

How to Refuel After a Hard Workout

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What's best to eat for recovery after a hard workout?

That's what [marathoners](#), body builders, and fitness exercisers alike repeatedly ask. They read ads for commercial recovery foods that demand a three to one ratio of carbs to protein, tout the benefits of a proprietary formula, or emphasize immediate consumption the minute you stop exercising.

While these ads offer an element of truth, consumers beware: engineered recovery foods are not more effective than standard foods. The purpose of this article is to educate you, a hungry athlete, about how to [choose an optimal recovery diet](#).

Which athletes need to worry about a recovery diet?

Too many athletes are obsessed with rapidly refueling the minute they stop exercising. They are afraid they will miss the one-hour "window of opportunity" when glycogen replacement is fastest. They fail to understand that refueling still occurs for several hours, just at a slowing rate.

Given a steady influx of [adequate carb-based meals and snacks](#), muscles can refuel within 24 hours. If you have a full day to recover before your next training session, or if you have done an easy (non-depleting) workout, you need not obsess about refueling immediately afterwards.

Refueling immediately is most important for serious athletes doing a second bout of intense, depleting exercise within six hours of the first workout. This includes:

- [Triathletes](#) doing double workouts
- Soccer players in tournaments
- People who ski hard in the morning and again in the afternoon

The sooner you consume carbs to replace depleted muscle glycogen and protein to repair damaged muscle, the sooner you'll be able to exercise hard again.

Over the course of the next 24 hours, your muscles have lots of time to replenish glycogen stores. Just be sure to repeatedly consume a foundation of carbohydrates with each meal/snack, along with some protein to build and repair the muscles. For example, [a fruit smoothie](#) is an excellent choice.

How many carbs do I need?

According to the International Olympic Committee's Nutrition Recommendations, adequate carbs means:

Amount of exercise	Gram carb/lb	Gram carb/kg
Moderate exercise (~1 hour/day)	2.5 to 3	5-7
Endurance exercise (1-3 h/day)	2.5 to 4.5	6-10
Extreme exercise (>4-5 h/day)	3.5 to 5.5	8-12

For example, a 150-lb triathlete doing extreme exercise should target approximately 500 to 800 g carb/day (2,000 to 3,200 carb-calories). That's about 500 to 800 g of carbs every four hours during the daytime.

What are some good carb-protein recovery foods?

Your recovery meals and snacks should include a foundation of carbohydrate-rich breads, cereals, grains, fruits, and [vegetables](#) plus a smaller amount of protein (at least 10 to 20 grams per recovery snack or meal).

Here are some options:

- fruit smoothie (Greek yogurt + banana + berries)
- cereal + milk
- bagel + (decaf) latté
- pretzels + hummus
- baked potato + cottage cheese
- turkey sub
- pasta + meatballs

Do not consume [just protein](#), as in a protein shake or protein bar. Protein fills your stomach and helps build and repair muscles, but it does not refuel your muscles.

Your muscles want three or four times more calories from carbs than from protein. If you like the convenience of protein shakes, at least add carbs to them. Blend in some banana, frozen berries, and graham crackers.

Keep in mind that recovery calories “count.” Many frustrated dieters complain they are not losing weight despite hard workouts. Perhaps that's because they gobble 300 or so “recovery calories” and then go home to a hefty dinner. By organizing your training to end at mealtime, you can avoid over-indulging in recovery-calories.

What about recovery electrolytes?

After [a hard workout](#), many athletes reach for a sports drink, thinking Gatorade or PowerAde is “loaded” with sodium (an electrically charged particle). Think again! Other [“real foods” are actually better sources](#) of electrolytes than most commercial sports products.

Electrolytes (also known as sodium and potassium) help enhance fluid retention and the restoration of normal fluid balance. Here's how some common recovery fluids compare:

Beverage (8 oz)	Sodium (mg)	Potassium (mg)	Protein (g)	Carbs (g)
Water	--	--	--	--
PowerAde	55	45	--	19
Gatorade	110	30	--	14
Low-fat milk	100	400	8	12
Chocolate milk	150	425	8	26
Orange juice	--	450	2	26

After a hard workout, fluids such as chocolate milk, orange juice, or a latte offer more “good stuff” than you'd get in a sports drink. Sports drinks are dilute and designed to be consumed during extended exercise.

To assess how much sodium you lose in sweat, weigh yourself naked pre-post an hour of exercise, accounting for any fluid consumed. A loss of one pound equates to loss of about 700 to 1,000 mg sodium.

If you sweat heavily and lose a significant amount of sodium, you can easily replace those losses with pretzels (300 mg sodium/10 twists), a bagel (500 mg) with peanut butter (200 mg/2 tbsp), Wheaties and milk (300 mg), or a spaghetti dinner with tomato sauce (1000 mg/cup Ragu sauce). Most athletes consume plenty of sodium.

Recovery can start before you exercise

What you eat before you exercise impacts your recovery. According to research presented at the 2011 annual meeting of the American College of Sports Medicine, consuming protein before lifting weights enhanced recovery better than consuming a protein drink afterwards. This is because your body digests pre-exercise protein into amino acids (yes, your body can digest food during exercise) and puts those amino acids right into action repairing damaged muscles.

What if you never recover well?

If you have to drag yourself through workouts, ask yourself:

1. Are you overtraining?

Rest is an essential part of [a training program](#); muscles need time to refuel and repair. Take at least one, if not two, days off from exercise per week.

2. Are you anemic?

Anemia is common, so have your MD monitor your serum ferritin (stored iron). If your iron stores are depleted, you'll feel needlessly tired during exercise. An estimated half of [female athletes are iron-deficient](#), as indicated by low serum ferritin stores. (About 14% of all women are iron deficient.)

A survey with collegiate male runners suggested about 20% had low serum ferritin. Iron supplements help resolve the problem, alongside a good recovery diet.