

October 2016



Sports Nutrition Month

Are you training for a marathon? A bodybuilding competition? Sporting event? Exercising to keep up with the kids? Or simply exercising for your health? Whatever your reasons may be, how much do you think about what you eat?

What you eat can be just as important as the exercises that you choose to perform. Proper nutrition can aid you in all aspects of your exercise routine, from pre-workout to post-workout, even in-between workouts. Maintaining proper hydration can be critical to your overall success in training as well.

What about getting that little extra help a supplement might promise? Is it to be trusted? Is it safe to put in your body? Should you opt to obtain the nutrient from dietary food sources?

Sports Nutrition Fun Facts:

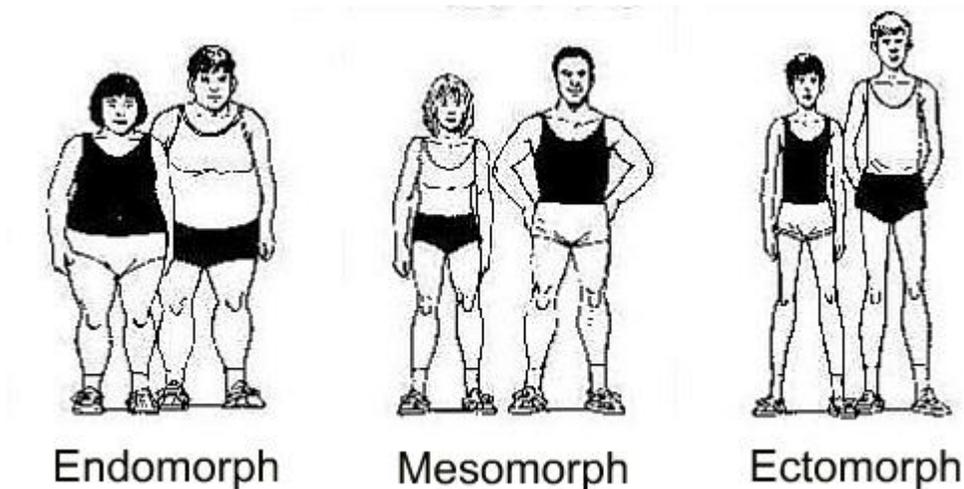
- The average American diet has more than enough protein for muscle building.
- You can survive for a month without food, but only a few days without water.
- Weight loss during heavy exercise is mainly sweat loss.
- Lack of calcium can contribute to stress fractures and the bone disease, osteoporosis.
- Building muscle depends on your genes, how hard you train, and whether you get enough calories.
- The right diet can turn a good athlete into a great one!



What Is It?

The world of sports nutrition is large and complex with numerous different approaches to achieve peak optimal performance. One could discuss this topic for days if discussed in detail and leave individuals scratching their heads trying to understand all the facets of proper nutrition.

Some of the basic concepts such as what to eat and when to eat have intricate answers. Why's this? Simply put; everyone is different, no two people are the same. For starters we all have different body types; ectomorph, mesomorph, and endomorph. Then another major factor of what and when to eat is the type of activity one is about to partake in. This can range from intense strength training, to running marathons, and even simply a recreational softball or soccer league.



Contributing to the complexity of sports nutrition is the food itself. All food is **NOT** created equal. A carbohydrate can be simple or complex. Proteins are made of an assortment of 20 different amino acids, with not all being present in a protein source. Each amino acid then has a different structure functioning differently in the body. To make it more complicated, 8 of these 20 are only obtainable through diet alone while the rest a person's body is able to create. Fats are a little bit like carbohydrates in that there are different types (saturated, polyunsaturated, and monounsaturated), and a little like protein in that the different fatty acids provide different functions in the body.

The key thing is to eat a variety of foods to ensure a variety of these nutrients.

Carbohydrates

This is the primary fuel source for your body. The complexity of the source (simple or complex sugars) determines how quickly a person's body is able to utilize the nutrient. Regardless, all carbohydrates are broken down into a sugar known as glucose.

Some glucose remains in the blood for ready-to-use accessibility. Excess glucose is converted into glycogen and stored in liver as well as in muscles. Muscle glycogen is the primary fuel source for muscles. Glucose also serves as a fuel source for the brain and nervous system.



Protein

Protein is used for much more than building muscle in the body. It functions in creating hormones, enzymes, and blood cells among other things. Even in your muscles, protein only accounts for about 15-20% of their makeup.

Of the 20 amino acids, 3 are of particular interest for athletes. Branched-chain amino acids (Leucine, Isoleucine, and Valine) are able to go straight to the peripheral muscles and be used as energy or for muscle repair, maintenance, or building of muscle tissue. These are obtained in any complete protein like chicken, beef or fish.

Can you consume too much? A human body can only use about 2-2.5 grams of protein per kilogram of body weight. Even in one meal, the body can only absorb about 20-35 grams of protein.



Fat

Per gram, fat provides the most energy at 9 calories versus 4 from either carbohydrates or proteins. It functions in the structure of cells, nerves, and hormones in addition to providing energy during mid to lower intensity exercises such as walking.

Saturated fats are fat molecules that are completely bonded with hydrogen, and while our body can handle this type of fat, in excess, it can cause complications such as inflammation, diabetes, and some forms of cancer. These fats are typically found as a solid at room temperature.

Unsaturated fats, as the name implies, are fat molecules that are not completely bound by hydrogen and contain one or more double bonds. These fats have a positive role in affecting blood pressure, immunity, and smooth muscle contraction among other things. Foods such as oils, nuts, and seeds often contain these types of fats.





Timing for Peak Performance

The Before

Pre-workout nutrition can be critical in improving your workout. Eating before a workout can help to sustain energy, boost performance, hydrate, preserve muscle, and aid in recovery.

When should I eat? What should I eat?

The general recommendation on when to eat will vary pending your chosen activity. If you are about to engage in an intense strength workout it is recommended to consume a small meal with some protein and mostly carbohydrates 2-3 hours prior or small snack with both protein and carbohydrates if your workout will be within the hour. If endurance activities are more your forte then recommendations change slightly, focusing more on carbohydrates. Guidelines suggest a small meal 2-3 hours prior consisting of various energy sources. If you have 1-2 hours prior consider a large snack of predominately carbohydrates. Alternatively in the 15-30 minutes prior consider having a small snack. For aerobic exercises lasting longer than 60 minutes, consider incorporating a small amount of fat in the snack as well.



The During

During exercise, your nutritional needs shift. Focusing on quick energy, staying hydrated, minimizing muscle damage, and most importantly, boosting performance.

What am I supposed to eat in the middle of a workout?

If your workout is under an hour in length, staying hydrated with water should be your focus. However if you are training day after day you may want to consider incorporating some protein to help prevent muscle breakdown. Consuming simple carbohydrates during exercise can be beneficial even if the workout is under 60 minutes as these will provide a quick fuel source providing renewed energy.

The After

Post-workout nutrition can be crucial in preparing for the next workout or competition. This phase has three important “R” functions: recover, rehydrate, and refuel.

When should I eat? What should I eat?

Consuming food sources post exercise is critical. Post workout a body will continue to burn energy until it returns to a rested state. This means that the sooner you consume a snack, the quicker you can prevent muscle breakdown and begin muscle synthesis, building bigger and stronger muscles. Protein is the primary nutrient in this phase with carbohydrates coming second. Whether it is an easy digestible hydrolyzed protein or a dietary source like milk has minimal differences in absorption in muscles. Carbohydrates function to help begin restoring glycogen stores, this process is acceptable to happen over a 24 hour period. Post-workout think of your muscles like a wrung out-sponge ready to absorb nutrients, the longer you take to refuel the less your muscles will readily absorb.



HYDRATION

In a given day a person will lose approximately two and a half cups of water from their body simply through evaporation from skin and breathing. Include urine and sweat and this number amounts to a sizeable amount of water loss. During exercise, sweat can account for between 2-6% of a person's body weight in weight loss. Dehydration can impact performance in several ways. One impact is known as cardiovascular drift, a state occurring during prolonged periods of activity (greater than sixty minutes) at moderate intensity, and is characterized by an increase in heart rate coupled with a decrease in the amount of blood pumped with each beat. More common symptoms of dehydration include fatigue, loss of body weight, and muscle spasms.

How do I keep hydrated?

The easiest way to keep hydrated throughout the day is to be drinking fluids all day. Water should account for at least half of all your fluids consumed. In addition to the maintenance fluids, drink about two cups of fluids in the two hours prior to exercise. During exercise be sure to swig about a quarter to three quarters cup every fifteen minutes. A quarter cup is two ounces of water or approximately one mouthful. After exercise, be sure to replace any fluids lost through sweat. For every pound lost you will want to drink about 2 cups of water to rehydrate. In order to know if you are hydrated, check the color of your urine. The lighter in color the better your hydration status.

As simple as water is, does it really serve as a vital nutrient? It provides no carbohydrates, no protein, no fat, and no calories. Regardless of the fact that water provides no nutritional benefit, it is probably the most important in the diet! Considering that up to 60% of an adult is composed of water, it's easy to say that maintaining hydration is important. Water regulates body temperature, aids in oxygen delivery around the body, lubricates joints, is a key component in cellular health, and flushes waste out of the body. Even the slightest amount of water loss can have a significant impact on an individual's performance.



Supplementation and Performance

When considering taking a nutritional supplement to enhance performance there are a few questions you should ask. Is it safe? Is this going to be effective and worth the money? What is the quality of this product?



In order to determine if a product is safe and will be effective, it is important to look at the label. Understanding how the supplement is supposed to function within the body, and if the functions of the supplement is biologically plausible is important as well. If you are uncertain of what you may be reading, peer-reviewed journals reporting on the safety and effectiveness of the supplement from sites such as PubMed or the Academy of Nutrition and Dietetics practice paper on dietary supplements can provide guidelines to help evaluate. If you are still confused, speak with a registered dietitian to help demystify the plethora of supplements available. Even the quality of a product can vary within a specific group of supplements as manufacturers may include ingredients not contained within the label. To prevent purchase of a “bad” product several organizations test supplements and will certify those that pass for product identity, potency, purity, and bioavailability.

Some common supplements used among athletes

Nitric oxide releasing supplements containing arginine alpha-ketoglutarate are typically used by athletes in efforts to enhance muscle size and strength. The purported mechanism of action is that the non-essential amino acid arginine will work with the nitric oxide synthase enzyme to increase nitric oxide, in turn promoting vasodilation of the blood stream. The prevailing theory with the vasodilation is an increase in blood flow. This in turn will lead to increases in nutrient delivery and removal of wastes, allowing for greater gains in muscle size and strength. Studies have shown that in a healthy individual taking an arginine supplement there is little to no evidence that produces an increase in nitric oxide levels or blood flow to the muscles.

Creatine is widely used as an aid to increase muscle mass and improve performance during high-intensity, short-duration exercises. Numerous studies have all demonstrated the claims of creatine supplements to be biologically plausible as well as a safe method of supplementation. Studies investigating the use of chronic supplementation are limited and the long term effects of creatine use are not well understood.



Recipe Ideas

Chocolate Quinoa Energy Balls

Ingredients:

- 1 cup cooked quinoa
- 1/2 cup old fashioned oats
- 1/3 cup ground flax
- 1 tablespoon chia seeds
- 1/2 cup chocolate peanut butter
- 1/3 cup regular peanut butter
- 1/4 cup honey

Directions:

1. Add all ingredients in a medium size bowl, stir until everything is distributed evenly. Refrigerate 30 minutes.
2. Using hands or scoop, form into ping pong size balls and place on a plate. Refrigerate until firm, about 2 hours additional, then place in container and store in refrigerator.



<http://theyoopergirl.com/2014/08/recipe-redux-chocolate-quinoa-energy-balls/>



Chocolate Banana & Peanut Butter Protein Shake

Ingredients:

- 1 cup almond milk
- 1 tablespoon smooth peanut butter
- 1 medium sized banana, sliced into chunks (can be frozen if desired)
- 1/4 teaspoon ground cinnamon
- 1 scoop of chocolate whey protein powder
- Ice as desired

Directions:

1. Add ingredients (except for ice) into blender in order, blend until smooth.
2. Add ice cubes until desired consistency achieved.

Notes: You can replace the whey protein powder with 1 cup Greek yogurt, you may need to add additional milk to thin the shake out with 2 teaspoons chocolate powder.

<http://www.asweetpeachef.com/drinks/chocolate-banana-peanut-butter-protein-shake/>

Berry Parfait

Ingredients:

- 1 cup Greek yogurt, whole
- 1/2 cup blueberries
- 1/2 cup strawberries, cleaned
- 1/2 cup raspberries
- 2 tablespoon granola
- 1 tablespoon honey

Directions:

1. Mix all ingredients together in a bowl. Enjoy immediately.

<http://www.leanitup.com/14-incredible-greek-yogurt-parfait-ideas-to-shrink-your-belly-boost-your-health/4/>



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