

Cool Facts Friday #10

Dave Asprey:

Welcome to Cool Facts Friday, where I share some of the latest stuff I've come across that was interesting and I tell you why it's interesting and why it's useful for you. Most of it's about what's happening now or in the future.

Cool Fact No. 1:

The first cool fact is about a tiny brain manipulating machine. That's helping researchers understand neurological diseases and neurotrauma. And you might say, why do I care about that? Because the chances of you getting a neurological disease over the course of your 180 year life span or experiencing neurotrauma are about 100%. So let's see what we can do to reverse it. This comes out of Northwestern University and they looked at stem cell derived mini brains with the help of a new technology they created. And they figured out how a brain regenerates and rebuilds itself after something bad happens to it. In the lab, scientists put their little mini brains to the test by manipulating them to induce stress in different ways your brain can experience stress. And then they watch how the brains recover.

And those mini brains are called cortical spheroids and scientists can look at these without having to slice your brain open, which is really nice.

What that means for you is that we are now at the point where we can see what's happening inside your brain without opening it up. And we're going to discover all sorts of cool things about why we get Alzheimer's and Parkinson's. And also why our brains change as we age and what to do to turn it around. I have the hippocampal volume of the average 20 year old, and I have the brain response time of the average 20 year old. And I'm a little bit more than 20. And I was able to do that without understanding the basic mechanisms of the brain. When we have this stuff unpacked, it's going to be easier and faster. And who knows, maybe you can have it 18 year old brain. If you want that.

Source: <https://neurosciencenews.com/brain-organoid-machine-18075/>

Cool Fact No. 2:

Our next cool fact is about how to stop adding to your life when subtracting actually is simpler. Researchers have shown that when people are faced with a problem, they tend to choose solutions that involve doing new things and adding new elements rather than taking away existing things that don't work. Funny enough, the algorithm for the Bulletproof Diet and the Bulletproof Lifestyle is stop doing things that cause harm and then do things that make you more powerful because it's easier and because it works better.

In many cases, less proves to be more when it comes to finding solutions for almost everything in your life. A great example of this is how eliminating traffic signs in some European cities actually made the streets safer. So if subtraction works, why are we always adding things? Researchers at the University of Virginia believed that although less is often more, our minds automatically prioritize additive solutions over subtractive ones, even if a more minimalist course of action is better for you.

Well, what does this mean for you? It means the next time you've got a problem to deal with, instead of automatically saying, what's the new thing I could do. Look for ways that you could take away something or stop doing something you're doing Case in point. Maybe you should stop eating the French

fries before you start saying, I'm going to take a protein supplement. It turns out, you'll get more bang for the buck. In fact, it'll cost less bucks if you drop the fried stuff before you put in the latest supplement.

So getting rid of the kryptonite in your life is more important than adding in a new training regimen or a new supplement, but you might want to do both. We humans, we like to complicate things, but sometimes simplifying is better. In fact, when you read *Game Changers*, which is my book that studied what almost 500 people who've been on Bulletproof Radio agreed on. So instead of following me, you can follow the combined advice of people who've done great things in the world. Well, law number one is called the power of no. And it's all about simplifying things. So if you haven't read *Game Changers*, now's the time.

And if you'd like me to teach you all of the 46 laws in *Game Changers* and all of my other books, well join the upgrade collective, which is my mentorship and membership group, where thousands of people are working together to learn everything you need to know about biohacking. I'm having a fantastic time. There's lots of FaceTime with me. Lots of actual good instructional lectures, where I'm teaching you the books. Because some of us learn by reading. Some of us learn by listening. Some of us learn by seeing. All of us learn by doing it together in a community. That's ourupgradecollective.com. I'll see you there. Oh, and you get to listen in live on the podcast and be part of the live audience. It's a lot of fun. [Ourupgradecollective.com](https://ourupgradecollective.com).

Source: <https://www.scientificamerican.com/article/our-brain-typically-overlooks-this-brilliant-problem-solving-strategy/>

Cool Fact No. 3:

Our next cool fact is about why your parents have an unfair advantage when it comes to maintaining a healthy weight. People today are about 10% heavier than people were in the 1980s, even if they follow the exact same diet and exercise plans. The *Obesity Research and Clinical Practice Journal* recently published a study that looked at the diets and exercise of more than 14,000 people from 1988 to 2006. And they found that a person in 2006 would have a BMI or body mass index about 2.3 points higher than someone in 1988. Even at exactly the same amount of calories, the same quantities of macro nutrients, like protein and fat, and the exact amount of exercise. So what gives? The researchers are proposing, it's an increase in environmental obesogens, like chemical pesticides and food packaging. An Increase in prescription drugs like antidepressants, which make you fat. And a shift in gut bacteria over the years. I would add and this was not in the research, glyphosate in the soil is a major part of this. BPA in packaging is a major part of this and LED lighting has shifted our circadian rhythms so that food does different things at different times of day and we're screwing ourselves up with junk light on top of junk food. My company [TrueDark](https://TrueDark.com) is there to fix the junk light problem in the world. I'm working hard on that.

What this means for you is that if you're struggling to lose weight, it might be time to move away from just diet and exercise and look at other things in your environment that could mess with your weight loss. And after all that original definition of biohacking, when I first introduced it, the art and science are changing the environment around you and inside of you so that you have full control of your own biology. Maybe it's your environment, not your exercise and not your food. But hey, foods a part of it.

Source: https://getpocket.com/explore/item/why-it-was-easier-to-be-skinny-in-the-1980s?utm_source=pocket-newtab

Cool Fact No. 4:

The next cool fact is about how your body replaces its cells at incredible speed. We already know that the human body replaces its own cells on a regular basis, but different cells come at very different speeds. For instance, you replace about half your collagen over seven years and about half your fat over two years. But scientists at the Weizmann Institute of Science in Israel have pinned down some new speeds about how that replacement happens. You've got about 30 trillion cells in your body, and that number varies widely based on which researchers you listened to. And about 72% of those cells are either fat or muscle, depending on how much exercise and what you eat. Fat and muscle cells are relatively stable and they stick around for 12 to 50 years. The remaining 28% of the cells in your body are in your blood or your gut. And they turn over crazy fast.

Cells in your blood lasts about 120 days. And cells in your gut lasts less than a week. That means about 330 billion cells die and replace themselves every day. That's about 1% of the cells in your body. What does that mean for you? It means your body doesn't actually exist. For real.

What it means is that you're more like an eddy in a river or a stream where something's always coming in and something's always going out. And it's your job as a biohacker to make sure that the stuff that comes in makes for the strongest possible biology, and the stuff that goes out is toxins and things that you don't want. And that means in less than three months, 30 trillion cells have to get replenished, which is the equivalent of a new you.

You also might want to consider blood testing every four months or roughly every 120 days if you really want to see what's going on. If you're looking at what's inside of your red blood cells, the stuff you see now will be different in four months. You change your copper intake, your zinc intake, you should see it in your red blood cell levels in about four months.

Source: <https://www.scientificamerican.com/article/our-bodies-replace-billions-of-cells-every-day/>

Cool Fact No. 5:

This next cool fact is about identifying hotspots of aging and disease in your DNA. And the neurons in your brain lack the ability to replicate their DNA. Instead, what they do is they work to repair damage to their genome. This is one of the many reasons neurons are special. They're kind of the rock stars of the cells. New research published in the Journal Science reveals that neurons don't just repair any old parts of the genome. Instead they prioritize protecting certain hotspots. The researchers discovered that those hotspots play a major role in neurodegeneration and aging, which is why your body works so hard to repair them. And since as you age, your ability to repair DNA declines, unless you're doing some specific biohacks for that. And that means those hotspots get a little bit less TLC and that can help explain why people get age-related neurodegenerative diseases like Alzheimer's and Parkinson's.

What does that mean for you? Well, it means that instead of looking at general DNA repair, we know which parts need repair. And if you do what I've talked about in my book, Headstrong, that teaches you how to take care of your brain so it doesn't have as many toxins and so that it works better. So that it has more energy that it can put into DNA repair. Your chances of ending up with Alzheimer's and Parkinson's really ought to go down. And that's a part of living to 180. Because after all who wants to live to 180, if you can't remember your name.

Source: <https://www.sciencedaily.com/releases/2021/04/210401151248.htm>

Cool Fact No. 6:

This cool fact is about zombie genes. New research shows that some genes come to life in your brain after you die. Because after all who doesn't like zombie stories. Researchers at the University of Illinois, Chicago, collected brain tissue during a normal brain surgery to look at what happens to genes in your brain after death. And they found that some gene expression actually increases after brain death. Those zombie genes were specific to glial cells in the brain, which control inflammation. And after death, those glial cells grow and sprout long-term appendages after you die. Researchers weren't really that surprised by the zombie genes because it's the job of inflammatory cells to kick into action and clean things up after damage like when someone scrapes some of your brain tissue off to study it, your brain will heal.

They were surprised that other genes in the brain ramped down activity at different rates.

What does that mean for you? Well, it means that by looking at which genes in the brain ramp up and down after death, now we understand the window of time we have to look at brain tissue once you die, or once they pull it out in a kind of invasive study. It also has applications to things like neurological and psychiatric disorders like dementia or schizophrenia. And if you're on the early list to get brain implants, which I am pretty skeptical of, well, you'd want to know about this stuff now, wouldn't you.

Source: <https://www.sciencedaily.com/releases/2021/03/210323131230.htm>