BASIC NUTRITION TO UNDERSTAND, **by Rene Wunderlin (www.golfchefs.com)**

Basic Principles Of Nutrition easy to understand

Balanced nutrition is necessary for maintaining the human body in good health. The body is continuously using the substances which make it up, and these must be replaced by absorbing food.

-Hunger and thirst are sensed automatically by a healthy person.

-Appetite is the desire for food without really being hungry.

-Variety, only varied food intake can ensure balanced nutrition.

-Digestion is the breakdown of food prior to its absorption into the body.

-Metabolism is necessary for the building and continuous functioning of cells and tissues.

-Nutrients perform specific functions in the nourishment of the body.

-Nutrients include protein, carbohydrate, fat, minerals, vitamins and water.

-Taste and aroma. The substances which stimulate the perception of taste and aroma are not vitally necessary from the nutritional standpoint.

-Fiber is necessary for peristaltic action (example: movement of the intestines which pushes food along).

-Diet is the food consumed daily by an individual or group with an emphasis on nutrient content.

-Modified diets are special regimens prescribed.

The Digestive Process

Digestion is a complicated physical and chemical process. The process starts in the mouth. The food is broken up and chewed with the teeth while simultaneously being mixed with saliva from the salivary glands. Proper chewing is extremely important and food is swallowed and transported into the stomach via the esophagus.

“Carry-over” digestion from the mouth continues in the stomach. Further digestion occurs in the stomach when the food mass is mixed with gastric juice from the gastric glands. This is a mechanical action. The partially liquefied and dissolved food mass, or chyme, is mixed with the bile, intestinal juice and pancreatic juice in the small intestine by additional mechanical action. The bile is prepared by the liver and stored by the gallbladder. Intestinal juice is secreted by the small intestine and pancreatic juice by the pancreas. Digestion in the small intestine results in the complete breakdown of the food mass. The food absorbing villi of the small intestine absorb the nutrients and transport them to cells via the blood circulation. In the large intestine, water is extracted from the chyme, which partially solidifies. The rectum stores the stool prior to the discharge from the bowels.

The following substances are excreted from the body: water, salt, nitrogenous waste, carbon dioxide, cellulose and other undigested food substances, as well as intestinal bacteria. These substances leave the body via exhalation, perspiration, urination and defecation. Regular bowel movements are important for health. Regularity can often be achieved by appropriate food and adequate fluid intake as well as by a healthy way of life including exercise.

The Digestibility Of Foods

There are:

- Easily Digested Foods

- Difficult to Digest Foods

THE PRODUCTION OF ENERGY AND THE MAINTENANCE OF THE VITAL FUNCTIONS

Metabolism

The organism normally absorbs all the necessary substances from the chyme in the stomach and intestines. The remainder which cannot be digested is evacuated as waste. The nutrients taken from the chyme reach the various cells, tissues and organs and undergo many complicated changes. Once these changes are complete, the residual products are excreted via the kidneys, lungs, intestines and sweat glands. It is extremely important that these processes maintain a state of equilibrium if the organs, tissues and cells are to function normally and the organism as a whole is to remain healthy.

Breathing, thirst and hunger stimulate the human being to ingest substances to meet physiological requirements to assure building and maintenance functions, such as air (oxygen), water and substances of animal and vegetable origin.

Nutrients

Nutrients serve the organism in three ways:

- to give energy
- to build and replace the cells that make up the organs and tissues
- to regulate body processes.

There are six categories of basic nutrients:

1) protein, 2) carbohydrate, 3) fat, 4) minerals, 5) vitamins and 6) water.

1) Proteins
   The primary function of dietary protein is the building and repairing of body tissue. Without the proteins contained in food, the cells could neither be built nor continuously replaced as they wear out. Protein also helps make up enzymes and hormones which has important regulatory body functions. Protein foods have energy (calories) value. The food intake, therefore, must always contain a certain amount of protein.

Major Dietary Sources

Almost all animal and vegetable products contain protein, but animal protein (meat, fish eggs, milk, cheese and poultry) is more complete than vegetable protein. Vegetable protein is usually consumed in the form of bread, flour and cereal products, vegetables including legumes (peas, beans, lentils and peanuts) and nuts.

How Much Protein Do I Need?

The quantity of protein recommended is based on the assumption that the efficiency of utilization of proteins in the United States standard for adults has been established as approximately 0.9 gram (.032 ounce) per kilogram (2.2 pounds) of body weight per day. This becomes about 45 grams (1.6 ounces) daily for a person weighing 50 kilograms (110 pounds) or 65 grams (2.3 ounces) for a person weighing 70 kilograms (143 pounds).

2) Carbohydrates
   Carbohydrates are the most important source of food energy. The major function of carbohydrates is to provide energy for muscular activity and the creation of warmth. The greater the physical demands on the body, the higher is the energy need and, therefore, the carbohydrate requirement. Carbohydrates occur mainly as sugar and starch in vegetable foods (flour and cereal products, fruits and vegetables). Milk is the only animal food contributing to the daily carbohydrate intake. Pure sugar, syrups, jellies, jams, honey and candy are a source of concentrated carbohydrate. Carbohydrates must be broken down into glucose, fructose and galactose in preparation for absorption within the walls of the small intestine.

Starches are complex carbohydrates. They are found in such foods as grains, bread, peas and beans, and many vegetables and fruits. Sugars are simple carbohydrates. They are found in sweets and, to a lesser extent, in fruits and vegetables. Most authorities believe that complex carbohydrates are better for you than simple carbohydrates. This is partly because starchy foods also have many other nutrients, while sweets have few other nutrients. Also, there is some evidence that a lot of sugar in the diet may contribute to heart and circulatory diseases.

Fiber is a carbohydrate called cellulose, which cannot be used by the body. Therefore it supplies no food energy. However, it is important for the proper functioning of the intestinal tract .

Major Dietary Sources: grains (including breads and pasta), dried beans, potatoes, corn and sugar.

How much carbohydrates do I need?

A normal diet including at least one hundred grams (3.5 ounces) of carbohydrate daily will maintain metabolic processes.

3) Fat

Fat includes:

a) Fatty acids:
The major groups are: polyunsaturates
monounsaturates
saturates

b) Cholesterol.

Fat supply energy to the body in highly concentrated form. Also, some fatty acids are necessary for regulating certain body functions. Thirdly, fat act as carriers of fat-soluble vitamins (vitamins A, D, E and K).

Polyunsaturated fat is usually liquid at room temperature and nearly flavorless. They are produced from plant sources and include the familiar corn and safflower vegetable oils. Polyunsaturated fat has been shown to lower blood cholesterol; shortenings and margarine are made from polyunsaturated or monounsaturated oils. The more solid the shortening or margarine is, the more saturated the oils have become.

Polyunsaturated fat is found in vegetable based products such as corn oil, walnuts and walnut oil (as well as most other nuts, including almonds, hazelnuts and pecans) and sesame seeds and sesame oil.

Monounsaturated Fat:

Because monounsaturated fat is usually liquid at room temperature, it is considered as oils. The flavors of these oils are usually considered appealing. Canola oil made from the rapeseed plant is a monounsaturated fat that is nearly neutral in flavor. Some studies of eating habits in various cultures have shown that people with diets that rely upon a higher proportion of monounsaturated fat tend to have lower blood cholesterol levels and less incidence of heart disease.

Monounsaturated fat appears to help lower the level of harmful cholesterol, low-density lipoproteins (LDL) and to raise levels of good cholesterol, high-density lipoproteins (HDL), when used to replace saturated fat in a diet plan that keeps all fats at 30% of the day's total calories or less. Sources of monounsaturated fat include peanuts and peanut oils, avocados, olives and olive oil.

Saturated Fats:

They tend to be solid at room temperature and flavorful. Their smoking points are lower than those of other fats. Exception: tropical oils. Saturated fats can increase blood cholesterol level (known as serum cholesterol), as well as build up of plague in arteries that can lead to atherosclerosis.

Risk factors associated with atherosclerosis: overweight or obese, suffer from hypertension, have high serum cholesterol levels or diabetes are greater risk, excessive amounts of stress, smoke cigarettes and diabetes.

Most foods containing saturated fats are derived from animal sources.: butter, bacon, salami, cheese, chorizo sausage and heavy cream are all examples. Tropical oils, such as palm kernel and coconut oils are exceptions.

Cholesterol:

Cholesterol is a fatty substance that has been linked with heart disease, because it collects on the walls of arteries and blocks the flow of blood to the heart and other vital organs. It is found only in animal products and is especially high in egg yolks, butter fat, and organ meats such as liver and brains. In addition, the human body can manufacture its own cholesterol, so not all the cholesterol in the blood is necessarily from foods. Nevertheless, experts generally agree that it is best to keep the cholesterol in the diet as low as possible.

Fat Facts

- Fat adds taste and enjoyment to food.
- High fat diets have been associated with higher risk of heart disease, obesity and some types of cancer.
- Excess calories consumed are stored in body fat.
- Some fat in the diet is necessary for good health.
- Fat is particularly important for the normal growth and development of children.
- Long term weight loss results from diet plus an exercise routine.
- Omega-3 fatty acids are polyunsaturated fatty acids found primarily in fish and shellfish. If added to a diet, they do not lower blood cholesterol. But, if they are substituted for saturated fatty acids, the omega-3s lower blood
  cholesterol.
- When planning your meal, keep in mind the recommended daily fat intakes:
  Females (19 to 49 year of age): 65 grams of fat.
  Males (19 to 49 year of age): 90 grams of fat.
  Older adults (over 50 of age): 60 grams of fat.
  4 grams of fat = 36 calories.

Calories

The above mentioned energy sources - protein, carbohydrates, and fat - create warmth during the process of metabolism. This warmth is measured in calories, 1 calorie representing the amount of warmth necessary to increase the temperature of 1 kilogram of water by one degree C. The more physical work a man does, the more nutrients are burned. Different foods produce varying amounts of energy, and for this reason it is important to know their caloric values. Foods can be evaluated on the basis that 1 gram protein creates 4.1 calories, 1 gram carbohydrate creates 4.1 calories, and 1 gram fat creates 9.3 calories of warmth. Since there are slight variations in calorie values obtained for different foods within a given group, the figures are rounded off to:

- 1 gram protein yields 4 calories
- 1 gram carbohydrate yields 4 calories
- 1 gram fat yields 9 calories

Vitamin

Any of a number of organic chemical substance, present in various foods and essential in very small quantities (less than 2.5 mg per day) to health.

Minerals

Minerals, mineral salts, mineral elements, or inorganic nutrients are present in the cells, tissues, fluids, soft tissues, and hard skeletal structures such as blood, muscles, and bone. Minerals are vitally important, even if they are only necessary in minute quantities. One cannot replace another, as is the case with some nutrients. Any deficiency of certain minerals can, over a long period of time, be fatal. About 13 different minerals are known to be needed by the body, and all must be derived from the diet. The minerals whose supply is most likely to be critical are calcium, iron, and iodine.

Water

The water content of the human body varies with age, weight, sex, and physical condition. About 65 percent of body weight of lean adults is water. Human beings consume between 41/4 to 7 pints of water daily, either in the form of liquid or food. Water is necessary as the medium in which all chemical and physical processes of the body operate. The amount of water required is dependent upon environmental conditions, physical work, and the food intake. Intake is normally regulated by the sensation of thirst.

TABLE
VITAMINS AND MINERALS

VITAMINS RDA For Adults	SOURCES	FUNCTION
Thiamine (B1) RDA: Men 1.4 mg Women 1.0 mg	Pork, liver, legumes, fresh green vegetables	Carbohydrate metabolism, maintaining healthy nerves, normal appetite
Riboflavin (B2) RDA: Men 1.7 mg Women 1.5 mg	Milk, liver, lean meats, eggs, leafy vegetables	Breakdown of fatty acids for energy, release of energy from food
Niacin Men 18 mg Women 14 mg	Liver, lean meats, wheat germ, leafy green vegetables	Carbohydrate metabolism
Vitamin B6 Pyridoxine RDA: 2 to 2.2 mg	Meat, liver, whole grain cereals, vegetables	Aids in synthesis of nonessential amino acids, fat and carbohydrate metabolism
Vitamin B12 RDA: 3ug	Liver, meats, milk, eggs (only animal foods)	Growth, blood formation, amino acid synthesis
Folacin (most common vitamin deficiency) RDA: 400 ug	Green leafy vegetables, liver, milk, eggs	Blood formation, amino acid metabolism
Ascorbic Acid (vitamin C) RDA: 60mg	Citrus fruits, strawberries, cantaloupe, broccoli, cabbage	Production and maintenance of collagen (base for all connective tissue), healing, resistance
Vitamin A (retinol) RDA: 1000 R. E.	Liver, carrots, sweet potatoes, green leafy vegetables, egg yolk, milk fat	Building of body cells, bone growth, healthy tooth structure, normal vision in dim light
Vitamin D RDA: unknown	Animal fat, fortified milk, sunlight	Bone development (promotes the absorption of calcium and phosphorus)
Vitamin E (tocopherols) RDA: 10 I.U.	Leafy vegetables, egg yolk, legumes, vegetable oils, peanuts	Protects cell structure, antioxidant
Vitamin K RDA: unknown	Cabbage, leafy vegetables, liver, vegetable oils	Essential for clotting of blood

Calcium RDA: 800 mg	Milk, dairy products, canned salmon w/bones	Bone and tooth formation, coagulation of blood, regulates muscle contraction
Phosphorus RDA: 800 mg	Milk, poultry, fish, meats, cheese, nuts, cereals, legumes	Energy exchange, buffer system
Sodium	Common salt, some canned foods, salt-cured meats, pickles	Regulates electrolyte and water balance (intracellular fluid), muscle contractions
Potassium	Meats, cereals, vegetables, legumes, fruits	Regulates electrolyte and water balance (intracellular fluid), muscle contractions
Iron RDA: Men 10 mg Women 18 mg	Liver, meat, whole or enriched grains, green vegetables	Essential for hemoglobin production, constituent of tissue cells, transporting oxygen
Iodine RDA: 150 ug	Iodized salt, seafood	Necessary for the formation of thyroxine (a hormone of the thyroid gland)

Salt and Sodium

Sodium is one of the minerals the body needs in order to function properly. Table salt, a compound of sodium and chloride, is the form of sodium with which most people are familiar, but there are many other food sources. Some foods like milk, meats, cheeses, contain significant amounts of sodium naturally. Sodium may also be added to foods during processing. In fact, there is so much sodium in so many foods and beverages that most people get several times the amount they actually needed. Sodium intake should be limited to one gram per one thousand daily calories, up to a maximum of three grams in a day.

Restricting sodium, especially salt, and losing excess weight helps to lower even mild cases of high blood pressure. A basic step in controlling sodium intake is to base one's diet on whole, fresh, unprocessed foods. In addition, the individual should strictly moderate consumption of canned and processed foods, and high-sodium foods such as smoked meats and fish, cheese, snack foods, olives, pickles, sauces, and prepared condiments such as mustard, anchovies, parmesan cheese, green pepper, corns, miso pasta, capers, salami, edam cheese etc., all have a lot of sodium. These ingredients need not be excluded, but they should be handled with care.

Hidden Sodium Sources

Type	**Role**
- Monosodium glutamate (MSG)	Flavor enhancer
- Sodium benzoate	Preservative
- Sodium caseinate	Thickener and binder
- Sodium citrate	Buffer, used to control acidity in soft drinks
- Sodium nitrite	Curing agent in meat
- Sodium phosphate	Emulsifier, stabilizer
- Sodium propionate	Mold inhibitor
- Sodium saccharin	Artificial sweetener

Reducing salt in cooking, unless for a sodium restricted clientele, should be a gradual process. An abrupt change could unexpectedly and unpleasantly shock the taste buds of diners. While salt content is being reduced, new strategies for seasoning foods and combining flavors can be introduced. Spices and herbs, aromatic ingredients, citrus juices, vinegar and cooking techniques are appropriate ways to accentuate flavors.

Beverages

If you drink alcohol, do so in moderation. What is moderation? The answer depends on many factors. The liver is responsible for processing the alcoholic beverages a person drinks. Under normal circumstances, the liver can produce enough of the appropriate hormones to metabolize one drink in about ninety minutes. This means that a glass or two of wine or beer, or a single mixed cocktail is within the range of what might be considered "moderation" for most people. Several factors can change this range, however.

- Body size
- If the person has not eaten recently.

When a person has more than one drink an hour, the alcohol accumulates in the body. Two drinks taken within an hour will affect judgment. After four drinks, a person's emotional control is impaired. Eight drinks will have an effect on one's vision. If more than that, a person is drunk and will become totally out of control or sink into a stupor.

Modified Diets

Many illnesses lead to disturbances in the metabolism, and thus are harmful to the body; on the other hand, certain illnesses may be controlled or cured by altering the metabolic process. The regulation of the food consumed by the patient is important under these circumstances. The choice of food and mode of preparation depends upon the type of illness and general condition of the patient.

The term modified diet refers to the choice of food as a preventive, supportive, or key therapeutic measure to meet the patient's nutritional, psychological, and aesthetic needs. In this way, the diet can be considered as part of, or the principal, medical treatment.

HOW TO READ A NUTRITION INFORMATION LABEL

- Nutrition information is expressed per suggested serving.
- Gives the calorie content (Cal).
- Indicates the quantity of naturally occurring and added sugars as well as dietary fiber.
- Indicates the level of sodium from salt and all other sources.
- Vitamins and minerals are expressed as a percentage of the highest recommended amount.
- Milliliters: 5 mL = 1 teaspoon.
- Kilojoules: metric unit of energy 1 Cal = 4.18 kj.
- Grams: 28 g = 1 ounce.

THE CALORIE CONTENT IS OFTEN USED TO MARKET A FOOD ITEM:

We Read On The Label	It Means That The Food
- calorie-reduced	- contains 50% fewer calories than the same food when not calorie-reduced; it is suitable for dietary use.
- low calorie	- is calorie-reduced and contains 15 Calories or less per serving; this food usually contains fewer calories than a calorie-reduced food but more than a calorie free food.
- calorie-free	- contains no more than 1 Calorie per 100 g.
- source of energy	- contains at least 100 Calories per serving as indicated on the label.

To determine exactly how many calories a serving of food contains, look under ENERGY in the nutrition information label.

BALANCE

When we eat, we store energy; when we move, we use that energy. If we move enough to use all the energy we consume, our weight stays the same; if we don't, we gain weight: it's a balancing act!

PROTEIN

Proteins help build and repair body tissues such as muscles and skin. They also help build antibodies.
Proteins are composed of amino acids. If they contain all nine (9) essential amino acids in adequate proportions, they are considered complete proteins.

COMPLETE PROTEINS	INCOMPLETE PROTEINS
Sources: meat poultry and fish, eggs, milk and cheese	Sources: cereals and legumes, nuts and grains

ON A LABEL, BE AWARE THAT:

- excellent source of protein or - very high in protein	means the food has a greater quantity and/or better quality of proteins than if the label indicates:	- source - good source or - high in protein

ENERGY

SOURCES	THAT WE FIND IN	AND THAT GIVE
- Protein	- milk and milk products, meat, poultry, fish, eggs, peanut butter and legumes	- 4 Calories (17kJ) per gram of protein
- Carbohydrate	- pasta, bread, cereals, fruits, vegetables and sweets	- 4 Calories (17kJ) per gram of carbohydrate
- Fat	- oils, margarine, butter, shortening, salad dressing, mayonnaise, cheese and meat fat	- 9 Calories (37 kJ) per gram of fat
- Alcohol	- alcoholic foods and beverages	- 7 Calories (29 kJ) per gram of alcohol

Vitamins and minerals do not provide energy but some of them help the body to utilize it.

CARBOHYDRATE

Carbohydrates Include:

- Sugars: principally sucrose, glucose and fructose which are found in sugar, honey, brown sugar, molasses, fruits, sugars and syrups used in industry.
- Starch: found in bread, pasta, rice, potatoes and cereals.
- Dietary Fiber: found in whole grain cereals, fruits, vegetables, nuts, seeds and legumes.

ALL CARBOHYDRATES CONTAIN THE SAME AMOUNT OF ENERGY: 4 Calories (17kJ) per gram.

CLAIMS ARE NUMEROUS:

We Read On The Label	It Means That The Food
- low in sugar	- contains no more than 2 g of sugar per serving
- no sugar added or unsweetened	- has no sugar added although it may contain naturally present sugar
- sugar-free	- contains no more than 0.25 g of sugar per 100 g and no more than 1 Calorie per 100 g; this food usually contains the least amount of sugar and often the fewest calories; it is suitable for dietary use

FAT

Fat includes:

- Fatty Acids

  The major groups are:
  - polyunsaturates
  - monounsaturates
  - saturates

- Cholesterol

HOW TO MAKE SENSE OF THE CLAIMS?

We Read On The Label	It Means That The Food Contains
- low in fat	- no more than 3 g of fat per serving
- fat-free	- no more than 0.1 g of fat per 100 g
- low in saturated fatty acids	- no more than 2 g of saturated fatty acids per serving and no more than 15% of the energy derived from these
- low in cholesterol	- no more than 20 mg of cholesterol per serving and per 100 g & low in saturated fatty acids
- cholesterol-free	- no more than 3 mg pf cholesterol per 100 g & low in saturated fatty acids

Cholesterol is found in animal fat. There is no cholesterol in vegetable oils, fruits or vegetables, cereals, nuts or grains, etc...

BUT BEWARE: Cholesterol-free does not mean Fat-free.

IN DAIRY PRODUCTS...

% M.F.

indicates the fat content

AND IN MEATS

Ground Beef	Maximum Fat Content
regular	30%
medium	23%
lean	17%
extra lean	less 15%

BUTTER AND MARGARINE: THE SAME AND DIFFERENT

The Same: Butter and Margarine provide
- The same amount of fat
- The same amount of energy 100 Calories per 15mL (1 tablespoon)

Different: Their composition
- Margarine is made principally of vegetable oil while butter comes from milk fat.

SOME FACTS ON TROPICAL OILS:

Four such oils exist:
- coconut oil
- palm oil
- palm kernel oil
- cocoa butter

Tropical oils are known to be high in saturated fat. The claim “no tropical oil” on the label of a food means that it does not contain any of these four oils. However, it could contain other fats like hydrogenated vegetable oil and therefore, as much saturated fat.

DIETARY FIBER

Definition: the part of a plant which resists digestion by the enzymes that we produce.

Sources:

- known foods: nuts, seeds, whole grain cereals and flours, legumes, fruits and vegetables.
- in the list of ingredients: wheat bran, oat bran, corn bran, soya cotyledon flour, pea hull flour.

WE READ ON THE LABEL	IT MEANS THAT THE FOOD CONTAINS PER SERVING
- source of dietary fiber	- at least 2 g of dietary fiber
- high source	- at least 4 g of dietary fiber
- very high source	- at least 6 g of dietary fiber

WHERE IS THE INFORMATION?

When there is a claim on a food (for example, low in sugar or no cholesterol), you will find on the label the amount of the nutrients per serving that the food contains. This information follows the list of ingredients or is contained in a nutrition information label. It will help you to compare different food products. The list of ingredients will be useful in determining the source of these nutrients.

SALT AND SODIUM

In the list of ingredients, sodium is contained in:

- salt
- sodium bicarbonate
- sodium metabisulfite
- monosodium phosphate
- monosodium glutamate, etc...

WHAT THE CLAIMS MEAN:

WE READ ON THE LABEL	IT MEANS THAT
- low sodium or low salt	- the food contains 50% less sodium than the regular product and not more than 40 mg of sodium per 100 g and no salt has been added. It is a food suitable for dietary use.
- no added salt or unsalted	- no salt is added to the food and none of the ingredients contains a large quantity of salt.
- salt-free or sodium-free	- the food does not contain more than 5mg of sodium per 100g; foods bearing this claim are usually those containing the smallest amount of salt or sodium

Two exceptions:

- Cheddar cheese: may contain up to 50 mg of sodium per 100 g.
- Meat, poultry and fish: may contain up to 80 mg of sodium per 100 g.

Very -Low Sodium:	35 mg or less per serving.
Reduced Sodium:	processed to reduce the usual level of sodium by 75%.
Low Salt:	made with less salt than the regular variety of the same food.

LIGHT FOODS

Do you purchase light foods? The claim “light” or “lite” often appears on food labels. Read them carefully, you will find information to properly compare foods:

- the nutrient that has been reduced (sugar, salt, fat, etc...);
- the reduction of the nutrient. A minimum of 25% is required but it can be more, for example 30% or 50%;
- the regular or “non-light” food against which the comparison is made;
- the amount of the nutrient that has been reduced per serving.

BEWARE

Claims such as “light texture”, “light taste” or “light tasting” do not mean that the food contains less of a specific nutritional element (for example, salt or fat) but simply that its consistency or flavor is light.

THE LIST OF INGREDIENTS

The ingredients are listed in descending order of quantity: the ingredient present in the largest quantity is first, while the ingredient present in the smallest quantity is last on the list. Compare products. For example, verify if a can of beef stew contains more beef than other ingredients, or if it contains sugar, salt, additives, etc...

VITAMINS AND MINERALS

On the labels, the vitamin and mineral content is given as percentage of recommended daily intake. This percentage represents the portion of vitamin or mineral that the food provides compared with the highest recommended intake to meet the requirements.

Information regarding the vitamin or mineral content is used to market food products as per the following criteria:

WE READ ON THE LABEL	AND IT MEANS THAT THE VITAMIN OR THE MINERAL CONTENT IS	IN THE CASE OF VITAMIN C
- source of, contains...	- at least 5% of the recommended daily intake	5%
- good source, high in...	- at least 15%	30%
- excellent source, very high in, rich in...	- at least 25%	50%

DO NOT FORGET

Eating a balanced diet from a wide variety of foods will provide vitamins and minerals...even when the label makes no specific claim!

METRIC WEIGHT CONVERSION

1/4 OZ.	= 7 GR	7 OZ.	= 198 GR.
1/3 OZ.	= 10 GR.	8 OZ.	= 227 GR.
1/2 OZ.	= 14 GR.	9 OZ.	= 255 GR.
1 OZ.	= 28 GR.	10 OZ.	= 283 GR.
1 1/2 OZ.	= 42 GR.	11 OZ.	= 312 GR.
2 OZ.	= 56 GR.	12 OZ.	= 340 GR.
3 OZ.	= 85 GR.	13 OZ.	= 368 GR.
4 OZ.	= 113 GR.	14 OZ.	= 397 GR.
5 OZ.	= 142 GR.	15 OZ.	= 425 GR.
6 OZ.	= 170 GR.	16 OZ.	= 1 LB./454 GR.
1/3 FL. OZ.	= 10 ML.	1 KG.	= 1000 GR.
1 FL. OZ.	= 30 ML.	1 KG.	= 2.2 LB.
1 FL. OZ.	= 6 TSP.	1 KG.	= 35 OZ.
1 FL. OZ.	= 2 TBLS.	100 GR.	= 3.5 OZ.
2 TSP.	= 10 ML.	200 GR.	= 7 OZ.
.7 TBLS.	= 10 ML.	300 GR.	= 10.5 OZ.
1 TBLS.	= 15 ML.	400 GR.	= 14 OZ.
1 TSP.	= 5 ML.	500 GR.	= 17.5 OZ.
1 GAL.	= 128 FL. OZ.	700 GR.	= 24.5 OZ.
1 GAL.	= 3.78 LT.	800 GR.	= 28 OZ.
1 LT.	= 1000 ML.	900 GR.	= 32 OZ.
1 LT.	= 34 FL. OZ.	1000 GR.	= 35 OZ.
10 ML.	= .34 FL. OZ.		

Dash	less than 1/8 teaspoon	2 pints	1 quart (approximately 1 liter)
3 teaspoons	1 tablespoon (1/2 fluid ounce)	4 quarts	1 gallon
2 tablespoons	1/8 cup (1 fluid ounce)	8 quarts	1 peck
4 tablespoons	1/4 cup (2 fluid ounces)	4 pecks	1 bushel
5 1/3 tablespoons	1/3 cup (2 2/3 fluid ounces)	1 gram	0.035 ounces
8 tablespoons	1/2 cup (4 fluid ounces)	1 ounce	28.35 grams
10 2/3 tablespoons	2/3 cup (5 1/3 fluid ounces)	16 ounces	1 pound (453.59 grams)
12 tablespoons	3/4 cup (6 fluid ounces)	1 kilogram	2.21 pounds
14 tablespoons	7/8 cup (7 fluid ounces)	1 fifth bottle	25.6 ounces (approximately 11/2 pints)
16 tablespoons	1 cup		
1 gill	1/2 cup	1 measuring cup	8 ounces
1 cup	8 fluid ounces	1 coffee cup	Usually 6 ounces
2 cups	1 pint		

EXERCISE TIP
Get Most Out Of Your Workout.

BEFORE:
1) Two to three hours before your workout, eat a light meal like a bagel, banana and some non-acidic fruit juice. This provides the energy your muscles will need to effectively burn fat during the workout.
2) Warm up. Regardless of the type of exercise you do, preparing your body with less rigorous activity may help prevent injuries.
3) Get psyched! Preparing yourself mentally will help you achieve maximum energy when you exercise.

DURING
1) Hydrate. Bring a water bottle and drink at least 3-4 oz. of cool water three or four times during an hour-long workout. Continue to drink water after your workout to fully rehydrate.
2) Use the mind-body connection. Thinking about your workout and concentrating helps you get the most out of each movement.
3) Watch your heart rate. For optimum fat burning, stay in the mid to lower range of your target training heart rate. This allows you to exercise longer.
4) Listen to the instructor. If you're after the ultimate workout, it's essential to follow verbal cues as well as visual ones.

AFTER
1) Pump your muscles. If not included in your class, do 15 to 30 minutes of resistance training immediately after your workout. Focus on large muscle groups and work each group to fatigue, while maintaining proper form.
2) Eat! Your body needs food within an hour or so of your workout. Munch on complex carbohydrates (bread, pasta, rice) to replace the glycogen your muscles lost during the workout. Also, make sure to include at least two servings of protein during the day to maintain blood glucose levels, brain functions and energy. This will help build muscle tissue and supercharge your metabolism to give you the sleek, toned body you've been working for.
3) Listen to your body. Was your workout too hard? Too easy? You should feel relaxed, energized and looking forward to your next workout.

THINGS THAT MAKE A DIFFERENCE AND YOU CAN CONTROL
THE BALANCED DIET/HEALTHY FUTURE
Eat A Variety Of Foods (healthy diet).
- Using the freshest, highest quality food possible.
- Enhance natural flavors without added salt; like fresh herbs, hot seasonings such as chilies, ginger, pepper and flavorful ingredients like garlic, browned onions, flavored vinegar, lemon juice.
- Using nutritional information of food aids in planning healthful menus.

Maintain Ideal Weight
- Modifying portion sizes.
- Smaller portions of well-trimmed meat, poultry or fish with an assortment of attractive, fresh vegetables and complex carbohydrates are likely to be more healthy.
- Sauces add Calories, if a sauce is flavorful, you do not need much.
- If a sauce is not too thick, a little will go a longer way.
- Maintain your healthy body weight, exercise regularly (get physically active) and take time to relax.
- Excess weight makes your heart work overtime.

Avoid Too Much Fat, saturated Fat And Cholesterol
- Using less fat like butter and lard in cooking.
- Buy lean meats or trim off fat.
- Cooking methods: simmering, poaching, baking, grilling, steaming. No added fat.
- Using non-stick pans for sauteing.
- Switch to low fat dairy products.
- Too much fat can lead to high blood cholesterol.
- Keep all dressings to a minimum.

Eat Foods With Adequate Starch And Fiber
- Carbohydrates are good source of energy and are low in fat.
- Look for pasta and rice recipes made with vegetables and beans for a delicious main course.
- Food high in complex carbohydrates (starch) include pastas, cereals, bread, grains and starchy vegetables.

Avoid Too Much Sugar
- Too much sugar contributes to tooth decay and provides “empty calories”, adding to overweight and obesity problems without supplying significant amounts of important nutrients.

Avoid Too Much Sodium
- High sodium (salty foods) may increase your blood pressure.
- Do not add salt to cooked food (taste first).
- Remember: herbs, garlic, lemon juice, vinegar etc. add flavors.
- Some food with high sodium: sausages, bacon, cured meats, soya sauce, ketchup, bouillon cubes, canned soups, gravies, salty snacks.

If You Drink Alcohol, Do So In Moderation.
- Make an alcoholic drink last longer by mixing with soda water to make a spritzer.
- Make every second drink you take a non alcoholic one.
- Drinking too much harms your body in many ways.

More Tips:
- Be smoke-free.
- See your doctor regularly.
- Check your cholesterol if needed.
- Know your blood pressure and keep it healthy.

LITTLE THINGS ADD UP

INSTEAD EATING	SUBSTITUTE	TO SAVE
1 croissant	1 plain bagel	35 calories, 10 grams fat, 13 mg chol.
1 c. cooked egg noodles	1 c. cooked macaroni	50 mg chol.
1 whole egg	1 egg white	65 calories, 6 gm fat, 220 mg chol.
1 oz cheddar cheese	1 oz part-skim mozzarella	35 calories, 4 gm fat, 22 mg chol.
1 oz cream cheese	1 oz cottage cheese (1% fat)	74 calories, 9 gm fat, 29 mg chol.
1 tbsp. whipping cream	1 tbsp evaporated skim milk (whipped)	32 calories, 5 gm fat
3.5 oz skinless roast duck	3.5 oz skinless roast chicken	46 calories, 7 gm fat
3.5 oz beef tenderloin, choice, untrimmed, broiled	3.5 oz beef tenderloin, select, trimmed, broiled	75 calories, 10 gm fat
3.5 oz lamb chop, untrimmed, broiled	3.5 oz lean, lamb leg, trimmed broiled	219 calories, 28 gm fat
3.5 oz pork spare ribs, cooked	3.5 oz lean pork loin, trimmed broiled	157 calories, 17 gm fat
1 oz regular bacon, cooked	1 oz Canadian bacon, cooked	111 calories, 12 gm fat
1 oz hard salami	1 oz extra lean roasted ham	75 calories, 8 gm fat
1 beef frankfurter	1 chicken frankfurter	67 calories, 8 gm fat
3 oz oil-packed tuna, light	3 oz water-packed tuna, light	60 calories, 6 gm fat
1 regular-size serving fast-food French fries	1 medium sized baked potato	125 calories, 11 gm fat
1 oz oil-roasted peanuts	1 oz roasted chestnuts	96 calories, 13 gm fat
1 oz potato chips	1 oz thin pretzels	40 calories, 9 gm fat
1 oz corn chips	1 oz plain air-popped popcorn	125 calories, 9 gm fat
1 tbsp sour-cream dip	1 tbsp bottled salsa	20 calories, 3 gm fat
1 glazed doughnut	1 slice angel-food cake	110 calories, 13 gm fat, 21 mg chol.
3 chocolate sandwich cookies	3 fig bar cookies	4 gm fat
1 oz unsweetened chocolate	3 tbsp cocoa powder	73 calories, 13 gm fat
1 cup ice cream (premium)	1 cup sorbet	320 calories, 34 gm fat, 100 mg chol.

SUBSTITUTIONS FOR THE CALORIE & CHOLESTEROL-CONSCIOUS

- Herbs for seasoning (add them in the last hour of cooking).
- Lemon juice and herb seasoning for fish sauce.
- Soft-tub margarine containing only polyunsaturated oil for butter.
- Nonfat yogurt or skim milk for regular milk, cream, or sour cream.
- Nonfat yogurt for mayonnaise.
- Nonfat yogurt or lemon for salad dressing.
- Bananas, raisins, shredded carrots, chopped apple for sugar.

- For infants (two to four months) 119 cals per kg (54 cals per pound).
- For adolescents (both sexes) 44 - 53 cals per kg (20 - 24 cals per pound).
- For women (aged 23 -50) 36 cals per kg (16 cals per pound).
- For men (aged 23 - 50) 44 cals per kg (20 cals per pound).

Balanced diet helps to loose weight and helps to keep your body healthy.

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