

Food is not the enemy

By Michael Clark

In the midst of a national obesity epidemic it seems a little silly to ask any American to eat, but we have to remember that high calorie diets and sedentary lifestyles cause weight gain, not just food. With that said, eating before any exercise session is of paramount importance; especially if you plan to push your body. Accordingly, with this article I hope to educate you on a little bioenergetics (i.e. how our bodies produce energy), and the importance of eating adequately before an exercise session. I will spare you, and my memory, the details of just how our bodies actually create energy from the food we eat; but long story short our bodies can do one of two things with the energy stored in foods that we eat. One: We can store it. Two: We can use it immediately for fuel once it is out of the digestive system and in the blood stream. This fuel comes in three primary forms: protein, fat, and carbohydrate, and a mixture of these three can be found in just about everything that you eat. For instance, a steak will have a great deal of protein, a good bit of fat, and trace amounts of carbohydrate. A piece of wheat bread, on the other hand, will have high proportions of carbohydrate, modest amounts of protein, and trace amounts of non-saturated fat.

During times of low energy demand, like sleeping, our bodies store energy and build and repair cells and tissues. For instance, the fat we eat typically gets stored in fat cells, and limited amounts of carbohydrates, or carbs, are stored in the liver and muscles as glycogen (a fancy word for stored sugar). The proteins we eat are used for the growth and repair of cells and tissues, like skin cells, or muscle cells. In times of high

energy demand, like exercise, our bodies tend to break down the sugars, fats, and proteins in the body; with glucose (a.k.a. carbohydrate or sugar) being the most desired fuel source. During this time of high energy demand, our bodies will quickly use glucose already in the circulation, and will also begin to draw on glycogen (stored sugar) stores. If these stores begin drop, our bodies can even transform valuable proteins into glucose.

In fact, you can think of glucose it as jet fuel. It burns quickly and easily, and provides us with a tremendous amount of energy. However, the problem with glucose is our ability, or lack thereof, to store adequate amounts.

That is why we need to eat before an exercise session, because the glucose that is already on board will go quickly, so eating before the session keeps the body's glucose stores up, and energy production smooth and stable. Let's take it into a little perspective by thinking of the resting state versus the exercise state. At rest we use a normal amount of glucose just to maintain our hearts, lungs, and other vital organs. During exercise this process can be ramped up by a four-fold increase with just a moderate effort. A vigorous effort can cause a six- to twelve-fold increase in this breakdown process.



Need proof? Hypoglycemia, also known as low blood glucose, happens to anyone whose carbohydrate stores become depleted faster than the body can replace them. Signs and symptoms include fainting or feeling faint, profuse sweating, dizziness, hand tremors, or unreasonable fatigue. In the event of hypoglycemia, all of the aforementioned signs and symptoms tend to vanish with about a half cup of orange juice.

So what should you eat before an exercise session? Complex carbohydrates are always a good bet. This includes any form of carbohydrate mixed in with fiber. A bowl of oatmeal, whole grain cereal with low fat milk, apples, brown pasta, and the like are all excellent choices for long-term energy and a pre exercise meal. Complex carbs are better than simple carbs for one reason only; they cannot escape the intestines as quickly as simple carbs. This gives the body a more sustained influx of glucose. If you don't have time to eat before exercise, an energy drink will do, but it cannot be diet. It must have some sugar. If you are in a hurry to get to the gym, or working out through your lunch break, then a Gatorade®, or other sports drink will help keep your energy stores up to par.

Michael Clark is a Certified Clinical Exercise Specialist and Personal Trainer at the Duke Center for Living Health and Fitness at Fearington. For more information, call 919.545.2133.

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