

Protein — supplement or sandwich?

ATHLETES SEEKING PROTEIN SHOULD SKIP SUPPLEMENTS AND FOCUS ON FOOD

Protein has never been more popular. From high-protein fad diets to protein bars, “proprietary protein blends” and even protein water, it’s clear that consumers are more focused on protein than ever before. Athletes too, have embraced the idea that protein supplements should be consumed in water, in bars, in powders and in shakes — and in very large quantities — to build muscle and add mass.

Expert nutritionists say all of those ideas are off base. You can consume plenty of protein from regular “whole” foods, and you need more than just protein to build muscles.

PROTEIN IS A TEAM PLAYER

“Athletes think about muscle being made up of protein and think they should therefore consume huge quantities of protein to build muscle,” said Ingrid Skoog, the director of sports nutrition for the Oregon State athletics department and also an instructor in nutrition and exercise science at Oregon State University.



“Unfortunately, athletes typically get their information on nutrition from muscle and fitness magazines,” Skoog said, noting that those magazines are likely to promote specific products from companies that purchase advertising.

“The bottom line for putting on mass is caloric intake. It’s not really protein that puts on mass. It’s the combination of protein, carbohydrates and fats,” Skoog said. “Cells are made up of proteins, carbohydrates and lipids. You need all of these nutrients together.”

“My analogy with athletes is that if

you’re building a house, the protein provides the raw materials but the carbohydrates and calories are the workers. If the workers don’t show up, the house doesn’t get built,” Skoog said.

So, how much protein do you need anyway? There are three or four levels of protein requirements, based on a person’s level of activity.

According to Skoog, the general population needs about eight grams of protein per kilogram of body weight. Those athletes who are doing heavy training or who are endurance athletes need 1.7 grams of protein per kilogram of body weight because they are more likely to be burning amino acids as a fuel source. Football players, or those who want to put on mass, need 1.6 grams of protein per kilograms of body weight.

(See the sidebar on page 5 to see a chart showing balanced diets, with plenty of protein, for athletes of different sizes participating in different sports.)

Leslie Bonci, director of sports nutrition at the University of Pittsburgh Medical Center, also points out that too much protein can be a bad thing.

“People forget that too much protein equals too much body fat,” Bonci said, noting that there’s a limit to how much protein the body can actually use.



Bonci also points out that too many athletes are consuming protein at times when carbohydrates are needed, such as for refueling after a workout.

“Carbs are not bad, particularly after exercise,” she said. “Athletes do deplete

their carb reserves, and they need to replenish them after exercise. Protein cannot replace muscle glycogen.”

Bonci explains that the “perfect” post-exercise snack would contain about 12 grams of protein and about 30-40 grams of carbs.

“And that’s what you would find in a 12-ounce bottle of chocolate milk,” Bonci said. “Most protein shakes are totally the opposite, with much more protein relative to carbohydrates.”

Bonci also points out that consuming the appropriate amounts of carbohydrate and protein in combination results in the best results for athletes seeking to build muscle.

“Having some carbohydrate in that post-exercise drink does stimulate insulin release and growth-hormone release,” she said. “And that’s what you’re trying for. If you don’t have the carbohydrate, you can take in all the protein you want and not get to your goals.”

GOT CHOCOLATE MILK?

And as Bonci points out, the best post-exercise drink for athletes may be the one that reminds us of childhood games over recess — chocolate milk.

Last fall, scientists from Indiana University published a study in the *International Journal of Sports Nutrition and Exercise Metabolism* articulating the benefits of chocolate milk after exercise. The study followed nine fit athletes who worked out strenuously on a stationary bike and then drank either low-fat chocolate milk, a fluid-replacement drink (like Gatorade) or a carbohydrate-replacement drink. Then they were asked to repeat their effort on the bike. The data showed that the cyclists were able to go between 49 and 54 percent longer after drinking chocolate milk rather than the carbohydrate drink. (There was no statistical difference between the milk and the fluid-replacement drink, but there is thought that there are more nutrients in milk.)

Though the study was supported in part by the Dairy and Nutrition Council, it did get some folks talking about the benefits of chocolate milk as a post-recovery drink.

They’ve moved beyond talking at the University of Washington, where the

football team is drinking chocolate milk, along with water and Gatorade, after every practice. Each player is required to drink a bottle of Gatorade and a carton of milk before leaving the field.

"This is just another way to facilitate post-exercise carbohydrate replenishment," Trent Greener, Washington director of sport performance, told the *Tacoma News Tribune*. "We've always used Gatorade," he said. "But we're always trying to find ways to get natural foods into people. So if we can find a natural product at the end of practice that aids with recovery, keeps them hydrated and gives them the energy that they need, we're going to go with it."

REAL FOOD, REAL RESULTS

Real food is the real answer to athletes' dietary needs, says Oregon State's Skoog. While the NCAA has always promoted food over dietary supplements, sometimes athletes are too quick to turn to supplements, missing out on the many benefits of real food.

"Whole food is entirely different than its parts broken out," Skoog said, noting that there are a variety of health-promoting substances in whole food, from vitamins and anti-oxidants to phytochemicals and probiotics.

Pittsburgh's Bonci agrees, noting that the body better absorbs the nutrients in whole food and in foods that contain both carbohydrates and protein.

"Protein is better assimilated in multi-nutrient eating episodes," Bonci said. "And that doesn't have to be complicated. It could mean a peanut butter and jelly sandwich with a glass of milk."

Bonci notes that two tablespoons of

WHOLE-FOOD SNACKS FOR ATHLETES

Choose from these great whole-food snacks to boost your caloric intake with healthy high-protein snacks.

Toss in your backpack:

peanut butter with bread, crackers or a banana
nut butters (almond butter, hazelnut butter, cashew butter)
trail mix with roasted soy beans or peanuts
jerky (beef, salmon or venison)
hummus
trail mix bars with nuts

You may need a fridge:

chocolate milk
yogurt (some drinkable ones don't need refrigeration)
string cheese (can handle a few hours in your backpack without refrigeration)

peanut butter, combined with a banana, crackers or whole-grain bread, provides the perfect ratio of protein to carbohydrates.

"It's the ratio we're looking for," she said. "It works, and it keeps. You don't have to refrigerate it, and it tastes good. And, it's a lot cheaper than supplement drinks."

(Both Bonci and Skoog had numerous real-food snack recommendations for athletes. See the sidebar below for more details.)

SUPPLEMENT OR SANDWICH?

It's impossible to have a conversation with athletes about protein drinks without talking about a supplement called "Muscle Milk."

Muscle Milk's new Collegiate Series is said to no longer contain colostrum or creatine (both of which previously made it impermissible to distribute), and several institutions are said to be distributing it to student-athletes. It's still a supplement product though, so it still brings risk with it.

"In the last year, Muscle Milk re-worked their product, making it an option," Skoog said, noting however, that the supplement industry is poorly regulated and cross-contamination remains a risk.

"It's still a high-risk product, in my opinion. What you *won't* get with real food is that risk."

While its name is a bit of brilliant branding, it's no better than real milk and a lot more expensive, Skoog says.

"Calorie for calorie, there's no difference between milk and Muscle Milk, but Muscle Milk is much more expensive," Skoog said. "It's part of our culture to respond to branding, and there's a value to some athletes to say, 'I'm using Muscle Milk.' From a nutritional standpoint, it's an expense that's not necessary."

Bonci also points out that Muscle Milk has a caloric downside that many athletes may not realize.

"It tastes good, but it comes with a huge calorie price tag, and the fat content is really high," Bonci said. "The fat delays digestion, and the athlete doesn't have the carbs they need for exercise," she said noting that the protein-carbohydrate ratio is not optimal.

When you consider cost, benefits and risk, athletes are better off with the sandwich.

"The PB&J is a whole food with the correct ratio of protein and carbs," Skoog said. "It's portable, doesn't have to be refrigerated and it can be squished in your backpack and still taste great."

"The following two example meal plans show how easy it is to meet your protein needs when you are adequately fueled for training and eating a wide variety of nutrient-dense foods. In both cases, calorie-needs to maintain weight and training load resulted in an intake of more than enough protein to meet the body's needs. An athlete wanting to put on mass, therefore, should focus on putting in the calories from good foods throughout the day and avoid the costly protein powders since the body's need is for calories as carbohydrates and proteins, not just protein."
— Ingrid Skoog, director of Sports Nutrition at Oregon State University Athletics department

19-year-old football player

Weight = 200 lbs., Height = 6'4"
Activity level = high
Protein requirements for sport = @1.5-1.6 gm/kg body weight = 136-145 grams of protein needed per day. To maintain current weight he needs to eat 4100 calories per day; 500-1000 or more calories above the sample diet as shown.

Breakfast: Two peanut butter and jelly sandwiches on whole-wheat bread; two cups 1% milk; large banana

Lunch: Ft.-long grilled chicken sub sandwich; grab bag of baked chips; two cups 100% orange or apple juice

During practice: Two-three cups of Gatorade

Snack/recovery from lifting: Half-cup trail mix and two cups low-fat chocolate milk

Dinner: Two servings of lasagna; two cups fruit salad; one cup mixed veggies; two cups 1% milk

Calorie content of example= 4000
Protein content= 190 grams or ~2.1 grams or protein per kilogram body weight

19-year-old female cross country runner

Weight = 110, Height = 5'4"
Activity level = high
Protein requirements for sport= @1.7 grams per kilogram = 85 grams of protein needed per day. Calorie needs to maintain weight and training = 2500 per day

Breakfast: One cup cooked oatmeal; Two tablespoons raisins; banana; one cup low-fat yogurt

Lunch: Whole-wheat bagel with turkey and low-fat cream cheese, mustard; veggies; one cup whole-rain pretzels; one medium apple

One hour before practice: One-two cups Gatorade

Recovery snack: Half-cup trail mix, one-two cups Gatorade

Dinner: Grilled chicken breast; one cup steamed broccoli; one cup cooked brown rice; one cup skim milk

Evening: Two chocolate-chip cookies

Calorie content of example= 2400
Protein intake: 112 grams = 2.2 grams per kilogram body weight