Cool Fact Friday #2

Dave Asprey:

This is a special mini episode that I hope you really enjoy. I retired the cool fact of the day from Bulletproof Radio after about 700 episodes, and I miss it. And some listeners just were skipping through it, and I don't want to waste your time. But as soon as I turned it off, a whole bunch of people said, "Dave, what's going on? I miss this." So if you're one of those people who likes quick, funny, and interesting little tidbits, I put together just a short episode for you here. So this is something I'll do on occasion for you when there's just cool stuff that's worth talking about.

So once a month, on Fridays, the cool stuff is still happening. And if you subscribe to Bulletproof Radio on your favorite podcast platform, you'll get all the other cool knowledge and all the episodes. I've been getting more of the legends, more of the masters. People who've spent decades in their fields, toiling largely in obscurity, who are now bringing crazy levels of knowledge out here. I've never felt like I'm learning as much as I am now, but I'm still going to do cool facts for you because, hey, I'm a dork. Enjoy.

Cool Fact 1:

Transcript not available for this cool fact. Below is a general summary.

This Cool Fact is about EMF exposure in kids' brains. Results of a new study surprised scientists. The Barcelona Institute for Global Health studied 2,500 Dutch kids ages 9-12 to find out if using mobile devices affected their brain volume. The researchers explored the relationship between brain volume and different doses of radiofrequency electromagnetic fields.

The authors didn't find associations between alterations in total or lobe-specific brain volume and overall RF-EMF dose. They didn't find any associations between brain volume and the use of mobile devices for telephone calls, either. Those results were surprising because mobile devices typically are considered the primary contributors of RF-EMF exposure to the brain.

What the researchers *did* find was a link between smaller volume of the caudate nucleus—a brain structure involved in memory and coordination of movements—and RF-EMF dose from the use of devices with screens (mobile phones, tablets and laptops) with a wireless Internet connection.

This means you still must be diligent about screen time and Wi-Fi when it comes to protecting your kids from EMFs. There are some companies developing cool devices that work to intercept EMFs . Biohacking.comosystems.com has some info.

Source: https://www.sciencedaily.com/releases/2020/07/200709141553.htm

Cool Fact 2:

This cool fact of the day has to do with Legos. It turns out a single piece of Lego takes hundreds of years to break apart in the ocean. And recent researchers found easy to identify Lego pieces on beaches around the world, and they wanted clues on how old they were. And they figured out that there's cadmium in some pieces of Lego from the early 70's and the 80's, so they could actually date Lego pieces kind of like they do dinosaurs. And they said if a piece had been in the sea for 30 to 40 years, it had three to 40% less mass than the original Lego blocks. So based on those measures, it takes between 100 and 1300 years to break down completely. Now, when it breaks down, it doesn't mean that they're actually going back to mother nature. That just means they broke down enough to be absorbed into fish and plankton for us to eat them. So, yummy Legos for breakfast. Yikes. We got to do something about that.

Now, what does that mean for you? Well, it means that we are actually clearing up the oceans, we're clearing up the canals in Venice, where there are dolphins swimming in them now. It's actually one of the quietest periods for studying seismic activity, bird songs, and things like that. When things get back to a little bit more normal, maybe we can just realize we're all going to live way longer than we think, and we don't want to pollute our own sandbox too badly here. So let's just be a little extra conscious of, "Do you really have to have that extra piece of plastic crap?" And if you don't, maybe you don't. That said, Lego's rock. Just give them to a kid when you're done with them. All right?

Source: https://www.sciencenews.org/article/legos-may-take-hundreds-years-break-down-ocean

Cool Fact 3:

This cool fact of the day, it's actually about kids with learning difficulties. But it's really cool, because researchers just figured out at the University of Cambridge, that learning difficulties, which are affecting about 14 to 30% of kids, are not localized in specific regions of the brain, a lot of the time. In fact, they looked at 500 kids and they found that they could not associate specific regions of the brain with specific cognitive difficulties. They were just mapping out brain differences and they didn't say anything. But they did find that the kids' brains have hubs, and poor connectivity between these hub areas causes learning difficulties. And that hub conductivity isn't just about learning, it's also about adolescent mental health disorders like schizophrenia that come on as those hubs develop connections in adolescents.

Now, I've believed in this connectivity, this network map, the system's behavior in the brain for a long time, and it's one of the core things that we train at the Neuroscience Institute, 40 Years of Zen, where I do my own training, the company that I started. And training hub conductivity, I believe, could change the world. But this is one of those very interesting things where, wait a minute, maybe it's not that this part of the brain is a problem. And maybe it's the way that all the different areas talk to all the other ones at the same time. And this is why artificial intelligence and machine learning is so good at looking at brain signals to tease out that really complex information.

It seems like lately we've been looking at this idea of, there must be a single cause for something. So it's a single part of the brain that's causing this. And it turns out that mother nature, it's usually not a single cause, because we're a complex system and everything changes everything else. And it's the same whether you're looking at things like the pandemic. What's the cause of it? Okay. Is it caused by a virus? Yeah. Is it caused by immune systems that can't handle the virus? Yeah. What's the cause of that? Is it one thing? Well, no, it's many things. So you end up with this complex system that you're juggling and managing, and now we have some pretty darn strong proof that inside the brain of kids, and I would say also adults, we have the same bit of evidence that it's not just one thing. So we can start taking a deep breath and saying, "Maybe it's not a single pill. Maybe it's not a single procedure. Maybe it's a lifestyle."

Source: https://www.sciencedaily.com/releases/2020/02/200227114457.htm

Cool Fact 4:

This cool fact of the day is about squid brains. MRI technology is helping us understand squid brains. Now you could be asking yourself, "What the hell Dave? Why do I care about squid brains?" And the reason is that squids aren't that different from you and me, except for that squids are made out of this really amazing deliciousness when they're cooked properly and humans aren't. Aside from that, there are really good model for letting us see what's going on inside of brains, because they don't have much of one. And in Australia, we've ... We, as in the species of humanity, and researchers specifically, have been completing the first MRI based mapping of the squid brain that's happened in the last 50 years.

They found 145 new connections and pathways tied to vision and motor systems, and they figured you're not that this is probably why squid are so good at evading predators and communicating with each other. And brain mapping can let us develop an atlas of neuro connections, which lets us understand their complex brains, so we can understand our complex brains. And some members of the cephalopod categories have more than 500 million neurons in their brains. Rats only have 200 million, and mollusks only have 20,000. So it's kind of an interesting thing that we're going to these creatures that have relatively simple nervous systems, except in some areas where they have superpowers. And I want to know how can I get a squid brain for my movement systems, and my predator evasion so I would probably finally be able to beat my 10 year old, Alan, at ping pong if only I could just get a squid neural set up for my movement system. So if any of you listening are working on this research and you can genetically engineer a virus to give me a squid brain, I'm down.

But this kind of stuff is increasingly becoming a part of our knowledge base for biology, and we are biological creatures. So you want to give yourself a serious upgrade, no I don't really think I wanted genetically engineered virus right now. But will I in five years when we've gotten safety and things like that? Maybe. Maybe we all will. Especially if we figure out that it has a very high safety profile and it makes you live longer and feel better. So anytime there's a breakthrough in brains, get all excited.

Source: https://www.sciencedaily.com/releases/2020/01/200128095513.htm

Cool Fact 5

Today's cool fact of the day is that immune cells in your brain chew up memories. And that's because forgetting allows your brain to just drop stuff that doesn't matter trivial memories, and it lets you gather the stuff that matters. The beneficial information that probably is going to either keep you from dying, make sure you eat, or make sure that you get some. Those are the three things that your brain really likes to hold on to information for. And we didn't really, or we still don't fully understand how the brain stores memories, but we think that forgetting involves destroying, or at least changing, these big webs of precise connections, also known as synapses.

And new research just came out in Science magazine that says immune cells in the brain called microglia are like gardeners, and they prune extra synapses and clear debris from the brain. And neuroscientists in China performed experiments on mice to see what these microglia were doing for forgetting. And they put mice in a cage where they got mild tingly electric shocks. Not real pain, but just like a static electricity kind of thing on their foot, so they'd get an unpleasant memory. And then every time the mice were put in the same cage for the next five days, they'd freeze expecting the little tingle on their foot. But after about three, four weeks, they forgot the experience and they wouldn't freeze as much. But then somebody has got a drug to kill those microglial cells. And those mice froze more often, which means they held onto the unpleasant memory. In other words, they couldn't forget.

Now, what does that mean for you? Well, it turns out that this same process of microglia coaling your synopsis is linked to early stages of Alzheimer's. So understanding how these little immune pruners in the brain work is really important for curing Alzheimer's, and it's also important to understand that these parts of the brain, they don't like ketones as much as they like glucose. What does that mean for you? It means that maybe even though we know that the ketogenic diet and some of the things that raise ketones are good for Alzheimer's, maybe you don't want to only burn ketones. Maybe you don't want to only burn sugar. Maybe if you're on something, oh I don't know, like the Bulletproof diet where you sometimes eat some carbs and do a cyclical thing like that. Sometimes you fast, sometimes you eat, where you're able to metabolize some carbohydrates and feed your good gut bacteria, maybe that's a good strategy because it turns out these little cells that we didn't know so much about, it can live on ketones. They just don't live as well. This is why cycling the way nature intended probably works better.

This is one more little data point that says, hey, don't go, "Dirty keto." Don't go, "Oh, I only eat plants," because well that doesn't work either.

So I kind of like to say being in the middle of the road is good, except that sucks too. Cycling in and out of the middle of the road, that's what seems to work for almost everything, including sleep, exercise, food, sex, whatever. You name it, don't stay in the middle. Don't stay on any extreme, move around.

Source: https://www.sciencenews.org/article/brain-microglia-memories-forgetting