

Protein Primer

A runners' guide to the best protein consumption practices

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Protein needs an image makeover among runners. Many runners assume that targeting protein leads to unwanted bulk--after all, thick-necked body-builders revere its muscle-pumping powers--and that carbs are all that count. Both beliefs are wrong.

Protein's amino acids act like recovery agents that refresh muscles for the next go-round: After hard training, especially long runs, protein rebuilds tissues and readies them for future sessions. It also bolsters your immune system, since the body requires plenty of protein to make infection-fighting white blood cells. And because it slows digestion and lowers foods' glycemic index, protein prevents high-energy carbs from sending your blood sugar on a roller-coaster ride. That's especially valuable during long runs, when steady-release energy keeps you from bonking. When that happens, protein helps out again: During fuel shortages, the body sends protein to the liver, where it gets turned into "backup" carbs.

All of which explains why distance runners need more protein, not less, than most people, says Roberta Anding, R.D., a sports dietitian and spokesperson for the American Dietetic Association. Skimp on protein, and your body borrows from muscle to meet its needs--undermining the fitness that runners work so hard to achieve. "Getting enough protein protects your lean mass," says Anding. "And that's where your power comes from."

THE RIGHT STUFF

Not all proteins are created equal. A McDonald's Big Mac contains 24 grams of protein, but it also delivers heaping doses of sodium, cholesterol and 11 grams of saturated fat (half the recommended daily amount). In fact, some research suggests that protein from junk food isn't well absorbed anyway. One study published in the May 2006 American Journal of Clinical Nutrition found that fast foods (which are high in [Maillard reaction](#) products, compounds created when high fructose corn syrup interacts with fat under high temperatures) interfere with the body's ability to utilize protein.

"Quality proteins are low in fat," says Anding. Choose lean protein sources such as fish, chicken breast, flank steak, or pork loin. (Any cuts with "loin" in the name, including beef tenderloin, tend to be leaner.) Trim away all visible fat before cooking.

Meat isn't runners' only option. "Eggs and dairy products are incredibly high-quality sources of protein," says Anding. Like meats, eggs and dairy proteins are considered "complete," because they contain all of the essential amino acids needed to rebuild cells. Milk is particularly high in branched-chain amino acids, including leucine, which has been found to trigger muscle recovery. Egg protein is especially absorbable: Not only does one egg white deliver 4 grams of protein, but it's in a form that the body can readily use.

Some plants, such as legumes, contain protein. But except for certain grains, such as quinoa, most plant proteins are "incomplete," meaning they lack a few key amino acids. "To build and repair tissue, those proteins need a little help," Anding explains. Traditional food pairings often form "complete" combos; for example, adding rice to beans ups the overall protein quality. Don't worry about getting the perfect combination every time you eat.

"We used to think you had to have them in the same meal. We now know they just have to be in proximity," says Anding. Within a few hours is a good goal.

TIMING IS EVERYTHING

Various protein varieties get absorbed at different rates, like fast-and slow-release carbs. Whey, a milk protein, gets digested quickly, which is why this type is preferred in recovery foods (see "What's In Your Protein Bar?" below). But another milk protein, casein, is slowly digested, so it's ideal for minimizing blood sugar spikes throughout the day. That's one reason why chocolate milk remains a popular recovery beverage: Along with chocolate's sugary carbs, milk provides a quick hit of protein as well as slow-release proteins for ongoing muscle repairs.

But all proteins are more slowly digested than most carbohydrates, so for most runners, protein isn't a great pre-race food: Trying to digest protein while running can cause cramping and GI distress.

Eaten at other times, though, protein can curb hunger and keep you feeling fuller, longer. That makes protein a valuable ally when trying to lose a few pounds. Protein can also help prevent radical spikes (and subsequent dips) in blood sugar. "You can use protein to adjust foods' glycemic index," explains Anding. By topping a high-GI baked potato with protein-rich cottage cheese, you slow the meal's trip through the digestive system and ensure a steady energy release.

FRINGE BENEFITS

"Other valuable nutrients are often packaged with protein," says Anding. "By skimping on protein, you miss out on vitamin B12, iron and zinc, which are also part of animal proteins," she explains.

Lean beef and dark-meat chicken (legs and thighs) contain high-quality protein and iron, which help deliver oxygen to working muscles. Cold-water fish (such as cod and salmon) pair protein with omega-3 fatty acids--anti-inflammatory agents that ease aching joints and overworked muscles. And many low-fat dairy products combine big doses of protein (14 grams in a half-cup of cottage cheese) with calcium, which stimulates muscle activation.

Beef is also one of the best food sources of zinc, an essential mineral that fortifies the immune system. One 4-ounce portion contains 2 milligrams of zinc (12 percent of your Daily Value) making lean beef a smart protein choice after rigorous speed workouts or interval training: Its zinc can help counteract the hit to your immune system and ward off colds that can afflict runners after a tough training bout.

MODERATION IS KEY

A 12-ounce steak--a typical restaurant portion--delivers about 30 grams of protein. Do runners need that much? "Probably not," says Anding--at least, not all in one dose.

Runners should aim for a daily protein intake of 0.5 to 0.6 grams per pound of body weight (about 85 grams for a 170-pound runner). You should get 15 to 25 grams of that during recovery, within an hour of your run. The rest should be divided evenly between meals, so for most people, a 30-gram portion is probably too much. Gorge yourself on protein, says Anding, and "you'll probably end up feeling heavy and sluggish, not fueled and supercharged."

Food sources--such as a turkey sandwich or grilled chicken salad--are preferable to sport foods and bars, since whole foods' nutrients tend to be better utilized than formulated supplements. But bars are convenient: If you don't have access to high-quality, food-based proteins after your run, it's better to grab a protein bar than to skip protein altogether.

To boost your protein intake without upping fat, increase the amount of lean proteins you already enjoy: Make sure your turkey sandwich contains several slices of meat, rather than just one. Choose extra-lean ground beef (95 percent lean or higher) for tacos and hamburgers. Swap in beans for potatoes as a side dish. Use plain nonfat yogurt as a condiment on potatoes, soups and roasted vegetables. And incorporate some protein into breakfast, too. Eat an egg alongside your toast or cereal, or try a protein-enriched cereal: One serving of Kashi GOLEAN delivers 13 grams of soy protein.

You can also add a protein hit to familiar foods. Give oatmeal or mashed potatoes an inexpensive protein boost by stirring in some nonfat powdered milk: A quarter cup contains 11 grams of protein. "That way, you're not increasing the volume of food you have to eat," explains Anding. Egg whites work the same way: When making pancakes or muffins, substitute egg whites for whole eggs for double the protein (four whites equals two whole eggs). And replace your regular yogurt with Greek-style, which provides up to four times as much protein as the standard stuff. By boosting your protein intake, you fortify your muscles--and make it possible to run farther, faster.

What's in Your Protein Bar?

Sport foods offer an array of different protein types. Here's what you need, when.

WHEY

A milk protein that's quickly digested and ideal for recovery. If you take in any protein while running, it should be whey.

CASEIN

Milk's primary protein that releases its amino acids slowly, delivering a steady supply of muscle rebuilders. It's also the most complete protein, containing all the amino acids you need for recovery.

SOY

A plant-based protein source containing antioxidants. After initial skepticism, most experts now believe it's as digestible as milk proteins.

BETTER TOGETHER?

Some companies use several protein types rather than relying on one variety: PowerBar's Trisource blend includes whey, casein and soy. "Each has unique features, and when you combine all three, you get the benefits of all of them," explains Tricia Griffin, R.D., CSSD, a sports nutritionist for Nestle. "Essential amino acids need to be present for muscle-tissue building," she explains. Protein blends provide a sustained release of amino acids, so these building blocks are available during all stages of recovery. But there are times, such as during a long run, when you need fast-release protein only; that's when a sole-source option (such as a whey-containing energy drink) is your best bet.