

Mosquitoes are not repelled by vitamins and other oral supplements you might take

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A longstanding medical myth suggests that taking vitamin B1, also known as thiamine, can make your body repel mosquitoes.

A "[systemic repellent](#)" that makes your whole body unappealing to biting insects certainly sounds good. Even if you correctly reject the [misinformation](#) questioning [safe](#) and [effective repellents](#) like [DEET](#), oral repellents would still have the benefit that you wouldn't need to worry about covering every inch of exposed skin or carrying containers of bug spray whenever you venture into the great outdoors.

Along with thiamine, other alleged oral mosquito repellents include [brewer's yeast](#), which contains thiamine, and [garlic](#), the legendary [vampire repellent](#). If oral repellents sound too good to be true, it's because they are.

[As a professor of entomology](#) in Taiwan, where the mosquito-transmitted Dengue virus is endemic, I was curious what science really says about food-based repellents. After a very deep dive into the literature and reading practically every paper ever written on the subject, I compiled this knowledge into the first [systematic review](#) of the subject.

The scientific consensus is, unequivocally, that oral repellents don't exist. Despite [extensive searches](#), no [food, supplement, medication, or condition](#) has ever been proven to make people [repellent](#). People with vitamin B1 deficiency don't attract more mosquitoes, either.

So where did the myth that mosquitoes hate vitamins come from, and why is it so hard to exterminate?

Making of a myth

In 1943, Minnesota pediatrician [W. Ray Shannon](#) gave 10 patients varying doses of thiamine, which had only [first been synthesized](#) seven years prior. They reported back that it relieved itching and prevented further [mosquito bites](#). In 1945, California pediatrician [Howard Eder](#) claimed 10 milligram doses could protect people from fleas. In Europe

in the 1950s, physician [Dieter Mütting](#) claimed that daily 200 milligram doses kept him bite-free while vacationing in Finland, and hypothesized a breakdown product of thiamine was expelled through the skin.

These findings drew rapid attention, and almost immediate repudiation. The U.S. Naval Medical Research Institute [tried to replicate Shannon's findings, but failed](#). By 1949, Californians using thiamine to repel fleas from dogs were reporting it as "[completely worthless](#)." Controlled studies from [Switzerland](#) to [Liberia](#) repeatedly failed to find any effects at any dose. The first [clinical trial](#) in 1969 concluded definitively that "vitamin B1 is not a systemic mosquito repellent in man," and [all controlled studies since](#) suggest the same for thiamine, [brewer's yeast](#), [garlic](#), and [other alternatives](#).

The evidence was so overwhelming that, in 1985, the [U.S. Food and Drug Administration declared](#) all oral insect repellents are "[not generally recognized as safe and effective and are misbranded](#)," making labeling supplements as repellents technically fraud.

Medical mechanisms aren't there

Scientists know much more about both mosquitoes and vitamins today than ever before.

Vitamin B1 [does not break down in the body](#) and has [no known effect on skin](#). The body strongly regulates it, absorbing little ingested thiamine after the first 5 milligrams and [quickly excreting any excess](#) via urine, so it [does not build up](#). Overdose is almost impossible.

As in humans, thiamine is an [essential nutrient for mosquitoes](#). There is no reason they would fear it or try to avoid it. Nor is there evidence that they can smell it.

The best sources of thiamine are [whole grains, beans, pork, poultry and eggs](#). If eating a carnitas burrito won't make you repel mosquitoes, then neither should a pill.

What explains the early reports, then? Along with shoddy experimental design, many used anecdotal patient reports of fewer bite symptoms as a proxy for reduced biting, which is not a good way to get an accurate picture of what's going on.

Mosquito bites are followed by [two reactions](#): an immediate reaction that starts fast and lasts hours and a delayed reaction lasting days. The presence and intensity of these reactions depends not on the mosquito, but on your own immune system's familiarity with that particular species' saliva. With age and continued exposure, the body goes from no reaction, to delayed reaction only, to both, to immediate reaction only, and eventually no reaction.

What Shannon and others thought was repellency could have been [desensitization](#): The patients were still getting bitten, they just stopped showing symptoms.

So, what's the problem?

Despite the scientific consensus, a 2020 survey of pharmacists in [Australia](#) found that 27% were still recommending thiamine as a repellent to patients traveling abroad: an unacceptable recommendation. Besides wasting money, people relying on vitamins as protection against mosquitoes can still get bitten, potentially putting them at risk of [diseases](#) like [West Nile](#) and [malaria](#).

To get around the American ban and widely agreed-upon [scientific consensus](#) on oral repellents, some unscrupulous dealers are making thiamine patches or even injections. Unfortunately, while [thiamine](#) is

safe if swallowed, it [can cause severe allergic reactions](#) when taken by other routes. [These products](#) are thus not only [worthless](#), but also potentially dangerous.

Not every problem can be solved with food. Long sleeves and [bug spray containing DEET](#), [picaridin](#) or [other proven repellents](#) are still your best defense against biting pests.

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