

Nutritional Considerations

We all have heard such phrases as “Feed the machine” or “What you put in is what you get out”, but what do these statements mean? Simply put, your body needs the proper energy to produce on the field and without it, the system is doomed to fail. The foods we eat prior to and after a training session or match are the fuels for the body. What and when we eat will directly negatively or positively affect our output on the field. It is vitally important that we as parents, coaches and players seriously consider what we are having our athletes eat and if needed set aside a plan to maximize their ability to produce on the field.

Carbohydrates are the key component to any meal plan that involves a combination of aerobic and anaerobic fitness such as soccer. They are the primary energy stores prior to and during matches/training sessions that will be called upon to sustain an athlete playing soccer. It is a misconception that athletes need to a diet composed mostly of protein when competing. The body can only digest approximately 35-50 grams of protein at any one particular time and uses it primarily in repair and building of muscle tissue. It is important to note that we are not suggesting eliminating protein from a diet; on the contrary, we are emphasizing a more balanced nutritional program to allow the body to work in a more efficient manner.

An important ratio to use to ensure a more balanced athletic nutritional plan is 3:2:1 (carbohydrate: protein: fat). Three times as many calories come from carbohydrates as from protein or fat and therefore should be the main component in any soccer player’s nutrition plan.

It is important to remember that not all fats are bad. Monosaturated and polysaturated fats are important to proper cellular function and other key body processes. Fat intake for athletes should be less than 80 grams per day and come from natural sources.

Think about balance when we plan a meal. You may need to eat more than one may think to provide the necessary calories needed during a game or practice. The following formulas may help you in determining the caloric needs per day of your athlete:

Male athletes: 42-50Kcal/kg of body weight/day (depending upon activity level)

Female athletes: 30-35 Kcal/kg of body weight (depending upon activity level)

Here is an example: (Divide body weight in pounds by 2.2 to estimate body weight in kilograms).

EX: 160 lbs./2.2=72.7 kg

72.7 kg x 42 Kcal/day= 3054.5 calories (Kcal)/ day





In the above example, the athlete needs to eat approximately 3054.5 calories per day to keep his body weight at 160 pounds and be able to sustain their energy level appropriate for the demands for soccer. This number is never the same for every athlete and may fluctuate depending upon the demands placed upon the athlete for their competition. If this athlete were looking to gain weight or to lose weight, we would need to adjust the calories accordingly. Remember that food should be as natural and fresh as possible and should be consumed throughout the day and not in one sitting.

Hydration

In hot weather, it is recommended to consume 500ml of fluids during a 60-90 minute period before exercise and you should be encouraged to drink regularly during the day. Water is the preferred drink of choice during hot temperatures, as many will experience stomach cramping and nausea if too much sugar (the main carbohydrate in sports drinks) is consumed at one time. Symptoms of dehydration/heat exhaustion/heat stroke can include dryness of the mouth, darkened coloration of the urine, headaches, confusion and difficulty with concentration, lack of a sweating response, cramping, nausea and rapid onset of fatigue. Minor dehydration impairs concentration, coordination, and reaction time, reduces stamina and compromises the body's ability to resist disease.

Dehydration of muscle of only 3% can cause about 10% loss of contractile strength and 8% loss of speed. In order to keep from becoming dehydrated, it is important to drink plenty of fluids (ideally water) before, during, and after intense periods of exercise. The only imperfect mechanism in the body is the thirst mechanism. Once you are thirsty you are *already* dehydrated- it is too late!!

Here are some important guidelines:

- You need to drink at least half of your body weight in ounces of water per day. So, if you weigh 150 pounds – you must drink at LEAST 75oz of water per day. 1 L = 33oz
- The best rehydration fluid is water. If your event or training last longer than an hour or you are in an extreme environment (hot, humid), choose an electrolyte drink (Body Armor, Gatorade, Powerade). They can provide fuel and electrolytes to optimize performance during intense exercise! Drink 16-32 oz hour during these conditions.
- Avoid drinking anything with a lot of caffeine or alcohol because they may increase urine production which will in turn increase dehydration.
- Average person should be use over 1 gal (4 quarts) of water per day, heavy training athletes use over 2 gal (8 quarts) of water per day





Carbohydrate Suggestions

Fruits:

Apples
Raisins
Bananas
Pineapple
Oranges
Plums
Peaches
Grapefruit
Apricots
Kiwi

Breads/Cereals:

Oatmeal
Pasta (red sauce)
Granola mixes/bars
Whole Grain
bread/toast
Rice (brown rice)

Vegetables:

Cucumber
Peas
Cauliflower
Broccoli
Beans
Turnips
Potatoes
Cabbage
Peppers
Carrots
Yams

Dairy Foods:

Milk
Yogurt
Cottage Cheese
String Cheese (white
cheese has less fats)

Other

suggestions/Snack

Foods:

Apples
Peanut Butter
Dried Fruit
Hard Pretzels
Bananas
Fresh Vegetables
Granola mixes/bars
Nutri-grain Bars
Raisins
Graham Crackers

Exercise drink

suggestions:

Sports Drinks (Gatorade,
PowerAde, Lucozade)

Post -Workout Nutrition

The post-workout meal and replenishment is just as important. There is a window, called the "Glycogen Window", that in within 30-60 minutes of training or competition that carbohydrate uptake is fastest. Therefore, post-workout meals need to occur within this window to avoid excessive muscle breakdown, cramping, dehydration, fatigue and exhaustion. Consumption of protein is a key component to any post-workout ritual and should be included as part of a 4:1 ratio with carbohydrates. Some good options are chocolate milk, and nutrition bars or fruit that can be transported to the gym easily and are easily and readily consumable.

The Importance of Protein

Protein is essential for the building of and the maintenance of muscle tissue, as well as for repairing muscle damage that occurs during training. Protein is also needed to make red blood cells, produce hormones, and boosting ones immune system (important in fighting disease). Therefore, a portion of a healthy diet should include protein. The ration of protein to carbohydrates to fats is different for every persons goal and should be dealt with on an individual basis.





Protein Suggestions:

Chicken Breast
Pork Loin
Fish
Cottage Cheese
Yogurt
Milk

Cheddar Cheese
Tuna Fish
Whole Eggs
Egg Whites
Baked Beans
Lentil Soup

Tofu
Refried Beans (no lard
only cheese)
Hummus
Kidney Beans
Peanut Butter
Almonds/Nuts

Sleep and Recovery

It is vital to get the proper amount of sleep occurs to maximize potential during training and match play. Lack of sleep leads to fatigue and lack of performance in your daily routines. You should strive for 8-10 hours of sleep per night.

Sleep and Human Growth Hormone

Sleep and exercise have a relationship similar to the chicken and the egg: they're inextricably linked with each other, thanks to the human growth hormone.

What is the human growth hormone?

Human growth hormone (often abbreviated HGH or hGH, or simply GH for growth hormone) is an important part of the body's endocrine system. It is especially active in the growing child's maturation (although it is not the only physiological factor that makes kids get taller and grow). HGH is released by the brain into the bloodstream during sleep, and its release is part of the repair and restoration function of sleep.

The hormone is a complex protein produced by the pituitary gland in the brain, and in addition to promoting growth in childhood, it helps maintain healthy bodily tissue even during adulthood. The pituitary gland releases growth hormone non-continuously – the release looks like a pulse.

Human growth hormone promotes a healthy metabolism, enhances your physical performance, and may even help you live longer.

When is human growth hormone released during sleep?

Both sleep and exercise induce the release of human growth hormone. Experts estimate that as much as 75 percent of human growth hormone is released during sleep.

In normal healthy people, the major period of HGH release occurs during the first period of Stage 3 sleep stage during the night, about an hour after you first fall asleep. Stage 3, also known as deep sleep or slow wave sleep, accounts for about one-quarter of your sleep each night. Deep sleep is the most restorative all stages of sleep. During this stage



of sleep, HGH is released and works to restore and rebuild your body and muscles from the stresses of the day.

How does sleep affect the production of the human growth hormone?

A person cycles through the stages of sleep four to five times each night. HGH is released during the first few times you experience stage 3 sleep. Sleep deprivation has a big impact on your sleep cycles, and consequently impacts how much, if any, of your HGH gets released during your initial cycles of stage 3 sleep.

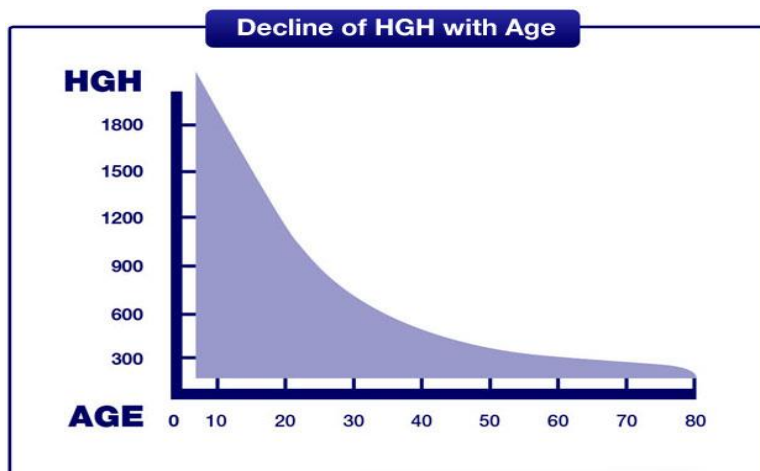
If a person stays up all night when he or she normally sleeps, there is no surge in growth hormone release. After a period of sleep deprivation, there is extra hormone released when sleep is resumed, and the pattern departs from the normal pulse during slow-wave sleep.

Scientists did an experiment where they hid people away from daylight and other environmental cues that act as circadian hooks. The subjects were allowed to set their own sleep schedule which ended up deviating from the typical 24-hour cycle. This experiment has been done many times, but in this case the scientists measured the blood levels of growth hormone and followed when the pituitary gland released the hormone. They found the peak levels of hormone released during sleep decreased significantly. The first slow wave sleep (SWS) period of the night was shorter and the first REM period happened sooner.

The researchers concluded that the timing of sleep stages can change the amount of hormone released during sleep.

How does the growth hormone change with age?

The production of HGH levels peaks at your youth, and steadily declines with age. Seniors in particular spend less time in deep sleep, which explains the link between lack of HGH and other disorders associated with aging. For example, lower HGH levels correspond with higher risk of heart disease, obesity, and diabetes.





Key info on the alcohol and healthy weight loss

If you drink and are trying to lose weight or decrease your body fat percentage, you may benefit from reducing your intake of alcohol or avoiding alcohol altogether. In addition to contributing extra calories to your diet and possibly changing what and how much you eat, alcohol interferes with normal metabolic pathways including fat burn, which can lead to fat accumulation in your body.

Alcohol -- The Preferred Fuel Over Fat

Weight loss does not come easily for most people -- you must burn more calories than you take in, and it is a lot easier for most people to consume calories than it is to burn them. Alcohol provides 7 calories per gram, while protein and carbohydrate both provide only 4 calories per gram. Although alcohol provides fewer calories per gram than fat -- fat provides 9 -- alcohol is your body's preferred fuel source, which means you must burn off all your alcohol calories before you start burning calories from the food you eat, thus inhibiting your fat burn.

Metabolism and Mechanics of Fat Burn

Alcohol's ability to inhibit your fat burn is by way of two mechanisms in your body, both which involve the creation of an excess of NADH, a compound produced from alcohol. NADH can be used to make new fatty acids and glycerol, a simple sugar, or it can enter the electron transport chain, where it is used as energy, displacing fat metabolism and directly blocking the normal fat-burning process in your body. This blockage can result in a fatty liver, fat buildup in the blood and an increased risk for a heart attack.

Please feel free to contact us regarding any questions you may have and let's have the best season yet!

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