



SPORTS & PERFORMANCE

NUTRITION 101 FOR ATHLETES

Are you looking to maximize your sports performance through improved nutrition? Learn how a proper nutrition plan can help make you the best athlete possible!



St Luke's
Sports Medicine

INTRODUCTION



As an athlete, your nutrition needs are different from non-athletes. Your overall energy requirements are much higher than the average person and where that energy comes from is very important. Starting with a healthy balanced daily diet is the foundation of better performance. Nutrient timing is prioritizing your nutrition intake before, during and after activity, to maximize performance. Individual nutrition needs can be discussed with a sports dietitian, but this will provide the basics you need to understand nutrition.

General nutrition has three main components:

- Macronutrients
- Micronutrients
- Fluid (explained in hydration section)

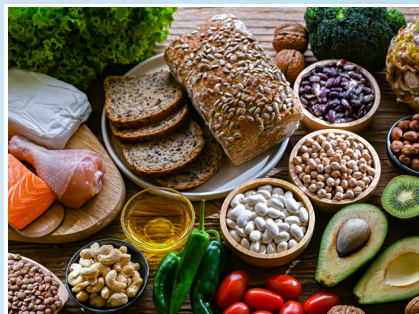
Evan Ochs, SHRM-CP, PHR, MA

NUTRITION:



MICRONUTRIENTS

NO CALORIES
Vitamins and Minerals



MACRONUTRIENTS

CONTAINS CALORIES
Carbohydrates, Protein
and Fats



FLUIDS

Water is the number
one recommendation for
hydration!



MACRONUTRIENTS

■ These are your calorie-containing nutrients.

- Calories are the energy that your body gets from foods and beverages, that it can use for body functions and physical activity.
- Energy balance (calories you consume and calories you burn) is very important, but very hard to accurately calculate/track.
- In general, if you eat about the same amount of calories that your body needs then your weight will remain the same (your body can make small changes to slightly increase or decrease how many calories it burns, to keep energy in balance).
- If you eat more calories than your body can use, you will generally gain weight (positive energy balance).
- If you eat less calories than your body can use, you will generally lose weight (negative energy balance).

■ This includes carbohydrates, protein and fat.

- Carbohydrates have 4 calories/gram
- Protein has 4 calories/gram
- Fat has 9 calories/gram (very calorie dense)

■ Where calories come from make a big difference. We will define and describe each of the macronutrients in detail.

■ Alcohol contains 7 calories/gram; however, this is not considered a macronutrient because it does not add any nutritional value to your diet.

- Alcohol is considered a toxin in the body and is metabolized first, which stops the body from using carbs, fat and protein. This can cause unwanted increases in body fat.





MICRONUTRIENTS

■ **These are the vitamins and minerals that your body needs to function, but do not contain calories.**

- A healthy, balanced diet should contain most of the micronutrients your body needs. As an active individual you may need more than the average person, so taking a general over-the-counter multivitamin may benefit you.
- Vitamins are made by plants and animals, while minerals come from the soil and water – both of which are essential for our bodies.

- Each vitamin and mineral plays an important role in your body. Please see the chart below for important vitamin and mineral functions and which finds contain those nutrients. It is recommended to consume a variety of nutrient dense foods, to make sure you are getting as much of the different nutrients as possible.

Nutrient	Function	Food Sources
Vitamin A	<ul style="list-style-type: none"> • Strengthens our immunity which helps us fight off infections • Improves vision in dim light • Keeps the skin and the linings of some parts of the body, such as the nose, healthy 	Dark green leafy vegetables such as spinach, broccoli and carrots. But also: pumpkin, liver, fish, kidney and dairy produce such as yogurt, eggs, fortified margarine
Vitamin D	<ul style="list-style-type: none"> • Helps the body absorb calcium • Keeps bones and teeth healthy 	Sunlight, fish liver oils, milk, fortified margarine, eggs, liver
Vitamin E	<ul style="list-style-type: none"> • Helps maintain cell structure by protecting cell membranes 	Soya, ground nuts, fortified margarine or oil, wholegrain cereals, eggs, peanut butter, tomatoes
Vitamin K	<ul style="list-style-type: none"> • Helps with blood clotting 	Vegetables such as spinach, lettuce, cauliflower, cabbage, broccoli, fish, liver, meat, eggs
B-group Vitamins	<ul style="list-style-type: none"> • Helps the body release energy from food • Keeps the skin, eyes and nervous system healthy 	Millet, sorghum, beans, peas, eggs, liver, meat, milk, fresh fruit, green leafy vegetables, wholegrain cereals
Vitamin C	<ul style="list-style-type: none"> • Helps with wound healing • Strengthens our immunity which helps fight off infections 	Citrus fruits such as oranges, lemons and tangerines, red and green peppers, tomatoes, broccoli, potatoes
Folic Acid	<ul style="list-style-type: none"> • Helps form healthy red blood cells • Helps reduce the risk of central nervous system defects such as spina bifida in unborn babies 	Leafy green vegetables such as spinach, broccoli and lettuce, liver, beans, peas, fruits such as oranges, bananas, avocados and melons
Iron	<ul style="list-style-type: none"> • Helps make red blood cells, which carry oxygen around the body 	Liver, meat, offal, beans, millet, sorghum, ground nuts, eggs, most dark green leafy vegetables such as amaranthus and parsley
Calcium	<ul style="list-style-type: none"> • Helps build strong bones and teeth • Helps muscles and nerves function normally • Helps ensure blood clots normally 	Milk, cheese and other dairy foods, green leafy vegetables, such as cabbage and okra



CARBOHYDRATES

Carbohydrates (Carbs) are the body's preferred energy source for higher intensity activity.

■ **COMPLEX** carbs, also called slow digesting, are generally higher in fiber and nutrients and take longer for the body to process. They make you feel fuller longer and keep blood sugar more stable.

■ **SIMPLE** carbs, also called quick digesting, are typically lower in fiber and are easily broken down after you consume them. They quickly raise blood sugar, so they are better choices when your body needs energy right away (before, during and after workouts).

- Simple carbs are not 'bad' but are best when consume around your workouts.
- Some simple carbs occur naturally in foods and other are added. Try to minimize added sugars.

■ **Your body breaks down carbs into glucose that can be use for energy at that time or stored for later use.**

■ **Your body relies heavily on carbs for:**

- Fueling higher-intensity workouts
- Long duration endurance activity
- Increasing muscle growth
- Supporting daily energy needs
- Enhancing concentration and alertness
- Delaying mental and physical fatigue

Carb needs vary greatly depending on the type of activity you do. Carbs can make up 35-55% of your daily energy intake. Carb recommendations are based on those who want to maintain weight/body composition and are focusing on improving performance.

- Higher carb foods should be 1/4 -1/2 of your plate at meals.



Types of Carbohydrates

CARBS ARE THE STARCHES, FIBER AND SUGARS FOUND IN:

- Fruits
- Vegetables
- Grains
- Beans/legumes
- Dairy products

COMPLEX CARBS COME FROM:

- Fruits
- Vegetables
- Beans/legumes
- Whole-Grains
 - Wheat bread
 - Brown rice
 - Oats

SIMPLE CARBS COME FROM:

- Fruits/Fruit Juice
- Honey/Syrup
- Milk, yogurt and cheese
- Refined Grains
 - Crackers/pretzels
 - Cereal
 - White bread/pasta/rice



Since your body uses carbs for energy, it's important to fuel before, during and after workouts.

PRE-WORKOUT:

- 3-4 hours before activity try to include a meal with nutrient-rich, slow digesting carbs, such as whole grains, starchy vegetables (potatoes, peas and corn) and higher-fiber fruit (Berries, apple or pear).
- Try to avoid excessively high fiber foods at that time.
- Within an hour of starting activity try to top off your fuel tank with some quick digesting carbs, such as crackers/pretzels, a granola bar or lower-fiber fruits (banana, grapes or melon).

DURING THE WORKOUT:

- If you are exercising for at least 60-90 minutes, you can include simple carbs to keep your energy level high.
- Try for 30-60 grams of quick digesting carbs per hour. This could come from sports drinks, energy gels/chews or fresh/dried fruit.

POST WORKOUT:

- By consuming quick digesting carbs shortly after a workouts, you are able to place the carbs you just burned during a workout. This is especially important if you exercise multiple times per day or on back-to-back days or if you are an endurance athlete.
- Post-workout carbs can come from fruit, white bread/rice, pretzels and chocolate milk.





PROTEIN

Protein is an essential building block of the body. As an active individual, your protein needs are higher than the average person.

Protein is an important building block of the body, but also is very satiating (filling) and requires the most energy to be digested (*thermal effect of food*).

■ Protein is important for:

- Building and maintaining muscles, ligaments, tendons and bones
- Immune system function
- Growing hair, skin and nails
- Metabolizing other nutrients

■ To maximize performance your protein goal is 0.5-0.8 grams of protein per pound of body weight.

- Strength athletes can try for the higher end of the range
- Endurance athlete can try for the lower end of the range
 - Example: 200 pound athlete would need 100-160 grams of protein

■ Try to include protein with each meal and snack.

- A serving of protein is equal to the size of the palm of your hand
- 4-5 oz for most females (28-35 grams of protein)
- 5-6 oz for most males (35-42 grams of protein)
- 25-40 grams of protein per meal and 10-20 grams of protein per snack is a good goal



Types of Protein

LEAN PROTEIN SOURCES INCLUDE:

- Lean animal products
 - Chicken
 - Beef
 - Pork
 - Fish
 - Shellfish
- Low-fat dairy
 - Yogurt
 - Milk
 - Cheese
- Eggs
- Plant-based products
 - Nuts/Seeds/Nut butters
 - Soy/tofu
 - Vegetarian meat substitutes
- Protein bars and shakes





FAT

■ Most athletes think that fat is unhealthy to consume and should be avoided, however, fat is essential for several body functions.

This includes:

- Fueling lower-intensity activity
- Increasing absorption of fat-soluble vitamins (A, D, E and K)
- Producing hormones
- Insulating the body/organs
- Improving nerve transmissions

■ All fat is Calorie/Energy dense, so it's important to consume in moderation.

■ There is not a specific recommendation for how much fat an individual athlete should consume each day. It is recommended to include small servings of unsaturated fat throughout the day.

- Consuming too little fat can cause overall fatigue, vitamin deficiencies and hormonal concerns.
- Consuming too much fat can cause unwanted weight gain and possible heart-health concerns.

THERE ARE TWO MAIN TYPES OF FAT:



UNSATURATED FAT

(Liquid at room temperature)

Found in Olive oil, avocado, nuts, seeds and fatty fish.

- Considered the more heart-healthy fat
- May help to lower cholesterol, blood pressure, fight inflammation and support brain function/development
- Try to consume more unsaturated fat



SATURATED FAT

(Solid at room temperature)

Found in butter, fatty meats, full-fat dairy, fried foods and pastries.

- Consuming too much can raise cholesterol, decrease heart health and cause inflammation
- Saturated fats should be limited



HYDRATION

Your body is made up of 50-70% water!

Hydration is essential for transporting oxygen and nutrients throughout your body, regulating body temperature, removing waste and lubricating joints. As an athlete, your fluid needs are higher than the average person.

■ Water is always the number one recommendation for hydration!

- A good rule for fluid intake is to divide your bodyweight by two and that's the minimum ounces of fluid you'll need per day.
 - Example: 200 pound athlete needs at least 100 ounces of fluid per day.
- Including foods with a high water content, like watermelon, strawberries, peaches, raspberries, pineapple, cucumber, zucchini and tomatoes, can also help keep you hydrated.

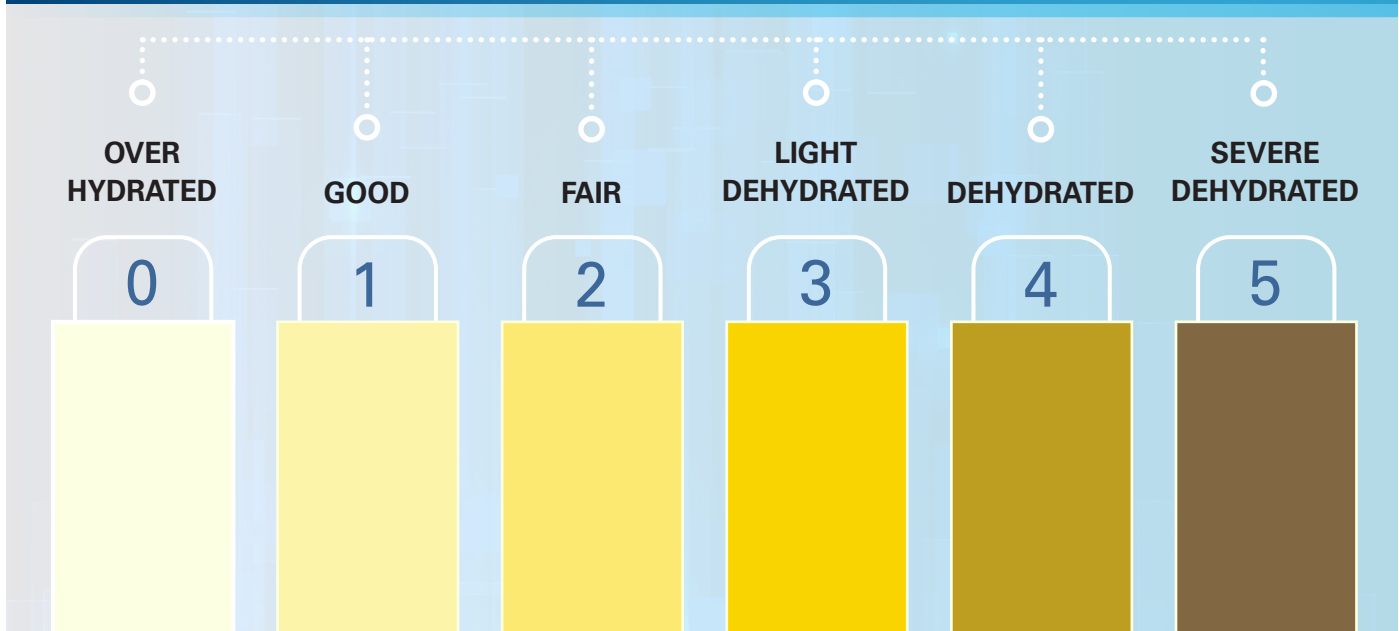
■ You can use your urine as an indicator of hydration (See chart below)

- Lemonade or lighter, you're in the 'clear'
- Apple juice or darker, you're falling behind

■ Never go to practice or a competition thirsty, if you're thirsty then you're already dehydrated.

- Within 1-2 hours of activity, you want to drink at least 1-2 cups of fluid.
- Try to take 2-3 gulps of fluid every 15-20 minutes during activity and drink at least 2 cups of fluid for every hour of activity after you're done.
- Losing as little as 2% of your body weight during a workout can decrease performance by up to 10%.

URINE COLOR CHART





SUPPLEMENTS

Sports supplements are extremely popular among athletes. The supplements industry is a multi-billion dollar industry and continues to grow year after year!

Unfortunately, supplements in general are not well regulated by the Food and Drug Administration (FDA). Not all supplement available for sale are safe and effective.

Often the supplements are only tested if concerns are reported to the FDA.

■ What is a supplement?

- A vitamin, mineral, herb or other botanical
- An amino acid
- A dietary substance for use by man to supplement the diet by increasing the total dietary intake
- A concentrate, metabolite, constituent, extract, or combination of any dietary ingredient from the other categories listed above...so many possibilities!

■ **More specifically, ergogenic aids are supplements that are taken with the goals of increasing performance (Speed, strength agility, recovery, etc).**

■ **Supplements may be a good option to help improve your performance, but should never be considered to replace proper nutrition.**

- Sports supplements are an option once you are eating a healthy balanced daily diet and you are properly using nutrient timing.

■ **Some of the more common, and generally safe, sports supplements are listed below, but you are always encouraged to talk with a medical provider before starting anything new:**

- Protein powder
- Branch Chain Amino Acids
- Creatine
- Vitamin D
- Fish Oil
- Beta-Alanine

■ **Since supplements are not required to be approved before they are put on the market, it is recommended to look for ones that have been third party tested. Try to look for NSF Sport and Informed Sport on the label.**





St. Luke's Fitness Center – West End
501 Cetronia Road • Allentown, PA 18104