

Nutrition Basics – Just the Facts **By Jeremy Workman**

Weight loss is one of the “hottest” topics in our culture today. Diet books, physicians, mental health professionals, weight loss books, and even hypnotists all promise the answer to quick, easy, and permanent weight loss. What is often missing, however, is sound nutritional information. Specific dietary advice is beyond the scope of this article, and certain health conditions (thyroid conditions, insulin sensitivity issues, etc.) are for medical professionals to diagnose and treat. However, this article will provide basic information about the most important nutrients and their roles in weight gain or weight loss.

What is a calorie?

Before explaining the nutrients, the definition of a calorie has to be understood. A calorie is the amount of heat it takes to raise the temperature of one gram of water one degree Celsius. The calories listed on food labels actually are kilocalories, which is the amount of heat it takes to raise the temperature of 1000g of water 1 degree Celsius. It is important remember that a calorie is simply energy. An energy (or calorie) surplus will eventually lead to weight gain, and a sustained caloric deficit will bring about weight loss.

Carbohydrates

The first group of carbohydrates is Monosacharrides, which are simple sugars that are quickly absorbed in the blood stream. There are three types of Monosacharrides, which are glucose, fructose, and galactose. Examples of these are corn syrup, which is a form of glucose, fruit, and honey, which is a form of fructose, and milk, which is a form of galactose. The second group of carbohydrates is Disaccharides, which are double sugars that require more digestion and more time to enter the blood stream than Monosacharrides. There are three Disaccharides, which are sucrose, lactose, and maltose. Examples of sucrose include table sugar, sugar cane, and molasses. Milk and beer are examples of lactose and maltose, respectively. The last group of carbohydrates is Polysaccharides, which are more chemically complex than the other two and therefore take longer to digest and enter the bloodstream. Polysaccharides are commonly referred as complex carbohydrates. In general, there are two types of Polysaccharides, digestible and indigestible. Digestible Polysaccharides are starches and examples are grains, cereal, bread, crackers, pasta, rice, and corn. Indigestible Polysaccharides are commonly known as dietary fiber and can be found in all plants, wheat, rye, rice, and vegetables.

The Role of Carbohydrates

The primary use for carbohydrates is a basic fuel supply for the body that can be used continually and at anytime. Carbohydrates also are used as backup fuel for the body but only about a half a day. After this time, glucose levels begin to fall in the blood but can be maintained by eating carbohydrates throughout the day. Carbohydrates keep the liver metabolically functioning and regulation of blood glucose levels. Without carbohydrates, protein is used as an energy source and will be taken away from tissue repair and maintenance. Without carbohydrates, fats are used for large amounts of energy and the result is an upset in the normal acid base balance of the body. The brain has no glucose reserves and relies on a constant supply of carbohydrates to ensure proper function of both the brain and the central nervous system.

The benefits of dietary fiber, which is an indigestible polysaccharide, are numerous. A diet high in fiber aids in elimination of stools, aids in weight loss, aids in the treatment of diabetes, can reduce LDL (or “bad”) cholesterol, lower the risk of heart disease, and can prevent cancer of the colon. Recommended fiber intake should be about 20-35 grams a day. Recommended daily intake of all carbohydrates should be 55%-60% of total calories.

The Importance of Protein

Protein, a combination of 20 different amino acids, takes on two forms, complete and incomplete. If a food contains the nine “essential” amino acids (meaning that the body cannot produce them on its own, and must obtain them from dietary sources), it is said to be a complete protein. Milk, eggs, cheese, and meat are common sources of complete protein. Incomplete proteins are foods that are deficient in one or more of the essential amino acids. Incomplete protein food items are of plant origin such as grains, legumes, nuts, seeds, vegetables, and fruits. This is an important consideration for vegetarians – it is crucial to combine foods carefully to ensure that all of the amino acids are available to the body.

The primary role of protein is tissue construction and repair. After water, protein makes up the majority of the muscles, internal organs, brain, nerves, skin, and hair. Protein also maintains water balance to help keep circulation of tissue fluids normal. Protein helps the body maintain metabolic function, and aids the body’s defense system.

Protein is used as energy source only when carbohydrate and fat storage run out. Protein is a far less efficient energy source than is carbohydrate. The use of protein as an energy source can be hard on both the kidneys and liver for metabolizing the amino acids and excretion of nitrogen in the blood.

There are two ways to calculate how much protein is needed. The National Research Council recommends that for good health, an adult should consume .45 grams of protein for every pound of body weight. To simplify, divide the body weight by two and there is the daily intake in grams. For example, a person weighs 140 pounds; they should consume 70 grams of protein a day. The other way is to calculate that protein consist of 15% of caloric daily intake. A Registered Dietician is often helpful in determining exactly how much protein (or carbohydrates, fat, or total calories, for that matter) are required by an individual.

Fats – Essential to Good Health

Per gram, fats yield 9 calories, which causes many to avoid their consumption whenever possible. However, fats are essential to good health. The fats in our diet are categorized as triglycerides and fatty acids, phospholipids, and sterols. Each serve different purposes within the body.

Triglycerides and fatty acids make up the bulk of natural fat in our diet. Saturated fatty acids are dense and solid at room temperature. An example of saturated fat is beef. Monounsaturated fatty acids are less dense and liquid at room temperature. Examples of these are canola and olive oils. The third type is the polyunsaturated fatty acids, which are even less dense at room temperature. Corn, soybean, sunflower, and safflower oils are all polyunsaturated fats.

Triglycerides serve several functions for the body. They serve as a primary fuel source for muscles during rest or light activity. Triglycerides also insulate and protect some organs from injury, and aid in transporting fat-soluble vitamins to their absorption in the body. Two of the triglycerides are essential, in that they can only be obtained from dietary sources, and cannot be produced by the body. The first of these are the omega-3 fatty acids, of which salmon, tuna, sardines, canola oil, and soybean oil are good

sources. The second of these are the omega-6 fatty acids, of which any plant oil is a good source. Each of these fatty acids serve to aid with tissue strength, cholesterol metabolism, muscle tone, blood clotting, and heart function.

Phospholipids are another kind of fat. They are similar triglycerides, but contain phosphorus. A common group of phospholipids is lecithins, which can be found egg yolks, wheat germ, liver, and peanuts. Phospholipids are crucial in the formation and maintenance of cell membranes. Phospholipids are not considered an essential fat; the body can produce them as needed.

Sterols make up the final type of fats. The most common type of sterol is cholesterol. Cholesterol forms hormones such as estrogens, testosterone, and Clairrol, aids fat digestion, is an essential part of cell membranes and helps transport lipids in the blood. Cholesterol is found in meat and meat by-products. However, our bodies make enough cholesterol to meet our needs, regardless of dietary intake. In fact, too much cholesterol in our diet can increase plaque in the arteries and increase the risk of heart disease.

Fats aid in satiety, since their rate of digestion is slower than protein or carbohydrate. This is important with regard to weight loss, as an individual is likely to continue to consume calories until he or she is satisfied. Fats adds flavor to foods, as well. This is important for weight loss as well, since low-fat diets lead many to complain that the foods they eat are too bland.

Daily fat intake should comprise 30% or less of total daily calories. Of the 30%, 8-10% should be saturated fats, up to 10% polyunsaturated fats, and up to 15% monounsaturated fats. Daily cholesterol intake should not exceed 300mg. Two servings of fish per week, along with one tablespoon of plant oil provide the essential fatty acids that the body requires.

Alcohol

Alcohol also provides energy, but it is not considered a nutrient because our bodies do not need it to carry on normal function. Benefits of light drinking (two drinks or less per day) include lower risk of coronary heart disease, decreased frequency of ischemic strokes and gallstones, and improved relaxation. Excess alcohol intake (more than two drinks per day) is associated with cirrhosis, inflammation of the pancreas or stomach, certain types of cancer, hypertension, and heart rhythm disturbances. Furthermore, alcohol contains calories, which calories can contribute to weight gain if not accounted for.

Diets versus Healthy Eating

It is beyond the scope of this article to critique the many diets available today. It is important to note, however, that most, if not all, diets restrict one or more nutrients, while emphasizing others. While such restriction may at times be appropriate (e.g., the reduction of fat intake for those at risk of coronary disease), it often leads to nutritional deficiencies. Many diets recommend a number of nutritional supplements to compensate, but it is generally agreed that it is far better to obtain necessary nutrients from the diet. Therefore, before an individual considers any particular dietary regimen, it is recommended that he/she consult with a registered dietician.