PHILOSOPHY ON DIET

The question of nutrition goes beyond just what to eat on the day of competition. Becoming an endurance athlete requires a change in lifestyle. The question of diet is necessary when discussing how to improve your performance on race day.

Hippocrates lived over 2000 years ago in Greece and is remembered for saying: "Let food be thy medicine, and medicine be thy food." Unfortunately this guiding principle is more difficult than it seems. Although we are surrounded by food, not all options are the same. Some calories are better for us than others. The question is, what foods should we eat?

If we had to title our diet, we would call it a WHOLE FOODS DIET. This means that in all our recipes, we aim to grow or purchase ingredients that are organic or locally raised and in their most natural form. The term "natural" is commonly used as a food label, but here "natural" means: the closest form to what can be found in nature. The reason we prefer foods that are unprocessed is that when a food is processed through cutting, heating, cooling, and adding chemicals, it loses vital micronutrients like vitamins and minerals.

Carbohydrates

Our bodies can store up to 2,000-calories of carbohydrates (average slightly less for women). These carbohydrates are stored in a form called glycogen. When the body needs carbohydrates, the glycogen is broken down into glucose. These glycogen stores are found within our muscles and liver. The difference between the two is that glycogen in the muscles can only be used locally by that muscle. The glycogen in the liver, however, can be broken down and delivered to any area of the body.

Once the body uses all of this stored glycogen, it must acquire energy from somewhere else. If the person does not ingest or consume an outside source of carbohydrates, then the body must acquire energy by breaking down fat or muscle. The body stores around 10,000 calories of accessible energy as fat. So why doesn't the body just use fat to get energy? The advantage of burning carbohydrates is that it is a quicker way of obtaining energy. The downside is that there are far less calories of energy stored in the body as carbohydrates.

To find a more thorough explanation of this, listen to this 60-minute presentation by Peter Attia, M.D. He does a fantastic job.

Another important aspect in understanding carbohydrates is a measuring tool called the glycemic index (GI). In short, the GI describes how quickly a food can be converted into energy. The current system for labeling glycemic index says a food with a higher GI number will give a faster release of sugar into the bloodstream. An example of a food with a higher GI number would be Gatorade or candy. Subsequently, a food with a lower GI number will give a slower release of sugar. An example of this would be fruit.

When looking at diet, foods with a lower GI are recommended. The reason is that most whole foods, like fruits and vegetables, have a lower GI. This results in a slower digestion rate, a slower release of insulin into the bloodstream and thus greater absorption of micronutrients. These foods also tend to be higher in fiber, which is essential for maintaining healthy bacteria in our lower digestive tract.

Most of the time, an athlete should be eating carbohydrates that have a low glycemic index also known as complex carbohydrates because of the health benefits associated with these slow digesting foods. However, in the time immediately before, during and after competition, these healthier foods should be avoided.

There are several reasons why an individual should consume simple carbohydrates or foods with a higher GI during these times. When the body needs energy instantly, like during competition, it is best to eat foods that can be broken down quickly. Also, during competition the digestive system slows down as blood flow is directed toward the muscles in the arms and legs. Eating foods that are slow to digest under normal conditions will digest even slower when eaten during competition. This, combined with the higher fiber content of low glycemic foods, can result in nausea as the body struggles to process the food.

After competition, the body has depleted most or all of its glycogen stores. One way to prevent soreness and improve recovery is to replace those glycogen stores as soon as possible. Research has shown 30-minutes to be the optimal time after a hard workout or race to replace carbohydrates. In order to replace those stores as quickly as possible, carbohydrates that are absorbed quickly into the bloodstream, namely high glycemic foods, should be eaten in conjunction with low glycemic foods.

It should now be clear that high and low glycemic foods are both essential carbohydrates in the athletes diet. Yet, there are crucial times when one should be eaten and the other avoided. To read more about what to eat before, during and after exercise, visit our Sports Nutrition page.

Fats

One of the misfortunes done to the endurance athlete and American people is the easy access to carbohydrates and the de-emphasis on proteins and fats. The FDA has made statements that we should restrict our fat intake. Foods that are labeled as “low-fat” are seen as “healthier”. Endurance athletes are told to “carbo-load” the night before a race to prevent “bonking.” As a result, athletes see carbohydrates as their most important fuel source all the time. In reality the diet that is best for the majority of people is a mix of all three: carbohydrates, fats, and proteins. An athletes diet should be made of 65% carbohydrates, 20% protein and 15% fats (less carbohydrates for the non-athlete).

If you look at the time period since a low-fat diet was recommended, the level of obesity in our country has only risen. When you look at countries that have a high-fat diet like France, they have a much lower obesity rate than the USA. The argument could be made that Europeans have a more active lifestyle than Americans. However, we shouldn’t rule out other possibilities.

Consider that most convenient foods in the USA are high glycemic carbohydrates, like soda drinks, candy, breads, and desserts. Again, these foods are quickly absorbed into the bloodstream. When the body has filled its 2,000-calorie allotment, it has no other choice than to convert the extra sugar into fat. Yes, eating a lot of carbohydrates can make you fat. Somehow, we were convinced that eating fat is what made us fat. It is no surprise, then, that the FDA would cater their guidelines toward the majority and recommend that everyone eat low-fat foods to avoid obesity and heart disease.

But what about endurance athletes?

Revisiting what I mentioned above, the body can only store 2,000 calories of energy as glycogen. After this is gone, the body must resort to fat metabolism. At lower exercise intensities, <70% VO2max, the body uses fat as a primary source of energy. For example, when an endurance runner goes out for an easy 5-mile run at 9:00min/mile pace, they are primarily burning fat, not carbohydrates.

If an endurance athlete primarily burns fat when training, why do we believe we should train our bodies to burn only carbohydrates by only consuming carbohydrates? Although a low-fat diet might be good for a non-active, overweight individual, it is certainly not the best diet for an endurance athlete that uses fat as his or her primary fuel source. Whole milk? Drink it up!

Lastly, some fats are better than others. Fats, particularly those that are not processed and come from plants and fish are recommended.

Proteins

Our muscle cells are primarily made of protein. When we exercise and stress our body we break down muscle cells. As a result, we need amino acids, the basic building blocks of protein, for recovery. The only way to get these amino acids is through the food we eat.

There are a total of 21 known amino acids in the eukaryotic cell, which can be sourced from plants and animals. However, “The Paleo Diet for Athletes” is quick to point out that new research has shown that branched-chain amino acids – valine, leucine and isoleucine –are essential to muscle recovery in humans. The best source of these amino acids is lean meat and fish. “A 1,000-calorie serving of lean beef provides 33.7 grams of BCAA, whereas the same serving of whole grains supplies a paltry 6 grams” (The Paleo Diet for Athletes: Revised Edition).

Knowing this, we can infer what happens when an athlete consumes large amounts of carbohydrates, typically from grains, and not enough meat. The body will not get adequate amounts of amino acids, essential for muscle recovery. This can lead to slower recovery, preventing the athlete from doing harder workouts essential for fitness gain. If the athlete is impatient, he or she may choose to train hard anyway even though their muscles haven’t fully repaired. This can lead to tissue damage and breakdown and eventually injury.

Adam used to train for Ironman triathlons on a plant-based diet and Flannery too, trained at a high level on a similar diet. Although it is possible to get amino acids from plants, it is difficult to get enough from eating plants alone. Both Adam and Flannery have had a history of iron-deficiency and injuries, which may have been connected to their diet. Since they committed to eating 1-2 sources of meat per week they have noticed an improvement in their ability to adapt to training and stay healthy. We believe it is necessary for optimal muscle repair that the athlete includes some animal protein in their diet such as lean meats, fish and eggs.

Resources:

1. "The Paleo Diet for Athletes" by Loren Cordain and Joe Friel

By: Adam Bohach