

Can we treat aging? Anti-aging supplements make big promises based on little science

Age is the biggest risk factor for most of the deadly chronic conditions that affect us like cancer, diabetes, and heart disease. But aging itself isn't considered a disease. It's just a fact of life... one that most of us would like to change.

A new, high profile company with several Nobel Laureates on its board is the newest player to enter the anti-aging game. [Elysium Health](#) sells its supplement Basis online and as a subscription to combat aging. The two molecules in the current Basis formula, pterostilbene and nicotinamide riboside (NR), likely work by maintaining the health of mitochondria. One theory of aging proposes that these tiny energy factories in our cells are highly susceptible explains [David Stipp at Scientific American](#):

Mitochondria are our cells' energy dynamos. Descended from bacteria that colonized other cells about 2 billion years, they get flaky as we age. A prominent theory of aging holds that decaying of mitochondria is a key driver of aging. While it's not clear why our mitochondria fade as we age, evidence suggests that it leads to everything from heart failure to neurodegeneration.

The NR in Basis is a precursor to nicotinamide adenine dinucleotide (aka NAD). Its other ingredient is a hyper-potent form of resveratrol, the anti-aging compound that is found in minute amounts in red wine. Both probably improve mitochondrial health (at least in mice and test tubes) through mechanisms involving sirtuins. These molecules are activated when animals go on the intensive [calorie restricted diets](#) that promote longevity. Increasing sirtuins, and their positive effects, without painful lifestyle changes has been a priority for scientists studying aging and anti-aging compounds.

Unfortunately there is not much proof in humans yet that NAD has the same metabolism-boosting and longevity enhancing effects as it does in mice. One study has shown that humans do convert NR to NAD like mice do, but the study stopped there. It was paid for by ChromaDex, another company that makes NR supplements sold under the name Niagen.

Both companies sell their products as supplements, not pharmaceutical drugs. The FDA doesn't regulate them in the same way as drugs, (even though they probably should given safety issues). [From the Boston Globe](#):

If Elysium Health were developing Basis as a drug, it would have to conduct clinical trials with humans to prove that it works, and the Food and Drug Administration would have to sign off on its scientific evidence before it could be sold as medicine. But as a supplement, Basis and similar products only have to be shown to be safe for humans to take, with labels that are not misleading.

Another reason these supplements don't not fall under the legal purview of the FDA is that the agency doesn't classify 'aging' as an indication for treatment. Because FDA doesn't label aging as health condition, no one can do clinical trials to test drugs with the sole purpose of making it better.

Given the size of the multi-billion dollar supplement industry, there are already customers willing to pay thousands of dollars a year for supplements that are less researched or transparent than Basis. But if your supplement budget is lower, it might be worth waiting for more studies in humans before taking the plunge. It's probably coming fast [writes Stipp](#):

But the paucity of human data gives me pause. Nobel laureates notwithstanding, I plan to wait until more is known before jumping up from the supper table to run out for some NR. Besides, it probably won't be long before more data come out given the growing buzz about NAD.

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