

**Pacific Crest Trail Association**  
**Backcountry Nutrition Myths & Facts Quiz**  
(adapted from *NOLS Backcountry Nutrition*)

Read each statement and indicate whether it is a FACT or a MYTH:

1. You need to rely on protein for energy in the backcountry. FACT / MYTH
2. Carbohydrates cause you to gain weight and will slow you down in the backcountry. FACT / MYTH
3. A month in the backcountry is not enough time to develop a vitamin or mineral deficiency. FACT / MYTH
4. Your body will tell you when it needs food or water. FACT / MYTH
5. The more protein you eat, the more muscles you build. FACT / MYTH
6. Antioxidant supplements like Vitamin C and E can keep you from getting sick in the backcountry. FACT / MYTH
7. You need sports drinks to replace electrolytes lost in sweat. FACT / MYTH
8. The best time to replace your carbohydrate stores is fifteen to thirty minutes after exercise. FACT / MYTH
9. The more fit you are, the more fat you burn, and you don't need as many carbohydrates. FACT / MYTH
10. It is difficult getting enough protein eating a vegetarian diet. FACT / MYTH
11. If you are tired in the morning, extra sleep is more important than breakfast. FACT / MYTH
12. If you are tired when you get to camp and know you are going to bed as soon as possible, it is okay to skip dinner, so you don't eat right before bedtime. FACT / MYTH
13. You can absorb only a certain amount of water at a time, so it is best to drink small amounts of fluid throughout the day. FACT / MYTH
14. Fat is the best source for energy in the backcountry. FACT / MYTH

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**Backcountry Nutrition Myths & Facts Answer Key**  
(adapted from *NOLS Backcountry Nutrition*)

1. **MYTH.** You may need some protein for energy at the end of a long, strenuous day, but protein should not be your primary source of energy in the backcountry. Once your muscle glycogen (stored carbohydrate) is gone, your body may break down muscle protein for up to 15% of the energy you need, but this process is slow and inefficient. Because protein has many important functions that carbohydrate and fat cannot do, relying on protein for energy is not a good idea.
2. **MYTH.** Carbohydrates are your brain's preferred fuel source and the most efficient, readily available energy when you're working hard or traveling in a hot, cold, or high-altitude environment. Any food you eat in excess of your needs—whether it is high in carbohydrate, protein or fat—will be stored as fat. Relying on fat and protein to fuel your brain and working muscles in place of carbohydrate will cause you to slow down in the backcountry (or the frontcountry!).
3. **FACT** (if you go into the backcountry well-nourished and take precautions in situations that lead to excessive sweat losses). Some of the water-soluble vitamins that your body doesn't store in large amounts, such as many of the B vitamins and vitamin C, do need to be supplied as you go along. It is possible (at least in theory) to get less than an optimal amount of these vitamins, which could affect your health and performance. However, if you eat a varied diet that includes enough calories, it is unlikely that you will develop a full blown vitamin or mineral deficiency in a month or even a couple of months. One exception is a deficiency of minerals that act as electrolytes (particularly sodium and potassium) that can be lost in sweat while exercising in the backcountry.
4. **MYTH.** It is counterintuitive that there are times when your body does not tell you what it needs, but this is the reality of certain backcountry environments and situations. By the time you are thirsty when exercising, you are already dehydrated. At high altitude, in hot environments, and during strenuous exercise, your appetite may be suppressed. If you are going into an environment or facing a strenuous day, you may need to schedule feedings rather than rely on your body to tell you what it needs. You also need to drink periodically without regard to thirst while you are in the backcountry.
5. **MYTH.** This nutrition myth just won't go away. You do need enough protein to build new muscles, but extra protein does not mean new muscle. Building muscle requires exercise that stresses the muscle and enough protein to support the process of building muscle. Your body does not store protein, per se, and extra protein is stored as fat, just like extra carbohydrate and fat.
6. **MYTH.** Antioxidant nutrients like vitamins C and E do play an important role in your immune system function, but there is not compelling evidence that supplements of these vitamins will keep you from getting sick. Vitamin C has been linked to a slightly shorter duration for colds but not to preventing them. Eating a variety of plant foods (dried fruit, vegetables, nuts, seeds, legumes, and grains) that contain these and other antioxidant compounds, along with good backcountry hygiene and safe food handling are the best strategy for staying well in the backcountry.
7. **MYTH.** If your backcountry adventure involves exercise in extreme climates that generate a lot of sweating, then replacing electrolytes is important. This can be done by consciously including sodium (salt) in your meals and snacks throughout the day and alternating plain water with some kind of drink mix. If you don't have a sports drink that specifically includes electrolytes, you can add some salt to a regular drink mix that already has some carbohydrate (sugar). You do not need a special sports drink.

8. **FACT.** Immediately after a hard workout, your muscles are ready to be replenished, and eating or drinking (or both) a source of carbohydrates with some protein will help this process. If, however, you have severely depleted your glycogen (carbohydrate) stores during a long day of exercise, this ideal “window” does not replace the need for a carbohydrate-rich dinner, as well as even an additional snack before bedtime or carbohydrates at breakfast prior to exercise.
9. **MYTH.** Increasing fitness does mean you can store more carbohydrate as glycogen (because you have more muscle) and use fat at a higher intensity level. As soon as you begin breathing hard, you are burning more carbohydrate than fat. As you become more fit, you can tolerate more strenuous activity before this happens, meaning you can use fat more than when you were less fit. This does not mean you need fewer carbohydrates, though. In fact, as you build muscle, your metabolism increases and you need more fuel in general. When you are more fit, you may need to eat less often because you will have more glycogen (carbohydrate) stored and can spare these stores by using fat at a higher level of physical activity.
10. **MYTH.** If you eat a variety of plant foods that provide protein throughout the day (legumes, nuts, seeds, and grains) and are meeting your calorie needs, you are probably getting plenty of protein. If you eat some animal foods, such as dairy, eggs, or fish, getting enough protein is even easier. If you are a vegan, you do need to plan a bit more carefully, but it does not have to be difficult to get enough protein.
11. **MYTH.** While sleep is important, starting a day in the backcountry without a good breakfast, especially a day that involves a lot of physical activity, is a bad idea. If you begin a day of hiking, climbing, or skiing without eating in the morning, your glycogen stores that fuel your brain already may be half gone just from the fast between dinner and morning. It can take up to 24 hours to replenish depleted glycogen stores (in both muscles and liver), so breakfast is an important part of rebuilding your supply from the previous day (or days).
12. **MYTH.** At the end of a strenuous day when you get to camp and want to climb into your sleeping bag more than anything else, you need to realize that skipping dinner will affect how you feel and perform the next day. Eating a meal close to bedtime can affect the quality of your sleep and how well you digest your meal, so keeping it light in protein, fat, and fiber, but rich in carbohydrates, is a good strategy. Even if you have something as light as a package of ramen noodles with some kind of bread or crackers on the side and some drink mix, you will perform better the next day than if you skip dinner altogether.
13. **FACT.** Your body can absorb 20 to 30 milliliters of fluid per minute, but it can lose up to 50 milliliters per minute when exercising in the heat (or other situations that cause major water losses through sweat). Sipping water (and other fluids) throughout the day will maximize how much your body absorbs.
14. **MYTH.** Fat is the most concentrated source of energy, providing nine calories per gram compared to just four calories per gram for carbohydrates and protein. You can also store enough fat to fuel several weeks of energy needs, compared to stored carbohydrates that will last a few hours (or less) and no stored protein (except the precious muscle you don't want to break down for energy unless you have no choice). The caveats here that you need some carbohydrate to effectively burn fat for fuel, and you need enough oxygen to burn fat. So when you are huffing and puffing up a huge hill or just trying to set up your tent at high altitude, you are relying more on stored carbohydrate than fat. Ultimately fat is an important fuel source in the backcountry. However, your ability to store large amounts of fat compared to carbohydrate, and the need for more oxygen (and some carbohydrate) to burn fat efficiently, shifts the focus to carbohydrates as the most important fuel source in the backcountry.