

NUTRITION, HYDRATION, AND VITAMINS/MINERALS

Runners are highly active individuals and need to fuel themselves in order to maintain a high output. Coach Wurster always said, “runners are like formula 1 race cars and need premium fuel.” This is very important in aiding in an athlete’s recovery, avoiding injuries, and preparing the body for the next days work. Athletes need to make sure they are eating the right foods, as “they are what they eat.” If they are taking in garbage food they will feel like garbage and it is difficult to perform at your best when you feel like garbage. Athletes may be very moody if they are devouring junk food and it may affect their sleep patterns. Below is list of tips to a healthy diet.

- 1) Eat regular meals and snacks daily. Three meals and 2-3 healthy snacks a day help to even out the energy consumption in a day and alleviate peaks and valleys.
- 2) Take a daily multi-vitamin with iron (more info on iron consumption below). Taking a daily vitamin is like adding an insurance policy to your health. The body will absorb what it needs to help regulate daily function.
- 3) Hydrate daily by consuming 10-12 cups (80-96 fluid ounces) a day of water or semi-clear liquid. Athletes should carry a water bottle during the school day to help you hydrate. During the school day when you pass a fountain get a drink. You will know if you are staying hydrated by the color of your urine. It should be nearly clear and odorless.
 - a. A 1.5% water loss reduces your muscle power by 5%
 - b. Water loss reduces the body’s ability to sustain exercise for long than 1 to 2 minutes.
- 4) Eat a variety of food because different foods have different benefits.
 - a. Carbohydrates our primary fuel during exercise. Eat high fiber whole grains like organic whole wheat, brown rice, oatmeal, quinoa, millet, etc.
 - b. Protein is essential to an athlete’s diet because it is used to build and repair new muscle tissues and to avoid iron deficiency/anemia. As we work out we strain the muscles in our body for the purpose of them coming back stronger. Your goal is to eat 15-30 grams immediately after a hard workout (chocolate milk, Endurox, Cliff Bars, almonds, etc.) Good sources of protein in your meals are fish, chicken, and red meat. A female athlete should be eating between 60-100grams of protein a day.
 - c. Fats are essential in maintaining a healthy body system and aid in the absorption of fat-soluble vitamins A, D, E, K. Poly and monounsaturated fats are the good ones found in found flax seed oil, olive oil, nuts, seeds, and avocados. Avoid saturated and trans fats as they may increase your risk for heart disease.
 - d. Vegetables/Fruits are rich in antioxidants and help to combat the free radicals, which increase from intense workouts. Your goal is to eat 9-14 servings of fruits and veggies a day and 5-7 of these servings should be dark green leafy vegetable.
 - e. Vitamins and Minerals have a very important role in the body’s functioning. Talk to your doctor or pediatrician for recommendations.
 - i. Vitamin D – the “sunshine vitamin” helps in regulating the absorption of calcium and phosphorous and is important to maintaining healthy and strong bones.
 - ii. Calcium – 50% of runners do not get enough Calcium. As a runner you need strong and healthy bones. “Milk, it does a body good.”
 - iii. Vitamin C – when taken with iron supplements or meals with high iron content increase the absorption rate. It also helps keep the body healthy.
 - iv. Zinc – is found in cells throughout the body and is needed for the body’s immune system to work properly
 - v. Folic Acid – is used in preventing and treating low blood levels of folate and “tired blood” (anemia).
 - vi. Iron – is an essential element for blood production. 70% of the body’s iron is found in our red blood cells called hemoglobin and in muscle cells called myoglobin.
 - vii. Fish oil - supports healthy cholesterol levels (HDL to LDL ratios). Also promotes healthy bone support and may offer mood support.

IRON/FERRITIN LEVELS IN FEMALE ATHLETES

It is estimated that 25-60% of competitive female runners and (up to 20% of male runners) have low iron stores or iron depletion. Low ferritin or iron levels may result in the condition call “anemia” where athletes fill chronic fatigue, weakness, dizziness, and difficulty while running for prolong efforts (over 5minutes).

Iron is an essential element used in blood production. Specifically it is used for the production of hemoglobin in your red blood cells. Runners are prone to lose more iron than non-runners due to the foot strike hemolysis (breakdown of red blood cells when the foot/heel strikes the ground). Iron affects your running because your red blood cells contain hemoglobin. Oxygen attaches to the hemoglobin of the red blood cells at your lungs and is then carried to your muscles and other tissues where it is used to produce energy aerobically. If you have low iron levels, you produce fewer red blood cells, your hemoglobin levels decrease, and less oxygen is transported to your muscles resulting in poor aerobic performance.

TREATMENT AND SUGGESTIONS

1) Runners should be getting their iron intake from both Heme and Nonheme and should be getting about 15-20mg per day.

Good food sources of iron include:

Food Sources of Heme Iron: chicken and beef liver, oysters, lean ground beef (hamburger), turkey, sirloin steak, tuna, chicken, poultry, fish, pork

Food Sources of Nonheme Iron: Ready to eat cereal (100% iron fortified), instant oatmeal (fortified), beans (white, red/kidney, black, navy, pinto, lima), spinach, tofu, quinoa, dried fruit,.

2) Increasing your vitamin C intake during meals will increase iron absorption.

3) Coffee and tea may reduce iron absorption and should be avoided.

4) *******SCHEDULE YOUR FERRITIN (SERUM FERRITIN) TEST TODAY** and become informed. Now is the time to determine if your daughter’s diet is providing the necessary iron and it serves as a baseline for future tests. **THE COST IS ONLY \$29.** Instead of going to your regular doctor and defending why you need a ferritin test, you can now schedule an appointment online at <http://requestatest.com/> and chose from one of two locations in Arlington Heights. All you have to do is set up an account, order your test, and take your email confirmation to your location (no appointment needed). The results take only one business day and you are notified by email when your results are ready. To see your results login to your account and go to your test results section.

5) If you use an iron supplement, the ferrous forms (ferrous sulfate, ferrous gluconate or ferrous fumarate) are most easily absorbed. Iron supplements come in both pill and liquid form and may take some playing around with to see which is the best for your stomach. One of the better iron supplements for runners is “Ferrosequel.”

****SCHEDULING A FERRITIN TEST****

You are strongly encourage to get your daughter’s iron levels checked regularly (at least once a year) because low iron is a common injury to many female runners and it is nearly always preventable if we know in an advance your daughter’s ferritin levels. The serum ferritin test measure the amount of iron being stored in the blood. Low ferritin levels are directly related to the onset of anemia, which can take weeks to overcome if you begin adjusting your daughter’s diet immediately. Anemia, the clinical term for low iron levels, means the blood cannot carry oxygen to the muscles in the necessary and usual amounts and results in early fatigue and limits an athlete’s ability to perform at their best.

Serum Ferritin levels below 30 indicates the levels are low and supplementation is needed.

A Serum Ferritin level below 20 indicates more concern and often times are affecting an athlete’s performance. (see flow chart for more info)

See attached articles for more information on Iron and Ferritin.

SLEEP

It is an important for an athlete to have a well-balanced and healthy diet. But equally important to fueling the body is assuring they are getting the proper amounts of sleep. High school athletes/runners need 8-10 hours of sleep a night. During these long periods of sleep the body moves in and out of REM sleep and it is during these sleep cycles that the body repairs damaged muscle tissues and prepares the body for the next day's work.

- 1) Get 8-10 hours of sleep a night.
- 2) Keep a consistent bedtime as those that go to be within 30mn of their usual bed time each day of the week are 80% less likely to get sick. The body likes routines, get one, and keep it. It is better to go to bed at your usual bedtime and wake up early if necessary.
- 3) No electronic devices within 30min of bedtime.
- 4) Turn off your iPad, cell phone, and use an old school alarm. This eliminates the athlete's desire to read and respond to every text/email that comes through during the night. A good idea is to leave the phone and iPad charging downstairs in the study or kitchen as not to be tempted to be on it late at night.
- 5) Usual a planner/calendar to help you organize your schedule, to be efficient, and to prioritize.

PRE-RACE NUTRITION AND POST-RACE RECOVERY

PRE-RACE NUTRITION

2-4 hours before: Eat a balanced/nutritious meal to allow adequate time to digest plus 2 cups of water.

2 hours before: Eat a turkey sandwich or peanut butter w/ banana sandwich, or fruit smoothie plus 2 cup of water.

1 hour or less: half of a plain bagel, granola bar, 1 cup of low fiber cereal, fruit and 1 cups of water

Within 1 hour of race day: Gel or Gummies to top off your glycogen levels prior to racing. (30-45min before race time)

Hydrate with water and/or sports drink but don't drink too much 1hr before the race. The best hydration is done many hours before your race and even days before (use the color test of your pee to assess your hydration level- clear to light lemonade color)

POST-RACE NUTRITION

Receiving proper nutrients and rest allows the body to recover from workouts and helps to cut down on the frequency of illnesses. The soon nutritious food is put in the body the sooner the body can go to work in beginning the recovery process.

The first 30minutes after a workout/race is the optimal time to refuel.

Then within 1 hour of the race is next best.

Research suggests a 3:1 ratio for carbohydrates to protein.

20-30grams of carbohydrates and 8-10 grams of protein

Energy Bar (Cliff Bar, Power Bar, etc) with 8-20grams of protein and an apple.

Or one cup of low fat milk and a cup of cereal

3oz. turkey sandwich on whole wheat bread

AND 2-3 cups of water.

After most workouts and races the team often Gatorade, Endurox, and/or Chocolate milk to help the athletes quickly refill their tanks. This does not serve as a dinner it is just a quick start to the recovery process.

And finally a full meal should be eaten within 2 hours of a hard workout/race. The meal should include protein, carbohydrates, fruits/vegetables, and more water (2 cups of water or more). The meal should have all the colors of the rainbow and lots of fruits/vegetables.