



how many IU of vitamin D per kg of rat is needed to kill a rat?

The amount of vitamin D (cholecalciferol) required to kill a rat is usually established by its median lethal dose (LD50), which is the dose at which 50% of the animals die. Research shows:

- The LD50 of vitamin D3 for rats is approximately **1.68×10^6 IU/kg** (1,680,000 IU/kg).^[1]
- Additional research calculated the LD50 to be about **13.7mg/kg**, which is roughly **548,000 IU/kg** (since 1mg of cholecalciferol $\approx$ 40,000 IU).^[2]
- Other studies report similar high ranges; for example, frank toxicity in rats was reached at 50,000 IU/kg per day for two weeks, but acute (single, lethal) doses required are much higher.^{[3] [1]}

In practical use as a rodenticide, the acute lethal dose must therefore be in the **hundreds of thousands to over a million IU per kg of body weight**. Lower doses can cause non-lethal toxicity, but to reliably kill, a dose near or above **1,000,000 IU/kg** is typically required.

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1. <https://www.sciencedirect.com/science/article/abs/pii/S0041008X78800374>

2. <https://researcherslinks.com/current-issues/Histopathological-and-Cytogenetic-Effects/33/1/7234/html>

3. <https://www.ncbi.nlm.nih.gov/books/NBK56058/>