

## Cool Facts Friday #13

Dave Asprey:

Hey, guys, welcome to another edition of Cool Facts. Thank you for all the advice and comments and questions that you've been leaving for me on the daveasprey.com webpage, where you can submit questions for the podcast. I really like this. And just knowing that it's helping you makes me excited.

### Cool Fact No. 1:

Our first cool fact is about fireflies. You ever seen a field full of fireflies on a hot summer night? You know how cool it looks to see them flickering. And it looks random, but it's not. It actually starts with synchronization in nature, like when a school of fish seems to swim together as one organism, but it's not, it's individual things. The same thing happens when male fireflies try to attract a female partner. The synchronization takes the form of a light show.

At UC Boulder, researchers explored this behavior and found that insects are working together to flash a lantern in their bellies to create a synchronized display of lights. And those fireflies are communicating with each other to create several complex patterns in the swarm. And it can only happen when the number of fireflies reaches a critical mass.

A small swarm flashes randomly. And once the swarm gets big enough, then suddenly they sync up and then there's no stopping the light show.

What does that mean for you? Well, more than you might think. Because frogs do something similar when it comes to croaking in unison, and the neurons in your brain are likely doing the same thing. We're finding that things we think are random oftentimes aren't random. And we're doing this by using incredibly detailed new technology that lets us examine and get the data and then other new technology in the realm of machine learning that lets us actually see what's happening.

So we're in the middle of cracking open knowledge about how we think, how we feel, how we connect with each other. The fact that we can see this in fireflies is the first step to seeing it in each other.

Source: <https://www.nytimes.com/2021/07/07/science/fireflies-sync-flashes.html>

### Cool Fact No. 2:

Your next cool fact is about earworms. No, not actual worms in your ear, but something just as annoying. Sorry, I had to do that to you. Earworms are songs that get stuck in your head. Research shows that they actually influence your sleep quality. Your brain continues to process music even when you're not listening to it, including when you're asleep. Baylor College of Medicine researchers asked study participants to intentionally trigger an earworm. They did it just by playing a catchy song before bed. One group listened to the song with lyrics, one without lyrics. People who got the songs stuck in their head reported lower sleep quality and had more brain activity than those who didn't. And interestingly, people who listened to the song with no lyrics slept even worse than people who heard the original version.

What does this mean for you? If you experience earworms regularly at night, you're six times more likely to report poor quality sleep. The study's lead researcher suggests finding a new way to wind down that activates your cognitive thinking like journaling. From a personal perspective, I used to be tortured by earworms when I was a young adult and a teenager. They would not stop, and I felt helpless to change them. I believe that both the mindfulness practice and, in my case, very specifically

neurofeedback completely remove them as a factor in my life. I don't get earworms anymore, and it's nice.

Source: <https://neurosciencenews.com/sleep-music-earworms-18608/>

### **Cool Fact No. 3:**

Your next cool fact is about fasting. Even though I just wrote a book on fasting, new information comes up all the time. It turns out that both intermittent fasting and calorie restriction sharpen your brain and let you live longer. Scientists know this, in fact, we've known this for a very long time. But the mechanism behind it and which one of those two is a better strategy is not known. In a new study that came out in *Molecular Psychiatry*, researchers found a potential answer, something called the *klotho* gene. If you've read my book, *Superhuman*, about anti-aging, you already know about *klotho* and how important it is for you as part of your anti-aging strategy. There just isn't much we can do about it yet, or maybe there is.

The study put mice on either a 10% calorie-restricted diet or an intermittent fasting regimen. After three months, the mice doing intermittent fasting had increased the size of their hippocampus, which is the center of the brain for learning and memory. They also increased expression of the *klotho* gene more than the calorie-restricted group. As a side note, I've actually measured my hippocampus volume because, hey, I'm a biohacker. I'm at the 87th percentile for my age. In other words, it's doing better than most people at my age and probably way better than it was when I was in my twenties, but I couldn't measure it then.

In this study, they found that when the mice down-regulated the *klotho* gene, neurogenesis decreased. But when they up-regulated the gene, they got increased neurogenesis.

What does that mean for you? Well, if you're trying to decide between a low quality life of calorie restriction, willpower depletion, constant hunger, autoimmunity, and being cold all the time, or an intermittent fasting strategy of feeling like yourself but better all the time, intermittent fasting is the way to go. This new research about intermittent fasting is especially true if you want to improve your cognitive function and your memory.

Source: <https://www.nature.com/articles/s41380-021-01102-4>

### **Cool Fact No. 4:**

Your next cool fact: really good news about Alzheimer's disease. As you know, this has been a major focus for me. In fact, there are studies around MCT oil and Alzheimer's disease. There's studies about intermittent fasting and Alzheimer's disease. There are studies about coffee and Alzheimer's disease. And there are all kinds of things you can do that will reduce your chances of getting it. I'm also a major supporter of The Women's Alzheimer's Movement, Maria Shriver's nonprofit foundation. Because it turns out that women get Alzheimer's disease about twice as often as men, and we don't talk about it.

So what did we figure out about Alzheimer's? Well, Hong Kong University of Science and Technology researchers identified an early detection and screening technique for Alzheimer's disease with 96% accuracy. This is big news. They identified 19 out of the 429 plasma proteins that we have in our blood that are associated with Alzheimer's. Those plasma proteins formed a biomarker panel that represent an Alzheimer's disease signature in the blood. Based on that panel, there's a scoring system that distinguishes Alzheimer's patients from healthy people. And it can differentiate from early, intermediate, and late stages of Alzheimer's and can be used to monitor the progression of the disease over time.

What does that mean for you? Well, if you listened to my podcast with Dale Bredeesen, who wrote a book called *The End of Alzheimer's*, who talks about the many different causes of Alzheimer's, the first major, highly credible doctor out there to say mold toxins and metals are a part of the discussion, and they are, well, you could use this test when it becomes commercially available to see whether you're at higher risk for it. And then you could pay more attention to what Dale Bredeesen and me and many other health influencers have been saying about lowering your risk of Alzheimer's.

Source: <https://www.sciencedaily.com/releases/2021/06/210628124947.htm>

#### **Cool Fact No. 5:**

Our next cool fact goes back to my days as a computer hacker before I was a bio-hacker.

It turns out people can hack your vacuum cleaner just [inaudible 00:07:27]. Researchers at the University of Maryland demonstrated they could manipulate the laser-based navigation system in the most popular home cleaning robot to pick up sound and act as a microphone.

They hacked the vacuum and passed the signals they received through deep learning algorithms trained to either match human voices or identify musical sequences from TV shows and they got recordings back with 90% accuracy.

The researchers said that this research demonstrates the potential for any device that uses light detection and ranging technology to collect sound even if they don't have a microphone. And they warned that those devices could pick up data related to your lifestyle, your politics, your work life, and more.

And as you're probably already aware, marketers can use that information to target you with ads, manipulate your choices and make you afraid all the time if that's what they want to do to make you watch more. And vacuums aren't the only culprit here. Researchers also said, "Hmm, smartphones, infrared sensors, and motion detectors are just a few of the devices that can be hacked to this way."

Source: <https://www.sciencedaily.com/releases/2020/11/201117210102.htm>