

<https://www.npr.org/sections/health-shots/2024/02/05/1228753141/biological-age-test-dna>

## You can order a test to find out your biological age. Is it worth it?

Allison Aubrey, February 5, 2024



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These days, you can order up a test to find out your biological age, an estimate of how quickly or slowly you're aging compared to your peers. It's based on an analysis of modifications in your DNA. I took one of these biological age tests myself last fall at a longevity lab. The one I took is called [GrimAge](#) and it's used by many longevity researchers to study aging. After hearing [my story about getting the test](#), listeners and readers wrote in asking how these tests work, how accurate they are and whether they should get one. Good questions!

I asked a range of experts including [Luigi Ferrucci](#), a geriatrician who is also scientific director at the National Institute on Aging and has researched epigenetic clocks, another word for these tests. "At this point, if you want to do it, it must be based on curiosity," he says. And he cautions that you should be open to the idea you may not get a result you like. After I sent in my sample, I had pangs of anticipatory anxiety. I even dreamt that my biological age was 90!

### How biological age tests work

GrimAge and other epigenetic clock tests are based on a process called DNA methylation. As we get older, [chemical tags](#) called [methyl groups](#) latch onto our DNA. The pattern of these tags gives researchers an indicator of biological age. "You can use methylation to measure time in all cells that contain DNA," explains [Steve Horvath](#), the scientist who pioneered the aging clock and developed the GrimAge test. (It's named after the Grim Reaper!) Horvath spent years as a UCLA professor studying how this molecular biomarker of aging works. He explains that methylation changes one of the four letters of the DNA, namely the C, which stands for cytosine.

"Some of these changes protect us," he says, but others can lead to adverse consequences. He and his collaborators have identified locations in the DNA where the pattern of chemical modifications are most highly correlated with aging changes. They've found that the higher the

proportion of methylated DNA in certain locations, the more accelerated a person's biological age.

"We spent over 10 years trying to understand what factors accelerate your epigenetic clock," Horvath says. They found that smoking, unhealthy eating, a sedentary lifestyle and "pretty much any lifestyle factor that is bad for you" accelerates the clock. Conversely, they found a diet rich in micronutrients from fruits and vegetables, having a healthy body weight and regular exercise all help slow methylation.

### **Are the tests accurate and what to make of the results?**

Horvath says he developed the clock as a way for scientists to study aging, not necessarily for consumers to fret over their own DNA age. But online testing companies had a different idea. There are now several different brands of direct-to-consumer biological age tests where you mail off your sample and get results sent directly back to you.

If you take one of these tests, you'll get back a number — an estimate of your biological age. You probably shouldn't put too much stock in it, researchers say. No test can tell you exactly how long you'll live, of course. What the test can do is estimate how fast or slow you're aging compared to your peers. Let's say you're 50 and you get back an age of 45. That means you're aging slower than the average 50-year-old. Your rate of aging is more like that of a 45-year-old. This score could be useful when combined with other measurements, says [Dr. Doug Vaughan](#), the director of the [Human Longevity Lab](#) at the Northwestern University Feinberg School of Medicine.

"I think knowing can provide a person with some information about the overall state of their health and provide some prediction for them about what they can look forward to in the years to come," Vaughan says. Since research shows the pattern of DNA methylation is malleable, linked to diet, exercise and other lifestyle habits, "that makes us think that we can potentially slow down the pace of aging," Vaughan says. This is what Vaughan and others aim to study.

But, Vaughan points out that DNA age tests are just one measure of biological age and overall health. His lab uses a variety of tests, including AI-generated computations of cardiovascular health and retina health, to give a more integrative assessment. When the measures are combined, a more comprehensive picture of your health and potential life span emerges. And Horvath says if you only look at the test in isolation, then he worries people may misinterpret the results. "If you want to really arrive at an accurate estimate of life span, you should include clinical variables like blood pressure, glucose metabolism, lipid levels," he says.

### **Proceed with caution**

Before you send off your sample to get your results, there's a few things to be aware of. For one, [Matt Kaeberlein](#), the founding director of the Healthy Aging and Longevity Research Institute at the University of Washington, says it's hard to know whether all the biological aging tests will give you the same results because they haven't all been evaluated by independent experts. He says, eventually, these tests may give people specific results that are useful. But for now, he says,

it's unclear what exactly people can do with the information. "I don't think they're actionable right now," he says. Doctors currently can't give prescriptions based on an individual patient's results beyond healthy lifestyle habits that are already recommended. As of now, there are no drugs approved for anti-aging.

Some longevity researchers say people should be leery of ordering these tests from companies that are also marketing their own anti-aging remedies. The idea that "you take the test and then they tell you to buy their supplement, that seems really problematic to me," Kaeberlein says. There are plenty of supplements that may not offer any benefits.

For now, says Horvath, the tests are most useful for scientists studying aging. The goal of Horvath's nonprofit [Clock Foundation](#) is to make the GrimAge test accessible to the research community, but it's also possible for consumers to [order the test](#), which has been validated with [published research](#). Still, "I try to point out limitations and how to interpret the results," Horvath says.

### **The future promise of anti-aging treatments**

For those who decide to take a DNA age test, researchers say the results may be reflective of your daily habits. The National Institute on Aging's [Luigi Ferrucci](#) took a GrimAge test and says he was happy with his biological age estimate. He exercises regularly, eats a Mediterranean-style diet, prioritizes sleep and keeps up healthy social connections. "I do all the prevention strategies that I can," Ferrucci says.

A body of research shows there's no single magic bullet for aging well, but rather a constellation of [healthy habits are tied to longevity](#). But to optimize aging, scientists want to understand prevention better. Going forward, researchers can use DNA aging tests as part of clinical trials to determine whether anti-aging interventions — anything from diet changes, to exercise or strength-building protocols, to stress reduction, or even medicines — can help slow down aging. "That's the hope," Ferrucci says.

For me personally, I had to wait nearly a month for my GrimAge test results. Thankfully, I got good news, too. Turns out my estimated biological age is younger than my actual age. But could my rate of aging be slowed more if I make more lifestyle changes? This year, I've started a resistance training program and I'm focused on dialing back stress, so I hope to go back to the longevity lab next year and test again.



[Scientists can tell how fast you're aging. Now, the trick is to slow it down](#)

How biological age tests work