguided as smaller observational unblinded trials will typically yield the same results as large (non-corrupt) RCTs (**proven by this 2014 Cochrane Review**), especially if the effect of a drug is significant (rather than a tiny one that can only be detected in a large controlled study and hence is likely inconsequential).
- It was impossible to test DMSO in a blinded fashion because it immediately produced a significant benefit everyone (including the patient) could see; it irritated the skin (to some extent this could be worked around), and it had a characteristic odor. Furthermore, since it was absorbed systemically, it could not be tested on only one side of the body (which would then be compared to the other side, that got a placebo). Additionally, the dose of DMSO patients required greatly varied (and hence made it difficult to standardize trials).

Note: somewhat analogously, I’ve had numerous frustrated patients ask me to find them a seed-oil free infant formula. I eventually discovered that the Infant Formula Act of 1980 (which was virtually unanimously passed by Congress in response to more than 100 infants becoming seriously ill from nutritionally inadequate soybean oil-based formulas), due to outdated science from the 1970s (specifically these 1976 AAP recommendations which did not exist in the AAP’s 1967 recommendations), required infant formulas to have at least 2.7% of its calories (300mg per 100 Kcal) comes from linoleic acid (the problematic ingredient in seed oils). Beyond this making it illegal to sell infant formula without them, I and many others believe this is a root cause of the childhood obesity epidemic in America as seed oils impair mitochondrial metabolism and cause you to gain weight (e.g., this systematic review shows infant formulas cause excessive and rapid weight gain).

In short, while it was necessary to give the FDA the power to block dangerous drugs, giving in the ability to block “ineffective” drugs was a huge issue as “ineffective” is immensely subjective and often becomes a completely unreachable standard.

The ABC-TV program Good Morning America, on February 5, 1961, where David Hartman interviewed Robert Herschler, helps put all of this into context:.

Herschler: ... the toxicity of DMSO is very low. It's not true that it is dangerous. Compared to aspirin, DMSO is a much safer drug. People are killed taking aspirin; no one has ever been killed taking DMSO.

Hartman: If this is the case and you are so sold on it, why has the FDA not approved its use?"

Herschler: In 1964, the FDA complained bitterly about DMSO because it was both a commercial solvent and a drug. They could not control it. Beyond that, we had a meeting with Francis Kelsey of the FDA where she raised her hands and said, 'We simply cannot cope with a product like DMSO. We envision hundreds of applications [NDA's] coming in, and we simply don't have a budget or staff.'

From then on they took a hard line against DMSO . . . There are many controlled studies that prove it is both effective and safe. And the FDA knows it! The FDA has at least 100,000 clinical [patient reports], and if they statistically evaluate them, and they have, and if they try to prove it is not safe and effective, **they simply cannot do it**. They have been using this gambit of 'double-blind'—being able to use the 'double-blind' as the reason for rejecting it.

Note: I believe one of the strongest proofs that the thalidomide disaster was nothing more than a tool for the FDA was how quickly they abandoned the fundamental foundational principle it had enshrined and which the FDA's authority originated from (do not give pregnant women experimental medications) during COVID-19—which has sadly created entirely predictable fertility impairments that precisely mirrored what had been done with the HPV vaccines.

The Early Days

Stanley [Jacob] is a generous man who lives only for others. He has not the slightest desire for money. He is the complete genius. He can turn off all his personal troubles and give himself completely to what he feels must be done for others. In this case, DMSO had to be made available to sick and suffering people.

His motive is that simple...He has no hobbies, no sports. He has no time to play. At parties, he'll toy with a drink for a while and then take off. When he comes to dinner, he eats, sits on the davenport, falls asleep, gets up and goes home—or, more often, back to the lab.

As it so happened, Rosenbaum was the initial discoverer of chloroquine's utility in rheumatology, but since he took the time to do a meticulous double-blind trial to prove it, while he was awaiting publication, another team got a rushed investigation published and all the credit for the discovery. As such, Rosenbaum recognized he could not be too hesitant to promote DMSO. In the summer of 1963, he and Jacob submitted foundational papers on DMSO (which *Science, Nature and Surgery* rejected as they were understandably skeptical something like DMSO could exist). Then in October 1963, Jacob simply presented it at the prelude to the annual meeting of the American College of Surgeons.

Note: the first investigational new drug application for DMSO was submitted to the FDA on October 25, 1963 and quickly approved.

Simultaneously, as word of DMSO's remarkable therapeutic potential began to spread through word of mouth, Rosenbaum and Jacob tried to delay it getting into the mainstream press (as the scientific community disdains "charlatans" making claims to the media before the community has been allowed to scrutinize those claims). Unfortunately, due to their initial attempts failing and Crown Zellerbach deciding to publish a joint patent with the University of Oregon on the medical uses of DMSO, a front-page news story was published in Portland on December 10, 1963. A few days later, on December 18, The New York Times published a front-page article by Robert K. Plumb about DMSO "creating a stir in medical circles in Portland, temporarily spiking Crown Zellerbach stock from \$5.50 a share that day to \$60.25 and leading to newspapers around the country continually cover this wonder drug for the next two years.

Jacob then presented his work before the faculty at his medical school, where he was predictably met with widespread hostility by his peers (e.g., some of them yelled out, "Liar!" "Quack!" "Charlatan!"), with a few subsequently requesting for his dean to fire him (who fortunately did not). Eventually, in February of 1964, Jacob got his paper published in a less popular journal (due to a sympathetic editor intervening)—unfortunately (due to the NYT article) was three months too late.

This was followed by a March publication on DMSO and bursitis, thanks to another sympathetic journal editor, and an April publication in the same journal on DMSO and arthritis and gout. Those three publications, in turn, made some of the scientific community open to DMSO, but they further polarized those who resented Jacob bypassing the scientific community with the popular press (despite the fact he never did that).

While many of the early adopters were cautious, others with minimal experience began engaging in "an epidemic of wild, senseless, irrational experimentation on humans," further unsettling many of Jacob's colleagues (who did what they could to get the University to renounce it and stop patients from using it). Jacob in turn, began being scorned by his peers and longtime colleagues and went from being one of the most desirable members for many medical societies to one few would accept (and likewise medical schools completely stopped trying to recruit him and research grants that had previously always been approved without effort became quite hard to get).

One particularly illuminating exchange happened with Dr. Dunphy, Jacob's friend and immediate superior (they had both been prestigious professors at Harvard before moving to Oregon), who attempted to provide a helpful warning to Jacob by saying, "This smacks of Andrew Ivy."

Andrew Ivy

Andrew Ivy, at the end of World War 2, was the most famous and influential doctor in America (to the point the American Medical Association [AMA] sent him as their representative to Nuremberg, and he co-wrote the Nuremberg code). In 1951, he was introduced to Krebiozen, a promising cancer therapy. He became its leading proponent, but as he was testing it, someone who felt the public needed to know about it leaked a sensational press release, which turned the medical community against him. Following this, the AMA (recognizing its value) threatened the inventors to sell the rights to them, and after they didn't conduct a fabricated study to debunk it in the hopes of bankrupting them and getting ownership of it (which was later proven by examining the actual records of the AMA study and a co-conspirator plus another witness testifying in front of the Illinois legislators about the criminal conspiracy AMA leaders had shared with him).

Note: the AMA used this same playbook against many other promising therapies. For example, here I discussed how the AMA buried ultraviolet blood irradiation as its miraculous results spread through America's hospitals with a doctored study after the inventor would not sell it to the AMA and here I discussed how the

AMA's original business model that brought the organization to prominence was using its reputations to monopolize the entire medical marketplace by having the press vilify anyone who did not sell out to them.

Ivy continued to collect data (including miraculous results for key politicians), eventually showing in over 4200 patients that Krebiozen had a 50-70% success rate (depending on the metric evaluated). Nonetheless, the AMA (and then the National Cancer Institute) were allowed to continue with impunity. When Ivy applied for approval to use Krebiozen, the FDA stonewalled them and eventually produced spectrographic data asserting Krebiozen was a common worthless metabolite in the body. Before long, it was revealed the FDA had fabricated that data, leading to Senator Paul Douglas telling the Senate on December 6, 1963: "It is a terrible thing that we cannot really trust either the Food and Drug Administration or the National Cancer Institute."

Nonetheless, the FDA used their newfound authority from the 1962 Kefauver–Harris Amendment on June 7, 1963 to prohibit Krebiozen from being shipped across state lines, leading to many protests in front of the White House, but unfortunately, as they were on the verge of winning over Kennedy, he was assassinated on November 22, 1963 and Johnson could not be persuaded. Unable to get Krebiozen, many of those patients died, and in 1973, Krebiozen was eventually outlawed in Illinois, and not long after (like many of the other alternative cancer treatments of that era), forgotten. Fortunately, William Kronick (a well known television producer) created an impartial program about Krebiozen that documented this forgotten history and the FDA's gross malfeasance throughout it.



Note: Mike Wallace also interviewed Dr. Ivy in 1957 (but I have not been able to find a copy of this TV program). Krebiozen was also featured in national magazines like Pageant, Argosy, and Inside Story.

In the future, I will write a more detailed account of this story. The key point here is that the FDA director was just as nasty to DMSO as he was to Krebiozen and that no amount of political influence could stop the AMA's monopolistic juggernaut (e.g., beyond his personal prestige, Ivy had miraculous results for US Senators with cancer and a Senator who fought for Krebiozen but they were all essentially unable to do anything).

DMSO Gets Caught in the Crossfire

By 1964, Jacob had discovered DMSO treated a myriad of challenging conditions (e.g., neurovision, baldness,

By 1964, Jacob had discovered DMSO treated a myriad of challenging conditions (e.g., poor vision, baldness, many infections, gangrene, disc issues, diseases of the digestive tract from glossitis to hemorrhoids, skin issues, psoriasis of the scalp to athlete's foot and a variety of internal organ disorders).

On March 18, 1964, he and DMSO's stakeholders attended a meeting at the FDA, where Frances O. Kelsey told them they wanted to do everything possible to permit further testing of DMSO, but simultaneously were worried about being overwhelmed by a large number of DMSO drug applications (particularly since DMSO could be combined with so many other drugs). Yet, once they provided animal data showing animals had no side effects from large doses and that humans had had no side effects from prolonged courses of small doses, the FDA still said the human doses must stop because there was insufficient animal data to warrant them and suggested a month-long dog study before applying for a permit to restart human studies.

Note: At the start of 1964 no fewer than 30 different pharmaceutical companies were approaching Zellerbach for a DMSO license, but rather than go with 1 or 2 as advised, Zellerbach went with 6 of the world's largest companies (Merck, Sharpe and Dohme, E. R. Squibb & Sons, American Home Products, Syntex, Geigy and Schering), leading to a chaotic situation where they all wanted to be the first one to get a product to market and poured millions into it, which created an atmosphere of urgency the FDA had never dealt with before and hence was not comfortable with. Likewise, Rosenbaum had used his personal connections to reach out to numerous pharmaceutical companies and had convinced many of them to make massive investments to bring them to market. Many hence felt that if DMSO had only had a narrow number of uses, it would have almost certainly been approved, but because of how well it worked, the regulatory system simply did not have the ability to handle it.

By spring 1965, the data for the FDA was there (and looked excellent), but due to DMSO having been prematurely released to the press, immense public demand for DMSO was building. For example, in February 1965, Merck had told Jacob they were getting more requests for it than anything else they'd ever developed, and many professional athletes and movie stars were endorsing it. On April 3, 1965, the New York Times published a front-page editorial calling it "the nearest thing to a wonder drug the nineteen-sixties have produced."

By this point, over 100,000 members of the public were using the unapproved drug (e.g., by buying it from chemical supply sources or getting it from doctors who were giving it to patients outside clinical trials—which the FDA also really did not like).

"We knew the FDA was getting edgy," Jacob says, "but we also felt the data we were getting from the various drug company investigators were solid enough that DMSO was safe and effective. What we didn't know was the FDA at this time was more concerned with its regulations than it was with finding out the human benefits of the drug."

Note: in 1965, Merck, Syntex, and Squibb all felt there was enough data for DMSO to become a prescription drug and submitted new drug applications to the FDA, but were all turned down (as was Gibb Pharmaceutical Company's 1971 NDA). By 1983, the NDAs tossed aside by the FDA included 1,500 medical studies performed on approximately 120,000 patients with a variety of health problems.

As miraculous results (and attacks from their colleagues) continued to mount, Schering's director invited Jacob and Rosenbaum to a July 1965 symposium on DMSO in Germany, where unlike America, the 150 European participants were incredibly interested and open-minded about DMSO, which Rosenbaum felt helped to explain why their DMSO research was ahead of America's despite them having started later.

Research continued to grow throughout America on every aspect of DMSO in both humans, plants and animals (e.g, it was shown to have remarkable utility in treating cancer), and on September 8, 1965, Merck sent its investigators a glowing review of the safety and efficacy DMSO from their data over the last 18 months on 4,000 patients (which I have excerpted parts of throughout this series).

Unfortunately, the next day (September 9th), the Wall Street Journal published a headline that quickly went across the world:

DMSO MAY HAVE CAUSED DEATH OF WOMAN MAKERS OF WONDER' DRUG WARN DOCTORS

This death occurred in a Squibb research subject (in Ireland) who had continued to take DMSO after suffering allergic reactions and eventually died from anaphylaxis. However, despite it never being conclusively linked to DMSO (she was on many other drugs which could have caused the allergy) or this ever happening again (e.g., I reviewed all known DMSO deaths [here](#)), for decades afterward the FDA continued to reference her death.

The pharmaceutical companies immediately warned their investigators to watch out for anaphylaxis, but on September 22, 1965, the FDA terminated Zellerbach's IND (and ability to conduct human studies) and charged that the number of doctors testing DMSO throughout the country was far greater than the maximum the FDA had permitted.

Note: since DMSO was "safe" investigators would often use it as a last resort in otherwise futile cases where a patient was expected to die—and in the process discovered DMSO has a wide range of uses they could have never conceived of (e.g., feeding a starving infant through the skin who could not receive oral or IV nutrition or saving the limbs of someone with extreme frostbite). Once the FDA put strict restrictions into place over exactly when and where DMSO could be used, this plethora of discoveries from unusual cases ended.

Then in November, due to a few animal reports that high doses of DMSO could alter the refractory index of the eyes (which at worst could make someone need glasses), the FDA summoned representatives from each company testing DMSO to Washington, where Dr. Joseph F. Sadusk, Jr., (the medical director of the FDA) read them a telegram saying DMSO testing was being suspended, after which the FDA immediately sent out telegrams to the WHO and each embassy stating that DMSO could blind its recipients—successfully halting research globally.

Note: this ban was lifted for small numbers of patients with severe illnesses a year later, and then further lifted for a wider range of less severe illnesses (due to a study providing DMSO's safety), but it was not until September 1979 that the FDA published a regulation abolishing its 1965 regulation banning general research in DMSO. This freeze essentially destroyed almost all the interest in researching DMSO clinically.

As I showed in [this article](#), the FDA's claim DMSO damaged the eyes was **not at all supported by the existing evidence** (e.g., at the time of their ban, it hadn't been seen in any of the 100,000 people who used it—including 37,000 trial participants from Merck, Squibb, and Syntex). Since that time, DMSO has consistently been shown to improve rather than worsen eyesight. Nonetheless, the press immediately parroted the FDA's line and gratefully thanked the agency for saving us from a thalidomide like disaster which would have caused much of America to go blind (and for decades, FDA officials repeated this concern even when trials designed to detect it all agreed it did not happen).

The investigators were understandably confused since they had no evidence in their research of DMSO affecting the eyes (which many other drugs were known to do) and before long had to start telling all their

...and the eyes (which many other drugs were known to do, and before long had to start telling all their patients who had come to depend upon DMSO that they could no longer receive it. Doctors like Jacob advised those patients to contact their Congressman, but sadly, the pharmaceutical companies, despite knowing there was no eye risk and having already made a large investment in DMSO, quickly submitted to the FDA's ban (to the point Jacob was requested to stop telling his patients to complain to the government).

Nonetheless, the patients knew what the FDA had done to them and immense protests began against the FDA (alongside a thriving black market for DMSO being created).

Shortly after (late November) FDA agents began showing up to copy Jacob and Rosenbaum's records, and as time progressed became more hostile and accusatory to them and bold in what they copied (e.g., going to areas they did not have permission to explore, obtaining personal information of patients, or covertly copying his personal correspondences and then refusing to surrender it once they'd been caught obtaining it). After about a month of this illegal activity, they contacted an attorney, who explained to the agents at their next visit that they needed an explanation in writing from their Seattle superior to continue, which led to an interaction quite similar to many others the FDA conducted in the ensuing decades:

Two days later one of the inspectors called from Seattle to complain that Rosenbaum was delaying the work of the FDA. Rosenbaum suggested the inspector talk to his attorney and pointed out that Crown Zellerbach and Merck had duplicate records of his DMSO treatments. A few days later both inspectors again appeared in Rosenbaum's office and gave him a slip of paper threatening to invoke a federal regulation unless he surrendered the records.

DMSO Midwestern Sjogrens's

Sjogren's syndrome (autoimmunity of the parotid gland) results in a loss of saliva and the mouth becoming very dry. Since it is a very difficult condition to treat, [this table](#) within a larger study caught by eye:

TABLE 5

EFFICACY OF DMSO APPLICATIONS ON PAROTID GLANDS IN PATIENTS WITH SJÖGREN'S SYNDROME

10 applications	Total Number of Patients	Improvement			
		Significant N (%)	Moderate N (%)	Slight N (%)	Without Effect N (%)
Mode of Treatment					
DMSO Only	41	21 (51)	14 (34)	5 (12)	1 (2.5)
DMSO + ascorbic acid	10	6 (60)	3 (30)	2 (20)	
DMSO + heparin	10	5 (50)	2 (20)	2 (20)	1 (10)
DMSO + hydrocortisone	4	2 (50)	2 (50)		
Overall	65	34	20	9	2

30% DMSO, 5 ml of 5% ascorbic acid, 125 IU heparin, 125 mg hydrocortisone

Quite a few of my colleagues believe the most important use of DMSO is that it is profoundly anti-inflammatory (but safe), and that it is particularly useful for inflammatory bowel disorders—especially when done early in the illness. Likewise, many DMSO authors report the same.

Note: others believe DMSO's best use is healing brain tissue (e.g., after a stroke).

The only study I know that directly evaluated this question (and can be read [here](#)) took patients with recurrent attacks of proctosigmoidal ulcerative colitis that was not prevented by 2mg prophylactic sulfasalazine and then gave them 500mg sulfasalazine and 10 mg of prednisolone four times a day, and a 20mg prednisolone enema at night. After two weeks passed, 45 (51%) were free of symptoms, and 45 were given DMSO while 46 were given allopurinol (in addition to the existing regiment), resulting in 84% being free of symptoms. After two weeks, they were then put on 2mg of sulfasalazine alone each day, or it with either allopurinol or DMSO. After a year, 25% of those on sulfasalazine had a relapse, while 5% of those who also received allopurinol and 5% of those who also received DMSO relapsed. Additionally, the data showed DMSO significantly reduced the ESR over 2 weeks (by 77% compared to 37% with the standard approach), the (high) white blood cell count (by 65% vs. 41%) and raised the low albumin (by 9% vs. 7.8%). While all of that is a bit confusing to follow, it essentially says that DMSO, when compared to standard therapies, improved ulcerative colitis and prevented its recurrence.

Additionally, while not a study, I thought [this passage by Pat McGrady](#) should be included:

At 12:50 p.m., February 5, 1968, E. Rottenberg of the Ozothine Laboratories, Hauts-de-Seine, France, [unsuccessfully] applied for a patent for DMSO 'for treatment of all irritating conditions of the alimentary canal.'

He cited as support for his application these examples:

Acute gastritis—Twenty-eight patients unable to work went back to their labors following five to eight days of treatment, rid of such symptoms as nausea, vomiting, pain, gastric heaviness; their stomach secretions became normal and so did their general condition. One year later, twenty-one were still free of symptoms, working and off their diets. During this time about ten had undergone treatment again for about fifteen days.

Chronic gastritis—Thirteen patients on assorted treatments all relapsed on stopping treatment. On DMSO by mouth for one to two months, symptoms cleared up and all of them went back to work. At the end of a year, all of them remained improved, although some had resumed treatment two or three times.

Peptic Ulcer—Five patients were completely cured of recent peptic ulcers with oral DMSO, without recurrence during the following year.

Enterocolitis—Six patients with abdominal pain for several months and with diarrhea, emaciated and asthenic, began to improve after eight days on oral DMSO, and all were back at work in two months,

pain-tree and in good shape.

Mucomembranous colitis—Three patients were "cured" after three weeks of oral DMSO.

When the DMSO is combined with star anise, the appetite improves, the application stated.

DMSO and Multiple Sclerosis and ALS Midwestern

Multiple Sclerosis

Numerous authors have reported dramatic results in Multiple Sclerosis (MS) patients. For example, a 29 year patient who was paralyzed from MS and trying to get access to dialysis (when very few units were available) saw Stanley Jacob, who decided to risk giving her DMSO orally (despite her kidney failure).

Her improvement was dramatic—as dramatic as any benefit I have ever seen," Jacob told me. Her renal problem seemed to come under control. Then—after a few more weeks—she walked again.

"Now, six years after her first DMSO treatment, she still has wobbly knees. But she walks. She drives her car. She takes care of her two children and her husband. But she is going downhill. I wish we could help her again, but we just don't seem able to. Despite this, however, I am not convinced that DMSO alone is useful in multiple sclerosis.

Likewise, another author shared the case of a California woman who was confined to bed, typically was in the fetal position, and was living at a convalescent hospital as she was expected to die within a few months. She was then given DMSO through multiple routes (e.g., injectable, oral and topical).

Shortly after treatment started, this lady complained that the treatment was causing pain in her legs. Prior to treatment she had very little feeling in her legs so even this pain was considered to be positive. Slightly over a year after treatment was started, this lady was able to move her legs. She later was able to feed herself. Improvement continued until this lady was moved to another state to be closer to some members of her family who thought the same treatment would be available in her new location.

The only study I know of that evaluated DMSO for MS was conducted on 34 patients in Russia in 1984. Overall, the investigators felt DMSO had a very positive result for MS, with the best results seen in patients who had remitting MS, while the results were more inconsistent in patients with rapidly progressive MS. The investigators assessed this was due to DMSO causing remyelination, a reduction in edema, and improved communication between nerve cells alongside DMSO having a positive effect on immunity and antiallergic and reparative action on the injured tissues.

Note: there was also a reported case of Stanley Jacob treating a patient with ALS which resulted in "some instant, overnight and slightly delayed wonders of therapy," and I believe one person sent me a case of a positive report of using DMSO for ALS (but I can't find it now). In our own experience IV DMSO is one of the only things which can treat ALS (typically it halts the progression of the disease).

Numerous patients have found DMSO is quite helpful for asthma, often reducing the dose of the harmful medications they need to manage the condition, and in some cases eliminating the need for it. Typically, this is done with **topical applications** that sometimes mix in other agents which are beneficial in asthma. Additionally, DMSO can help with allergies and patients taking DMSO for other issues sometimes notice their allergies disappear.

While many others (e.g., [this author](#)) have shared anecdotal reports of DMSO helping asthma, I only know of one study (which was summarized in [this book](#)) that directly evaluated this. It gave 153 adults (84 men and 69 women) DMSO mixed with a bronchodilator, a steroid, and an antihistamine all administered by intramuscular injections of whom 43 of whom had frequent asthmatic crises (with asymptomatic periods) and 110 with more intense and frequent crises (despite receiving the standard therapies for asthma). The evaluations included all the standard pulmonary assessments, and it was found that the DMSO solution gave 37 (24.5%) **an excellent result, 92 (60%) a good response**, while 24 (15.5% had no change).

Note: many have observed DMSO increases the potency of cortisol (thereby allowing many patients who require cortisone for an autoimmune disorder to drop to a lower and less toxic dosage). Similarly, a variety of effective potent topical products that combine DMSO with cortisol have been created.

Lupus

I occasionally hear of DMSO being used to treat Lupus. For example, [this author](#) discusses how it greatly reduces the symptoms of Lupus and is more effective for the condition than steroids (which unlike DMSO are quite damaging if taken for a prolonged period).

The only publication I know of which evaluated DMSO's effect on Lupus reported on two women with Lupus that was causing (pathologically confirmed) lupus interstitial cystitis and had not responded to prednisone. Both had a complete remission of their interstitial cystitis after intravesical DMSO.

How DMSO Treats "Incurable" Autoimmune and Contractile Disorders Oct 20 2024

How DMSO Treats "Incurable" Autoimmune and Contractile Disorders

The decades of research that could have prevented an immense amount of human suffering

[A MIDWESTERN DOCTOR](#)

OCT 20

PAID



READ IN APP 

Story at a Glance:

•DMSO is a remarkably safe substance that effectively treats a variety of conditions (e.g., chronic pain, acute injuries, and strokes) that medicine has struggled with for decades. Many readers here have already experienced profound benefits from using it.

•DMSO is a powerful (but safe) anti-inflammatory agent that is often extremely helpful for autoimmune conditions. For example, it's frequently used to treat asthma, inflammatory bowel diseases (e.g., ulcerative colitis and irritable bowel syndrome), interstitial cystitis (painful bladder syndrome), ITP, lupus, multiple sclerosis, myasthenia gravis, scleroderma, Sjogren's syndrome, and uveitis.

•DMSO is also remarkably effective at stabilizing and refolding proteins. This allows it to treat a variety of “untreatable” genetic disorders, and conditions characterized by the abnormal accumulation of misfolded proteins in the body (e.g., amyloidosis) or chronic deposits of excessive contractile collagen (e.g., surgical scars, abdominal adhesions, Dupuytren's contractures, and Peyronie's disease). Two of the most dramatic examples of this are scleroderma and fibrodysplasia ossificans progressiva—both “untreatable” conditions where DMSO can provide truly lifesaving benefits.

•In this article, I will present the wealth of evidence substantiating each of those uses, share my theory on how the unusual antimicrobial

properties of DMSO explain some of these benefits, and present DMSO treatment protocols for many of those disorders. Additionally, since many readers requested it, I put together a simplified guide on how to use DMSO orally or topically.

Note: over the last few days, I switched my focus to preventing an immensely unjust execution in Texas [that shed light on how parents are often falsely accused of killing their babies after a vaccine death](#). Thanks in part to all of you speaking out, a miracle happened, the right people noticed (I can't disclose what happened behind the scenes but consider [this Tweet RFK Jr. put out](#) which referenced a post referencing the article [here](#)) and a series of unprecedented actions happened to delay and possibly overturn an execution (which in reality was due to a baby dying from clearcut case of medical malpractice). This case still needs a great deal of support, so if you can contact either the governor ([here](#)) or the Texas legislators trying to overturn this ([here](#) and [here](#)) that would be immensely helpful.

Dimethyl sulfoxide (DMSO) is a simple and readily available naturally occurring chemical that rapidly enters the body through the skin and has a variety of remarkable therapeutic properties. When it was discovered, its proponents believed it (much like antibiotics) represented a new therapeutic principle in medicine and once adopted, would completely change how medicine was practiced. Unfortunately, the FDA conducted a reprehensible campaign against it and was able to successfully bury it.

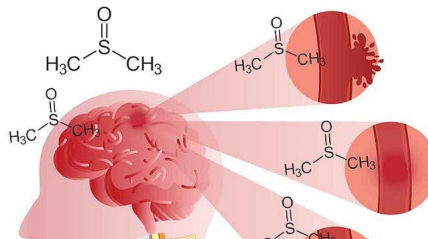
Since there are so many uses for DMSO, to effectively present them, I've had to comb through well over ten thousand pages of scientific literature and then order them into a logical sequence (of what will be roughly a nine-part series). For instance, in the first part of this series, I discussed how DMSO completely changed the management of neurological injuries and showed that were it to be adopted, millions would no longer be disabled from the common emergencies we view as insurmountable within the current medical paradigm (e.g., frequent disabilities from stroke and the inevitability of becoming a paraplegic after a spinal cord injury).

DMSO Could Save Millions From Brain and Spinal Injury

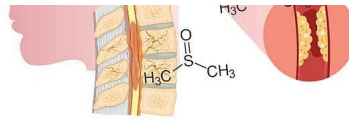
SEP 15

How DMSO Treats

- Strokes and Brain Bleeds
- Brain and Spine Injuries
- Paralysis
- Heart Attacks
- Dementia
- Amyloidosis
- Developmental Delays



- Down Syndrome
- Raynaud's
- Varicose Veins



[Read full story](#)

In turn, after I posted this, I began to receive testimonials from readers who'd found DMSO treated neurological and circulatory disorders they had always thought could not be treated.

In the second part of this series, I discussed how DMSO is remarkably effective for treating injuries and chronic pain:

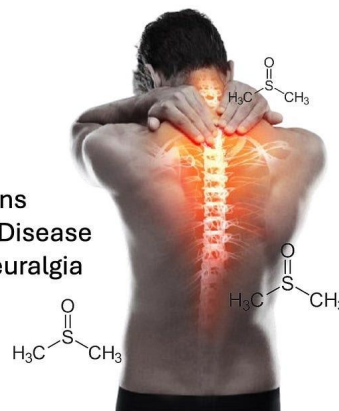
DMSO is a Miraculous Therapy for Chronic Pain and Musculoskeletal Injuries

[A MIDWESTERN DOCTOR](#)

SEP 30

How DMSO Treats

- Chronic Pain
- Arthritis, Bursitis, and Gout
- Sprains, Strains and Contusions
- CRPS, Fibromyalgia and Disc Disease
- Headaches and Trigeminal Neuralgia
- Scars and Surgical Wounds
- Restless Leg Syndrome
- Sports Injuries



[Read full story](#)

In turn, after I published this article (since those conditions are some of the most common things people struggle with), I received a lot of comments from readers who expressed their understandable skepticism something like this could actually exist (which is part of why I began this with the wealth of evidence DMSO was paradigm shifting in neurology). At the same time, many were encouraged to try it, and I received numerous testimonials of the astonishing recovery it facilitated from a significant injury they'd suffered since the article had come out. More importantly however, many readers with chronic pain (or immobility) decided to try it, and were overjoyed to discover that after years they could at last get their lives back.

Taking a step back, the fact that something this effective could exist no one knew about is difficult to believe, which in turn suggests there has to be a

knows about is difficult to believe, which in turn suggests there has to be a reason for why no one knows about it—such as DMSO being extremely toxic. In reality, it is purely politics, and to support that, [I compiled a detailed article](#) summarizing everything that is known about the safety and toxicity of DMSO, which in my eyes, made the case that **DMSO is one of the safest pharmaceutical products in existence** and that the widely used alternatives to it (e.g., [NSAIDs](#)) are incredibly dangerous and orders of magnitude more harmful than DMSO.

Note: while publishing this article, I realized there was a human study demonstrating its safety in pregnancy (where DMSO was successfully used to treat infertility) that I forgot to include and have now added to [the previous article](#).

Now that I've established there is something truly remarkable to DMSO (e.g., [you can read the hundreds of testimonials I've received from readers here](#)), I would like to focus on another area where DMSO upends the existing medical paradigm—autoimmune and severe connective tissue disorders. I believe this is necessary because many individuals suffer from autoimmune and contractile conditions, but more importantly, because some of the conditions DMSO has been shown to treat effectively are otherwise death sentences that for decades the medical community has made almost no progress addressing.

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DMSO and Protein Disorders

One of DMSO's remarkable properties is its ability to function [as a chemical chaperone](#) and stabilize the three dimensional structure proteins assemble (fold) themselves into. This is important as many complex illnesses (e.g., many genetic disorders) result from misfolded proteins and presently can only be (ineffectively) managed with expensive drugs that aim to normalize the function of the abnormal proteins.

In turn, [a few drugs have been developed to refold misfolded proteins](#), and to my knowledge, the most helpful ones on the market were the ones [developed to treat cystic fibrosis](#) (after the Cystic Fibrosis Foundation gave 150 million to bring these medications to market which currently are priced at [roughly](#) 200,000-300,000 a year). However, unlike the existing pharmaceutical chaperones

500,000.00 a year). However, unlike the existing pharmaceutical chaperones (which are very specific to the misfolded protein), **DMSO's effect is remarkably universal.**

Note: improving the physiologic zeta potential (as explained [here](#)) can also stabilize protein folding (while worsening it causes aggregation and misfolding).

Studies have shown DMSO can improve the functionality of the dysfunctional proteins that are seen in genetic disorders like cystic fibrosis,¹ hereditary nephrogenic diabetes insipidus,^{1,2} Machado-Joseph disease,¹ Niemann–Pick disease,^{1,2,3,4,5,6} and a defective protein that causes motor disorders and early death in mice.¹ Likewise, it can also treat a variety of complex diseases which result from misfolded proteins damaging surrounding tissue.

For example, amyloidosis is a challenging condition that results from aggregates of insoluble proteins accumulating in the surrounding tissues. In turn, at least 39 studies and case reports have shown that DMSO can treat numerous types of amyloidosis (e.g., by solubilizing the amyloid aggregates and enabling the body to break down and eliminate them).^{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39}

Likewise, DMSO has also been shown to revert the protein responsible for the devastating neurological prion diseases Creutzfeldt-Jakob disease¹ and scrapie¹ (which suggests it could also be helpful for mad cow disease).

Note: the previously mentioned studies are discussed in more detail [here](#).

Presently, numerous human studies have shown that DMSO can treat amyloidosis, and one showed that it treated Neiman-Pick's disease. Additionally, DMSO in this and this animal study and in this human study has been shown to treat Alzheimer's disease, another condition linked to misfolded proteins (along with another one where adults with a variety of different degenerative brain conditions were treated). Likewise, we've clinically observed Parkinson's (another disease that can be linked to misfolded proteins) responds to treatment with DMSO, and recently, one reader here reported:

I ordered DMSO immediately after your first article appeared. I am now in the **4th week of testing DMSO for Parkinson's disease**. [The initial dose I took was too high so I stopped] On the second day of the break my Parkinson's symptoms almost disappeared and I felt better than I had felt for ages. The biggest improvement was in relief from bradykinesia. After being slow for the past years, I suddenly became Mr Speedy. At [a lower] dose I get minor brain fog for about one hour and

the benefits of DMSO for the rest of the day.

In terms of symptom response to DMSO, in these first 4 weeks, pain, speed and the range of movement were most improved, followed by stiffness. Tremor seems to take more time to respond but there are already subtle signs of improvement. I and my family have also noted improvements in a whole range of other symptoms: brighter facial expression, eye comfort (more irrigation), stronger voice, more energy, better left/right hand coordination (fewer typing errors when using computer keyboard) and improved handwriting. Most importantly, I have periods of feeling really good which were previously absent. I have no doubt that DMSO is doing something good.

Note: since many cancer causing proteins are misfolded proteins, it is thought that this may partly explain DMSO's anticancer properties.

While I am very open-minded to unconventional medical ideas and knew DMSO could treat a variety of otherwise incurable neurological diseases (e.g., ALS), there was one thing I always had a bit of difficulty believing. DMSO allegedly had been shown to **cure Down Syndrome**, demonstrated both in three clinical trials (e.g., this one and this one) and numerous remarkable case reports that were presented by multiple corroborating medical witnesses in Congressional testimony, along with numerous studies showing DMSO improved the cognition and behavior of developmentally delayed children. To explain this impossible benefit, I theorized it was likely due to DMSO's protein stabilizing benefits, as Down Syndrome is characterized by "the aberrant accumulation of unfolded/misfolded proteins resulting from over-burdened protein quality control systems."

DMSO and Contractures

Dupuytren's contractures occur when the collagen under the palm builds up and abnormally thickens.



A variety of treatment options exist to address this issue (e.g., injecting an enzyme to digest the collagen, breaking the collagen up with a needle, or surgically removing it), but all have downsides (e.g., complications from the procedure or a recurrence of the contracture). In turn, there is still insufficient evidence to build a consensus on the best way to approach this common condition.

Before the FDA shut down DMSO, this is what Merck reported to their clinical investigators (after roughly 4,000 patients had received DMSO for up to 18 months):

Dupuytren's contracture—Long-term administration has caused some improvement in fibrous scar contractures. 90 percent is recommended.

In addition to the study mentioned above where 3 out of 3 patients with Dupuytren's contracture improved from DMSO, another study gave DMSO to 29 patients with Dupuytren's contracture and found 2 had a complete remission, 14 had a partial remission, and 13 had no response (along with a single patient with a Cicatricial contracture who had a partial remission).

In another study, DMSO yielded good results for 6 out of 9 Dupuytren's contractures (and 1 out of 3 Peyronie's disease).

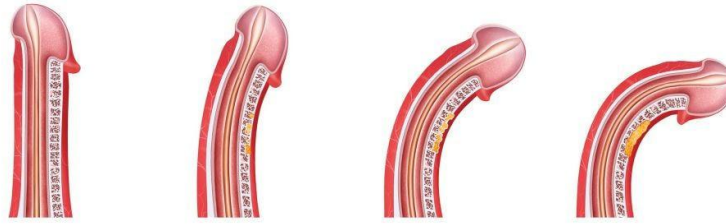
Conversely, in another trial of 23 patients with Dupuytren's contractures that had been present for over 5 years, receiving 80% DMSO 3 times a day for a month did not help any of them. This suggests that **DMSO works best early in the disease process, that a month is not long enough to get results**, and that 90% rather than 80% may be necessary for this application.

Peyronie's disease

Peyronie's disease is a condition in which fibrous scar tissue builds up in the penis, producing extreme

pain whenever a patient gets an erection and gradually curves one's erection.

PLAQUE FORMATION STAGES



The exact cause of it is unknown, but it is thought to be due to a disordered wound healing process and, since 1828 has long been recognized to occur in association with Dupuytren's contractures. Due to the sensitive nature of the condition, men are often reluctant to report it, and estimates vary greatly on how common it is (ranging from 0.3% to 16%).

*Note: In addition to us hearing about this from our female patients, I have numerous friends who've confided with me they experience chronic discomfort from their husband having a slightly curved penis (which results in uneven pressure being applied to the vaginal wall), so I am inclined to believe a significant number of men are affected by the less severe stages of this disorder. As such, DMSO's use here is something **I really wish** more men knew about.*

Since the penis is more challenging to modify than the hands, many different approaches are used to address this collagen deposition, most of which have side effects and don't always lead to satisfactory outcomes (and in most cases, the penis can never be completely straightened). However, DMSO was found to be effective, especially if used early in the disease process and applied for a prolonged period (e.g., a year).

Peyronie's disease patients at the DMSO clinic in Portland receive topical application of DMSO directly in the penis, and Stanley Jacob reports relief in about 50 percent of the cases he treats. "We're not seeing rapid, significant improvement in curvature but the newer DMSO preparations we are employing are superior to DMSO water."

Likewise, this is what Merck reported in a bulletin sent to their investigators:

Peyronie's disease—In a few patients so far treated, decreased size of the plaques and straightening of the penis has been noted.

In one of the few studies on DMSO and Peyronie's disease, two Cleveland urologists, Lester Persky and Bruce H. Stewart, reported that of thirteen men with the condition who applied DMSO for 8-12 weeks, six were improved enough to resume reasonably normal intercourse. One patient showed a complete disappearance of the plaque caused by the disease.

In another study, four patients used 90% DMSO on the affected area several times daily for 2-3 months. Two patients responded with softening or disappearance of plaques and deformity was corrected in one.

While DMSO does not have a 100% cure rate for either of these conditions, **it often works and unlike the other options is devoid of side effects**. Because DMSO works best when used early and can be applied discreetly at home, it offers a powerful and accessible option for those dealing with these

conditions—especially Peyronie's disease.

Lastly, other types of contractures can also be helped. For example, in [this study](#) of 20 rheumatoid arthritis patients with flexion contractures in various joints, DMSO (plus hydrocortisone) was found to increase joint flexion by 20-30 degrees, and after 30-40 days of post treatment follow up, there were no contractural relapses.

Fibrodysplasia Ossificans Progressiva

One of the most remarkable connective tissue disorders DMSO treats is fibrodysplasia ossificans progressiva (FOP), a rare genetic disorder (affecting 1 in 2 million people) where bone rather than connective tissue is created each time tissue heals, causing these people to gradually turn to human statues



FOP is classically considered to be impossible to cure since the extra bone can't be removed as healing from the bone removal simply creates even more bone. FOP in short is one of those diseases where I just have always felt really sad thinking about what people who suffer from it go through:





Like Down Syndrome, non-profits have “worked” for decades to find a cure for FOP and come to accept nothing can be done for it but somehow are unaware of what DMSO did:

A man in his thirties had had the disease for twenty years In 1964 Jacob started him on DMSO, and after a few months (of topical application) he had improved. When they had started out, a good deal of his body had calcified—he couldn't move any of his joints; he couldn't lie, or sit other than rigidly; he couldn't bend his neck or move his fingers. His knees, his hips, his ankles—all were rigid. But he could open and close his mouth; so he could eat, and, for the time, survive.

"We concentrated on his shoulders," Jacob told me, ' 'because I felt that if we could get a little motion in the upper part of his body, it would make him less of a vegetable. After a couple of months, he did recover some shoulder motion [and his pain significantly decreased].

Then, gradually, some of the calcified soft tissue lumps became smaller and smaller.

"When the FDA halted studies in November 1965, the young man had regained much use of his fingers; he wrote, literally, hundreds of letters—to the FDA, the Congressmen, and to the President. The FDA sent him stereotyped letters. The President, who receives a lot of touching appeals every day, overlooked this one.

Additionally, [one reader here](#) knew one of those patients:

My Uncle Red (Walter Kummer) took DMSO as part of a study at OHSU [with Stanley Jacob] in the '80s... maybe even late '70s for treatment of FOP - Fibrodysplasia Ossificans Progressiva....his muscles turned into bone. He was diagnosed when he was 11 or 13 years old and wasn't supposed to live past 15, then 20 and eventually the medical doctors gave up guessing his lifespan. When he started taking DMSO it was first topical then he ingested it. I was very young but I remember dark colored bottles of DMSO being on the counter. Uncle Red must have been in his late 40s or 50s by that time when OHSU had him in the study. I think it helped him live as long as he did. I think he was in his late 60s when he died in the early 90s. I have never forgotten those bottles and Uncle Red.

Scleroderma

Scleroderma is another horrible disorder, that despite decades of work still has a poor prognosis (e.g., patients with it are 3.5 times as likely to die as the general population, and the rheumatologists I know have very few patients with this condition because they eventually die whereas most rheumatologic can be indefinitely managed). While the cause of scleroderma remains unknown, it is characterized by a hardening and thickening of the skin (effectively compressing the body like saran wrap) due to an abnormal growth of connective tissue (e.g., collagen) which is thought to begin in the blood vessels, in time enters the muscles and joints, and eventually gets into the internal organs (which is typically where death occurs). Two of the major complications of this disease are poor peripheral circulation (frequently

creating ulcers and often progressing to the point fingers and toes often need to be amputated) and poor mobility due to a stiffening of the body.

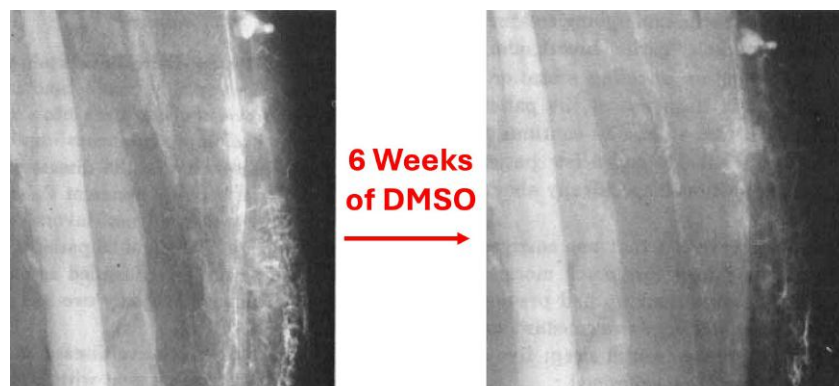
From the start, DMSO was observed by many researchers to be immensely helpful in treating scleroderma, and much of the most vocal protest the FDA got on their ban of DMSO came from the fact they refused to approve it for scleroderma despite extensive evidence supporting its use compiled by leading rheumatologists.

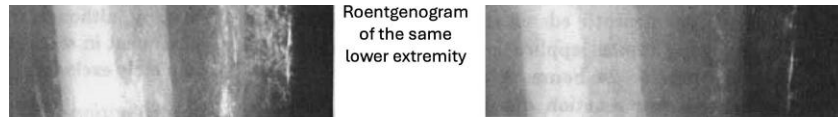
•An early study gave six scleroderma patients with ulcers on their fingers DMSO (initially at 50% but gradually raised to 100%). Five significantly improved (four had their ulcers begin to heal in one or two days and were completely healed in two weeks, while the fifth took six weeks). The final patient could not tolerate DMSO and left the study. While DMSO was initially painted on the affected areas, many patients found they had a better response covering large parts of their body with it or immersing their affected fingers in it for one minute every two hours. Additionally, this study determined that the collagen deposition under the skin decreased with DMSO treatment.

Note: this study was initially inspired by the recognition that DMSO is very effective at treating pain, and scleroderma is often quite painful.

A follow up study reported the results of 42 patients with chronic scleroderma who had not responded to any previous treatment and often had significant organ involvement of the disease. DMSO was attempted and given at a dose they could tolerate (which ranged from 30-100% and often could be raised over time) and then either was just given to the affected part of the body, a significant part of it, the entire body, or in some cases by immersing the affected region in DMSO), and then after 2-3 weeks only administered to the hands, forearms, feet and occasionally the face. Additionally, 9 patients with circumscribed and interstitial calcinosis, tendon contractures, and capsular adhesions who had not responded to topical DMSO received 5-10ml of 1-5% DMSO injected subcutaneously once a day for four weeks.

In many cases, 1-2 years of therapy was needed to obtain a significant cutaneous improvement, and of the 42 patients 16 showed fair or poor response (e.g., 6 with late stage scleroderma died from their illness during the study) while 26 showed good or excellent improvement to DMSO. Of the 26 (62%) with a good response, most had to remain on it, but DMSO caused 3 to have a complete remission (and no longer need DMSO), while 9 who thought this had happened but later had to resume DMSO within four weeks because their symptoms (e.g., pain and stiffness) returned. Of the 19 patients with ulcers, the majority healed from topical DMSO, a few required immersion in DMSO, and it is unclear from the study what happened to the rest. There were also 2 patients with interstitial calcinosis that restricted joint motion and disappeared after DMSO.





Additionally, like the previous study, they determined that pathologic collagen deposits under the skin were being broken down and returned to their normal form, with collagen breakdown products increasing by approximately 50% in the urine— (whereas typically in scleroderma and other rheumatologic disorders that does not happen). This, in turn, is similar to how DMSO increases the urinary excretion of amyloid degradation products.

Note: if the FDA were at all reasonable, this study would have gotten approval to use DMSO to treat scleroderma, especially given the professional reputation of the rheumatologist who conducted the study.

In a final study, a Cleveland Clinic rheumatologist gave DMSO to 19 patients with systemic sclerosis and 3 with local sclerosis who'd had it for 1-20 years (averaging roughly 7 years) with a similar but more refined DMSO treatment protocol. This study had the most precise data, showing that DMSO softened the skin, improved joint motion and grip strength, and eliminated ulcers. Additionally, in this study, DMSO was only applied to one hand (so an untreated "control" would exist), but due to DMSO's systemic absorption, the other hand also improved (although never more than the treated hand). In all cases, the effect of DMSO was temporary, so it had to be continued to sustain its benefits.

Note: a similar 1966 study concluded there was "no benefit" from DMSO because the changes observed in both the treated and untreated hand were similar (as the authors appeared to be unaware of the systemic effects of DMSO). I believe this issue characterizes the small number of other studies that found no benefit from DMSO in scleroderma (but I could not access the articles to confirm this).

Other data includes:

A study of 10 patients with scleroderma showed that their skin had greatly improved from DMSO to the point where the skin became supple and ulcers healed. That author then conducted a subsequent study on 20 patients, noting they "had increased mobility, rapid relief of pain and healing of persistent ulcers, arrest of the spread of cutaneous disease, regrowth of hair, and return of sensation and sweating."

A study of 29 patients with systemic scleroderma that assessed blood flow (as scleroderma significantly impairs circulation) in the skin and muscles with a radioactive isotope. It found that 50% DMSO slightly improved it, increased it by 1.2 times when given with another agent, and by 6 times when given with 1% nicotinic acid. When the DMSO nicotinic acid combination was given, it also resolved their Raynaud's syndrome, gross edema and hyperpigmentation of the skin. Additionally, when 50% DMSO was given with another agent, within a month it completely healed the ulcers on the fingers of 6 six patients it was tried on. Finally, the authors noted they'd used DMSO on roughly 2,500 rheumatologic patients (e.g., rheumatoid arthritic, scleroderma, amyloidosis) with excellent results.

Note: another paper detailed how DMSO causes a dilation of the blood vessels in the upper dermis of scleroderma patients. Additionally, in scleroderma, the ESR is elevated (which indicates blood cells are clumping together and disrupting the microcirculation), so since DMSO disperses clumped blood cells, this may also partly explain why it improves circulation in this illness.

A Russian study (I verified by translating) gave 30-90% DMSO 1-2 times a day to 52 women and 6 men with progressive scleroderma (that was often quite severe) for several months to 2 years. Within 1-2

months, significant improvement was observed in the skin and connective tissue, and in time, all ulcers disappeared. DMSO stopped the disease's progression for all but 2 of them (96.6%), and clinical recovery occurred in 34 of the 40 with plaque scleroderma (while the remaining 6 improved but had to remain on DMSO). Linear scleroderma also responded to DMSO, but took much longer to regress. Of the 8 patients who had generalized scleroderma, 1 had a complete regression after 2 years, while the other 7 at the time of publication (after 2-3 months of treatment) had shown significant improvement in a wide range of areas. All 40 patients who completed the treatment course were monitored for up to 5 years, and no relapses occurred.

[Russian] patients commented on the suddenness with which the ugly old disabilities began to disappear and the rapidity of the healing process.

Many patients in that group have said they were happy to experience washing with DMSO," the scientists said. "It reportedly improved their well-being immediately, and they simply could not imagine life without DMSO. The results we have obtained have proved the high effectiveness of DMSO.

Another study found DMSO yielded good results for 3 out of 4 scleroderma patients.

Finally, when a Congressional Committee (unsuccessfully) pressured the FDA to legalize DMSO, as part of their case, they randomly surveyed 250 rheumatologists, of whom 68% responded, of whom 33% had used DMSO in their practice. Of them, 49% felt DMSO was effective (along with 23 more who did not have direct experience using it). Most of their uses were for musculoskeletal disorders, but many also reported using it for scleroderma. Sadly however, nowadays, it's exceedingly rare for me to find rheumatologists who know much about DMSO.

Note: there are dozens of testimonials from scleroderma patients (e.g., at the committee hearing which I attached [here](#)) who experienced life-saving changes from DMSO and gave many heartfelt pleas to both the FDA and Congress for DMSO to be legalized for this condition.

My time in the medical field has led me to accept many medical practices are adopted because of politics or economics rather than because existing evidence shows they work. Nonetheless, certain instances of this happening still astound me to this day, particularly the blacklisting of DMSO (dimethyl sulfoxide) as:

- This simple chemical is incredibly safe and effective and treats a wide range of challenging medical conditions that impact millions that still lack an effective therapy (outside of DMSO).
- Because of its efficacy, once discovered, it took the country by storm, resulting in millions using it, the scientific community getting behind it and publishing thousands of studies on DMSO, **numerous pharmaceutical companies making large investments to bring it market**, professional athletes promoting it, numerous governors, congressional representatives and senators (on behalf of both themselves and their constituents) pressuring the FDA to give it a fair chance for decades and state legislatures independently legalizing it because the federal government would not.
- Many approved pharmaceutical products take advantage of DMSO's properties to work (e.g., in those products, DMSO is often classified as an inert "vehicle"). Similarly, DMSO is FDA approved for one condition (interstitial cystitis) and is approved for a wide variety of veterinary uses (e.g., the same conditions it treats in humans).
- Over the past 40 years, more than 10,000 articles on the biological implications and 30,000 articles on the chemistry of DMSO have appeared in the scientific literature—much of which, as I've shown here is remarkably compelling and paradigm shifting in healthcare.
- Yet, despite all of that, DMSO was effectively erased from history. It is now widely seen as an unproven and dangerous therapy, and even within the natural health field, most people do not know it exists.

Because of all that, I've felt a responsibility to use this platform to get the knowledge on DMSO out, which I began by presenting the strong case that DMSO is an incredible therapy for:

- Circulatory disorders like Reynaud's and varicose veins.
- A wide range of neurological disorders, including ischemic and hemorrhagic strokes, and spinal cord injuries leading to paralysis or dementia.
- Allowing patients who've had decades of chronic pain (from a variety of different causes) to get their lives back.
- Healing a wide range of injuries (e.g., sports injuries, traumatic impacts) and chronic musculoskeletal problems (e.g., spine and shoulder issues) and wounds (e.g., burns or surgical incisions).
- Chronic rheumatic conditions (e.g., arthritis).
- Complex protein disorders (e.g., amyloidosis).
- Down Syndrome.

In turn, I've received numerous reports from readers (I've been gradually sharing here) from readers who've experienced rapid life-changing benefits from DMSO, very similar to the data I provided, which showed DMSO had an 80-90% success rate in treating.

Yet, despite all of this, I've still only touched the tip of the iceberg of what can be done with DMSO (e.g., in upcoming articles I will also review how DMSO is also quite helpful for a variety of eye, ear, dental, gastrointestinal, and autoimmune conditions such as tinnitus and macular degeneration, along with also having remarkable utility in treating cancer, challenging infections and debilitating collagen disorders). As a result, I've also received numerous queries from readers who inadvertently discovered many of those benefits when they used DMSO for a chronic pain condition.

For example, some of the more recent reports I've received include:

After AMD's articles, I used DMSO on an acute bruise and it completely took the pain away AND resolved the swelling that was developing. 🤖🤖🤖🤖. It's hardly even tender today. Incredible

Dear MWD, you are so right on learning to doctor yourself. I don't travel without DMSO, ivermectin and aspirin. Two nights ago at bedtime I developed chest pains that radiated between my shoulder blades. Being in New Mexico (Oh, Lord, don't let me die in New Mexico) I put DMSO along my carotids on my neck and took 2 aspirin. In an hour the pain was gone and I slept soundly. Scared the hell out of my poor husband.

After reading this I got a tub of 70/30 gel and applied it to my sons feet three times per day. He was riding his skateboard barefoot and crunched his toes under his feet. No broken bones.

Within three days he said he felt no pain or discomfort at all. For the sort of injury it was it seemed like the sort of thing which would take weeks to stop hurting and for all discomfort to end for a sixteen year old!

Excellent research - I've given DMSO to my mom and it has helped her arthritis immensely.

I am an 81 year old woman who was injured by the first of a series of 2 Shingrix shots in 2019. I never took the second shot. Eight days after receiving that shot I developed excruciating pain in my arms, hands, legs and feet. Although being told by two doctors that the vaccine did not cause the pain, the neurology team at a major medical institution diagnosed my condition as acute inflammatory demyelinating polyneuropathy(AIDP), on the spectrum of Guillame Barre. They treated me with gabapentin which relieved the pain. However, I was left with neuropathy in my feet which caused severe and painful spasms in my feet along with numbness on the bottom of my feet. After several weeks seeing a neurologist, I asked her what could be done to help this situation. She said there was nothing. After this article I started using DMSO on the bottom of my feet and over the tops of my toes when I went to bed. The first time I used it, I had no spasms which always happened at night when I was trying to go to sleep. I've now used it for 3 days and still no spasms. It's like a miracle. I'll continue using it to see if it helps resolve the numbness in my feet. God bless you, AMD. I never would have tried this without your articles and would have suffered needlessly forever. I owe you a great debt. Thank you. I'm telling everyone about DMSO and sending your articles as well. Your contributions are, without doubt, some of the most important I have read.

Likewise, a grateful reader reported their wife (a retired nurse) had a fall that injured her back and left

likewise, a grateful reader reported their wife (a retired nurse) had a fall that injured her back and left her in severe pain and unable to walk which chiropractic did not help, and then a few days later, the ER could not help either. However, rather than accept an admission to the hospital, she took DMSO, her back worked itself out, and she was spared months of recovery with the standard of care.

Note: I've also received reports on a variety of other conditions (e.g., one subscriber shared a DMSO mixture shrunk their hemorrhoid), and another shared DMSO has gradually been shrinking their cataract.

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If we take a step back, it should be clear that DMSO should be in widespread use, but instead something very wrong happened with DMSO which resulted in it getting blacklisted. This was due to the FDA continually doubling-down on an unshakable ideological crusade against DMSO that I believe ultimately resulted from the FDA not wanting to lose its grip over the practice of medicine in the United States (as the therapeutic potential of DMSO greatly threatened the FDA's ability to control how medicine was practiced).

In turn, I believe what happened is a critical story to be told because:

- The entire story of DMSO is a remarkable example of thousands of dedicated scientists and doctors giving everything they could to bring this critical innovation to the public and thus highlight the incredible potential our scientific apparatus has to address the problems that plague humanity. In contrast, because of the decades of rigid suppression of independent science, we've become habituated to science being unable to solve our basic problems—something that urgently needs to change.

- The FDA's gross misconduct with DMSO set the stage for what the agency continues to do to this day, and helps to explain why so many remarkable treatments have been withheld from the public while dangerous and ineffective ones are continually pushed upon the public (e.g., consider what happened throughout COVID-19).

Is DMSO Safe?

Throughout the FDA's war against DMSO, the FDA has always cited two reasons to justify its conduct.

- That no evidence existed DMSO worked, which as I showed in the [first](#) and [second](#) part of this series, was an absurd claim as data from thousands upon thousands of patients showed DMSO worked dramatically better than the existing therapeutic options.

•That DMSO was an incredibly dangerous drug that it was critically important to protect the public from—something I’ve argued was a patent lie.

Note: these lies now extend far beyond America. For example, [this posting by Health Canada](#), beyond characterizing DMSO as a dangerous solvent, makes numerous demonstrably false claims about DMSO and declares no evidence exists for DMSO’s efficacy—which is extraordinary given how many of clinical trials have proven DMSO works and how easy many of those studies are to locate.

Furthermore, beyond the above points being absurd, the existing standards within the FDA are that if unmet medical needs exist or there is no viable cure for a serious illness, those standards can be loosened (hence why the COVID vaccines were approved, or more recently, why an incredibly unsafe and ineffective Alzheimer’s drug was approved despite the FDA’s outside panel vetoing it and resigning in protest once the FDA overrode them). In the case of DMSO, this is particularly relevant as many of the diseases DMSO was proven to treat (e.g., Down Syndrome, Spinal Cord Injuries, Scleroderma) are severe illnesses that have remained incurable for decades.

All of this thus raises the question. How safe is DMSO? Since that data is relevant to both understanding the FDA’s crusade against it and likewise for anyone considering using it, I have done my best to compile all of that data here..

The Safety of DMSO

No drug is completely safe. However, I consider DMSO to be one of the safest drugs I know of for a few key reasons.

1. It was subject to intensive scrutiny and a wide range of toxicology studies (as the FDA was desperate to find a reason to justify their prohibition on it). Nonetheless, nothing was found.
2. Rather than be toxic to cells, cells can tolerate very high concentrations of DMSO and in many cases, DMSO can protect cells from dying or rescue ones that were in the process of dying. All of this is extraordinarily unusual.
3. A large number of animal studies (in at least 11 different species—including fish) have shown a lack of toxicity for DMSO.
4. Clinical trials consistently show a lack of toxicity from DMSO.
5. DMSO does not accumulate in the body, so it has no cumulative toxicity.
6. Millions of people have used DMSO, many of whom have used it for years if not decades (e.g., taking it daily for over 50 years). Still, despite this (outside of a few easily preventable mishaps which will be discussed below), no serious issues have emerged.

For context, DMSO has a safety profile that is orders of magnitude greater than drugs that are routinely taken without a thought being given to their safety.

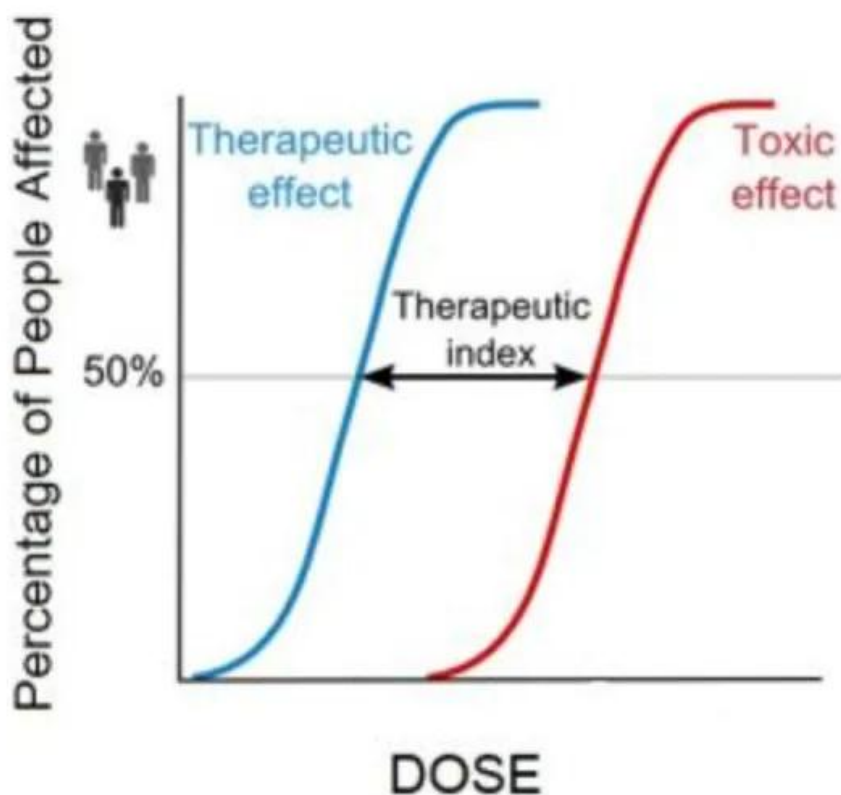
I will now attempt to summarize **all** the pertinent data I’ve found on DMSO’s safety. Some of this may sound concerning, but it needs to be seen in the context that it was found by using very high doses of it, as an immense amount of research was devoted to finding any possible way DMSO could be toxic

(something rarely done for most drugs) and as a result, much of this is not applicable to how most of you will use DMSO.

Note: while this is a bit lengthy, I felt it was important to share all the toxicology data I could locate so that I did not inadvertently filter any potentially useful information and create a biased or misleading reference.

Median Lethal Dose (LD50)

One of the most commonly used methods to determine a substance's toxicity is to see how high a dose of it needs to be given to kill 50% of the exposed animals (which leads to countless tragic and, in my eyes unnecessary animal deaths each year). Part of why this value is needed is because each drug has both a toxic dose and an effective dose, and the goal is to find something in between those two that can be prescribed to people



In turn, when the therapeutic index is narrower, the drug is harder to use without side effects and often is given in more controlled settings (e.g., at an IV infusion center) so it is less likely someone will accidentally get a toxic dose. Conversely, drugs with a wide therapeutic index require less oversight in their administration.

Note: one of the major problems with how medicine is practiced now is that (in order to make drugs easily marketable products) standardized doses are always used. This in turn results in many patients receiving inappropriate doses (e.g., ones that are too high), and both I and my colleagues thus believe one of the most critically important forgotten arts of medicine is knowing how to choose an appropriate dose (a subject which I discussed in further detail [here](#)).

Since there was so much controversy around DMSO, an immense amount of LD50 data was

obtained that showed DMSO is far less toxic than a variety of commonly used substances.

Note: as toxic doses approaching the DMSO's LD50 were used in animals, tissue injury would also occur (e.g., vein irritation, vasoconstriction and necrosis after intravenous application, hemorrhagic gelatinous and edematous lesion at the site of muscular or subcutaneous injections, or liver damage)—much of which was thought to be due to osmotic injuries to the tissues created by the high concentrations of DMSO. However, if the animals survived, this damage typically went away within a week.

LD₅₀ for Various Animal Species in g/kg Using Different Routes of Administration

LD₅₀ of DMSO in Animals

Species	Route of Administration	g/kg
Mouse	SQ	13.9–20.5
Mouse	IV	3.8–10.7
Mouse	PO	15–22
Mouse	IP	20.0
Rat	IV	5.2–5.3
Rat	PO	16.0–28.3
Rat	IP	6.5–13.6
Dog	IV	2.5
Guinea pig	IP	6.5
Chicken	PO	12.5

Note: SQ, subcutaneous; IV, intravenous; PO, oral; IP, intraperitoneal.

Note: similar data has been found in many other species (e.g., monkeys have a IV LD50 of 4 g/kg). The one exception are rabbits, which have a lower LD50 with DMSO, something that was theorized to be due to the antimicrobial effects of DMSO altering their gut flora. Additionally, when dogs were given 3g/kg of DMSO topically (rather than IV) the only side effect observed was the classic DMSO odor.

In short, to reach the LD50 of DMSO, you would need to **drink roughly two quarts of it within an hour**, which is more DMSO than daily DMSO users ingest over two months.

For comparison, many commonly used substances are 10-100 times as toxic as DMSO:

Oral (PO) LD-50 of Common Substances (g/kg)

.. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Ibuprofen: 0.495-0.740	Alcohol: 3.450-7.060
Tylenol: 0.150	Fructose: 4.0
Ivermectin: 0.025-0.050	Glucose: 25.8
Metformin: 0.150-1.770	Vitamin C: 11.9
Aspirin: 1.9	Table Salt: 3.0
Omeprazole: 2.210-4.000	
Penicillin: 8.900	
Prozac: 0.045-0.467	

Note: LD50s are typically written in mg/kg rather than g/kg due to their higher toxicity. Additionally, some variation exists in the LD50s for the substances listed above (hence why I attempted to present an approximate range).

Additionally, none of the previously cited LD50 studies assessed topical applications of DMSO. This is because a limit gets reached as to how much DMSO can be absorbed through the skin, and that amount is far below the LD50 (e.g., in [a previous article](#) I cited cases of people who were going to lose a limb or finger which was then soaked in DMSO and the only side effect they experienced was the tissue fully recovering).

In mice, the LD50 of topical DMSO was estimated to be 50g/kg, as mice survived being dipped (immersed) up to their necks in up to 60% DMSO, while rats survived being dipped in up to 80% DMSO, or up to 60% DMSO three times per week for 26 weeks—with the dipping sessions often lasting 24 hours.

Note: the main changes observed in the repeatedly dipped rats were ulcerous dots on the belly and back, eye changes (lens clouding and near-sightedness) and slight changes in the blood and liver—all of which were reversible. Conversely, when 100% DMSO was painted over their entire body each day, no adverse effects occurred (which again demonstrates that the toxic dose was quite high).

In humans, it is not practical (or ethical) to dip them in vats of DMSO all day long, but the closest approximation of that was attempted (subjects were repeatedly fully covered with DMSO gel so they could receive 1g/kg a day of DMSO—a dose 3-30 times higher than what is typically used by patients) and then monitored for 90 days. Despite this extraordinarily high dose being received each day, no toxicity was observed (whereas with virtually any other drug on the market, serious issues would emerge from repeatedly receiving that high of a dose)

Note: in monkeys, the LD50 of topical DMSO was established to be over 11g/kg, while the oral LD50 was established to be over 4g/kg.

In addition to the LD50 studies, a variety of other safety studies were also done on animals which likewise found (through an extensive battery of tests) that DMSO had negligible toxicity. For both length considerations, and because I don't believe many of you want to hear about all the other grotesque animal studies that were done to appease the FDA, I am not listing and summarizing them

here. However, for those researchers who are interested, the two best resources I've found on DMSO's toxicology are [this textbook on the pharmacology of DMSO](#) (which has a lengthy discussion about the existing toxicology data and can be read on the internet archive [here](#)) and this well-referenced [2019 book](#) that was written by two of the leading pioneers of DMSO.

Since I have read through approximately 100 studies that stated a similar side effect profile (DMSO was safe and typically caused the same reactions at comparable rates), rather than list each of them, I will just share the most pertinent information.

Note: one of the most detailed summaries of DMSO's animal toxicology data can be found [here](#).

Common Side Effects

Two side effects are frequently seen with DMSO usage that often decrease with successive applications of DMSO:

- A temporary (and sometimes uncomfortable) irritation of the skin when DMSO is administered topically that typically disappears in 10 minutes (and at most 20) and varies widely in how it feels (e.g., some find it pleasant, others find it extremely unpleasant). Typically this irritation can be alleviated by immediately washing it off with water, and it is generally advised to avoid further irritating the skin by scratching the irritated area.

Studies find this irritation affects 50-85% of users (particularly blonde or red haired and fair skinned individuals or those already prone to skin reactions), and is more common at higher concentrations or when gels (rather than liquid DMSO) are used. Because of this, it is typically advised to not use more than 70% DMSO topically (outside of emergencies like a stroke) although many (e.g., readers here) tolerate 100% DMSO without issue. [In roughly](#) 15% of patients this reaction is "marked," in 3.5% it is enough that the patients stop using DMSO (with those reactions clearing within 10 days of stopping DMSO and the clearing being accelerated with topical hydrocortisone), and in 0.1% of patients the reaction is severe enough that it requires suspending the treatment. Additionally, in some patients, repeated applications to the same area can cause drying and scaling of that skin (which will heal in time but also responds to aloe vera). Finally, when DMSO is ingested orally, [a much lower concentration needs to be used](#) to avoid irritating the GI tract.

Note: while some people are fine with the taste of oral DMSO, most find [prefer to mix it with something else](#) to mask its flavor.

- When DMSO is metabolized, if the body is unable to fully oxidize it (e.g., due to reductive stress) some of it instead is reduced to dimethyl sulfide, which in turn is excreted through the skin and lungs (and hence the breath), leading to a significant number of DMSO users (but not all of them) developing a characteristic garlic or clam like odor that typically lasts for a few hours but in some cases can last for up to 72 hours. Because of this side effect, DMSO users who experience it typically structure their social life and when they take DMSO so that the odor will not occur at inconvenient times (e.g., when they wish to have physical intimacy with their spouse).

Note: this odor increases with greater doses of DMSO.

In turn, with the exception of one headache, every negative response to DMSO a reader here has reported here was either this odor or skin irritation.

Severe Side Effects

The most significant danger of DMSO is having an allergic reaction to it (e.g., generalized body rashes). Compared to most drugs, this effect is fairly rare (estimates range from 1 in 1000 patients to 1 in 2000 patients), and fortunately has not been documented to lead to severe allergic reactions that can be fatal (e.g., in a sample of 2000 patients, 2 patients experienced minor difficulties with breathing that quickly reversed with treatment). Nonetheless, it is generally advised to check for an allergic reaction to DMSO (the process for which is described [here](#)) before beginning significant topical use of DMSO or internal use of it.

Note: DMSO has not been shown to create allergic tendencies (e.g., it didn't create sensitivities to pollens in the environment)—which for instance is one of the major issues with certain childhood vaccines.

The other significant effect of DMSO is that **prior to it drying**, it will drag chemicals (but not bacteria) which are on the skin where it is applied to the body. Incidents of this nature are extremely rare, and typically, it occurs when someone was in the vicinity of a pesticide (which was on their skin and resulted in them getting ill), but I have also heard of a few more severe cases like [this one](#):

My Dad told us of an adverse event related to DMSO use during his working career: lab technicians liberally used DMSO's excellent solvent characteristics to clean glassware. One technician was a heavy smoker and immersed a hand in DMSO. Almost immediately he had a severe reaction and was rushed to the hospital where he almost died. He was found to have severe nicotine poisoning ... the DMSO transmitted the nicotine stains from his fingers directly into his bloodstream.

*Note: I have read a few reports of individuals who typically didn't react to DMSO having significant reactions to DMSO when it was applied to parts of the body (e.g., the hair) where other compounds were present. For this reason, it is generally a good idea to always clean an area before applying DMSO to it, wait until DMSO dries (which takes about 20 minutes) before letting anything (e.g., synthetic clothing) contact the skin and to use clean (e.g., purified) water when diluting DMSO. That all said, deaths from DMSO are incredibly rare, and despite millions of people using it, only three deaths have ever been **associated** with it.*

The first (in 1965) involved an Irish woman who had been on a course of antibiotics and an anti-anxiety medication who continued to use DMSO despite having an allergic reaction to it, and then died of what was reported to be an anaphylactic reaction. It was never determined if DMSO was the responsible agent for her death.

The second case came from oral DMSO and [was reported at this conference](#) (but I could not find any additional information on this “overdose” beyond what was listed in FAERS report 13555640).

The final case is a still unsolved medical mystery where a woman with end-stage cervical cancer (who was also taking DMSO). presented the the ER. died shortly after (from cervical cancer) but

simultaneously sickened many of the workers around her (e.g., 3 fainted around her, 5 required hospitalization, with 1 being in the ICU for 2 weeks). One theory put forward was that the medical oxygen and electrical shocks she received caused the DMSO in her to be converted to dimethyl sulfate, a theory many chemists then disagreed with (hence making it an unsolved mystery). I personally believe this theory is impossible as she was tachycardic at the start (whereas a DMSO overdose slows the heart rate) and because the metabolite of DMSO that is exhaled (dimethyl sulfide) and hence what would have been in contact with the medical oxygen, unlike DMSO, cannot react to become dimethyl sulfate. Rather, if DMSO was at fault, I believe it is much more likely a contaminant was present in the DMSO she got from the hardware store. In comparison, far more deaths can be conclusively linked to almost every other pharmaceutical on the market.

Moderate Side Effects

DMSO often reduces the toxicity of another pharmaceutical (e.g., it makes chemotherapy less damaging to the rest of the body), but in some cases it can instead enhance the toxicity or strength of the pharmaceutical. At the time when this was researched, it was shown to occur with alcohol and barbiturates due to altering their metabolism and DMSO's parasympathetic enhancing effects, but it likely occurs with other drugs as well (e.g., benzodiazepines). However, to the best of my knowledge, no other potentiating effects have been observed.

Additionally, a study evaluating the effect of DMSO on the Shwartzman phenomenon (tissue necrosis which occurs following the repeated introduction of a toxin to the body) injected a bacterial toxin (LPS) under the skin and then followed it with an IV injection of LPS. If DMSO was applied topically after the first injection, the reaction at the injection sites was enhanced following the second LPS injection, while if DMSO was applied topically after the second injection (when the severe Shwartzman phenomenon would occur) DMSO prevented the reaction, but if IV DMSO was given after the first injection, no change occurred, but when IV DMSO was given after IV LPS, **all 6 rabbits died within 2 hours.**

This is one of the only examples I have come across of DMSO making something become significantly more dangerous (with the other being that if carbon tetrachloride was fed to rats with a feeding tube, injecting DMSO into the abdomen made it more toxic), but given how many drugs DMSO could interact with, it's quite possible other interactions exist (e.g., DMSO makes both antibiotics and chemotherapy more effective and simultaneously makes chemotherapy less toxic). In turn, I've received numerous questions on if a harmful interaction exists between DMSO and anticoagulants like Eloquis (leading to excess bleeding) or metal prostheses (leading to their components being leached into the body). I can see numerous reasons arguing for why DMSO might be harmful, beneficial or inconsequential in each case and to the best of my knowledge, no harmful interactions have been reported in any of these cases—but unfortunately, since neither issue has been extensively studied (except when DMSO is mixed with stem cells), I can't actually state with confidence there isn't an interaction.

Note: while DMSO has strong anti-platelet activity (detailed [here](#)), I have come across a few papers that mentioned that while DMSO prevented dangerous clots, it did not affect the blood coagulability of subjects. The most detailed paper I found assessing this question found DMSO had the typical U-shaped curve of a zeta potential restoring agent, which meant at very low doses it caused blood to gel together, at most doses it dispersed it, and at high doses (which would not be found during medical DMSO therapy) it clumped blood together, along with also having a U-shaped curve of the recalcification time—all of which led the authors to conclude DMSO probably has an inconsequential effect on blood clotting, except possibly when it reached low levels as it was being eliminated from the body (where in practice it has not actually been shown to cause clotting).

Simultaneously, in the places I would have expected to see the other drug reactions be listed, they weren't. For example, this was part of a memo Merck sent out to their clinical investigators on September 8, 1965, summarizing their experiences with approximately 4,000 patients who had received DMSO anywhere from once to daily for 18 months in a list that is fairly representative of the side effects seen now:

Approximately 85 percent of patients experience a typical histamine-type reaction at the site of application, usually transient mild itching and burning and some erythema. This is not considered to be a true adverse reaction to the drug but a typical side effect. A fine vesiculation, occasionally at the site of application, is also usually transient. After prolonged administration, drying, mild wrinkling and occasionally some scaling of the skin is not uncommon. This is no worse than after a mild sunburn.

A few cases of generalized dermatitis have occurred. This is usually a wheal and erythema reaction of a histamine type occurring at sites distant from the area of application. Rarely may this generalized dermatitis be so severe. The drug should be discontinued if a generalized dermatitis develops.

Rarely, serious or potentially serious hypersensitivity reactions may occur. One fatal reaction has been reported in a patient who continued to receive the drug after signs of extreme sensitivity developed.

There has also been a report of laryngeal edema of a mild degree in one patient.

Other unusual reactions have included hypotension in a few patients.

A few cases of mild paresthesias have been noted. Re-evaluation of most of these cases has shown that these were in patients with a strong emotional overlay. Elimination of this type of patient from the clinical studies has greatly reduced this type of reaction.

Some patients have noted a tranquilizing or sedative effect. In most cases this has not been severe enough to warrant concern.

Sedation may occur more in elderly patients with cerebral arteriosclerosis. In the younger individual it occurs more often before meals. It may occur after the first application and, if it is observed, the

patient should be cautioned about driving or pursuits that may harm himself or others. Some patients have noted an apparent potentiation of sedatives like barbiturates or alcohol. These findings have not been observed in the laboratory.

Some patients have a garlic or oyster odor on their breath after topical administration of DMSO. There have been a few cases of mild nausea. All of these effects have disappeared when the drug was discontinued.

Blood chemistries have been followed on a large number of patients, and these have not shown significant changes.

Earlier studies included oral administration of the drug. This route of administration is not being investigated at the present time. (Oral and parenteral studies may be initiated at a later date.) These patients received 30 to 60 ml. per day orally for a period of two weeks, and weight loss from 5 to 10 pounds was noted in 50 percent of the patients. This may have been from loss of appetite

Note: aspirin, heparin, and warfarin were in use by 1965 but were not mentioned in this document. It's hard for me to assess if artificial joint replacements would have been evaluated since the technology had only been on the market for a few years, especially since on one hand patients with replacements would be more likely to enroll in these trials (due to complications from the surgeries) but simultaneously, may have been less attractive clinical trial investigators (since the technology was still moderately new).

In each of the studies I've looked at, the authors consistently noticed a lack of side effects, excluding irritation of the skin, a garlic odor, occasional nausea, and vomiting, and once a large enough sample size exists, the 1 in 1-2000 risk of an allergy to DMSO. Additionally, when DMSO is given intravenously, there is often a temporary slowing of the heart rate, and in some cases, either an osmotic hemolysis of weaker (older) blood cells when DMSO is used at higher concentrations (30-40%) is infused intravenously (which often causes blood urine but does not affect kidney function), or significant urination and in some cases a fluid overload or hypernatremia when low concentrations (below 10%) are used.

Note: this concentration dependent effect of IV DMSO led to a variety of research to determine the optimal dose that is without either of these issues. When we use intravenous DMSO in practice, we use a fairly low concentration and have not run into the fluid overload or hypernatremia issue (which I believe is due to us using a much lower total dose of DMSO). Likewise, doctors who use higher concentrations of IV DMSO will evaluate a patient's blood count throughout the treatment to ensure they don't cause hemolytic anemia.

In the most extensive safety study conducted on DMSO (done in cooperation with the FDA from 1967 to 1968), from a pool of 400 volunteer prisoners, the healthiest volunteers (e.g., no pre-existing conditions) were selected to either be the 33 controls or to be the 78 who received 80% DMSO gel given at **3-30 times the normal dose** (done by stripping them and covering their entire body with DMSO) each day for either 14 or 90 days. All of whom were then monitored on a daily basis by a large

DMSO, each day for 90 days, all of them were then monitored on a daily basis by a large team of doctors (e.g., many specialists). Alongside regular physical examinations, the subject's blood work, eyes, EEG, bone marrow, EKG, and cerebral spinal fluid were routinely assessed. From this large volume of data, the only abnormality detected was an occasional transient blood work change, but except for a transient (likely histamine-induced) increase in eosinophils during the first few weeks (which occurred in 23 [51%] of the 45 DMSO treated subjects) and 8 (31%) of the controls, none of these changes appeared to be related to DMSO.

By far the most common side effects were skin irritation or a garlic-like odor. Additionally, the following side effects were reported in the 65 subjects who used DMSO (**at an impossibly high dose**) for 90 days:

Sedation	52%	Influenza-like syndrome	5%	Dyspnea	2%
Headache*	42%	Diarrhea	5%	Dry throat	2%
Nausea	32%	Weight gain	5%	Sore throat	2%
Dizziness	18%	Weight loss	5%	Cough	2%
Burning or aching eyes	9%	Constipation	3%	Increased Frequency of Urination	2%
Vomiting	6%	Dry nasal passages	3%	Anorexia	2%
Xerostomia (Dry Mouth)	5%				

*Many of the reported headaches occurred following diagnostic lumbar punctures (which is common a side effect of this procedure). Additionally, I believe the sedation (drowsiness) was likely due to DMSO increasing parasympathetic activity.

Note: many of the prisoners in the study also self-reported an improvement of existing chronic pain conditions. Additionally, most of the subjects who left the study (which overall had a low dropout rate) did so because they were moved to another prison, they wanted to be paid more for participating, they did not like the odor, or they did not like the skin irritation (although many who experienced those symptoms continued).

One large meta-analysis tried to compute the risks of DMSO. While its results are generally in accordance with what I described (i.e., nausea is a common side effect of IV DMSO), many of the studies I reviewed were not included in it, and instead, while this review had some DMSO only studies, it was predominantly composed of studies where DMSO was used in conjunction with something else (most commonly stem cells, followed by topical diclofenac DMSO was used to bring into the system, followed by Onyx, a polymer that is used repair ruptured arteries under anesthesia and thus represents a much higher risk situation than when IV DMSO is typically used). Because of this, the risks that the review showed of adverse events, while low, **were significantly higher than what I observed in the individual DMSO studies I've looked at** (e.g., this study, this study, this study and this study of IV DMSO all either reported there were “no side effects” or “no significant side effects” from the therapy). Likewise, I believe this mix of DMSO containing agents explains why the sample sizes varied for each symptom that was reported.

	Topical	Intravenous	Overall Incidence	Other
Halitosis or Garlic-like breath	10% (556/5333)	6% (14/239)	11% (607/5782)	Oral: 27% (4/15) Into Bladder: 20% (33/165)
Diarrhea	3% (12/363)	2% (15/744)	2% (27/1107)	
Nausea	5% (51/1039)	17% (199/1154)	12% (257/2214)	Multiple Routes: 33% (7/21)
Vomiting	1% (7/639)	11% (108/972)	7% (115/1611)	
Nausea and/or vomiting			13% (591/4529)	
Abdominal cramps stomach ache	4% (16/376)	6% (72/1253)	5% (88/1629)	

	Patients Experiencing Reaction	Range	Reactions Per Treatment	Range
Hypotension	4% (115/2752)	1-14%	3% (10/323)	2-14%
Hypertension	13% (385/2998)	2-95%	14% (60/425)	3-21%
Bradycardia (mild and severe)	11% (94/882)	0-49%	7% (4/54)	
Decrease in heart rate	79% (152/193)	11-94%	94% (30/32)	
Tachycardia	2% (13/565)	0-6%	7% (4/54)	
Ventricular Extrasystoles	50% (11/22)			
Cardiac Event (unspecified)	11% (18/165)	5-12%	3% (35/1269)	
Asystole	7% (3/45)	3-20%		
Left Cardiac Insuficiency	0.5% (1/194)			
Chest discomfort/tightness	2% (22/901)	1-10%	5% (83/1640)	0-6%
Unspecified respiratory symptoms	26% (43/165)	21-62%		
Dyspnea	1% (26/2748)	0-10%	1% (3/371)	0-2%
Cough	14% (52/373)	5-22%		
Lung Edema	1% (3/241)	1-2%		
Shortness of Breath			3% (40/1269)	

Note: the two cases of asystole (cardiac arrest) occurred when DMSO was to patch ruptured blood vessels. To quote the study: “bradycardia was observed in 4 cases, with a brief asystole in 2 of these patients during transarterial and transvenous Onyx delivery at cavernous sinus and orbital levels [which reversed with cessation of the injection and atropine—a drug that reverses parasympathetic activity]. Based on our observation, hemodynamic instability was demonstrated during Onyx injection into the vessels that were in close proximity to the trigeminal nerve or its branches, especially in low-flow/low-volume compartment and may represent a direct effect of dimethyl sulfoxide/Onyx on the trigeminal nerve, resulting in vagal response from trigeminocardiac reflex.”

Additionally, I have also found a few other reports of Onyx (or stem cells combined with DMSO) causing cardiac arrest—but I do not believe these instances are applicable to normal IV DMSO administration, except for a minor slowing of the heart (which likely results from DMSO increasing parasympathetic activity), nothing comparable to these incidences was ever reported with just IV DMSO alone.

Similarly, to quote [another review paper](#) which examined the effects of infusing DMSO preserved stem cells:

A retrospective review of the published literature identified several hundred adverse reactions (e.g. nausea, chills, cardiac arrhythmias, neurological symptoms and respiratory arrest) associated with the transplantation of stem cells cryopreserved with dimethyl sulfoxide. The occurrences of these are generally accepted as commonplace, as the majority of reactions are transient, whilst a few patients

may require clinical treatment.

Note: this paper also found these reactions were proportional to what was infused, how fast it was infused and how much in total was infused (as did this one), while another review noted these reactions could be mitigated by mixing saline or albumin into the infusion and another trial found the nausea and vomiting could be relieved by sucking orange flavored lollipops. When IV DMSO (without the other additives) is given in practice, nausea is sometimes reported, and likewise, lowering the drip rate of stronger solutions can reduce discomfort, so the insights gained from using IV DMSO with stem cells may be useful for using IV DMSO alone.

FAERS

FAERS is used by the FDA to track adverse reactions to drugs, and like VAERS, only receives a small fraction of the reactions that occurred (estimates range from 1-10%) and typically thousands of reactions and deaths (if not tens of thousands) have been reported to it for many commonly used drugs. Since 1980, 214 reactions to dimethyl sulfoxide (including 21 deaths) were reported. Of the reactions, 101 came from DMSO. In contrast, 113 came from DMSO with something else, which included eight cases of Onyx triggering the trigeminal cardiac reflex or asystole (with numerous published case reports being attached to the FAERS reports) along with a few cases of stem cell transplants causing significant issues and 3 allergic reactions which may have been linked to DMSO. Of the 101 where DMSO was attributed as the cause, 27 involved another drug which might or might not have been responsible for the reaction, and based on what happened in those 101 reactions, I suspect unlisted drugs played a role in other cases too.

In those where DMSO was the apparent culprit, 10 deaths occurred, but very little information was provided for each case. Of them, 1 also mentioned an anaphylactic reaction, 4 “hemolysis and hematuria,” 1 “coronary artery occlusion,” 1 “injection site reaction,” 1 “hypernatraemia,” 1 “gangrene; sepsis” and 1 (which was also published at this conference) listed a variety of conditions.

The remaining 94 non-fatal cases included 19 skin reactions (including 4 characterized as “dermatitis bullous” and 1 as urticaria), 16 harmless product administration errors (e.g., given during pregnancy, drug ineffective, or an accidental exposure to the product), 12 gastrointestinal issues (e.g., vomiting), 8 eye issues that didn’t appear to be adverse reactions (4 lazy eyes, 3 cataracts and 1 “eye disorder”), 7 anaphylactic reactions, 7 “pain” (e.g., from DMSO being put into the bladder), 7 other cases where the bladder or vagina reacted to DMSO (e.g., pain or irritation), 6 fevers, 6 headaches, 5 cases of weakness or malaise, 4 changes in taste (e.g., loss of taste), 4 shortness of breath, 3 other eye issues, 3 with facial edema, 3 with nausea, 3 that did not appear linkable to DMSO (e.g., an un-evaluable event, a variety of chronic conditions unrelated to DMSO or a suture rupture), 3 with dizziness, 2 with breath odors (and one that also had a change in smell), 2 with seizures, 2 with tachycardia, 1 with hematuria, 1 with TTP, 1 “non-serious” encephalitis, 1 “respiratory disorder,” 1 chest discomfort, 1 pruritus with elevated bilirubin, 1 case of low blood pressure and 1 case of fainting, 1 with confusion, 1 with chills, 1 with flushing, and 1 with muscle pain.

Most of these effects were consistent with what’s been attributed to DMSO, some of them were likely

most of these effects were consistent with what's been attributed to DMSO, some of them were likely unrelated to DMSO, and overall, given how rare they were, they collectively suggest DMSO has a very low toxicity.

Note: I did my best to accurately represent the FAERS data (since it is very time consuming to go through), but there may be minor errors (e.g., some of the above numbers above being off by 1 or 2).

Lens Toxicity

By far the most notorious side effect of DMSO was it allegedly changing the refractive index of the eyes (which is what glasses correct) by decreasing the normal relucency of the lens cortex, thereby causing the normal central zone of the lens to act as a biconvex lens.

This controversy arose because dogs were observed to develop this myopic change after receiving 5g/kg of DMSO (roughly fifty times the human dose) for 9 weeks, with the changes typically taking 5-10 weeks to emerge or longer when a lower dose was used. This dose dependent effect was then confirmed to also occur within 90 days in pigs receiving 2.7-4.5g/kg of 90% DMSO twice daily, in rabbits receiving 1g/kg of DMSO a day for 12 weeks (but not when they received 0.1-0.5g/kg) and that rabbits and dogs were more sensitive to it than pigs. These changes progressively worsened over the course of 6 months of DMSO treatment, and gradually reversed once DMSO was discontinued (taking longer to reverse in dogs).

Note: these lens changes did not appear to affect the animals ability to perceive and navigate their environment and when the eyes were dissected, was attributed to the reduction of soluble proteins in the eyes.

When tested in monkeys, 3g/kg of a 40% DMSO solution for 9 days did not lead to any lens changes (or any other pathologic changes) over the next 120 days. Likewise, a dose of 11g/kg for 6 months did not produce any lens changes nor did a dermal dose of 11g/kg or an oral dose of 5g/kg given for 1 year, all of which suggested primates have a significantly greater resistance to this effect of DMSO.

Note: beyond not showing lens changes, those studies also showed a complete lack of toxicity from DMSO for the monkeys.

In humans, no lens changes have ever been observed (in contrast many patients, such as those with macular degeneration, report improved eyesight from DMSO). For example, in addition to the prison study (which was designed to definitively answer this question) Stanley Jacob had 32 patients who received an average of 30g of DMSO for 3-19 months receive regular eye exams. The only potential exception to this was a study of 44 patients with scleroderma (a condition which frequently causes changes to the eyes) who received DMSO a 3g/kg for as long as 23 days. Due to the challenges of regularly examining the eyes of these patients (both before and during the study) adequate testing was not performed that could have definitively proven the eye changes they had were a result of scleroderma rather than DMSO (although the eye changes that occurred differed from the refractive changes observed in dogs, pigs and rabbits).

Note: after the 1965 testing ban, many pharmaceutical companies continued to collect case reports on patients using DMSO (Merck collected approximately 17 000 cases, Syntex 7 000 cases, and F. R

parents using DMSO (which collected approximately 17,000 cases, Syntex 7,000 cases, and E. I. Squibb and Sons 3,000). No toxicity was detected by any of these companies, including changes in the eyes when DMSO was given at 11 g/kg dermally and 5 g/kg orally per day for a year. Additionally, in 1971, a committee from the National Academy of Sciences submitted a report to the FDA that stated DMSO had a “relatively low toxicity level,” apart from the unexplained eye effects in certain animals.

Teratogenicity and Genotoxicity

A key aspect of testing a new drug for safety is to assess if it can cause either cancer or birth defects (which the mRNA vaccines were exempted from and we in turn are now all suffering from as the spike protein is highly carcinogenic).

In the case of DMSO, it was determined that in certain animals, directly injecting high concentrations of DMSO into the vicinity of developing embryos could cause birth defects, but these effects were not observed at lower doses, or when DMSO was taken orally and not seen in all animal species.

Specifically:

- A 1967 study injected chicken embryos (that were either 72 hours or 96 hours old) with toxic doses of DMSO and found that as the LD50 was approached, malformations would frequently occur in the chicks that survived (e.g., 25.9% of the surviving embryos which had a toxic dose of DMSO at 96 hours then developed defects).

Note: a 2021 study also found that injecting too high a concentration of DMSO could cause birth defects or kill chick embryos (whereas at lower doses no effects were noted).

Since previous experiments with lower doses of DMSO had not been observed to cause birth defects in mammals, mice, rats, and two species of rabbits were then given 50% DMSO (either orally or through abdominal injections into the animals) from the 6th to the 12th day of gestation and then dissected a few days before their scheduled delivery.

- In mice, no changes were observed in the rate of abortions, and no birth defects resulted from oral DMSO, but when DMSO was injected into the abdomen, 7% of mice developed birth defects (compared to a typical rate of 0.226%)

- In rats, injecting DMSO was found to increase the rate of abortions, and reduced the birthweight of living rats by 15.4% (dosed at 8g/kg) to 28.5% (dosed at 10g/kg), and 1.5% developed birth defects (compared to 0.2% of controls).

- In rabbits however, no effects were observed from oral or injected DMSO.

- Another study found intraperitoneal injections of DMSO (at 5.5 g/kg) into pregnant hamsters could cause developmental malformations of their embryos. Likewise, another hamster study found injecting 0.5ml of DMSO intraperitoneally into hamsters on the eighth day of gestation caused varying degrees of exencephaly and an encephaly (brain changes).

- Additionally, Stanley Jacob reported:

In one study [*I could not locate*], eight cell embryos were soaked in DMSO and re-implanted. All

developed normally. Indeed, DMSO is by any measure one of the least embryo-toxic substances in pharmacology.

It is routinely used as a solvent when scientists are studying the mutagenic effects of other drugs. DMSO's nonmutagenic effects have been confirmed by a scientist named Bruce Ames, whose test is the standard by which the FDA itself measures mutagenicity.

All of this in turn suggests that DMSO as typically used is not teratogenic (e.g., it's never injected into the belly), but since it was never formally tested the DMSO community always advised avoiding it during pregnancy since they could not guarantee the risk was 0. That said, within the scientific literature, no cases of any toxicity to the offspring of animals topic skin applications of DMSO have ever been reported.

Note: many commonly used pharmaceuticals can cause birth defects. For example, as I showed [here](#), SSRI antidepressants (which are often pushed on mothers during pregnancy) double the risk of premature birth, increase the risk of a septal defect (which requires surgery to repair) from 0.5% to 0.9% (or to 2.1% if multiple SSRIs are taken), and increases the risk of persistent pulmonary hypertension (which occurs in 1-2 out of 1000 births) by 2.5 to 6.1 times (see [this study](#), [this study](#) and [this study](#)). In contrast, I do not know of a single case where DMSO was shown to have caused a human birth defect.

Finally, as discussed in the first part of this series, rather than damage DNA, DMSO tends to protect it from damage (e.g., see [this study](#), [this study](#), and [this study](#)) additionally, as I will discuss later in this series, DMSO has also been shown to treat cancer by both causing cancerous cells to become normal cells or slowing their growth, and to significantly increase the ability of a variety of agents to kill cancerous cells (while simultaneously protecting normal cells from damage). Presently, I have not come across any studies showing DMSO causes DNA damage in normal cells.

Note: DMSO also has repeatedly been shown to have no cancer causing activity.

Additionally, many of DMSO's remarkable effects come from its ability to stabilize proteins (discussed further in the first part of this series) and dissolve abnormal ones (e.g., amyloids), which in turn likely accounts for why it can cure a variety of incurable illnesses (e.g., genetic ones). In turn, a variety of studies with newer technology have been conducted which show it subtly alters the function and configuration of proteins within cells (e.g., see [this study](#), and [this study](#)). This in turn, has led the authors of this newer research to state the longstanding assumption that DMSO is "inert" may not be correct, and to assume there is the potential some of the changes DMSO creates may be problematic or destabilize proteins—an assumption which I believe arose from the fact those authors were unaware of the literature showing that DMSO instead stabilizes proteins.

Other Potential Issues

I would like to conclude this section by disclosing all the other potential issues with DMSO I have come across over the years:

- Three of DMSO's characteristic effects (a rapid improvement of a patient's symptoms, the garlic like

odor, and the frequent irritation of the skin) make it immensely challenging to conduct blinded trials where patients are unsure if they did or did not receive DMSO. **This ultimately was what created the biggest problem for DMSO.**

- Sensitive patients or those with liver congestion can experience a Herxheimer reaction to DMSO (e.g., fatigue or headaches) which at most lasts for 12-24 hours due to DMSO accelerating the detoxification process (e.g., one sensitive reader shared that 8-12 hours after using DMSO they would get a moderate headache)—a process which I suspect is partially mediated through a release of histamine. Within the DMSO community, it's thought that these reactions can be mitigated by using a lower DMSO dose or aiding the detoxification process (e.g., with rest, fasting and drinking reverse osmosis water) and that it will often decrease in time as the body has detoxified itself.

Note: individuals who react to other sulfur compounds typically do not react to DMSO or MSM.

- Clinically, umbilical cord blood stem cells or exosomes that are frozen without DMSO perform tend to perform better than ones that were frozen with DMSO (although DMSO preserved ones still work).
- While DMSO is typically non-toxic and most surfaces of the body can tolerate appropriate concentrations of it (e.g., the eyes and the ears), a study found that rabbits who inhaled 25-50 ml/hr of DMSO for an hour each day for 8 weeks developed pathologic changes in the liver and lungs. While this was a high dose, nebulizing DMSO has nonetheless been advised against and very little information exists on if it can be done safely.

Note: this is somewhat analogous to how ozone can be injurious to the lungs, so while many different routes of administration exist for medical ozone therapy, inhalation is never done.

- DMSO is flammable and can cause explosive decomposition reactions when mixed with certain chemicals. This is unlikely to come up in home use (especially if you do not expose it to an open flame) but has caused numerous industrial and laboratory accidents.
- When giving DMSO intravenously (especially at higher concentrations) it can partially dissolve plastics that are not DMSO resistant. For this reason, it is important the correct materials come into the contact with it.
- One forgotten cancer cure the AMA wiped off the earth were the Koch Catalysts. I was advised by the people who gave them to me, that low doses of solvents could inactivate them (e.g., a patient on them should never pump gasoline), and that DMSO could also do inactivate them. Given how difficult the catalysts were to obtain and how limited my supply was, I hence always made sure anyone who used them did not also use DMSO.
- DMSO can be manufactured from either wood pulp or a petroleum source. I have seen some evidence suggesting people have a different therapeutic response depending on which source they use, but not enough to be certain one is preferable to the other. For this reason, if any of you have the opportunity to try more than one of the brands I recommended and you notice different effects from the same concentrations, please share them with me.
- While I have not come across any major issues arising in people taking non-medical grade DMSO (e.g., DMSO from the hardware store) there are a lot of theoretical reasons why this is a bad idea to do. For this reason, I strongly recommend getting one of the widely available high-purity brands people have used for years without issue.

Conclusion

One of the particularly unfortunate aspects of human society is that humans typically cannot take a broad view which takes into consideration all the pertinent data and instead will hyper focus on what they have been primed to care about. This for example is how the medical industry was able to not only sell but mandate the COVID vaccines to the public (which did not work and were far more dangerous than COVID-19) as all the marketing around the vaccines:

- Greatly exaggerated the risk of COVID-19.
- Disclosed the benefits of the COVID vaccines as relative benefits (which obscured the fact a serious complication of COVID-19 was so rare it was highly unlikely you could ever benefit from a vaccine preventing it).
- Kept moving the goal posts on the COVID-19 vaccines each time they failed to deliver what had been promised.
- Continually covered up the immense damage the COVID vaccines did to society.

As a result, while many believers in the orthodoxy eventually were red-pilled, we still have many scientific “experts” who have now gotten 6 or more COVID-19 vaccines.

That same issue sadly exists with many other drugs. For instance, beyond DMSO being far more effective than NSAIDS (which are routinely used for many of the musculoskeletal and chronic pain conditions DMSO treats), it is so much safer than them the risks can’t even be compared (e.g., while DMSO has not been linked to a single death, NSAIDS kill tens of thousands of Americans each year and seriously injure far more). Yet despite this, NSAIDs are given a pass, and many sincerely believe DMSO is a deadly poison (not unlike what happened with ivermectin—something the FDA also successfully rebranded as snake oil that only worked in horses but not humans).

Note: one of the things I consider to be particularly tragic with DMSO is how much cruel and completely unnecessary animal testing was done to refute the FDA’s unwavering belief DMSO was dangerous. For example to quote Stanley Jacob: “DMSO has been responsible for the unnecessary death of more laboratory animals than any other drug in the history of medicine.” Yet despite all those deaths (which resulted from massive doses orders of magnitude greater than what any human would ever take), since they demonstrated DMSO’s incredible safety and thus didn’t show what the FDA wanted, they were ignored—a situation not that different from how both the FDA and CDC have adamantly refused to consider the tsunami of evidence the COVID vaccines are incredibly dangerous and meet every possible criteria for an emergency withdrawal from the market.

In the second half of this article and the context this toxicology data provides, I will chronicle the entire history of exactly what the FDA did to DMSO (before moving on to its incredible utility for a variety of other challenging conditions). In the meantime, **I request that if you have any stories from your experiences with DMSO, please share them in the comments here.**

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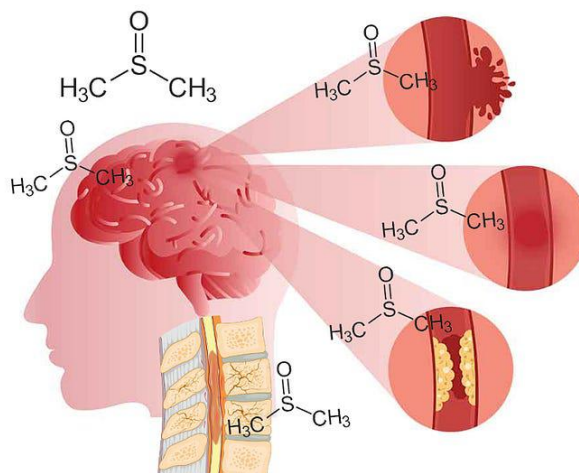
Lastly, for those wishing for additional resources on DMSO, in addition to reader testimonials which can be found within [this article](#) and [this article](#) and numerous comments within [this Twitter thread](#) and [this Twitter thread](#), the previous two parts of this series can be read here:

DMSO Could Save Millions From Brain and Spinal Injury

SEP 15

How DMSO Treats

- Strokes and Brain Bleeds
- Brain and Spine Injuries
- Paralysis
- Heart Attacks
- Dementia
- Amyloidosis
- Developmental Delays
- Down Syndrome
- Raynaud's
- Varicose Veins



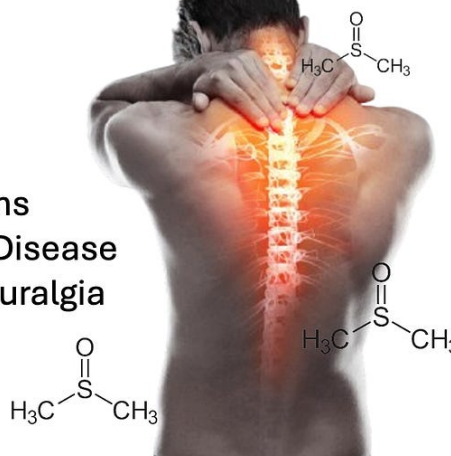
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DMSO is a Miraculous Therapy for Chronic Pain and Musculoskeletal Injuries

A MIDWESTERN DOCTOR · SEP 29

How DMSO Treats

- Chronic Pain
- Arthritis, Bursitis, and Gout
- Sprains, Strains and Contusions
- CRPS, Fibromyalgia and Disc Disease
- Headaches and Trigeminal Neuralgia
- Scars and Surgical Wounds
- Restless Leg Syndrome
- Sports Injuries



My back is great: Earthing for 3-4 weeks, DMSO for 3 days, no pain, jog for two 1 block sections Oct 4 2024

People are conditioned to believe they need a doctor to be healthy. US yes - what about outside of the US?

it creates a situation where **there can never be enough medical care**, and in turn helps to explain why every year, more and more is spent on medicine (e.g., 17.54% of all spending in America in 2024), yet despite being by far the top medical spender in the world, we have some of the worst medical outcomes in the world.

Doctor Thyself

it doesn't keep a costly reserve of staff on hand and has almost no ability to handle a sudden increase (surge)

<https://www.midwesterndoctor.com/p/hurricane-helene-has-a-critical-lesson?>

I have a small bag which carries everything I need [e.g., **DMSO**] to address more than half of the medical issues I run into).

despite almost every leader in the medical field recognizing outpatient treatment of COVID would be necessary to prevent the hospitals from hitting their surge capacity, every single outpatient option for the treatment of COVID-19 was methodically suppressed by the healthcare authorities

Providing people with the information to take care of themselves for the myriad of medical issues that don't actually require prolonged medical care (e.g., if I have the option, I'd much rather tell someone how to deal with their issue themselves so I don't need to keep seeing them and feel like I'm taking advantage of them by creating a cycle of dependency or unsatisfactory results).

Have a person learn to fish rather than depend on the fisherman

For example, I recently started a project I kept on putting off (due to the time commitment required to do it properly)—unveiling the medical applications of DMSO and the abundance of evidence for them. Many of them (e.g., treating strokes, spinal cord paralysis, and Down Syndrome) are understandably mind blowing. However, what's even more important is that DMSO frequently and safely treats many far more common disabling and debilitating conditions people live with for years (if not decades) to the point they often contemplate committing suicide over them.

Note: the first part of this series which focuses on the neurological and circulatory diseases DMSO treats can be read [here](#) while the second part which focuses on its use for pain and musculoskeletal injuries can be read [here](#) (while the rest will take a bit longer to finish).

DMSO - topical much faster than oral?

How quickly might topical DMSO fight knee pain - Perplexity AI

<https://www.perplexity.ai/search/how-quickly-might-topical-dms0-GV3K2uAnQrydWyrkMsx.Dg>

https://www.youtube.com/watch?v=kvrHwAmU_ro&ab_channel=ThePrinciples

https://www.youtube.com/watch?v=z26iSSmckKc&ab_channel=RobertCassard

MidWestern Doctor Sept 29 2024

DMSO is incredibly effective for healing a wide range of acute and chronic musculoskeletal injuries (e.g., arthritis, headaches, neck and back strains, restless leg syndrome, sprained ankles, trigeminal neuralgia and numerous traumatic injuries). It typically has an 80-90% success rate and often has an instant and dramatic effect. This use was particularly popular with professional athletes, as it allowed many of them to quickly return to the field rather than be out for the rest of the season.

https://www.midwesterndoctor.com/p/dms0-is-a-miraculous-therapy-for?utm_source=post-email-title&publication_id=748806&post_id=148982648&utm_campaign=email-post-title&isFreemail=false&r=of03r&triedRedirect=true&utm_medium=email

DMSO Could Save Millions From Brain and Spinal Injury

Finally, a study of 1371 patients with skin disorders (including 173 patients with second or third-degree burns on the hands, feet, and legs) who received a **topical DMSO spray** approximately three times a week found that 95.04% had a complete recovery, with the majority of the remaining 4.96% being due to premature cessation of DMSO or the patient no longer being under observation.

<https://www.midwesterndoctor.com/p/dms0-could-save-millions-from-brain>

3 minute video

https://www.youtube.com/watch?v=QGhd21VaYv4&ab_channel=TheJDocRealMinute

DMSO Robert Yoho May 2024

<https://robertyoho.substack.com/p/307-dms0-is-a-harmless-natural-wonder>

DMSO and horse tendon pain - weekly application with bandage (they did not have cream back then

DMSO was better than MSM for horse tendon pain - whoed better on scans as well

Book: Healing with DMSO: \$12 April 2020 - one of many books

The Complete Guide to Safe and Natural Treatments for Managing Pain, Inflammation, and Other Chronic Ailments with Dimethyl Sulfoxide

2nd farmer's market that we went to on trikes - 1.5 hours, very tired and cold on getting home; hot bath & nap

longest ride since the our one 3 weeks ago

went via Discovery and Sheridan - less wind than Hastings the first time

Sore leg muscles: not help by thumper, hot bath Mg Gel - but helped by DMSO and Mg (newly made)

5 Magnesium assumptions

- 1) True upper limit of Mg is how much can be taken per day - not per meal
Dr. Dean, for example, was able to routinely take 2000mg of Mg daily when spread across many meals
- 2) Those with low stomach acid (such as seniors) do not absorb some forms of Mg as well
- 3) The forms of Magnesium that are more spread out (e.g. ionized, liquid) are more easily digested
(Same for most supplements - Calcium, Omega-3, etc.)
- 4) MgCl is better than Espons salts for getting Mg into the body
- 5) DMSO gets more topical Mg thru the skin

Dave Yost called me April 2

Body remodeling concept: D parcelled out after there is enough elsewhere (Jeff Bowles)
his most recent book: The Miraculous Cure For and Prevention of All Diseases What Doctors Never Learned

Dr. Bruce Ames previously posited this for many nutrients, including Vitamin D

Dr. Rhonda Patrick, who got a PhD from Ames, also believes in the idea and Vitamin D - I subscribe to her.

Dave has been taking 50K daily for a while, feeling good

Dave found that taking lots of Magnesium seems to be remodeling his bones - clicking sounds when move his joints

Dave had been taking high-dose K2 to a while - no decrease in calcification of arteries as measured by ultrasound

Mother is overweight and age ~97 and high-dose vitamin D - fell recently, did not break a bone
he wonders if too much vitamin D might increase the likelihood of falling
I have seen many studies which found increased falls with increase Vitamin D - people are feeling more confident
something similar to people who wear seat belts or have automatic braking systems drive faster
MgCl - discussed MgCl baths and DMSO topical to get into body - DMSO by itself works too.

Some emails which I sent Dave

[High-Dose Vitamin D Therapy – book July 2018.](#)

[The Optimal Dose - Restore Your Health With the Power of Vitamin D3 - 2018](#)

[Vitamin K reduces calcification \(reported yet again\) – Feb 2019](#)

[Vitamin K2 decreases arterial stiffness \(cleans arteries\) – RCT Feb 2015](#)

Dave still wants to develop a concise story for why Vitamin D should be increased
I will send various emails.

MgCl DMSO cream made for Judy's hip, I also used it for my legs after 40 minute (fast) Jacob Miller ride

MgCl crystals dissolved nicely in WARMED DMSO. Perhaps more Mg than with Mg oil