

Fitness Strategies That Are Creating World-Class Champions

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Sam Calavitta, aka Coach Cal, founder of The Treigning Lab, has put together much of the health science I've been teaching over the years into a unique training program that is getting extraordinary results
- › The most central strategies are those that optimize ATP production (energy production) and mitochondrial function
- › ATP (the energy currency of your cells) can be produced in three ways: aerobically in the mitochondria, anaerobically in the cytosol, or through phosphocreatine. Of these, the phosphocreatine pathway is the most effective in terms of boosting athletic performance, as it allows your body to use D-ribose, adenosine and phosphate to form ATP within your body at a higher level. Near-infrared light also boosts ATP production
- › Mitochondrial function must also be optimized, or energy production cannot be elevated. Effective strategies include near-infrared sauna therapy and intermittent fasting
- › Other strategies that help optimize fitness and athletic performance include sun exposure, boosting NAD+ with low-dose niacinamide, a cyclical ketogenic diet, intermittent fasting or time-restricted eating, addressing elevated iron levels, methylene blue and molecular hydrogen

In the video above, I interview Sam Calavitta, aka Coach Cal, founder of [The Treigning Lab](#). We met through a biohacking conference in the fall of 2022. One of the organizers of the event introduced me to Miesha Tate, a professional and former Ultimate Fighting

Championship (UFC Women's Bantamweight champion) and mixed martial artist who in turn introduced me to Coach Cal.

He's taken much of the health science I've been teaching over the years and put it together into a revolutionary training program that is producing extraordinary results. Here, we'll review some of the strategies that can take your fitness to the next level.

Coach Cal's Unique Approach Gets Results

Calavitta himself wrestled until he turned 40, at which point he switched to Ironman competitions, which is an entirely different paradigm in terms of energy expenditure.

"So, I had to figure out my energy systems," Calavitta says. "I used a lot of the things that you have been preaching ... in particular [strategies for] mitochondrial optimization.

I brought a lot of those practices into the sports, I brought them into Ironman, and I was able to hybridize Ironman training along with combat sports and wrestling, and came up with a very unique way of training athletes ...

There's a plethora of athletes who are seeking to get in to train with us ... A huge portion of the UFC and Bellator athletes are my athletes ... Almost the entire Olympic wrestling team, which this year [2022], won the first world title in wrestling in many years, beating out Russia [and] Iran.

Wrestling and combat sports are very weight-specific programs which tie right into many of your practices with intermittent fasting, with your meticulous directions on cyclic ketogenic diet, not overdoing it and things like that ...

The Treigning Lab is known for some of the most magnificent body transformations ever seen. And ... I appreciate your approach, [which is] 'Treat the body the way God intended, and then sit back and watch the miracle take over.' And it's been really, really neat ...

These athletes are the toughest athletes in the world, but they're very cerebral and they appreciate being guided by expertise. And a lot of that expertise is directed by many of the things that you've taught me.

This is a young gal who fights in an organization overseas [see video for image]. We were able to bring her down from about 154 pounds to 125 pounds without ever bastardizing her hydration status or her caloric intake, all through many of the principles that were found in your book, 'Fat for Fuel.'"

'Proof of the Pudding'

Calavitta shows several other pictures of amazing body transformations in the video.

"That's the influence that you've had on a huge plethora of different athletes," he says. "You do a lot of health and wellness for the general population, but I don't think you really understand the effect you've had on the world-class athletes ... those who are truly listening to and appreciate the educational pieces that you put out daily, and your steadfast fight to let people facilitate the means to allow the human body to do what it can do."

Frankly, I was unaware that so many elite athletes were using these principles that I've been teaching, and it was a real treat to see the kinds of results a person can get if they're dedicated.

The good news is, you don't have to be a professional athlete to get similar results — you just have to have a willingness to implement and follow through. If you've ever doubted or wondered what the strategies we discuss here can actually do for you, I think you'll be inspired by Calavitta's testimony, and the before-and-after pictures of his roster of athletes.

Optimizing Energy Production

So, what are some of the most effective strategies in Calavitta's toolbox? The most central strategies are those that optimize ATP production (energy production) in the mitochondria. This is a no-brainer, since you need optimal energy production in your cells order to perform at an optimal level physically.

"Basically, everything came down to 'How can I optimize ATP production in these athletes, to allow their bodies to overtake that of an opponent?'" Calavitta says. "It came down to understanding that ATP could be produced in three main ways. One, aerobically in the mitochondria. Two, anaerobically in the cytosol. Or three, through phosphocreatine."

Phosphocreatine is the phosphorylated form of creatine, which rapidly mobilizes reserves of high-energy phosphates in your skeletal muscle, heart and brain. Those phosphates, in turn, recycle adenosine triphosphate, which is the energy currency of your cells.

Of these three ATP producing pathways, the phosphocreatine pathway is the most effective in terms of boosting athletic performance, as it allows your body to use D-ribose, adenosine and phosphate to form ATP within your body at a higher level. That said, your mitochondrial function must also be optimized, or this energy boost cannot occur.

Near-Infrared Sauna Therapy for Mitochondrial Optimization

There are several ways to optimize mitochondrial function, but one of the most effective, as it provides more than one benefit, is near-infrared sauna therapy. First of all, it's an effective detox strategy. Most people have toxins in their system – plasticizing chemicals, pesticides, flame retardants and heavy metals – and they need to be expelled.

Calavitta uses the Sauna Space near-infrared sauna bulbs with a wavelength of 700 to 960 nanometers. He also appreciates the science of electromagnetic field (EMF) damage, so he uses an EMF-free setup. He explains:

*"I didn't do that until I read your book 'EMF*D.' But when I understood what actually happens – the EMF damage, due to the voltage-gated calcium channels in the body, and the [subsequent] necrosis and breakdown of the cell, I thought 'I can't be using this with my athletes and having their cells break down.'*

I want them in a state of autophagy, mitophagy and whatnot, to be able to clean out, replicate and rebuild. So, I took the far-infrared sauna, as you suggested, and outfitted it with seven of the Sauna Space bulbs, so I can get it up to 150 degrees."

Autophagy is a really important built-in function your body has that most people fail to optimize. "Auto" means "self" and "phago" means "eat." So, autophagy is the process by which your body removes damaged cellular parts so that they can then be replaced. Autophagy is activated through fasting, exercise and near-infrared sauna, and when you're doing all three, you end up with a very efficient self-healing process.

Optimizing ATP Output With Photobiomodulation and Nutrition

Near-infrared sauna also has powerful photobiomodulation effects. As explained by Calavitta:

"Near-infrared light works in conjunction with chlorophyll to ... convert ubiquinone to ubiquinol in the body, thereby allowing the ubiquinol to go through the bloodstream and be used in a very effective manner in the electron transport chain ...

So, what I did is, I took the near-infrared light and I developed a protocol to use diindolylmethane – which is a metabolite of indole-3-carbinol, sulforaphane and chlorophyll [all of which are found in cruciferous vegetables] – and to administer the red [near-infrared] light in a very calculated fashion to put out a larger ATP production.

People say, 'How do you know that?' The thing is, I'm a mathematician, so I took your interview with Dr. Shallenberger, and I wrote the algorithm with a metabolic

cart, to actually be able to calculate mitochondrial function and discreet ATP output within the human body. So, I'm not just telling you what we do with the red light, I'm telling you we can measure it, because what is measurable can be improved."

Low-Dose Niacinamide Boosts NAD+

Calavitta also uses **low-dose niacinamide** (not niacin), 50 milligrams three times a day (or four times a day for bigger athletes), to boost nicotinamide adenine dinucleotide (NAD+), a crucial signaling molecule believed to play an important **role in longevity**.

It's also important in the **building and maintenance of muscle mass**. When the NAD+ salvage pathways in muscle are impaired, mitochondrial dysfunction and decreased muscle mass ensue.

Many athletes get sold on intravenous NAD, which is extremely expensive, but oral supplementation with niacinamide has also been shown to significantly increase NAD, and at a fraction of the cost. Results doing this, he says, has been nothing short of spectacular.

"I implemented a very strict protocol, as per your suggestion, of one-sixty-fourth teaspoon, three times a day for the athletes," Calavitta says.

"Their energy levels, which I have measured on the metabolic carts – in the way of resting metabolic rate, resting energy expenditure, metabolic efficiency crossover, as well as fat substrate and carbohydrate substrate use for fuels – have all been skyrocketing as a result of using this practice. My athletes call it the fountain of youth, and I myself use it."

Sun Exposure for Vitamin D Optimization

Calavitta's athletes also get an hour of sun exposure every day, which is the easiest and most effective way to optimize your vitamin D level, and then some. I think it's one of the

top two or three things everyone needs to do.

"I understand completely how this is going to be a game changer in my guys. I can't have them going out there with low vitamin D. For my athletes, I want their vitamin D [level] between 80 ng/mL and 100 ng/mL.

I've actually seen athletes whose vitamin D levels were 21 ng/mL, and when we raised them up to the 80s and 90s, their performance absolutely went through the roof and were completely optimized. We try to steer clear of the supplementation with the D3-K2-magnesium cascade, if we can ... So many people don't understand that the D3 without the K2 is not going to end up, possibly, in the right tissues."

Putting It All Together for Optimal Fuel Synthesis

Another practice Calavitta's athletes have embraced is the cyclical ketogenic diet detailed in my book, "[Fat for Fuel](#)."

"High-level athletes, with the amount of energy expenditure they have, there are certain things that have to be cycled in, otherwise we're going to get a down-regulation in thyroid hormone, and I can follow that directly," Calavitta says.

"By using the cyclical ketogenic diet and the intermittent fasting protocol, along with fasted training, the red-light therapy and the nutrients, we're able to get some really fantastic pathways of fuel synthesis.

A lot of your fuels don't just come from carbohydrates or glycolysis, but through ... thiamine. Basically, what people don't understand is that through many different pathways, even to be able to work within the mitochondria ... you have to have thiamine in there ...

So, all of these principles, the supplementation, [it's about] reaching the mitochondria from an optimized performance of the facilities that are available to it ...

One of the first things that I do with my athletes is reduce the linoleic acid (LA) [and] balance the ratios between omega-3s and omega-6s ... We're supposed to have, at best, a 3-to-1 [omega-3 to omega-6] profile. An outlier would be 6-to-1, and Americans are on average, anywhere from a 25-to-1 to 50-to-1 ratio. So, that's a big one."

He also checks iron levels to make sure they're not elevated and he understands the important interplay and symbiotic relationship between **iron and copper**. As detailed in previous articles, more often than not, if you're told you have low iron because your ferritin level is low, the real problem is copper deficiency, as copper deficiency prevents the proper recycling of iron.

Depending on their individual situation, an athlete may be placed on a blood donation schedule if iron is high, and if low on copper, copper-rich foods are added to their diet. Whole food vitamin C is an excellent choice if your copper needs a boost, such as acerola cherry and amla berry.

"So, being able to put all these pieces together, at the level that we have here ... with all of the means that we've mentioned on this podcast, we're able to see a complete picture of an individual, to enable their God-given potential to go to a level that is basically unsurpassable," Calavitta says.

Other Tips and Tricks

Two additional strategies Calavitta has embraced are:

- Supplementing with methylene blue, which I think is one of the most exciting products available, with respect to mitochondrial function, especially for those who are tired all the time.

While it does not address the foundational cause of the problem, it's a phenomenal crutch when you're in a pinch or just need to get over a hump, as results are felt very rapidly, typically well within a couple of hours. As noted by Calavitta, its main

benefit is its ability to bridge the gap when there's a breakdown in the electron transport chain.

- Supplementing with molecular hydrogen tablets, to neutralize the free radical damage from ionized radiation during flights. It also helps athletes attenuate jet lag and water retention or edema. “People don't understand how much oxidative damage actually happens when you're flying,” he says. “I'm in a unique position because I measure everything and I'm able to see it. And I'm able to see the [decline in] performance that comes from it.”

More Information

To learn more about Coach Cal and all the performance and recovery tools he uses, check out TreigningLab.com and sign up for his newsletter. He also has a [Treigning Lab phone app](#), available for both Apple and Android.

[The Treigning Lab Recovery Center](#), located in Placentia, California, offers a variety of services, including hyperbaric oxygen therapy, full body cryotherapy, infrared light therapy, compression boots, hair and tissue mineral analysis and percutaneous hydrotomy.