

# Nutrition 101: Nutrients

Nutrients can be divided into 2 categories: *macronutrients*, and *micronutrients*.

**Macronutrients** are those nutrients that the body needs in large amounts. **Micronutrients** are those nutrients that the body needs in smaller amounts.

## **I. Macronutrients: Carbohydrates, Proteins, Fats**

### ▪ **Carbohydrates**

Role in the Body

1. Fuel during high intensity exercise
2. Spares protein (to preserve muscle mass during exercise)
3. Fuel for the Central Nervous System (your brain!)

Recommended Allowance

1. Sedentary Individuals: 40-50% of your total daily calories should be carbohydrates
2. Exercises Regularly: 60% of your total daily calories should be carbohydrates
3. Athletes or persons involved in heavy training: 70% of your total daily calories should be carbohydrates (3.5-4.5 grams of carbohydrate per pound of body weight)

NOTE: 1 gram of carbohydrate = 4 Calories

Food Sources

1. Grains (choose mostly whole grains for added benefits)
2. Dairy (choose low-fat or non-fat most often)
3. Fruit (choose whole fruits more often than fruit juices)

### ▪ **Proteins**

Role in the Body

1. Tissue structure (part of organ tissues, muscle, hair, skin, nails, bones, tendons, ligaments and blood plasma)
2. Part of cell plasma membranes
3. Involved in metabolic, transport, and hormone systems
4. Make up enzymes that regulate metabolism
5. Involved in acid/base balance to maintain a neutral environment in our bodies

Recommended Daily Allowance

1. Sedentary Individuals: 0.36 grams of protein per pound of body weight
2. Recreationally Active: 0.45-0.68 grams of protein per pound of body weight
3. Competitive Athlete: 0.54-0.82 grams of protein per pound of body weight
4. Teenage Athlete: 0.82-0.91 grams of protein per pound of body weight
5. Body Builder: 0.64-0.91 grams of protein per pound of body weight
6. When restricting Calories: 0.36-0.91 grams of protein per pound of body weight
7. Maximum amount of protein the body can utilize: 0.91 grams of protein per pound of body weight

NOTE: 1 gram of protein = 4 Calories

Food Sources

1. Meat
2. Fish
3. Dairy
4. Legumes
5. Eggs

### ■ Fats

Role in the Body

1. Energy reserve
2. Protect vital organs
3. Insulation
4. Transport fat soluble vitamins

Recommended Allowance

20-35% of your total daily calories should come from fat

\*Less than 10% of total daily calories should come from Saturated Fat (coconut and palm kernel oil, shortening, butter, cream cheese, full fat dairy products)

NOTE: 1 gram of fat = 9 Calories

Food Sources

1. Oils
2. Nuts
3. Seeds
4. Meat, fish, dairy
5. Micronutrients

## **II. Micronutrients: Vitamins and Minerals**

Water Soluble Vitamins

### **Vitamin B1: Thiamin**

Function

1. Needed to release energy in food
2. Prevents beriberi

Food Sources

1. Meat
2. Whole grains
3. Dried beans
4. Peas
5. Peanuts

## **Vitamin B2: Riboflavin**

### Function

Needed to build and maintain body tissues

### Food Sources

1. Organ meats
2. Meat
3. Eggs
4. Green and yellow vegetables
5. Enriched flour

## **Vitamin B6: Pyridoxine**

### Function

1. Helps the development of the nervous system
2. Involved in the production of blood
3. Helps break down protein and glucose to produce energy for the body

### Food Sources

1. Meats
2. Vegetables
3. Yeast
4. Nuts
5. Beans
6. Fish
7. Rice

## **Vitamin B12: Cobalamin**

### Function

Promotes proper growth and development of the nervous system

### Food Sources

1. Meats
2. Dairy
3. Eggs

## **Vitamin C: Ascorbic Acid**

### Function

1. Helps form growth hormones
2. Needed to build strong gums, teeth, and bones
3. Antioxidant

### Food Source

1. Citrus fruits
2. Cabbage
3. Berries
4. Peppers

## **Folic Acid**

### Function

1. Helps build DNA and protein
2. Helps maintain intestinal tract
3. Aids in bone growth
4. Prevents nervous system birth defects

### Food Sources

1. Dark green leafy vegetables
2. Yeast
3. Wheat germ

### Fat Soluble Vitamins

## **Vitamin A: Retinal**

### Function

1. Vision
2. Healthy skin
3. Healthy hair

### Food Sources

1. Milk
2. Butter
3. Margarine
4. Eggs
5. Cheese
6. Liver
7. Body can make vitamin A from vegetables that have carotene

## **Vitamin D**

### Function

1. Promotes strong teeth and bones
2. Prevents rickets

### Food Sources

1. Milk
2. Cod liver oil
3. Tuna
4. Salmon
5. Egg yolks
6. Produced by the body when exposed to sunlight

## **Vitamin E**

### Function

1. Prevents damage to cell membranes
2. Protects vitamin A
3. Aids in blood production

### Food Sources

1. Seeds and Nuts
2. Vegetable oil

## **Vitamin K**

### Function

Aids in blood clotting

### Food Sources

1. Green leafy vegetables
2. Produced by bacteria in the large intestine

## **Minerals**

### **Calcium**

#### Function

1. Maintains teeth and bones
2. Helps blood clot
3. Helps nerves and muscles function

#### Food Sources

1. Cheese
2. Milk
3. Dark green vegetables
4. Sardines
5. Clams
6. Oysters
7. Legumes

### **Potassium**

#### Function

1. Regulates water balance in cells
2. Helps nerves function
3. Important for heart rhythm

## Food Sources

1. Oranges
2. Bananas
3. Meats
4. Poultry
5. Fish
6. Cereal
7. Potatoes
8. Dried beans

## **Sodium**

### Function

1. Regulates water balance
2. Stimulates nerves

### Food Sources

1. Table salt
2. Meat
3. Poultry
4. Fish
5. Eggs
6. Milk

## **Iron**

### Function

1. Forms blood cells
2. Transports oxygen throughout the body

### Food Sources

1. Liver
2. Red meats
3. Dark green vegetables
4. Whole-grain cereals
5. Shellfish

## **Zinc**

### Function

1. Aids in transport of carbon dioxide
2. Aids in healing wounds
3. Forms enzymes

## Food Sources

1. Meats
2. Shellfish
3. Whole grains
4. Milk
5. Legumes

## **\*\*Water**

### Functions

1. Moistens tissues such as those in the mouth, eyes, and nose
2. Protects body organs and tissues
3. Helps prevent constipation
4. Helps dissolve minerals and other nutrients to make them accessible to the body
5. Regulates body temperature
6. Lubricates joints
7. Lessens the burden on the kidneys and liver by flushing out waste products
8. Carries nutrients and oxygen to cells