

Cool Facts Friday #12

Dave Asprey:

Welcome to this edition of Cool Facts. I appreciate the feedback you guys have been leaving for me. Just go to the podcast page on daveasprey.com, and right there at the top, there's a link. You can ask any question you want, or you can submit any idea for Cool Facts. I actually use those, so thank you for sharing with me because it helps me make really cool things. Here we go.

Cool Fact No. 1:

Cool fact, No. 1, blood sugar really changes your brain health. When researchers at the University College in London analyzed data of half a million people, they found that people with higher-than-average blood sugar, basically call them pre-diabetic, are 42% more likely to have cognitive decline over an average of four years. That's a big increase. The population they looked at was 54% more likely to develop vascular dementia, which is what happens when you have less blood flow going to the brain. Other research has already highlighted the connection between diabetes and poor brain function. But this is the first study ever to analyze data from individuals who are not even diabetic yet, at least not according to the measures that we use today.

I will tell you that if you're pre-diabetic, that's another word for diabetic. Of course, the researchers say we have more analyzing to do before you should do anything. Research, in my mind, indicates the potential benefits of screening for diabetes in all of us. If we can get ahead of this for people who have high blood sugar early, we can probably prevent cognitive decline. This study also, yet again, shares with you the fact that excessive sugar is bad for your health. So even if your blood sugar is low enough to dodge your doctor telling you, you have diabetes, if they say it's a little high, it's still causing aging. It's still harming your health.

What's in this for you? Well, two things. If your blood sugar is high, it's pretty obvious what you want to do. Maybe some intermittent fasting, try that Bulletproof Diet thing you've heard of? But more importantly if we can make this a societal thing. Do you want people driving cars around you who have cognitive decline? Yeah, me either.

Source: <https://www.sciencedaily.com/releases/2021/02/210211195335.htm>

Cool Fact No. 2:

Cool Facts No. 2, a parasitic ant may make its host live longer, but it comes with a cost. Researchers at the Gutenberg, did I say that right, University in Germany studied the life of *Temnothorax* ants infected with parasites and found that little ants tapeworms impact the physiology of their hosts, but they also changed the entire social system of the ant colony. The researchers figured out that these tapeworms are changing ant immunity, ant genes, and ant hormones. That does make the ant live longer, but it makes them extra lazy, and it gives them a scent that makes other ants want to take care of them more so than the queen ant.

Basically, this is the ultimate couch potato parasite. As a result, uninfected ants end up pulling the weight of the infected ones, which increases their stress and decreases their lifespan. So infected ants are stealing life from others. But the true piece of ingenuity here is that the tapeworms make the infected ants so lazy and complacent that in the face of danger, like a bird that wants to eat them, they just lay there docile and unfazed, making them easy prey, so the parasite has an opportunity to reproduce once again. This research gives us a new understanding of how intelligent parasites can actually be by infiltrating the body and extending its effects to the entire social system. If you think

you're immune, the good news is you are immune to ant tapeworms, but there are a variety of known parasites that change human behavior. The most common one is spread by cats, called toxoplasmosis, and it does change your brain. There is such a thing as a crazy cat lady.

Source: <https://apple.news/ACs8y8jxXQqmHMD4GKCymVQ>

Cool Fact No. 3:

The next cool fact is about your glycocalyx. What exactly is a glycocalyx? Well, let me tell you. This is an interesting new piece of research about COVID-19 and the lining of your blood vessels. Researchers have found that vascular dysfunction shows up as a common feature of high-risk patients, people who get COVID-19 and get really sick. Specifically in those severe cases, there's high fragmentation of the vascular endothelial glycocalyx.

The endothelial glycocalyx act like a compartment in blood vessels that creates a barrier between the circulating cells and the vessel walls. If you're a longtime listener, I did a whole episode on the glycocalyx because it's such an important part of keeping a healthy cardiovascular system. Under any kind of stressful condition that induces inflammation, whether or not it's COVID-19, the fragmentation of the glycocalyx equals permeability and damaged blood vessels and things escaping from blood vessels into your tissues, which can trigger auto immunity and inflammation.

That's bad news. In other words, maintain the endothelial glycocalyx and you're less likely to have problems in your cardiovascular system. There's a whole bunch of stuff we don't know about COVID-19 and its pathogenesis and spike proteins, but we're learning a lot. This new research suggests that the lining of your arteries, that very, very thin glycocalyx, may be a predictive measure for whether or not you're likely to have a rough time or an easy time. Research also shows that there are things you can do, like antioxidants and even targeted supplements that protect the glycocalyx. In my case, my genetics show that I'm in the top 7% highest risk for having a cardiovascular problem first if I don't take advantage of my environment. So, I do everything possible to protect my glycocalyx. I even learned how to say it. Most people have never heard of it, but now you know how to say it.

Source: <https://pubmed.ncbi.nlm.nih.gov/33352699/>

Cool Fact No. 4:

Our next cool fact is about your eyes. Well, more specifically, your pupils. You guys ever notice how pupils is another name for students? When I was a kid, it used to make me so mad when they'd call me a pupil. I'm like, "No, I'm a student, not a pupil." But I don't mean that kind of pupil. I mean, the pupil in your eye. New research shows that the larger your pupils, the higher your intelligence. This comes from the Georgia Institute of Technology. During things that are hard, like memory tasks, your pupil size changes when your brain gets to work. The baseline size of your pupils indicates how well you're likely to perform on those tasks. The researchers measured over 500 participants' pupils before and during a set of cognitive tasks. People with the largest baseline pupil size got the highest scores on the cognitive tests. The link is that pupil size indicates activity in the locus coeruleus, which is a part of the brainstem that regulates learning and memory. The main hypothesis here is that people with larger pupil sizes have better control over that one part of their brain.

What does this mean for you? Well, in the long-term, it may have implications for Alzheimer's disease, which is one of the big four killers. But in the short term, if you want to look really smart, or from other research, look really attractive, you could use eyedrops that dilate your eyes. Then you'll look very attractive and very smart. You heard it here first.

Source: <https://www.scientificamerican.com/article/pupil-size-is-a-marker-of-intelligence/>

Cool Fact No. 5:

Our next cool fact, when you have one bad experience with food, it can put you off that food for life. If you've ever had food poisoning, you know how hard it can be to stomach the thought of eating whatever food it was that triggered your food poisoning. Researchers at the University of Sussex may have identified the exact neurological mechanism for why one negative experience with food can leave that lifelong impression. The researchers used snails as their study subjects, because snails have these big juicy neurons, and they figured out a specific neuron in the brain responsible for suppressing your feeding circuit.

Normally, when a snail wants to eat a certain type of food, this neuron gets inhibited and then the snails happily feed on the food. But when the snails had a bad feeding experience with that one food, in this case, they used sugar and the unpleasant experience was a continuous tapping on the shell of the snail, the neuron became activated. What's more, researchers found that when they removed that one neuron, then the snails happily ate sugar. In the human brain, some of your neurons are under inhibitory control, which helps us avoid overeating.

This research is likely to help us understand why and how those neurons become dysfunctional, which is part of obesity. Who knows? Maybe someday we'll be able to turn it off and you'll be able to eat okra again. Actually, why would you want to?

Source: <https://www.sciencedaily.com/releases/2021/02/210211144239.htm>

Cool Fact No. 6:

Our next cool fact is that your gut bacteria play a meaningful role in your long-term mortality risk. I've been talking about gut bacteria for a long time in my books and on the show. There's so much we didn't know 10 years ago or 20 years ago, and there's so much we still don't know. This is the largest study of its kind, and researchers in Finland analyzed the poop samples of 7,000 participants taken 20 years ago to look at the connection between the microbiome and mortality risk factors. They found correlations with everything from mental health to physical mortality risks like gastroenteritis and pneumonia are connected to the microorganisms present in your gut.

One of the key takeaways from the study is that lifestyle factors like nutrition play a strong role in the health of the microbiome, which then plays a strong role in your health, or more importantly, the lack of your health. The more we understand about how our microbiome affects our health, the more we can tune it and hack it. The scientists in this study stressed how important it is that you eat a very nutritious diet, including fermented foods like kefir and sauerkraut, and polyphenol rich foods like dark chocolate and blueberries, and my favorite coffee.

Source: <https://apple.news/Az8iWl2bTRYeCSMrOBXGzzw>

Cool Fact No. 7:

This cool fact is about colonics. Actually no, it's about colanic acid, kind of similar. Researchers at Baylor College of Medicine developed a method to use light to directly control gene expression and the production of metabolites in bacteria while the bacteria are living in the gut of a worm. This is groundbreaking stuff because now you can switch things on and off and see what happens.

In the study, the team engineered E. coli to produce a pro-longevity compound called colanic acid, which is a type of polysaccharide. They did that so that when they shined a green light on the bacteria, they would make colanic acid, and a red light would turn it off. They found that colanic acid production protected the worms' gut cells against stress induced mitochondrial damage. So those worms lived longer with a direct correlation between exposure to green light, which turned on this good stuff, and longevity.

They believe that this is because mitochondria directly play a role in the aging process. You might've heard that on the show a few times. They're one of the most important things you can manage for aging. The cool thing about this research is that yes, we can use it to study other bacteria, but over time, we might even be able to have bacteria that are fine-tuned so that we can use light to switch things on and off in our own guts with no side effects.

What if you had custom engineered gut bacteria that secreted more colanic acid when you shined the right color light on your gut? Would you do that? I would if it was going to double my lifespan. You want to race?

Source: <https://www.sciencedaily.com/releases/2020/12/201217135244.htm>