

Gum Disease Bacterium Linked to Increased Risk of Atrial Fibrillation

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STORY AT-A-GLANCE

- Atrial fibrillation (AFib) is typically linked to cardiovascular risk factors like hypertension and aging, but evidence suggests chronic oral infections also play a direct role in its development
- New research links *Porphyromonas gingivalis*, the key bacterium in gum disease, to heart scarring and arrhythmias. Findings show it travels to the heart and interferes with electrical signaling
- In animal models, *P. gingivalis* exposure increased AFib risk, while human heart tissue confirmed higher bacterial load and damage in patients with severe gum disease
- A 14-year study of 1.25 million people found chronic gum disease increased AFib risk by 4%, while recovery lowered risk to nearly the same level as gum-healthy individuals
- To improve your gum health, make sure to brush and floss daily, try oil pulling, eat a whole-food diet, manage your stress levels, and get regular cleanings from a biological dentist trained in systemic oral care

Between 2010 and 2019, the number of people with atrial fibrillation (AFib) rose from 33.5 million to nearly 60 million.¹ AFib is a type of cardiac arrhythmia that affects the upper chambers of the heart, disrupting the normal heartbeat and increasing the risk of stroke, heart failure, and other cardiovascular complications.²

Age, high blood pressure, and metabolic issues are well-known risk factors, but the steady rise in cases suggests that traditional risk models could be missing an important piece of the puzzle. One such piece lies well outside the boundaries of the heart itself — specifically, in the mouth.

A recent study published in the journal *Circulation* found a direct connection between periodontal infection and atrial fibrillation, implicating oral bacteria in the development of cardiac fibrosis and electrical dysfunction. This raises pressing questions about how a routine dental checkup might influence your cardiovascular health.³

How Gum Disease Triggers AFib and What the Science Now Shows

For years, doctors have noticed that people with gum disease seem more likely to develop heart problems, including AFib. While the link was often attributed to general inflammation, the exact mechanism remained unclear.

This led researchers at Hiroshima University to trace the path of infection from the gums to the heart and test whether *Porphyromonas gingivalis*, a key bacterium in gum disease, directly contributes to the structural and electrical changes seen in AFib.⁴

- **Oral bacteria reached and embedded in heart tissue** — To find out how *P. gingivalis* affects the heart, the team studied what happened after it entered the bloodstream. In mice with long-term gum infections, they found the bacterium embedded in the tissue of the left atrium, a part of the heart involved in controlling rhythm.

In comparison, the uninfected mice showed no signs of tooth damage and no detectable traces of the bacterium in their heart tissue. This discovery provided concrete evidence that oral pathogens don't just circulate — they lodge in cardiac tissue and alter its function.

- **Bacterial infection triggered scarring and electrical disruption** — The heart tissue where *P. gingivalis* was found became fibrotic, meaning it had started to stiffen with scar-like material. This kind of scarring disrupts how electrical signals move through the heart and is a known risk factor for AFib. Previous research has shown that galectin-3 and TGF-beta1, which are both well-known drivers of scarring, were significantly elevated in the *P. gingivalis* group.⁵
- **Damage worsened with continued exposure** — The findings showed that the longer the bacteria remained, the more pronounced the damage became. By week 18, mice with *P. gingivalis* had developed 21.9% fibrosis in their left atria, compared to 16.3% in uninfected mice, an increase that couldn't be explained by aging alone. The bacteria appeared to be directly accelerating structural damage inside the heart.
- **Bacterial exposure made the heart more prone to misfire** — Using a technique called intracardiac stimulation, researchers tested how easily each heart could be pushed into AFib. Early in the study, both groups responded similarly. But by the end, the mice exposed to *P. gingivalis* were six times more likely to slip into arrhythmia, which means bacteria actively made their heart more unstable.
- **Human heart tissue confirmed the pattern** — The researchers also examined heart tissue from 68 patients undergoing surgery for atrial fibrillation. Before surgery, each patient had a dental exam to assess gum inflammation and periodontal disease severity. What they found mirrored the animal results — *P. gingivalis* was present in the hearts of many patients, especially those with more advanced gum disease.
- **More gum disease meant more bacteria and more damage** — The study revealed a step-by-step connection: periodontal inflammation increased bacterial load in the atrial tissue, and higher bacterial load led to more damage. This was the first time that the link had been clearly demonstrated in both animal models and human hearts.

- **A new pathway to AFib, bypassing traditional risk factors** — Shunsuke Miyauchi, the study's lead author and assistant professor at Hiroshima University's Graduate School of Biomedical and Health Sciences, explained:

"P. gingivalis invades the circulatory system via the periodontal lesions and further translocates to the left atrium, where its bacterial load correlates with the clinical severity of periodontitis.

*Once in the atrium, it exacerbates atrial fibrosis, which results in higher AFib inducibility. Therefore, periodontal treatment, which can block the gateway of P. gingivalis translocation, may play an important role in AFib prevention and treatment."*⁶

Large-Scale Data Confirms That Chronic Gum Disease Raises AFib Risk

While the Circulation study demonstrated how specific oral bacteria infiltrate the heart and directly alter its structure, broader population-level research offers additional perspective. A large-scale epidemiological study from South Korea followed over 1.2 million adults for 14 years to explore whether changes in gum disease status affect the risk of developing AFib.⁷

- **The worse the gum health, the higher the AFib risk** — Of the 1.25 million individuals tracked, 25,402 developed AFib during the study period. Those with chronic gum disease had a 4% higher risk, followed by a 3% increase in those who developed it later during the study. People who recovered had a 3% lower risk than those with persistent disease, and those who never had gum disease had the lowest risk overall.
- **Lifestyle factors influenced outcomes but did not fully explain them** — People with chronic periodontal disease were more likely to smoke, drink alcohol, and have other health complications such as hypertension and metabolic disorders. While

these patterns contributed to some of the risk, the association between gum disease and AFib persisted even after adjusting for all lifestyle and clinical variables.

- **Reversing gum disease makes a big difference** — People who healed from gum disease had about the same risk of developing AFib as those who never had gum disease at all. This suggests that reversing gum inflammation may restore cardiovascular stability, highlighting the importance of treating gum disease before it becomes chronic or leads to irreversible tissue damage that continues to influence systemic risk.
- **Oral hygiene may offer a viable form of cardiac prevention** — The authors note that recovery from gum disease through professional scaling or consistent hygiene practices lowers systemic inflammation and bacterial load. Previous trials have shown that periodontal treatment reduces inflammatory biomarkers, suggesting a direct therapeutic avenue for AFib risk reduction.

For more information on how gum disease harms your heart and overall health, read [“Poor Oral Health Wreaks Havoc on Your Heart and Brain.”](#)

Protecting Your Oral Health Early Is the Best Strategy

Gum disease often progresses silently, with few visible symptoms until it reaches more advanced stages.⁸ According to the U.S. Centers for Disease Control and Prevention (CDC), nearly half (42%) of adults aged 30 and older show signs of gum disease, and 9% have a severe form of the condition.⁹

- **Establish consistent oral hygiene habits** — Protecting your heart and reducing systemic inflammation starts with your mouth. Prioritize [regular brushing](#), flossing with [chemical-free dental floss](#), tongue scraping, and professional cleanings from a mercury-free biological dentist. These habits are essential for maintaining healthy gums and preventing long-term disease.

- **Try oil pulling with coconut oil** — Coconut oil offers antibacterial and antiviral benefits that make it ideal for oil pulling. Studies show that this practice reduces plaque and gingivitis, lowers plaque index scores, and decreases bacterial colony counts in saliva.¹⁰ To learn more, read [“Why Is Oil Pulling Suddenly All the Rage?”](#)
- **Focus on a nutrient-dense, whole-food diet** — A diet rich in fresh vegetables, fruits, healthy fats, and high-fiber whole foods supports your oral microbiome and strengthens your immune defenses. Refined sugar and processed foods, on the other hand, fuel harmful bacteria that cause plaque buildup, decay, and gum disease.
- **Address sleep and stress to support immune resilience** — Chronic stress and inadequate sleep weaken your immune system, making it harder for your body to fight off oral infections. If you’re dealing with recurring gum issues or inflammation, take a close look at your sleep quality and stress load as part of your prevention plan.
- **Quit [vaping](#) and smoking** — Whether it’s from cigarettes or e-cigarettes, every puff introduces compounds that inflame tissue, impair blood flow, and accelerate gum destruction, including nicotine, artificial flavorings, and chemical aerosols.¹¹ The only way to fully protect yourself from the damage is to quit completely.

If quitting immediately feels overwhelming, start by gradually cutting back on how often you smoke. Replace the habit with constructive activities or restorative practices. Tools like the [Emotional Freedom Techniques \(EFT\)](#) also help manage cravings and emotional stress during the quitting process.

- **Schedule regular dental cleanings and evaluations** — Even with consistent brushing and flossing, plaque and tartar still accumulate in areas that are difficult to reach. Professional cleanings help remove hardened buildup that contributes to gum inflammation and periodontal disease.

Regular evaluations also allow early detection of gum recession, pocket formation, or other signs of gum degeneration that may go unnoticed at home.

For more comprehensive care, consider working with a biological dentist. This holistic approach to oral health takes into account how your gum health influences your entire body, not just your teeth. To find a biological dentist near you, explore the directories linked below:

- [Consumers for Dental Choice](#)
- [Dental Amalgam Mercury Solutions \(DAMS\)](#) — Email them [here](#) or call 651-644-4572 for an information packet
- [Huggins Applied Healing](#)
- [International Academy of Biological Dentistry & Medicine \(IABDM\)](#)
- [International Association of Mercury Safe Dentists](#)
- [Talk International](#)

Small, daily actions compound over time, and taking your oral health seriously is one of the most effective ways to support your overall well-being. For more insight into how your habits shape oral microbiome health, see “[Your Lifestyle Plays a Role in Your Oral Microbiome Composition](#).”

Frequently Asked Questions (FAQs) About Gum Disease and AFib

Q: What is the link between gum disease and AFib?

A: Research shows that chronic gum disease, especially when caused by bacteria like *Porphyromonas gingivalis*, increases your risk of heart problems. These bacteria travel through the bloodstream, settle in heart tissue, and trigger inflammation and scarring that disrupt normal heart rhythm, raising the risk of atrial fibrillation.

Q: Does treating gum disease lower your risk of AFib?

A: Yes. A large South Korean study of over 1.25 million people found that those who recovered from gum disease had a lower risk of developing AFib compared to those with ongoing periodontal inflammation. In fact, their risk was nearly identical to people who never had gum disease.

Q: How common is gum disease and who is most at risk?

A: According to the CDC, about 42% of U.S. adults aged 30 and older have some form of gum disease, and 9% have severe periodontitis. Risk increases with age, poor oral hygiene, smoking, stress, and chronic illnesses like diabetes.

Q: Can gum disease affect other parts of the body besides the heart?

A: Yes. Gum disease has been linked to a wide range of systemic conditions, including Alzheimer's disease, Type 2 diabetes, and rheumatoid arthritis. The same bacteria and inflammatory signals that damage oral tissue can travel through the bloodstream and trigger immune responses in distant organs, making oral health a key part of overall wellness.

Q: What lifestyle habits can protect against both gum disease and AFib?

A: A few key habits include avoiding smoking and vaping, eating a nutrient-dense diet, managing stress, getting quality sleep, and maintaining consistent oral hygiene. These steps support immune function and help control inflammation throughout the body, including the gums and the heart.

Sources and References

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