

COOL FACTS FRIDAY #29

Dave Asprey:

Welcome to another edition of Cool Facts. I'm recording these as I'm on my way to Austin where I am relocating.

Cool Fact #1

This cool fact is about how sperm that swim together increase their chances of fertilization. United we stand, divided we fall. Apparently, that's the sperm motto and we didn't even know it. Traditionally when you picture the process of your little swimmers making their way to their final destination, the egg, they hope, is a winner-takes-all scenario, very mercenary, but researchers from North Carolina A&T State University and Cornell studied sperm from bulls and they found something different.

The researchers discovered that some sperm don't stay in their lanes in the race to fertilize an egg. Clustering instead of competing allowed sperm to swim upstream faster than solo swimmers. This was even more important when the sperm came up against an opposing flow of viscoelastic cervical mucus from the female reproductive tract. Much like human cooperation, when sperm work together, they significantly improve their chances of success.

What does that mean for you? Well, if you and your partner are trying to get pregnant and one of you knows you have high amounts of viscoelastic cervical mucus, you might want to ask your sperm to clump together.

Actually, no. What this means for you is that the picture of biology that you've had painted for you since your seventh grade biology class is largely full of crap. Almost everything in life works together to make something happen. That's why it's the fourth F-word in biohacking: fear, food, the other F word you're not supposed to say, and friend. So, we work together as humans to make our species and the world around us better. Even your sperm do that. There are very few cases where it's you against the world unless, that is, you listen to social media in which case it's probably all the time.

Source:

https://www.frontiersin.org/articles/10.3389/fcell.2022.961623/full?utm_source=NEO.LIFE&utm_campaign=8169041d3f-EMAIL_CAMPAIGN_2022_09_20_04_34&utm_medium=email&utm_term=0_253ae8788d-8169041d3f-88775189

Cool Fact #2

This cool fact is about why eating late at night makes you fat. You might have heard me say to stop eating two or three or I would tell you even four or five hours before bed so that your digestion is turned off when you hit the sheets. It's part of your circadian rhythm, but researchers weren't exactly sure why late-night eating makes you fatter. There are a lot of variables involved in how your body gains weight. There is just how much you eat which is not exactly as big of a variable as most people think because it's what you eat that really matters. Another thing is what's your basal metabolic rate? How many calories do you burn by breathing and keeping yourself warm and moving around and thinking and things like that? Then there's what hormones and toxins are at play and what are the molecular changes in your fat tissue.

In a recent study at Brigham and Women's Hospital, investigators divided a group of participants into two different groups. One group ate on a regular schedule. The other group ate the same foods four

hours later in the day. So obviously if you believe the calories in, calories out, angry skeptic influencer types, these would be identical except, sorry guys, the late-night eaters burned fewer calories, they had lower levels of the satiety hormone called leptin that I've written about in a couple books, and they had increased expression of genes for fat storage.

When you eat, according to this research which is good quality research, directly impacts your energy, your appetite, and the molecular pathways in your fat tissue. This was published in Cell Metabolism which is a very reputable journal. This study, all by itself, disproves every single post about eat less and work out more. Eat more protein, eat high quality fat, don't eat too much sugar, and for God's sake, don't eat it at midnight. You might find it's a lot easier to lose weight.

Source: <https://www.sciencedaily.com/releases/2022/10/221004121928.htm>

Cool Fact #3

This cool fact is about a new tech that leverages the metabolic secrets that are hiding in your sweat. By now if you've been listening for a while, you already know that we can track and measure all kinds of bodily functions like the number of steps you take, your heartbeat, your sleep, your stress, your metabolism, even what's in your pee, but wearable technology is continuing to evolve in different ways that let you evaluate your biology with a brand new tool for measurement which is your sweat. Why would you want to measure that? Well of all your bodily fluids, it's the most accessible and it holds information that gives you a peek into what's happening in your metabolism.

Until now, any kind of monitor that could look at your sweat was clunky and a nuisance and no one would use it out of a lab, but researchers at Cal Tech created a wearable patch device that measures a bunch of different metabolic markers by looking at your sweat. They can find essential amino acids, vitamins, metabolites, lipids, and hormones. What does it mean for you? Well you should rush down to Cal Tech and ask them for it because it's not available on the market yet, but it's about to be. The device will help you monitor various biomarkers and assess your risk of metabolic syndrome and also just tell whether what you're doing works. It also is going to let you monitor metabolites so you can find weird health conditions or toxin exposures much earlier than you normally would.

This tech is part of the field of precision nutrition so you can personalize what you eat and what you do in your life so that you get the results you want. It is no longer okay to just say that everyone should do one specific thing even though we can all follow the same strategy. The strategy might be reduce your toxin exposure, but when we personalize it, we may find that you are very sensitive to one toxin but you're not sensitive to another. So you need to limit one source. Everything you do can be personalized to make you extremely powerful. We just need the data, and it turns out this data is kind of sweaty.

Source: <https://www.nature.com/articles/s41551-022-00916-z>

Cool Fact #4

This cool fact makes me really happy because it's an area I've had huge interest in for 20 years, but almost no one pays attention to it. It's about eye movement. In this case, it's about how your eye movements could help you delete unwanted memories, basically clear out space in your mental hard drive.

While you sleep, your brain processes memories and information that you've gathered during your waking hours. We already know that when you're dreaming, you experience REM state which stands for rapid eye movement, but no one until now has known why your eyes move during REM sleep. So

researchers at UCSF studied the brains of sleeping mice to find out because sleeping mice apparently dream about cheese.

What the scientists discovered is that the direction and amplitude or strength of the eye movements during REM sleep correlate with the mice's head movement when they're awake. That research suggests that when your eyes rapidly move around during REM, you're looking around in your dreams. This research adds even more credibility to a technology that I've talked about on the show for years for trauma resolution, something called EMDR which is when you move your eyes in a very specific pattern that puts your brain into a weird reset mode where you can let go of unwanted traumas. You don't forget about them. You just lose the emotional association with them.

It's probably tying into these mechanism and you can expect that over the next few years, you're going to see a variety of technologies probably using virtual reality goggles that guide your eyes to move in a specific way to make your brain do specific things. We are just tapping into this emerging area of bio-hacking which you will not be surprised is already written about in ancient Chinese medicine writings about eye movement and even yoga writings about where you put your eyes during meditation. The more we study, the more we realize that the ancients already had it figured out.

Source: <https://www.science.org/doi/10.1126/science.abp8852>