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SUPPLEMENTS AND SNAKE OIL

Sports-nutrition experts share their thoughts on performance supplements for CrossFit athletes.

BY HILARY ACHAUER

Mike Warkentin/CrossFit Journal

A wall of nutritional supplements can be incredibly seductive.

The little jars with multisyllabic, unpronounceable technical names that often combine letters and numbers: CoQ10, L-carnitine L-tartrate, methylsulfonylmethane. The pictures of molecules and all the trappings of science. The cartoon-sized tubs of protein powder and the aggressive packaging. The tanned, rippling, bulging models. The delicious pictures of guilt-free "healthy" cookies and candy bars. The promise of massive gains.

The nutritional-supplement industry—which includes vitamins, minerals and supplements—produced US$32 billion in revenue in 2012. According to the Nutritional Business Journal, that figure is expected to double by 2021.

Everyone wants an edge, something a little extra. If you train hard, sleep well and eat right, why shouldn't you also take supplements?

The problem is many of the claims made about supplements are not supported by science, and we don't yet understand how our bodies interact with all the nutrients in whole foods.

"We don't know probably 80 percent of some of the nutrients—and not just nutrients but flavonoids and phytochemicals—that exist in whole foods that add to health benefits," said Karen Freeman, a registered dietitian, nutritionist and sports-nutrition expert who is a volunteer clinical instructor at the University of California, San Diego School of Medicine.

And if you rely on supplements, Freeman said, "the 80 percent that we don't know you're missing out on."

Protein Powder: Essential or Excessive?

After the last rep is finished and the weights are put away in neat stacks, many CrossFit athletes head straight for a shaker bottle, mixing a scoop of powder with water for a post-workout protein hit.

Is there anything wrong with that?

Matt Fitzgerald, an endurance-sports coach, nutritionist and author of several books about diet and nutrition, said ingesting protein powder immediately after training does have a few advantages: It's a fast and efficient protein source that has been shown to accelerate the recovery process and potentially enhance adaptation to training.

However, protein powder has some disadvantages, Fitzgerald said.

First, he said protein powders aren't necessarily more effective than natural protein sources for recovery and training adaptation.

"The benefits you are really looking for with protein powder, there is no evidence you can't also get (those benefits) from regular food, and of course (protein powder is) not as economical as real-food protein sources," Fitzgerald said.

He also said many people are consuming much more protein than they need.

The recommendations on protein intake vary depending whom you ask.

Matt Fitzgerald

The most recent information from the Office of Disease Prevention and Health Promotion recommends 5.5 ounces of protein for a person following a 2,000-calorie-per-day diet (one ounce of meat contains about 7 grams of protein, so 5.5 ounces equates to about 38.5 grams of protein per day).

According to Hammer Nutrition, an endurance-sports nutrition company, a 165-lb. athlete "in high training mode" needs 128 grams of protein each day.

"It's ironic because people who have big, strong muscles, they actually need less protein than smaller people because they become really good at retaining it," Fitzgerald said.

"So they actually need less protein, but often they consume a lot more because that's the myth out there: You need scads of protein to maintain large muscle," he said.

Fitzgerald said the average U.S. diet contains lots of protein, so unless you are in the process of a dramatic physical transformation from scrawny weakling to muscled ruler of the beach, Fitzgerald said you don't need huge amounts of protein.

"Once you've completed that process, one of the adaptations you've made is that your body retains protein, specifically nitrogen, better so that you just don't need to worry about (additional) protein anymore at that point," Fitzgerald said.

A 2006 study found dietary requirements for novice athletes were lower, not higher, after a 12-week training program. In 2000 the Annual Review of Nutrition reported that no evidence confirms protein requirements increase with habitual exercise: "Protein metabolism may become more efficient as a result of training."

> "The protein industry is doing lots of advertising convincing them that they need this product. And the food industry is not doing as good as a job fighting back."
> —Nancy Clark

Nancy Clark, a registered dietitian specializing in nutrition and exercise and the author of the bestselling "Nancy Clark's Sports Nutrition Guidebook," agrees with Fitzgerald that most people—athletes included—consume more protein than they need.

When asked why people take protein powder, Clark gave a simple answer: "Because the protein industry is doing lots of advertising convincing them that they need this product. And the food industry is not doing as good as a job fighting back."

She also said she thinks very few athletes need a protein supplement.

Clark said she's perplexed by people who try hard to avoid processed foods—buying grass-fed beef and pastured eggs—but spend money on protein powder.

"It's such a highly processed food," she said about protein powder.

"The same people that go to great extremes to shop at Whole Foods and buy all this organic stuff, nothing with additives or whatever, and then they eat this processed protein … that's strange," she said.

Clark compared protein powder to white bread, then went further.

"It's like 'less than white bread,'" she said.

Supported by Science or Salespeople?

In 2008, Michael Pollan—author, activist, journalist and professor of journalism at the University of California, Berkeley—compared the state of nutrition science to surgery in the year 1650.

"Which is to say very interesting and promising, but do you really want to get on the table yet?" Pollan asked.

Freeman confirmed the confusion and uncertainty in the industry regarding supplements.

"If you ask 25 different sports dietitians (about supplements) you will get 25 different answers," she said, "but given that my professors at Columbia University (had us) read the 'Farmer's Almanac' as part of our master's degree, I will always choose whole foods first."

Nancy Clark

Fitzgerald said he evaluates supplements on a case-by-case basis, and he distinguishes between supplements for general health and ergogenic supplements (supplements for performance).

"There are people who have an ideological stance on supplements … either it's all a scam and they are all bad or you've never seen a supplement you don't like," he said.

For proof, you need only question the efficacy of a supplement near someone who swears by the product. The debate is often incredibly heated and full of anecdotal evidence, with hard science conspicuously absent.

As for performance supplements, Fitzgerald said the list of clearly beneficial products is actually very short.

Protein powders are convenient, but they're highly processed, and no evidence confirms they're better than natural protein sources.

Mike Warkentin/CrossFit Journal

"For the CrossFit type who are doing high-intensity type of training, it would be creatine and possibly also beta-alanine. Those would be the only two where I would say the evidence clearly indicates it's worth your hard-earned money," he said.

Fitzgerald explained that creatine enhances muscular adaptation to resistance training.

"So if you are doing multiple sets of some type of weightlifting movement, thanks to creatine you will be better in the third and fourth set than you would without it," he said.

However, not everyone responds to creatine, and creatine also causes your cells to retain water, which can lead to weight gain.

Beta-alanine is the other supplement Fitzgerald said is backed up by sound science. It's an amino acid that has been shown to enhance performance in high-intensity efforts such as intervals.

Courtesy of Karen Freeman

Karen Freeman

"If you have someone like a swimmer who swims a 400-meter freestyle, an event that lasts a couple/few minutes but not longer, you would get a better performance when you supplement with beta-alanine," Fitzgerald said.

The possible side effects of beta-alanine are temporary paresthesia—a sensation of tingling, pricking or burning on the skin.

Clark agrees with Fitzgerald that good science supports creatine and beta-alanine.

"Creatine is a viable supplement," Clark said. "Some people respond more than others, as with any supplement of that type. It helps with recovery so that you can do more reps, and that can help you build more muscle. Creatine doesn't build muscle but it allows you to exercise, and (exercise) builds the muscle."

Clark also said good research supports the claim that beta-alanine helps with short bursts of exercise. She cautions that teenage athletes should not take any of these supplements because safety has not been established for children.

Like Fitzgerald, Clark said most supplements should be evaluated on a case-by-case basis.

Trust Your Body

The science on nutritional supplements is murky, and companies who stand to profit handsomely from the sale of these products make most of the health and performance claims.

For example, consider how the questionable claims of the beverage industry were roundly rebutted by actual research by independent scientists.

Not all supplements are worthless, but Clark made a point that might be interesting to athletes who are considering adding supplements into their regimen.

"Don't you really want to know what your body can just do?" she asked. "There are plusses and minuses to everything, but psychologically … if you start taking creatine, do you always have to take creatine for the rest of your life? Is that what you really want to do?"

Ultimately, in her mind, it comes down to this question: "Do you trust your body to be good enough?" ■

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