

## COOL FACTS FRIDAY #22

Dave Asprey:

Welcome to another edition of Cool Facts.

### Cool Fact #1

Cool fact #1, scientists have found yet another way to possibly extend human life and this time, by fixing faulty mitochondria. And if you've read my book on anti-aging, you know that mitochondria is one of the seven pillars of aging, and I'd argue the most important because if you can't make enough energy, none of the other repair processes that your body can do are possible. So I think of this as foundational. And since a lot of scientists now agree that mitochondria are involved or are a primary cause of aging, if we can hack that, we're going to live longer.

This new research out of Baylor College of Medicine may have an antidote for some of the faults in mitochondria and it's by oxidative protection. And you might have heard of antioxidants. Well, this is kind of how they work, except that your mitochondria have to do oxidation, because that's how they make electrons. The deal is what happens if they leak inflammation because they don't do a good job of making electrons without a lot of waste. So healthy creatures of all forms that have mitochondria, if they can be very efficient at converting air and food into electrons, magically, they live longer and they perform better, and that's what we're all about.

This new supplement is called GlyNAC, and it is a mix of glycine, the predominant amino acid in collagen. And if you're a long-time follower, you know that I turned collagen into a billion-dollar supplements when it was an unknown supplement, when I started talking about it 11 years ago. So it's become a big thing and that's important because we're missing it from our diet in the US. Primarily, glycine is the most important part of collagen other than some signaling molecules. You're going to learn about those later this year from me.

And NAC is a long-time precursor of glutathione. Glutathione is the primary antioxidant and detoxer in the body, and a lot of biohacking techniques, like taking glutathione via liposomal, oral routes or injecting it or using it intravenously, those work, and they're really powerful mitochondrial resuscitators. So we want to keep our glutathione levels high.

Well, this new compound called GlyNAC is just a combination of those two things. And the Baylor scientists figured out that since glycine and NAC are precursors for glutathione, if you take that, it can help protect against oxidative stress, and the mice actually did live a little bit longer.

And the reason that this worked is most important and it's because this supplement combination corrected abnormalities in what's called mitophagy, which is taking weak kind of dim bulb mitochondria, getting rid of them and replacing them with young and strong mitochondria that are better at making energy.

This supplement also corrected nutrient sensing and it corrected genomic damage. As your mitochondria make energy over time, they damage DNA. Your body has processes to fix the DNA, but if those processes become weak or fail because you don't have good nutrient sensing, which would make you have good nutrients, then suddenly you get more mutated DNA, and all of a sudden, you look in the mirror and you're like, "Oh, something's changed." Or you go to the cancer doctor and something's really changed.

So this study says GlyNAC works on different body processes that could slow aging in humans since it works in mice. My commentary on this is simply that getting your glutathione levels up is really

important, and I have no evidence that GlyNAC is any better than say taking glutathione directly or taking vitamin C and NAC, which also raises glutathione. The primary ingredients for glutathione are vitamin C and N-acetylcysteine.

It is generally less preferable for you to rely on your body to convert one thing to another thing, so you can use it, because the process of conversion consumes energy and you may not have a co-factor that you need, and you're not going to know you don't have the co-factor. I still stand by intravenous glutathione in severe cases or oral glutathione, or even a glutathione patch as the preeminent way to raise glutathione, even though this study shows taking precursors works. You also should be taking glycine probably in the form of collagen, but you can take glycine because it's also a detoxing molecule independent NAC. It's the third, most common detox pathway in the body.

So what does this mean for you? Well, take your glutathione however you'd like to get it, maybe via NAC plus vitamin C or NAC plus glycine or this new compound when it comes on the market. I think they're chemically bonding the glycine and the NAC, but there's no evidence that I know of that says they have to be bound together, because you could just take one and the other and your body's going to use them as co-factors. So there you go. If you wrap it all up, get your glutathione levels up. You'll probably live longer. That is part and parcel of biohacking.

Source: <https://www.mdpi.com/2072-6643/14/5/1114>

## Cool Fact #2

Cool fact #2 is quite interesting. A huge amount of what we take into our bodies is entirely invisible in our reality. So the fact that you get an X-ray, you can't feel the X-ray, but it's actually taken in. That's an extreme example. However, there's all kinds of olfactory or smell cues that your body processes without your knowledge. You know that woman who's suddenly just really, really fascinating? Well, sometimes it's because she's ovulating and she's putting on pheromones that you don't smell consciously, but it just makes someone appear really interesting. And I've talked with enough of my women friends and they're saying, "Yeah, when I'm ovulating, if I give a talk, it's the best results in the audience of all." And it's not that men are dirt bags or women respond a different way. We can't even tell, but there's something different and it's that, we detect it as a vibe or just an interest or you look twice.

Well, it turns out that's happening all the time in other ways. For example, in this new cool fact, it's about babies. If you've ever held a baby, they smell like a baby. What you probably don't know is that this scent comes from a chemical called hexadecanal or HEX, as it's called. In a recent study out of the Weizmann Institute of Science in Israel, researchers found that when men and women smell HEX, it creates a very different brain response. Again, you're not choosing this response. This is happening automatically in your operating system.

So both men and women show activation in the left angular gyrus in the brain, which is a really important part of the brain for social signal processing. So yes, babies are hacking your brain, but in women, there's a decrease in connections between social, emotional and decision-making areas. In other words, when women smell HEX, they become more aggressive. They turn into mama bear is basically what this says. They're going to protect that baby. But when men smell a baby, in that same part of the brain, they show an increase in social, emotional and decision-making areas, and they become less aggressive. So they become better fathers and better community members. So you get the protective mom and you get the dads like, "I want to take care of this baby and be connected with the mom in a healthy community way," or if it's a relationship, just emotionally supportive.

What this is babies making sure they're safe, and really, this is Mother Nature and the puppet masters, the mitochondria, which are, you might imagine, the frontline sensors in your olfactory. Your smell nerves are of course driven by mitochondria. So they are the frontline sensors in the body. So they're saying, "Do we want this new walking Petri dish called a baby?" From the perspective of a mitochondria, it's a mobile home. And do they want a new mobile home where more mitochondria can thrive? Yes, they do. So they're hacking us with HEX. So mom's going to protect the new little baby, and dad is going to be supportive of the new little baby, and it's all done without our conscious knowledge. It's actually incredibly cool. So babies are hacking men to be nice to them and they're hacking women to protect them, and that is as it should be.

Source: <https://www.revyuh.com/news/science-and-research/scientific-research/newborn-babies-super-strong-smell-has-opposite-effects-on-parents/>

### Cool Fact #3

Our next cool fact is about your circadian clock and how well your eyes work. Turns out that there's a deep connection between circadian rhythmicity. In other words, does your body and do all the independent systems in the body all row the oars in the same direction at the same time? And well, light is the signal that makes that happen. And you need light in order to see, but light, in some forms more than others, will degrade the structures in your eyes over time, unless they're repairing themselves. And what the body does to make up for that is it says, "Oh, let's have some time in darkness." So when you're asleep or when it's dark outside, you can rebuild those structures and maintain healthy eyesight.

Researchers at Purdue University's College of Agriculture decided that they would dig deeper into the relationship between circadian timing and eyes by studying the eyes of common fruit flies called *Drosophila*. And these are a really common model for the human eye and they let us pretty quickly understand changes in the eye. And the research team identified two transcription factors called Clock and Cycle. Transcription factors are certain proteins that help you turn specific genes on or off by binding to DNA near those genes.

So Clock and Cycle factors regulate your circadian rhythm, and they also appear to regulate nearly all of the genes involved in sensing light in the retina. When your Clock and Cycle become dysregulated, say, by bright light at night or by the wrong temperature at night, or very importantly, by eating a meal too lately, it'll impact circadian rhythm directly. I would argue for this system, it's probably light, like for most other systems, that's the predominant signal. And that can put your eyes at a greater risk of retinal degradation as you age.

What does that mean for you? Well, it means that if you stay up late at night and you have bright lights on, you're probably going to have eye problems. I would also say, although it's not in the study, that since the type of light affects healing on the eyes very, very dramatically that this further supports the idea that if you are a night owl, the way I am wired genetically and most of my books end up getting written between 11:00 PM and three or 4:00 AM, but when I do it, I'm wearing my TrueDark glasses. I've got red lights on. My screen is exceptionally dim, and I'm not harming my eyes. They're still in rest and repair mode because they're not getting any of the four colors of light. It's not just blue light that's harmful, that cause extra stress in the eyes. So my eyes can rest, even though I'm doing work. And dimming the lights in the evening is probably something that's going to give you better eyesight for longer periods of time.

As an example, I am 28% years old. Since I'm going to live to 180, you can do the math, but I am in my late forties. If you actually value chronological aging, I don't know, if you look at my biological age, I'm at 11 and a quarter years younger than my chronological. So I'm starting to identify as being

somewhere in my mid-30s, but hey, that's just me. One of the aspects of that is I don't need reading glasses, even though most of my friends do. I am still 20/15 in both eyes. And my most recent eye exam with very high-end analytics you wouldn't normally see, they said, "This is crazy. We don't see yellowing, and we don't see stiffening of the lens the way you would expect." And the doctor said straight up, "I'm not sure what you're doing, whether it's your supplements, your collagen or the glasses, but whatever it is, keep it up because I don't see this."

So there you go. You need to have a healthy circadian rhythm, and you need to make sure that you control it with the light going into your eyes. And since we all want to be able to see as we age, so we can keep doing good stuff efficiently, well, maybe you should turn on those red lights, eh? Oh, man. I said eh. I'm starting to sound Canadian. I'm sorry.

Source: <https://neurosciencenews.com/circadian-clock-vision-20157/>

#### **Cool Fact #4**

This cool fact is about a fatty acid that you've probably heard of that plays an important role in your brain, but it turns out eating that fatty acid doesn't appear to cause this change. Brain science is always looking for ways to treat cognitive disorders and mood disorders. Most research has gone into mood disorders and more recently looking at how we can improve cognitive function usually because it's starting to decline. And then there's people like me into nootropics, who've been pushing for a long time to say, "Hey, a healthy brain also has unlocked potential. Let's look at nutritional lifestyle and, yes, even pharmaceutical ways to make better brains."

Researchers at Baylor College of Medicine did some research into memory and mood, looking to figure out how does the brain or maybe your environment regulate memory and mood. What they found in mice anyway was a missing piece of the puzzle they've been looking for, and it turns out it's the good old-fashioned monounsaturated fat called oleic acid, which is most common in olive oil.

How does this work? Well, oleic acid is a master regulator of a protein inside neural stem cells. Neural stem cells are cells that allow your body to repair or generate new neurons. It's important. And this regulator protein is called TLX.

So TLX is a major player when it comes to making new neurons, but we just didn't know how to turn on TLX. So it's this sort of switch sitting there going, we don't know how to flip the switch, but if we could, wouldn't that be magic? Well, the scientists found out that oleic acid binds to TLX and that's how you turn it on. Problem is that the oleic acid is produced in the brain by mitochondria, and it regulates the process that enables learning and memory and supports good mood regulation. Problem is eating tons of olive oil or a little olive oil won't activate TLX. Only oleic acid that's endogenously produced or produced inside your brain or inside your body can turn on TLX.

So there are reasons to have oleic acid in your diet that have to do with cardiolipin in your mitochondrial membrane. The problem is that if you eat a lot of olive oil, you're going to get way too much omega-6, which is bad for mitochondria, which is why I'm happy to do a tablespoon a day, but not a lot more than that, and I like to take very high quality olive oil.

And what does this new research mean for you? Well, it doesn't mean to have olive oil, but it means that we've found a new way of turning on neural stem cells. And all we've got to do is figure out how do we make the body build more oleic acid in the brain. Since eating it doesn't work, what are the co-factors for that? It turns out having the right amount and enough fatty acids is going to work very, very well because the brain can make oleic acid. It turns out that really mostly the body manufactures saturated fats almost entirely, but in this case, it makes stearic acid, but in this case, it can make this unusual monounsaturated acid because it's so important. And I can't tell you exactly what to eat, but I

can tell you having your fat-soluble nutrients and having your mineral co-factors is going to be very important. So mineral balance is likely what drives this or enough quality fats and not taking a lot of omega-6s, which would disrupt the process.

Source: <https://neurosciencenews.com/oleic-acid-neurogenesis-20235/amp/>