Sports Nutrition Guidelines for Track and Field Athletes

by

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Exercise conditioning is a process of:

- ***exercising*** - which stimulates muscular, cardiovascular, and neuromuscular adaptation,

  followed by

- a period of ***recovery***, in which the body rebuilds itself slightly more fit than before. The real gain in athletic performance capabilities happens during the recovery period, but only as long as there is ***adequate rest***, and ***adequate nutritional support***.

Sports nutrition is roughly divided into four main areas:

- **Pre-exercise nutrition;**
- **During-exercise nutrition;**
- **Post-exercise nutrition;**

and,

- **Recovery nutrition** (meals in-between practices or competition, or during off days to recover from training).

***General guidelines*:**

Fluid/water guidelines:

Starting 3 days before your race day: Drink LOTS of water (3 liters per day) for 2-3 days before the race – especially the day before the race.

Day before the race: Drink 1 glass of tomato or V-8 juice (don't use "low-sodium" juice), and 1 glass of orange juice, and eat 1 banana. Don't eat these at the same time. Spread them out through the day. This is a natural way to get the electrolytes into the body that are lost with exercise.

Dinner the night before: Complex carbohydrates, like a bowl of pasta. Whole grain pasta is best, if you like the taste. You can use cheese on top of the pasta, if you like. Drink lots of fluids with

the meal. "Power" athletes (sprinters and field athletes), may want to add a portion of red meat - in addition to their complex carbohydrate portion - at their night-before dinner.

Morning of race or practice: Many student-athletes prefer to eat NO solid food for 3-5 hours before they actually start to exercise. Keep your last meal before exercise, a small quantity of low-fiber complex carbohydrates (such as white pasta, with a tomato-based sauce, and NO cheese on top). Stay away from fiber; fat (like cheese, etc.); and any simple carbohydrates (sugar, honey, fruit juice, high fructose corn syrup, "corn sugar", sucrose, agave, etc., etc.). Drink LOTS of cold clear liquids, like plain cold water. Don't try anything new, that you are not used to, on a race day. Race days, are not the time to experiment dietarily. If it's going to upset your system, let that happen on a rest day, so that you can figure things out without it affecting your race or training performance. Be careful about eating anything solid for 3-5 hours before you start to exercise. Solid food requires much more time, fluids, and electrolytes to digest - than does clear liquids. Because of this, solid food requires more energy just to digest, assimilate and absorb, than clear liquids does. We want to save the fluids, electrolytes, and energy for during exercise, when they are crucially needed to help you perform the work of elite athletic performance - not partially "used up" to digest a meal of solid food. Besides, we all run better when we are “light” and relatively “empty” of solid food. If you feel that you need some energy from food - instead of eating solid food, many athletes prefer to use a high-end, **high-complex-carbohydrate** sports gel that contains no more than a small trace of **simple** carbohydrates - such as Hammer Gel. Be sure to drink plenty of plain cold water along with the gel.

2 hours before the race or practice: Drink 13 ounces (for kids), or 17 ounces (for adults), of plain cold water. Avoid carbonated beverages.

10-20 minutes before the race or practice: Drink 13-16 ounces (for kids), or 13-20 ounces (for adults), of plain cold water. Avoid carbonated beverages.

During the track meet: Drink 20 ounces (for kids), or 25 ounces (for adults) of plain cold water, **per hour**. Avoid carbonated beverages. WE DO NOT recommend using inexpensive "sports drinks" such as Gatorade, etc.

The fluid that you drink before, during, and after exercise should be cold in temperature. This will allow it to leave your stomach faster, and enter your small intestine sooner. Us humans do not absorb any water in our stomachs, so the sooner that we can get the fluid out of our stomach and into our small intestine (where we DO absorb the water) - the sooner that we can get the water into our blood stream (where we actually need it).

Especially problematic foods: Probably the three categories of foods, that are most important ***to avoid***, immediately before or during exercise are: **simple carbohydrates** (sugars, honey, high fructose corn syrup, fruit juice, "corn sugar", sucrose, agave, etc., etc.), **refined white flour products** (white crackers, white bread, anything made with white flour, and even white rice!), and **fats** (especially unhealthful fats!).

- Simple carbohydrates often cause sudden drops in blood glucose levels - which mess with energy levels during exercise - and often promote stomach bloating and cramping during exercise.

- Refined white flour products also mess with blood sugar levels – and hence – energy levels.

- Fats slow down digestion – especially heated fats, as in fried foods – and can also promote stomach bloating and cramping.

Probably the very worst food that we can think of – which is made up entirely of those three food groups – is doughnuts! Definitely NOT the food of athletic champions!

Note: simple carbohydrates (sugars) are very important to use - when combined with, protein and complex carbohydrates - in the **post-exercise** recovery drink, and for the **post-exercise** meal (as explained below). We just don't want to consume simple carbohydrates **before or during exercise.** Simple carbohydrates **immediately after** exercise will actually replenish the muscle energy (glycogen) quicker than will complex carbohydrates, and the simple carbohydrates will actually speed up the delivery of certain important amino acids to the muscles from the protein that you are drinking/eating.

Post-exercise recovery drinks

The use of a good post-exercise recovery drink will absolutely help the muscles to recover faster and better - rebuilding tissues easier - and helping to minimize after-exercise soreness. Additionally, it will prepare the muscles to benefit more from the next training session.

The very best **post-exercise recovery drink** that we know of is **chocolate milk!** Yes, chocolate milk! The milk in chocolate milk supplies a mix of quick digesting whey protein and slower digesting casein proteins (which provides the stressed muscles with the all-important amino acids that they need for repair and rebuilding) - as well as water and slower releasing carbohydrates. The sugar in chocolate milk provides the quick releasing simple carbohydrates that help muscles absorb the protein faster and better - and help to replace the glucose lost from exercise. As an extra added bonus, student-athletes love to drink chocolate milk. What high school student doesn't like the taste of chocolate milk?!

Drink 20 ounces (for kids), or 25 ounces (for adults), **within the 30 minutes immediately following the end of your exercise.** There is a very narrow "window of opportunity" where the muscles can fully absorb the three most important amino acids for muscle rebuilding (the three "branched-chain" amino acids). It is very important that we consume the post-exercise recovery drink within the 30 minutes immediately following the end of our exercise.

*** TIP:** There is an excellent product that can be purchased at most Market Basket markets. It is called **"Natrel**, **Dyna Moo, Chocolate Milk".** It is unrefrigerated, and comes in those little 8

oz. "juice box" containers. It contains a protein to carbohydrate ratio of 3:1 which is the perfect ratio for an exercise recovery drink. They have added the electrolytes lost during exercise, which makes the recovery aspect even better. **Because it does not require refrigeration, student-athletes can bring a couple of boxes with them in their track bag, and drink them immediately after each practice - and their last event at track meets.**

Costco makes their brand of the same product, which is probably even better - and typical of Costco - is priced to provide a great value. It's called ***"Kirkland Organic Chocolate Reduced Fat Milk".*** Same 8 ounce, non-refrigerated "juice box" cartons.

Your first post-exercise meal

Your first post-exercise meal should be some complex carbohydrates (such as pasta), and some high-quality lean animal protein (such as hard-boiled eggs or yogurt) - along with some ***SIMPLE*** carbohydrates (yes, this is the one time where simple carbohydrates are very important !). Remember, simple carbohydrates are things like sugars, honey, high fructose corn syrup, etc., etc. As mentioned earlier, simple carbohydrates will actually replenish the muscle energy (glycogen) quicker than will complex carbohydrates, and the simple carbohydrates will actually speed up the delivery of certain important amino acids to the muscles from the protein that you are eating. However, in this post-exercise meal, we don't want JUST simple carbohydrates alone. We want to get a nice balance of **quick-release** simple carbohydrates, along with the **longer-lasting sustained release** complex carbohydrates.

So, for your post-exercise meal, have about 3 times more complex carbohydrates than protein (a small bowl of pasta with a tomato-based sauce, and 1-2 hard boiled eggs) - along with some sweet fruit for desert (like a banana). If you are not using chocolate milk as your recovery drink, than make sure that you eat the post-exercise meal within 30 minutes after you stop exercising. Drink lots of fluids, especially tomato (not "low-sodium") and orange juice! Eat a banana for desert.

Recovery Nutrition(meals in-between practices or competition, or during off days to recover from training):

Each meal needs to have at least 1 serving from the following 3 categories:

1) Complete Protein category:

a) Eggs - organic, free-range omega-3 eggs are best

b) Turkey or Chicken

c) Fish or seafood - **WILD ALASKAN** salmon is best. Sardines are also good.

d) Red meat (beef or lamb).

e) Dairy (yogurt, cottage cheese, milk) - yogurt is best. Female student-athletes should be getting at least 1 cup of yogurt each day to make sure that they are getting enough calcium.

f) Beans and a whole grain combined at the same meal. (You cannot use beans combined with a grain as your protein choice, more than one meal per day. It is VERY difficult for strict vegetarians to maintain optimal nutrition if they are exercising at elite-athletic levels).

2) Complex carbohydrates category:

a) whole grains - brown rice, millet, barely, and roasted buckwheat groats are best

b) Beans - dark red kidney, pinto, lima, small red, garbanzo, and edamame are good choices.

c) Legumes (lentils, peas)

d) Pasta (whole grain is best if you like the taste)

e) Whole grain bread - flourless and sprouted breads are best

f) Whole grain cereal (select cereals that have at LEAST 5g of fiber per serving, and no added sugars)

g) Sweet potatoes (sweet potatoes are MUCH healthier for you than "regular" potatoes)

3) Fluids category:

a) water - purified bottled is best

b) 100% pure fruit juice mixed 50:50 with water

c) non-caffeine teas. Green tea is the only exception (green tea does contain caffeine, but it is high in antioxidants, so it is good to have before 12:00 noon, or so. This will give the caffeine time to leave your system, before bedtime, so that the caffeine does not interfere with your sleep).

d) Vegetable juices. V-8 is a good choice. Don't use "low-sodium" tomato or V-8 juice.

Raw fresh vegetables, cooked fresh vegetables, fresh fruits, raw nuts, and raw seeds are VERY important, BUT THEY DO NOT COUNT FOR YOUR PROTEIN OR COMPLEX CARBOHYDRATE CHOICE (except for sweet potatoes). Fresh fruits and vegetables - and raw nuts and seeds - are **IN ADDITION** to your protein and complex carbohydrate choices. Get as many servings of fresh fruits and vegetables as you can each day.

For snacks: Mix equal parts raw almonds, raw walnuts, dry-roasted pistachio nuts, raw sunflower seeds, raw pumpkin seeds, and raw sesame seeds together. You can get them in bags from Trader Joes Markets, Whole Foods Markets, or Costco. Store them in the

refrigerator. This can be enjoyed with a piece of fruit, for a really healthy and tasty in-between meal snack, when you are "on the go". They can also be added to cut up fruit, and mixed with a small container of fruit-yogurt, to make a delicious fruit salad with a fruit-yogurt dressing with nuts and seeds. Additionally, these raw nuts and seeds can be sprinkled on raw vegetable salads.

Your best fat sources are from the naturally occurring fat in salmon; and the fats from the vegetable oils cold-pressed extra virgin olive oil; and cold-pressed canola oil. These are available at any Trader Joes markets. The easiest way to use them is to make your own home-made salad dressing using one oil or the other - or a mixture of both of those two oils. Make sure to store these oils away from oxygen, heat, and light. Canola oil should be stored in the refrigerator. You will also be getting healthy fats from your raw nuts and seeds (almonds, walnuts, pistachios, sunflower seeds, pumpkin seeds, sesame seeds, etc.).

So how much of each food group should I be eating?

You should aim to get about:

60% of your calories from complex carbohydrates (especially whole grains);

15% of your calories from high-quality lean animal proteins;

and

25% of your calories from healthy fats.

What if I don't know how many calories different foods contain? How do I know how much of each food group to eat at each meal?

An easy rule of thumb is to make your meals about 1/3rd Complex carbohydrates (especially whole grains); 1/3rd High quality lean animal proteins; and 1/3rd Fresh fruits and fresh vegetables (along with some healthy fats in salad dressings).

You must have 3 meals each day. Even if you do not think that you are hungry, it is better to have a small meal (made up of complete protein, complex carbohydrates, and fluids) - than to skip the meal. **Do not skip meals !**

Sound scientific studies have shown that athletes who skip meals and only eat 1 meal per day have a higher percent of body fat, than do athletes who eat 3 meals each day! That's especially important for female athletes to remember, because female athletes tend to skip meals more than male athletes do!

Try to vary your protein and complex carbohydrate choices from meal to meal, and from day to day - so that you are not living on the same few foods. Variety with these choices gives you a good cross-coverage of nutrients.

Make sure you get at least 1 serving of fresh yogurt EACH DAY ! This provides you with the important probiotics ("friendly bacteria") that are very important for optimal health. Daily intake of sufficient amounts of probiotics have been shown to improve digestive function, and your overall immune system - as well as preventing numerous illnesses including certain skin infections and asthma. Daily yogurt intake is important for both males and females - but is especially important for females because of their need for calcium (yogurt is an EXCELLENT source of calcium).

In-between meals, you can snack on anything healthy - IN ADDITION TO YOUR MEALS, NOT INSTEAD OF YOUR MEALS. Don't snack so much that you aren't hungry at meal times.

Try to stay away from things like cheeseburgers, French fries, pizza, ice cream, cookies, doughnuts, cupcakes, cakes, pies, soda pop, candy, pretzels, chips, etc. Once in a while they won't kill you - but they really are NOT the foods of athletic champions ! Keep it - once in a while - not on a regular basis - and NEVER before or during exercise !

Throughout each day, you should get at least 3 liters of fluids per day. Remember, it takes about 2 full days of hydrating - to get you fully hydrated before a race. So, start "tanking" up at least 2 days before any important race, especially the day before.

If you are exercising and sweating (working out or racing) you will be losing important electrolytes - so, you should eat 1 banana, plus 1 cup of orange juice, plus 1 cup of tomato or V-8 juice (not low-salt), plus a handful of raw almonds, the day before - AND the night of (after) - any hard work out or race. Don't eat them all at the same time. Spread them out. This is the natural way to replace the electrolytes that you loose with sweating. This is a MUCH more natural way to replace the electrolytes - than getting them from a sports drink !

Remember, within 30 minutes of the end of EVERY work out or race day - if you are not using chocolate milk as your recovery drink - you should consume a high-quality lean animal protein - such as hard-boiled eggs or yogurt - followed by some complex carbohydrates, such as some left-over pasta (whole-grain is best) - along with some simple carbohydrates (sweet fruit, or honey, etc.). Have about 3 times more complex carbohydrates than protein (a small bowl of pasta along with 2 hard-boiled eggs). You also must replace the fluids that you lost from the sweating.

Dangerous supplements and herbs to avoid

Never use any of those "energy" drinks that have become popular - and NEVER use any product that contains synephrine (oxedrine)- which has been shown to be dangerous. Additionally, never use any product which contains ephedra or ephedrine.

Never use a product called ***"Jack3d"*** - or any product that contains any methylhexanamine (DMAA). It is available over-the-counter at GNC stores. According to the FDA, this ingredient is extremely dangerous and has caused the death of more than one runner.

Never use a product called OxyElitePro, made by USP Labs. The Federal Government warns that it has caused liver failure in over two dozen athletes, and the death of at least one.

Other dangerous over-the-counter supplement ingredients and herbs that should be strictly avoided include: Aconite; Bitter orange; Chaparral; Colloidal silver; Coltsfoot; Comfrey; Country mallow; Germanium; Greater celandine; Kava, Lobelia, and Yohimbe.

There are no short-cuts around a complete, healthy, and balanced diet - combined with a scientifically-designed training program; a sufficient amount of high-quality rest; and an optimistic and positive attitude. This is especially true of shortcuts that come in those little "5 hour" bottles! Optimum athletic development and performance is achieved by focusing on the four main "spokes of the wheel": training, nutrition, rest, and a positive attitude.

Am I drinking enough fluids?

Humans are the only mammal whose sense of thirst is not synchronized properly with their need for water. Dogs for example, will be as thirsty as is their need for water. So dogs will drink as much as they need. However, in humans, it doesn't work that way. This is one of the "design flaws of the human body" that we have to survive with. In humans, if we drink only when we are thirsty – we will not get enough water! We need to drink much more than to just quench our thirst - or we will not be fully hydrated (we will be dehydrated)! **Remember, if you wait until you are thirsty to drink water - it is too late !**

Also, remember that we cannot **rehydrate** by drinking water or fluids anywhere near as quickly as we **dehydrate** when we exercise. Our best hope is to minimize how much we dehydrate when we are exercising.

What is the big deal, if I'm a little bit dehydrated?

Without getting too technical, if you are just a little bit dehydrated, it negatively affects your performance quite a bit. If you are a little bit more dehydrated, it really affects your performance a lot. It doesn't take much dehydration to mess up your performance. Student-athletes are competing in events where often times the difference between first place and fourth place is hundredths of a second. Should these athletes make it easier for themselves to win - or harder for themselves to win? Be fully hydrated, and make it easier for yourself to win!

When exercising in **moderate** temperatures, it is common to lose 2 liters of water per 90 minutes of continuous exercise. In **hot** weather, it is common to lose **over** 3 liters of water per each 90-minutes of continuous exercise.

What this means to you is that:

- you need to start “pre-hydrating” 2-3 days before the race or practice;
- you need to “super-hydrate" 2 hours before - and again at 10-20 minutes before - the race or practice;
- you need to see that you "minimize dehydration" as best as you can during the race or practice;

and,

- you need to “re-hydrate” yourself as fast as you can starting immediately after the race or practice, and for the next 2 days.

So how do I know if I'm getting enough fluids?

- One general rule of thumb is: if you're drinking enough water - you will be making LOTS of trips to the restroom! If you're not going to the restroom 5-6 times per track meet - you're probably not drinking enough water! By the way, don't worry - because of the hormonal changes that take place once we start exercising - you will probably not need to go to the restroom in the middle of your event !

Tips to help you get enough water

- Always carry a water bottle with you with water in it, during the day - wherever you go;
- Don't drink too much water too fast, during the day. Aim for about 17 ounces of water each 30 minutes throughout the day;
- Aim for a minimum of 2 liters per day as a "baseline" **PLUS (in addition to)** whatever you lose exercising.

Iron and the female athlete

- **If you are a mature female athlete it is VERY important that you replace the iron that you lose monthly. If you are low on iron - you CANNOT absorb enough oxygen to allow you to exercise (and perform athletically) at your best. The best way to do this nutritionally, is to eat animal sources of iron, such as red meat.**

Alcoholic beverages

The use of alcoholic beverages - even on "days off" - is definitely not consistent with peak athletic performance. Alcohol dehydrates us, and depresses our nervous system. These effects last for up to 72 hours after consumption. If you are a competitive athlete - you are undoubtedly practicing and/or competing more often than every 72 hours. Practicing and/or competing when you are not fully hydrated and when your nervous system is depressed - is certainly not consistent with optimal athletic development and performance. Additionally, alcohol damages and can kill brain cells. The human brain does not stop growing and developing until about the age of 25. The brain is the "central command station" of the human body. We strongly recommend that all athletes avoid the intake of alcoholic beverages.

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