From Fueling to Recharging: How Can Nutrition Affect Athletic Performance?

By Stephanie Bruno

Carbohydrates and proteins; they may sound familiar, but what most are not aware of is their powerful abilities to give your body an extra boost. They are nutrients that can help you reach peak performance levels whenever you start and finish that event, game, or even everyday exercise routine. Proper nutrition is crucial for bodily functions, especially during physical activity. This makes it important to be aware of what is beneficial to eat before and especially after an athletic competition or workout.

How to prepare for a competitive event or exercise

The fueling process before an event is only the first step in strengthening athletic performance. The type of meal or snack that is consumed typically will stay the same for all physical activity, but for certain events it may be different. Carbohydrates are the major nutrient that should be consumed before physical activity. Foods such as pasta, fruits, energy bars, or breads are the best source of carbohydrates which will be broken down to glucose in the body. Since glucose is broken down in the body during exercise as the main energy source, carbohydrates will give you the fuel needed to make the most energy. The best time to start preparing for competition is four to six hours before the start of your event, depending on the type of carbohydrate. If there is ever an instance where the event or game is in the early morning, it would be helpful to eat a carbohydrate loaded meal for dinner the night before, such as a pasta dinner. For most people it is uncomfortable to perform on a full stomach, so eating a light carbohydrate filled meal several hours before the event will give enough time to fully digest. Eating a small snack and having adequate fluid intake one hour before the event or exercise will hydrate and give more carbohydrates for energy.

Examples of healthy, light snacks for the more recreational athlete could be:

- Apple slices with peanut butter
- Cottage cheese/yogurt with fresh fruit
- Granola bars
- Whole wheat crackers and cheese
- Turkey sandwich
There are also certain products for the more competitive athlete designed for these specific needs before physical activity. These products include sports drinks, energy bars, and energy gels. They are used to help athletes before an event because of their high levels of carbohydrates. These products are also very easy and convenient for people to consume quickly before an event.

**What to avoid!**

There are certain foods and fluids that should be avoided before physical activity that could potentially be a threat to your performance. Eating a meal that is high in fat is certainly one of them.

Foods higher in fat take longer to digest, leaving you feeling full longer. This could be very uncomfortable for you, especially if you are expected to perform soon after the meal. It also does not give much preferred energy for high intensity activities. Caffeine is something that could have either positive or negative effects on performance, depending on the person. Since caffeine is a diuretic, it is likely that it could cause dehydration, while also affecting fluid consumption during your activity. Caffeine does act as a stimulant, and its effects on the nervous system make your body feel it can perform longer with less effort. For others, caffeine could have none of these positive effects, and possibly more of the negatives.

**During exercise**

It may seem tricky to try and consume carbohydrates during a long race, but there are simple ways to do so that will benefit your performance. The creation of sports drinks such as Gatorade and PowerAde enable athletes to be able to consume carbohydrates during an event to better their performance. This is suggested for endurance athletes who are competing in long events that may deplete their glycogen stores before completion. It is helpful for them to consume carbohydrates in the form of a sports drink during the event to be able to perform longer and give extra energy when needed.

**Post-event nutrition**

Recharging your muscles after an event or workout is important to make sure your body is getting the most out of it that it can. What would be the point of bench-pressing your maximal amount if you won’t be able to see the results? Or come in first place in the 300 meter
dash if your legs can’t do it again the next meet? Eating the right foods afterwards will help you regain what your body lost, while also starting to prepare for your next event. Typically after a workout or event, your body’s glycogen stores in the muscles are depleted and need to be refilled.

Carbohydrates and protein are the most essential nutrients that need to be consumed, and it is best to have a combined ratio of 4:1 carbohydrates to proteins, meaning that more carbohydrates are needed over protein (1). An ideal dinner meal could involve a small piece of fish, along with a sweet potato and corn or a side of fruit. The carbohydrates are responsible for refueling glycogen storage, while protein helps the muscles recover. Not following through with this or consuming foods that are not nutritionally beneficial can alter the effects of the workout and result in less glycogen being restored for energy. The best window of time to eat is one to two hours after the event, keeping in mind that the sooner the better. It is important to remember to not consume more calories than were burned in the exercise if trying to lose weight, but to consume just the right amount of calories for energy needs.

**Pros and Cons of carbohydrate loading**
Carbohydrate loading is a technique that some elite athletes use one or two days before an event. The purpose of this technique is to eat much more carbohydrates than recommended in order to maximize the glycogen stores in the muscles to give more energy during an event (2). The athletes who are more likely to use this strategy are endurance athletes whose events last longer than most such as tri-athletes, cyclists, or marathon runners. There is a problem with this so called “strategy”, seeing that it doesn’t always improve performance the way it is expected to. There are negative side effects that sometimes outweigh the benefits for certain individuals. For example, when excessive carbohydrates are added to the diet, it causes water to be retained in the body which can be very uncomfortable, which will only get worse as the excessive carbohydrates increase (2). It would be best not to experiment with this technique for the first time before an important event, seeing that it may cause discomfort.

**What to keep in mind before and after your next exercise or event**
Remember, carbohydrates are the most needed nutrient before physical activity. They fuel the body with the energy it needs to perform and if needed, sports drinks can help during that long
and strenuous race. Don’t forget after your next workout or athletic event to recharge your muscles with enough protein and carbohydrates to recover and prepare yourself for your next big competition! Proper nutrition is the smart way to go when trying to improve your performance.

References:
http://sportsmedicine.about.com/cs/nutrition/a/aa081403.html