**Carbohydrates**

The most important function of carbohydrates (carbs) is to provide energy for the body. Starches and sugars are carbohydrates, the main source of the body's energy. In order to fuel the body with energy, carbohydrates are converted into glucose. Glucose is then transported through the body’s bloodstream and distributed to cells for conversion of energy.

**Simple and Complex Carbohydrates**

The body deals with carbohydrates at different speeds, depending on how quickly the carbohydrates are broken down in digestion. Two types of carbohydrates: simple (sugar) and complex (starches).

**Simple carbohydrates** are often referred to as *fast* *digesting carbs* because they are converted rapidly into the blood stream as glucose. Simple carbohydrates raise blood sugar quickly. The problem with simple carbohydrates (fast carbs) is that the blood sugar will soon drop again, and you will feel tired and hungry all over again. Some simple carbohydrates are found naturally in milk, fruit and honey.

Examples of simple carbohydrates which sugar is added to are: candy, sugar coated cereals, soda, donuts, etc.

**Complex carbohydrates** are often referred to as *slow digesting carbs* because they take longer to digest. Complex carbohydrates help your body maintain a normal and more consistent blood sugar level. Stable blood sugar levels stable will stop your food cravings and help keeping your weight in a healthy range. Complex carbohydrates (slow carbs), are usually packed with vitamins, minerals and fibers. They are found in vegetables, beans, pasta, rice, potatoes, whole grain bread, and corn.

**1 Gram of Carbohydrates = 4 calories**

**Fiber**

Fiber is the indigestible parts of food. It’s the tough stringy parts of fruit and vegetables. It provides no calories, but helps with removal of waste from the body by helping to clean out the intestines and assists with disease prevention. It is recommended to have 20-35 grams per day of fiber.

**Proteins**

**Proteins for Growth and Repair**

All tissues and cells need protein. Proteins are used to build and repair body cells and tissue. It is very important for muscle building and keeps hair, nails, skin and eyesight healthy. Proteins are used for transporting iron and oxygen in the blood and for the manufacturing of hormones, enzymes, stimulation of the immune system and other compounds that provide fuel for your body.

**Two types of Proteins**

Proteins are converted in the body into 22 building blocks called **amino acids** and divided into complete and incomplete proteins.

* **Complete Proteins from Animal Foods**: Complete proteins contain all of the amino acids that are essential to life and must be added to the diet. They are found in animal foods like meat, fish, milk cheese and eggs. [Vegans](http://www.foodpyramid.com/food-pyramids/vegan-food-pyramid/) and [vegetarians](http://www.foodpyramid.com/food-pyramids/vegetarian-food-pyramid/) can get shortages of some of the essential amino acids if they are not observant. Vegans and vegetarians need to ensure they are eating a variety of beans, lentils, etc.
* **Incomplete Proteins from Plant Foods:** Incomplete proteins lack one or more of the essential amino acids and can be found in vegetables, cereals, grains, soybeans, beans, peas and nuts. Combining plant sources, such as peanut butter with whole-grain bread or rice with beans, provides excellent complete protein.

**Protein Intake Recommendation**

The recommended daily allowances (RDA) set by the Food and Nutrition Board, is 0.36 grams of protein for every pound of body weight.

**1 Gram of Protein = 4 calories**

**Fats**

Fats and oils (which are liquid fats) are a concentrated source of energy. Fats in the diet are necessary for good health. Fats are nutrients that: supply energy, keep the skin healthy and promote natural growth.

**Good Fats vs. Bad Fats**

Nutritionists distinguish between different types of dietary fats, or fats in food. The type of fat you eat, is much more important to your health than the *amount* of fat you eat. What really matters when it comes to avoiding diseases, is to *pay attention to the type of fat you eat*. You can prevent many diseases by eating healthier fats.

**3 Kinds of Fat**

* **Saturated Fat -** Saturated fats are found in animal products like butter, cheese, milk, ice cream and meat. They are solid at room temperature. They are also found in some vegetable oils like coconut oil and palm oil. Diet rich in saturated fats can cause high cholesterol levels and should therefore be avoided.
  + **Cholesterol -** Cholesterol is a natural waxy substance made by the body to build cells, form digestive juices and does other important work. It is present in the body no matter what is eaten. When the body cells cannot absorb any more cholesterol, any excess begins to accumulate in the walls of the blood vessels and gradually narrows them. This condition may lead to a heart attack or stroke. Foods high in saturated fats will contribute to high cholesterol.
    - 2 Types of Cholesterol
      * HDL – Good Cholesterol
      * LDL – Bad Cholesterol
        + Individuals want to have more good cholesterol than bad in their system.
* **Unsaturated** - Unsaturated fats are liquid at room temperature and come primarily from plant sources. Examples are vegetable oils (olive and canola), nuts, avocadoes, olives. These are the *healthy fats* that should be included in diets. They are the mono-unsaturated and poly-unsaturated fats. Mono unsaturated fatty acids improve your blood cholesterol and may protect you against heart disease and stroke and should replace saturated fats. Poly unsaturated fatty acids (Omega 3 and Omega 6) cannot be made in the body so need to be part of your diet. important for inflammation and immune response, blood clotting, blood pressure and blood lipid levels. Examples are: salmon, nuts, vegetables, grains, and seeds.
* **Trans Fat –** Trans fat is the worst kind of fat. These *unhealthy fats* are made by a chemical process called hydrogenation when hydrogen is added to vegetable oil. The vegetable oil hardens making it less likely to spoil. Using trans fat in the manufacturing of foods helps foods stay fresh longer, have a longer shelf life and a less greasy feel. They are found in pre-packaged foods, fried foods, French fries, micro waved popcorn and in foods from fast food chains. You should avoid a diet containing trans fatty acids since they are linked to heart diseases. Trans fat increases the fat in blood, bad cholesterol and damages the cells lining blood vessels, leading to inflammation.

**1 Gram of Fat = 9 calories**

**Tips on healthy fats**

1. Avoid fried and processed foods.
2. Replace saturated fatty acids with mono unsaturated fatty acids. For example: use vegetable [oils](http://www.foodpyramid.com/myplate/oils/) when cooking, instead of cooking with margarine or butter.
3. Make sure you eat enough of the essential fatty acids, since they cannot be made in the body. For example: eat more fatty fish and reduce red meat in your diet.

**Note:** Small children should not be on a fat-restricted diet because fat is an important nutrient for brain development.

**Water**

**Water is essential for your body**

Water is essential to life. Water regulates body temperature, helps with digestion, carries nutrients throughout the body, and removes waste from your body. It breaks down the food and dissolves amino acids, glucose and minerals. Remember that almost 60% of your body, and 70% of your muscle tissue is made up of water.

**How much water do you need?**

The amount of water you need differs from person to person. It depends on various factors such as the type of activity you take part in, weather conditions, how much you weigh and how tall you are. Remember to drink extra water when you exercise, so your body doesn’t dehydrate.

It is recommended for the average person to drink around *8 ounce 8 glasses of water* every day.

**Don’t wait to drink water until you get thirsty**

If you feel thirsty it will take around 20 minutes for the liquid to be utilized by the body. This is why it is so important not to wait until you feel thirsty. Water is the best quencher and meal drink. Remember that unlike soft drinks, juice and alcohol, water contains no [calories](http://www.foodpyramid.com/myplate/empty-calories/) .

**Water = 0 calories**

**Vitamins**

All living things need vitamins for growth and health. Vitamins are substances that help regulate the body’s functions. The body either cannot manufacture them at all or cannot normally manufacture them in sufficient amounts, and so must absorb them from food and may need to take a supplement. Each vitamin has specific roles to play. Many reactions in the body require several vitamins, and the lack or excess of any one can interfere with the function of another.

**2 Types of Vitamins**

* **Water Soluble Vitamins –** These dissolve in water and there is a low risk of overdosing since the body does not store the excess vitamins. They need to replaced daily by the food we eat or taking a vitamin supplement.
  + Vitamin B - found in whole grains, it helps to maintain healthy skin and a well-functioning nervous system. B vitamins also help to convert carbohydrates into energy.
  + Vitamin C - or ascorbic acid, found in citrus, is needed for building the connective tissue that holds body cells together. Vitamin C is essential for healthy teeth, gums, and blood vessels. It also helps the body to absorb iron.
* **Fat Soluble Vitamins –** These are absorbed by fat and do not dissolve in water. The body can store these vitamins until they are needed. They are stored in the fatty tissue and liver. It is possible to overdose on fat soluble vitamins.
  + Vitamin A - needed for strong bones, good vision, and healthy skin. It is found both in dark green and yellow fruits and vegetables.
  + Vitamin D - essential for children because it helps calcium and phosphorus to form straight, strong bones and teeth. With direct sunlight on the skin, the body can manufacture its own vitamin D. Infants and young children often need a vitamin D supplement. Vitamin D is added routinely to most milk during processing.
  + Vitamin E - helps to protect vitamin A and red blood cells. It is found in a wide variety of foods, and almost everyone gets enough.
  + Vitamin K - is one vitamin that is made within the human body--by bacteria that live in the intestinal tract. Small amounts are found as well in the green leaves of spinach, kale, cabbage, and cauliflower and also in pork liver.

**Minerals**

Minerals are substances that work together with vitamins to fuel your body in many ways. Minerals are neither animal nor vegetable; they are inorganic . Almost all foods contribute to a varied intake of essential minerals. The human body requires minerals to function properly. Minerals are important to build strong bones and teeth, helps keep blood healthy, and keeps our organs working properly. Some people who do not ingest enough minerals may need a supplement.

**Examples of Minerals**

* Iron – helps to build red blood cells. It also helps the blood carry oxygen from the lungs to each body cell. Rich sources of iron are meat, especially liver; egg yolks; and dark green vegetables.
* Calcium - builds bones and teeth, and is necessary for blood clotting. The best sources are milk and hard cheese. Others are leafy greens, nuts, and small fishes--such as sardines--with bones that can be eaten.
* Sodium – regulates water absorption in cells (salt)
* Phosphorus - works with calcium to make strong bones and teeth. A diet that furnishes enough protein and calcium also provides enough phosphorus.
* Other important minerals are potassium, iodine, magnesium, zinc, and copper.