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Tara Parker-Pope on Health

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Eating to Fuel Exercise

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No matter what kind of exercise you do – whether it’s a run, gym workout or bike ride – you need food and water to fuel the effort and help you recover.

But what’s the best time to eat before and after exercise? Should we sip water or gulp it during a workout? For answers, I spoke with Leslie Bonci, director of sports nutrition at the University of Pittsburgh Medical Center and a certified specialist in sports dietetics. She’s also the author of a new book, “[Sports Nutrition for Coaches](#)” (Human Kinetics Publishers, July 2009). Here’s our conversation.

How important is the timing and type of food and fluid when it comes to exercise?

I take the approach of thinking of food as part of your equipment. People are not going to run well with one running shoe or ride with a flat tire on their bike. Your food is just like your running shoes or your skis. It really is the inner equipment. If you think of it this way, you usually have a better outcome when you’re physically active.

What’s the most common mistake you see new exercisers make when it comes to food?

There are two common mistakes. Often somebody is not having anything before exercise, and then the problem is you’re not putting fuel into your body. You’ll be more tired and weaker, and you’re not going to be as fast.

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The second issue is someone eats too much. They don’t want to have a problem, so they load up with food, and then their stomach is too full. It’s really a fine line for getting it right.

At what point before exercise should we be eating?

I like it to be an hour before exercise. We’re just talking about a fist-sized amount of food. That gives the body enough food to be available as an energy source but not so much that you’ll have an upset stomach. So if you’re going to exercise at 3 p.m., you need to start thinking about it at 2 p.m.

What about water? How much should we be drinking?

About an hour before the workout you should have about 20 ounces of liquid. It takes about 60 minutes for that much liquid to leave the stomach and make its way into the muscle. If you have liquid ahead of time, you'll be better hydrated when you start to be physically active.

Can you explain more about what you mean by a "fist-size" of food?

That's just a good visual for the amount. It could be something along the lines of a granola bar. I'm not a fan of the low carb bars. You need carbs as an energy source. We can't really just do a protein bar. You want something in the 150 to 200 calorie range. That's not enormous. Maybe a peanut butter and jelly wrap cut into little pieces, a fist-sized amount of trail mix. The goal is to put some carbohydrate in the body before exercise as well as a little bit of protein.

What if I'm planning a long run or bike ride that's going to keep me out for a few hours? Should I eat more?

If we put too much food in the stomach in advance of exercise, it takes too long to empty and that defeats the purpose. We want something that will empty fairly quickly. If you're exercising in excess of one hour, then you need to fuel during the exercise. For workouts lasting more than an hour, aim for about 30 to 60 grams of carbs per hour. We're not going to be camels here. Some people use gels, honey or even sugar cubes or a sports drink.

Does the timing of your food after you're finished exercising make any difference?

Post exercise, my rule of thumb, I like for people to eat something within 15 minutes. The reason for that is that the enzymes that help the body re-synthesize muscle glycogen are really most active in that first 15 minutes. The longer we wait to eat something, the longer it takes to recover.

If people are really embarking on an exercise program and want to prevent that delayed-onset muscle soreness, refueling is part of it. Again, it's a small amount – a fist-sized quantity. Low-fat chocolate milk works very well. The goal is not a post-exercise meal. It's really a post-exercise appetizer to help the body recover as quickly as it can. You can do trail mix, or make a peanut butter sandwich. Eat half before and half after.

Why is it that peanut butter sandwiches come up so often as good fuel for exercise?

It's about having carbohydrate with some protein. It's inexpensive and nonperishable. That's a big deal for people, depending on the time of day and year. They're exercising and they don't want something that will spoil. Peanut butter is an easy thing to keep around.

What do we need to know about replenishing fluids as we exercise?

Everybody has a different sweat rate, so there isn't one amount of liquid that someone is going to need while they exercise. Most people consume about 8 ounces per hour – that's insufficient across the board. Your needs can range from 14 ounces to 40 ounces per hour depending on your sweat rate. Those people who are copious sweaters need to make an effort to get more fluid in while they exercise. I'm a runner, and I can't depend on water fountains, so either someone is carrying water or you bring money. Store keepers always love that when you give them sweaty bills!

But nobody can be a camel. If you aren't taking fluid in you have a risk of heat injury and joint injury, and strength, speed and stamina diminish. This is an important part of any training. Put fluid back into the body during exercise.

Should we keep sipping fluids while we're exercising?

How we drink can make a difference in how optimally we hydrate our body. A lot of people sip liquids, but gulping is better. Gulps of fluid leave the stomach more rapidly. It's important to do this. It seems counterintuitive, it seems like gulping would cause a cramp. People are more likely to have stomach cramps sipping because fluid stays in their gut too long.

It's very similar to an hour glass — the sand flows faster when there is more in the top of the glass, and the rate of emptying slows when there is less. When you take more fluid in, gulps as opposed to sips, you have a greater volume of fluid in the stomach. That stimulates the activity of the stretch receptors in the stomach, which then increase intra-gastric pressure and promote faster emptying. This is why gulping is preferred.

Do you have any recommendations about the frequency of meals for people who exercise regularly?

If you have breakfast, lunch and dinner and a pre- and post-exercise snack, that's at least five times a day of eating. When people are physically active, anything under three meals a day is not going to be enough.