



Fueling for Your Activity Guide

“If you exercise, you’re an athlete”

According to the American College of Sports Medicine’s (ACSM) most recent guidelines:

- Adults should get at least 150 minutes of moderate intensity exercise per week.
- On two or more days a week, adults should perform muscle-strengthening activities that work on all major muscle groups.
- Exercise recommendations can be met through 30-60 minutes of moderate intensity exercise (five days per week) or 20-60 minutes of high intensity exercise (three days per week).
- One continuous session and multiple shorter sessions (of at least 10 minutes) are both acceptable to accumulate the desired amount of daily exercise.
- Gradual progression of exercise time, frequency and intensity is recommended for the best adherence and least injury risk.

To maintain a healthy lifestyle it is important to provide the body with the right fuel to:

- Maintain lean muscle mass
- To provide adequate energy to fuel activity
- To promote recovery
- Achieve ideal body composition

*If your workouts are less than an hour, you can rely on your balanced meals and snacks to give you energy.

Exercising longer may require more energy from food. Macronutrients (carbohydrates, protein and fat) all play a role in promoting energy for activity as well as recovery. The type, intensity and duration of activity will play a role in how much and how often you incorporate each macronutrient, but they will all come into play to support your goals.

Macronutrients: Carbohydrates, Protein, & Fat

Carbohydrates

Carbohydrates are the main source of fuel for the body, especially during high intensity and longer duration activity.

Fueling and Recovery Needs

Light intensity activity	<30 minutes	1.4-2.3 g per lb/ day
Moderate intensity activity	~1 hr	2.3-3.2g per lb/ day
High intensity activity	1-3 h	2.7-4.5g per lb/ day
Very high intensity activity	>4hrs	3.6-5.5g per lb/ day

*For Example: A 150 pound person may require 345 grams of carbohydrates on a day that they are doing an hour of consistent activity (150 pounds x 2.3 grams).

Acute Fueling Strategies

General fueling up	<90 min	3.2-5.5 per lb/ day
Carbohydrate loading	>90 min	36-48 h of 4.5g-5.4g/lb/day
Speedy refueling	<8h recovery between 2 fuel demanding sessions	0.45-0.54g/lb for first 4 hrs then resume daily fuel needs
Pre-event fueling	Before exercise >60 min	0.45-1.8g/lb consumed 1-4 h before exercise
During brief exercise	<45 min	Not needed
During sustained High energy exercise	45-75 min	Small amounts – can include mouth rinse from sports products
During endurance exercise including *stop and start* sports	1-2.5 h	30-60g/h
During ultra-endurance exercise	>2.5-3h	Up to 90g/h

Sources of Carbohydrates include:

- Fruits
- Starchy vegetables (potatoes, peas, corn, legumes, winter squash)
- Whole grains (oatmeal, rice, pasta, cereal, breads)
- Some dairy

Protein

Amino acids are the building blocks of the proteins that are found in our bodies. The human body can produce 10 of its 20 amino acids but the other 10, called essential amino acids, can only be obtained by eating the right foods. That's why it is important to choose proteins from high biologic protein sources like meat, poultry, fish, eggs, milk, cheese and yogurt which are all complete proteins. If you are using protein supplements, make sure you use whey protein isolate or a plant based protein with at least 2 sources of protein from a legume, nut, or rice protein (ex. Pea protein and sunflower seed protein). Amino acids are essential for forming cells and repairing tissue, and have a role in metabolism. Because muscles are built from protein, we need to consume, and synthesize enough protein to maintain and build healthy, hard-working muscles.

Plant-Based Protein Sources

Plant protein sources can be combined with other plant or animal products to form a complete protein, such as rice and beans, milk and whole wheat cereal or corn and beans, but don't need to be consumed at the same meal.



- Nuts
- Beans and legumes (especially when eaten raw)
- Soy foods (tofu, tempeh, miso, and soy milk)
- Grains (especially amaranth and quinoa are highest in protein)
- Sprouted seeds (eat a variety)

Protein Needs

Average individuals need .36 grams of protein per pound of body weight every day.

If you perform long workouts, high intensity workouts, resistance or strength training, a daily intake of 0.5 to 0.9 grams per pound of body weight may be beneficial.

Average individuals	<30 min	0.36g/ lbs/ day
Long, high intensity, resistance or strength training	>1hr	0.5-0.9g/ lbs/ day
Refueling	0-2 hours post exercise	0.11-0.14g/ lbs or 15-25g protein

*For example: a 150 lb person may require at 75-135g protein on a day they are doing >1hr of consistent activity (150 x 0.5-0.9g)

Fat

Healthy fats are essential for an active lifestyle. Typically an individual needs 20-35% of their calories from healthy fats. Omega-3 fatty acids found in monounsaturated and polyunsaturated fats provide essential nutrients while also helping to transport fat soluble vitamins throughout the body. These fat soluble vitamins (A, D, E and K) help to promote red blood cell production (for transport of oxygen to the muscles), promote strong bones and function as antioxidants.

Foods with Omega-3 Fatty Acids

Fish: Salmon, Tuna, Mackerel, Sardines, Herring

Nuts & Seeds: Flaxseed oil, Ground flaxseeds, Walnuts, Chia Seeds

Other Heart-Healthy Fats

Monounsaturated Fatty Acids: Olive oil, Canola oil, Peanut oil, Avocado, Nuts and seeds

Polyunsaturated Fatty Acids: Safflower oil, Sunflower oil, Corn oil, Soybean oil, Vegetable oil spreads

Pre-Workout Nutrition



Choose a snack that's easily digested and low in fiber to avoid abdominal upset during exercise. Eating a snack 30 to 60 minutes before exercise can enhance performance by filling up glycogen stores and/or delaying or distracting hunger.

When should I eat a pre-workout snack?

1. You've slept all night and want to exercise before breakfast.
2. Your last meal was 4 to 5 hours ago.
3. You're going for a long run and your last meal was over 3 hours ago.

Also be cautious of sugar alcohols, a type of reduced calorie sweetener found in many sports foods like protein bars, protein powders, and drinks. For some, they may cause symptoms such as gas and bloating. For example, look for words ending in "ol," such as sorbitol, mannitol, xylitol, lactitol, and erythritol. While some people can tolerate a bit more fiber at a time and can digest foods easily before and during exercise, others can experience bothersome symptoms.

Pre work out snacks:

- Fruit
- Fruit puree pouches
- Pretzels, toast with jelly
- Mini bagel with jam
- Graham crackers
- Banana with pb
- Fig bars
- Oatmeal
- Rice cake with 1 tsp pb and banana

Recovery Nutrition

The longer and more intense your activity, the more important recovery nutrition becomes.

After long strenuous activity	Have a recovery snack within 30-60 minutes
After low intensity and shorter duration activity	No recovery snack needed if eating a meal within an hour after activity



Post Work Out Snacks (within 30-60 minutes):

- Trail mix with nuts and dried fruit
- Greek yogurt for more protein with fruit and nuts
- Apple or banana with peanut butter
- Fruit smoothie with protein powder or greek yogurt added
- Low fat chocolate milk
- Granola bar like RX bar, Perfect bar
- Cottage cheese with fruit
- String cheese with fruit

Hydration

Why Do We Need to Hydrate?

Water plays an important role in the body, because it:

- Helps the function of organs that keep us active
- Regulates our body temperature throughout activities
- Prevents dehydration, especially during activity and in hot weather

How Much Daily Water Do I Need?

Divide your weight in pounds by 2.

Example: If you weigh 150 pounds, divide it by two to get 75. This would mean you need approximately 75 ounces per day to stay properly hydrated.

Added Hydration for Activity High intensity, long duration activity and warmer temperatures will often require added hydration.

How much for longer durations?

- 100-135 oz per day in most minimally active adults

2-4 hours Pre-workout	~2–4 ml/lb, or pale yellow urine
During prolonged exercise	400 to 800 ml/hour or 13-26 oz/ hour (4-8oz every 15-20 min)
Post exercise	1250–1500 ml (41-50oz) fluid for every 0.45 lb BW lost

*For example: a 150 lb person may require at 300-600 ml (10-20 oz) water pre-workout (150 x 2-4ml / 30ml=1oz)



Hydration Tips

- Buy a reusable water bottle that you can carry with you throughout the day. Check your hydration level by checking the color of your urine. If it is the color of light lemonade or straw, you are properly hydrated. If it looks more like the color of apple juice or amber, your body needs more water. Try using a straw in your water to help you drink more water throughout the day.
- Add fresh fruit to your water for extra flavor. Some great options are lemon, lime, oranges and berries. Fresh fruit contains water, so eat some throughout the day.
- Electrolytes replace vital vitamins and minerals lost through sweat. As a general guideline, if you finish a run with white salt streaks on your face or clothing, you've lost sodium. Sports drinks replenish electrolytes quickly, but a balanced recovery snack such as pretzels and milk will also meet this need.
- Skeletal muscle cramps are typically caused by muscle fatigue, they can occur with athletes from all types of sports in a range of environmental conditions and may be associated with not hydrating enough and electrolyte imbalances.

FAQ via EatRight

Do Sports Drinks, Gels and Energy Bites Live Up to the Hype?

There's nothing special about the many sports drinks, gels and energy bites on the market. But it is important to replace lost fluids as well as provide carbohydrates to maintain blood glucose levels while working out for longer than one hour.

For some athletes, eating solid food in the middle of a workout can cause digestive upset. In these cases, easily consumed sports gels, chews or drinks may help. Food and fluid intake around workouts should be determined on an individual basis with consideration for an athlete's gastrointestinal tract tolerance, as well as duration and intensity of the workout.

Is It Best to Work Out on an Empty Stomach?

Your body needs fuel to function, especially if you're asking it to run, jump, swim or lift weights. Don't skip breakfast before a morning workout. Eating before exercise, as opposed to exercising in the fasted state, has been shown to improve exercise performance.

Eating in the morning helps replenish liver glycogen and steadies blood sugar levels. If it's hard to stomach solid food first thing in the morning, try a fruit smoothie, or a liquid meal supplement, and don't forget to hydrate before you exercise.

Will Protein Make My Muscles Grow?

Protein is an important part of a balanced diet, but eating more protein will not magically make you stronger. The only way to grow muscles is to put them to work, and eat enough calories to build mass. Most people can get enough protein from food alone and do not need a supplement.



Carbohydrates are the major fuel for muscles and an athlete's diet should consist of mostly carbohydrate. The body converts carbohydrate to glycogen, which is stored in your muscles to power your workout.

Regular Exercise Means I Can Eat What I Want and Not Gain Weight, Right?

Wrong. It's easy to overestimate the amount of calories you burn while working out.

You should adjust your calorie intake if you're engaging in serious training, such as for a triathlon, where you might be working out more than once a day. Recovery nutrition is necessary if you are an athlete participating in strenuous activity, especially if you are participating in multiple events in the same day. For the casual exerciser working out for an hour or less, a healthy balanced diet will work just fine.

Is Chocolate Milk Really an Athlete's Best Friend?

Because of its favorable carbohydrate and protein content, chocolate milk is indeed an effective recovery aid, but it's not your only choice. Replacing fluid lost during a workout should be first priority. Plain water and water-rich foods such as fruit are good choices. Be sure to eat a balanced meal within a couple hours of working out to help muscles recover. For strenuous workouts, carbohydrate should be consumed within 30 minutes of finishing the workout. This can be done with a sports drink or a carbohydrate-rich snack such as a fruit smoothie.