



# **SPORT NUTRITION GUIDE**

## **BY TRAIN FOR SKILLS**



**TRAIN FOR SKILLS**  
ATHLETE DEVELOPMENT

## Introduction

You may think of training as simply going to the gym or doing a few exercises, but in reality, training is much more than at first glance. It's not just regular sessions at the gym, workouts and preparing your mind and body on an external level, but also nutrition plays an important role in how you perform as an athlete.

If your physical training is already fine-tuned, but you're still not getting the results you want, it may be time to take a look at your eating habits. In this guide, we'll cover the basics of sports nutrition to help you navigate through all the information available. We will discuss:

- Breakdown of meals into
  - carbohydrates
  - protein
  - fat
- The best food choice for active people and athletes (and which should be avoided)
- Proper hydration



## Your meal schedule

To give your best, both in and out of the gym, it's important that you meet your energy requirements. Not consuming the right amount of calories can result in muscle loss, reduced performance, delayed recovery, hormonal imbalance, fatigue, injury, and disease - none of which are ideal for an athlete.

Your daily caloric needs will vary based on several factors. Including age, body height, weight, body composition, daily activity level and training program.

As a general estimate, we can use the method below, which uses your body weight and activity factor to determine your total daily energy expenditure. Alternatively, a more accurate way to determine energy needs may be to perform a body composition test using the BIA method or hydrostatic measurement.

Body weight [kg] x 2,2 x 10 = **RMR** (resting metabolic rate)

RMP x activity factor (see chart below) = **TEE** (total energy expenditure)

### PHYSICAL ACTIVITY FACTORS FOR VARIOUS ACTIVITY LEVELS

<b>Very light</b>	Daily activities; working at a desk, cooking, driving a car	1,2 - 1,3
<b>Low active</b>	Daily activities + 30 minutes of light effort per day	1,5 - 1,6
<b>Active</b>	Low activity + 3 hours a week of low intensity exercise; jogging, cycling 16-20 km / h or gym classes	1,6 - 1,7
<b>Very active</b>	Planned hard training, amateur and professional sports more than 3 times a week	1,9 - 2,1



Your TEE indicates the amount of energy you consume daily, i.e. an estimate of the number of calories you will need to eat daily to maintain your current weight. Depending on your training goals, this number may go up or down.

## Carbohydrates - # 1 Fuel Source

Carbohydrates are simple molecules of carbon, hydrogen and oxygen atoms that are stored in the muscles and liver. They are the preferred source of fuel for the body. Eating a moderate carbohydrate diet is important for athletes as it provides better endurance and high intensity exercise. Glycogen, a form of glucose storage, is stored in muscle cells and the liver and can be easily used for a quick source of energy.

It is well known that athletes need to replenish their body's glycogen stores after strenuous exercise in order to maintain proper results. This is especially important during periods of intense training or competition where glycogen stores are often exhausted. So why carbohydrates? Compared to proteins and fats, carbohydrates are broken down and metabolized more quickly by the body, providing a quick source of energy.

In general, it is recommended to adjust your carbohydrate intake to your activity level. If there are days when your training is more intense, increase your carbohydrate intake, and if you have a rest day it may be worth reducing it a bit.

Activity level	Recommended carbohydrate intake
Very light training (low intensity)	3-5 g/kg of body weight daily
Moderate intensity (~ 1 hour a day)	5-7g/kg of body weight daily
Moderate-high intensity training (1-3h daily)	7-12g/kg of body weight daily
Very high intensity training (> 4h daily)	10-12g/kg of body weight daily



So why are carbohydrates important to your athletic performance?

1. **Energy** - As we said, carbohydrates are rapidly metabolized in the body to form glucose, the body's preferred fuel source. They are also quickly absorbed, making them a good source of energy. A carbohydrate-based diet is essential to improve athletic performance and delay fatigue by continually replenishing your glycogen (energy) stores when your body is depleted during physical activity.

2. **Muscle Growth** - Without enough stored glucose to be used as fuel, the body will use other sources to obtain it, namely protein and fat. To maintain muscle mass, it is important that you provide your body with enough carbohydrates so that it doesn't use up other sources. This will help maintain the muscle tissue and prevent it from breaking down.

## Protein - The Muscle Builder

Amino acids are the basis of the protein molecules that make up every muscle and tissue in the body. For an athlete, muscles are extremely important, and maintaining muscle strength is critical to performance. Protein is needed for growth and the creation of new body tissues, as well as for tissue repair and fuel for energy production. Besides, protein is also needed for enzyme production, fluid balance in tissues, nutrient transport, oxygen transport, and blood clotting regulation.

Depending on the type of training, your protein requirements may change.

**Endurance Sports** - Prolonged and intense endurance exercise increases your protein requirements. When you train for a long time, protein breakdown increases, which means your intake also needs to increase to compensate for this. When muscle glycogen is depleted (usually after 60-90 minutes of activity), branched chain amino acids can jump in to provide energy, which must then be replaced. Increased intake is also needed to help muscle repair and regeneration.

**Strength-speed sports** - Compared to endurance athletes, strength and speed athletes have additional protein requirements. After resistance training, the rate of protein breakdown and synthesis increases, which means your protein intake also needs to increase to stimulate muscle growth.



The protein requirements are as follows:

Type of athlete	The requirement of g/kg of body weight per day
Endurance sport (moderate to heavy training)	1,2 - 1,4g/kg
Strength-speed sport	1,4 - 1,8g/kg
Athlete on fat-loss program	1,6 - 2g/kg
Athlete on weight-gain program	1,8 - 2g/kg

## Fat - The Stabilizer

Often, sports nutrition focuses on protein and carbohydrates as the main components of the diet, but ensuring you get enough healthy fats is just as important for athletic performance. Fat is an important component of cell membranes, brain tissue, nerves, bone marrow and acts as a protection for organs.

Fat also provides many essential nutrients that are key to keeping your body in top shape. Vitamins **A, D, E and K** depend on fats for absorption in the body. Fat also acts as an important energy source when carbohydrate levels are depleted.

When it comes to athletic performance, it's important to remember that fat is useful for several reasons:

**1. Caloric and Energy Value** - While carbohydrates and protein provide the body with 4 calories per gram, fat provides more than twice. Calorie intake is important when you are in training mode, and fats can be a good way to get those extra calories.

Additionally, fats can be used as an energy source during prolonged endurance exercise. It has been suggested that, for endurance athletes, up to 75% of their energy needs are covered by fat.



**2. Hormone Production** - Hormones control almost every aspect of how the body functions, from growth, development and reproduction to stress response and red blood cell production. Hormones also play a very important role in your athletic performance. Steroid hormones, which are derived from fatty acids, play a key role in the body's response to energy needs and maintaining mineral balance. Sex hormones, which also come from fat, stimulate muscle growth which is crucial for an athlete. So getting the right amount of fat in your diet is key to optimizing performance and recovery.

**3. Inflammation** - While it is true that some types of fat can cause inflammation, others can help with it. Exercise tends to cause muscle damage, which is good for strength and muscle endurance. However, this damage also causes muscle inflammation, and muscle inflammation reduces range of motion and strength. Ensuring an adequate intake of anti-inflammatory omega-3 fatty acids helps to regulate the amount of inflammation in your body.

**Additionally, fat also helps:**

- Improve the supply of oxygen and nutrients to cells
- Improve aerobic metabolism
- Increases energy levels and endurance
- Improve growth hormone release
- Increases exercise duration and intensity

Athletes are advised that fats make up about 20-35% of the diet, derived from healthy sources such as avocados, cold-pressed oils (olive, coconut, avocado), nuts and seeds, and fatty pieces of meat.



## What should I eat?

We know it can be difficult to supply your body with everything you need, so this section aims to help you understand what you need to eat to increase your athletic performance. With all of the conflicting information on sports nutrition in mind, we present some of your best and worst nutrition choices. Remember that everyone will react differently to your food - some will work for you and some will not - so experiment with different options and find what makes you feel best and what is best.

### Eat this

This category includes foods that you can consume regularly. They are full of nutrients that will help build a strong body and improve athletic performance and recovery.

#### Carbohydrates

**Grains** - It's best to eat minimally processed grains such as rice, quinoa, oats, barley, spelled, etc. Avoid eating wheat-based foods as they are often highly processed and refined.

**Vegetables** - Most vegetables are not a significant source of carbohydrate, but are part of a balanced and healthy diet. However, root vegetables are a good source of both carbohydrates and fiber. Some good foods are sweet potatoes, sweet potatoes, white / yellow / red potatoes, pumpkin (all varieties), swedes, turnips, and carrots.

**Fruits** - Most fruits are suitable for regular consumption. However, try to avoid consuming fruits that are high in sugar and have a high glycemic index \* on a regular basis as they have an effect on blood sugar levels. This includes fruits such as mangoes, pineapples, melons, cherries, grapes, and any dried or concentrated fruit sources. Good options are bananas, apples, oranges, blueberries, and pears.

**\*Glycemic Index** - describes the effect different foods have on blood sugar levels. The higher the glycemic index of a food, the faster it increases in blood sugar.



**Beans and Legumes** - Also a significant source of fiber, beans provide an adequate source of carbohydrates. For maximum benefits, combine with grains to ensure complete protein. For example, white or brown rice and black beans.

## **Proteines**

Unprocessed meat is the best protein choice as it provides all the essential amino acids needed for the formation of proteins in the body. However, as some people follow a vegetarian or vegan diet, substitutes for minimally processed meat are appropriate. It includes:

- Poultry (chicken, turkey, duck)
- Beef
- Pork
- Fish (salmon, sardines, mackerel, tuna, cod)
- Molluscs (prawns, crabs, lobster, oysters, clams)
- Game (wild boar, moose)
- Eggs
- Tofu and tempeh (always choose organic and GMO products when it comes to soy products)

## **Fats**

Fats can sometimes be difficult when it comes to choosing the healthy ones. Omega-3, omega-6, saturated, unsaturated - there's a lot to consider. It's best to stick to the cleanest fats available to limit your intake of unhealthy or rancid fats and oils. Omega-3 fatty acids are the best option. Saturated fat is a much-debated topic in the nutrition world, but consuming saturated fat from healthy sources such as coconut and wild, organic meat can be part of a healthy diet.

**Nuts and Seeds** - Nuts and seeds are an excellent source of healthy fats as well as an adequate source of protein. Walnuts, pecans, almonds, peanuts, cashews, sunflower seeds, pumpkin seeds, hemp seeds, chia seeds are an excellent choice.

**Cold-pressed oils** - To avoid oxidation and rancidity of the oils, which contribute to the formation of free radicals in the body, always choose cold-pressed oils and try to avoid seed oils. Avocado, coconut, and olive oil olives are good options.

**Butter and clarified butter** - if you are sensitive to dairy, you can avoid them.

**Avocados** - thanks to the content of oleic acid, it lowers cholesterol, and the potassium contained in it regulates blood pressure

**Olives** - rich in B vitamins and provitamins A, C and E.



## Avoid that

**1. Processed Foods** - If there is anything on the label that you are unsure about and causing concern, put it back. Processed foods are full of preservatives, additives, and other fillers that do not have a positive effect on your health. If something has a very long expiration date or is ready to eat right away, it is probably processed food.

**2. Refined sugars** - Not only are they empty calories, refined sugars harm your body more than help it. This includes things like baked goods, sodas and fruit juices, high sugar cereals, and the like. Excess sugar is stored in the body as fat, leading to weight gain and a host of other health problems.

**3. Low Fat Foods** - Low fat foods tend to be loaded with fat replacement additives and fillers, so they should be avoided. Choose full-fat versions to get all the nutrients naturally present in your food.

**4. Artificial Sweeteners** - Many athletes take sports drinks to keep them active, but most often they are filled with additives and artificial sweeteners. Artificial sweeteners are linked to a variety of diseases, as well as weight gain, blood sugar imbalances, and disorders of the gut bacteria that can weaken the immune system.

**5. Trans Fats** - Consuming trans fats is a big problem. Not only are they completely unnatural, they are responsible for increasing your risk of cardiovascular disease. Trans fats are found naturally in some dairy products, such as butter that you can eat, but avoid things like baked goods, margarine, ready-made popcorn, biscuits, crisps, fried foods, and frozen pizza.



# Hydration

We all know hydration is important, but sometimes it can be difficult to replenish 2.5L of fluids you need. As an athlete, staying hydrated is critical to training and performance.

The amount of fluid lost depends on several factors:

- Exercise intensity
- Duration of training
- Ambient temperatures
- Individual biochemical factors

To stay fit, it is important to hydrate your body before, during, and after exercise. In most cases, water can be consumed to replace fluid lost, but it may be beneficial to add a sports drink containing electrolytes to replace those lost through vigorous activity.

Sedentary adults are recommended to consume at least 2.5 - 3 liters of water per day, with needs increasing with increasing levels of physical activity. Two hours before training, drink at least 500 ml of water. For every 20 minutes of activity, replenish 120 - 180 ml of fluid, and if you are active for more than 60 minutes, consider drinking a sports drink with electrolytes and a small amount of carbohydrate to replenish your muscle glycogen stores.

So why is it important to stay hydrated? Here's what happens when you don't:

- Reduced blood volume
- Decreased performance
- Reduced sweating
- Increased body temperature
- Increased heart rate
- Sodium and water retention
- Reduced cardiac output
- Reduced blood supply to the skin
- Increased use of muscle glycogen



Your body can survive without food for long periods, but it cannot survive without water. A key part of your training routine should be adequate fluid intake to help you feel and perform your best.

## Conclusion

Eating to peak performance can be difficult at times, but if you know the general principles of how foods work on your body, you're on your way. Follow the directions in this ebook. Always remember that your body recognizes all, unprocessed foods best, so consuming them will provide your body with adequate fuel to improve performance and recovery.

