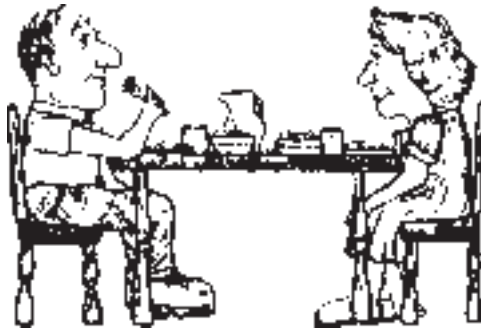


DIET AND NUTRITION



Good nutrition makes good sense. Here is why. People who do not eat properly cannot exercise or perform their daily jobs as well as those on a sensible diet. And, a person with chronic disease is even more compromised. A vicious cycle is formed. You feel short of breath when exercising, so you sit. You find it difficult to eat because you haven't "worked up" an appetite. Consequently, you eat less. This can take a rapid toll on the body. Your body is becoming weaker and, of course, you are not going to feel like exercising.

A person can also become malnourished if he or she is of proper weight or even overweight. It is too easy to rely on "junk" foods. High fat diets, with its large content of refined foods is an easy diet to follow. And besides, "It tastes good." Or, does it? Have you tried a tasty sandwich on whole grain bread or an orange lately?

You need good nutrition for muscle strength, proper muscle mass, and decreased body fat. Even a thin person can have a fat belly. So when you think about preparing food and putting it into your mouth, follow the suggestions in this chapter. If you carry around an extra 5-10 pounds of fat, it is like always carrying that extra package. If you are trying to gain weight, it may be easier to gain it by eating junk food, but the extra 5 pounds of weight may be all fat and no muscle. Think about that weight as the extra package. Your goal is to add muscle mass and strength, decrease fat if you are

overweight and exchange fat for muscle mass if you are at your ideal weight.

There is a primary rule of nutrition. In order to follow it you must choose a variety of foods from each of the four basic food groups. There are different proportions of certain essential nutrients in the different foods of each group; therefore, eating a moderate variety in as unrefined a state as possible assures good nutrition.

It is difficult to follow a diet if you do not understand why the diet is best for you. Therefore, a brief explanation of protein, fats, carbohydrates, fiber, water, and vitamins and minerals will be explained.

Protein

The building blocks of protein are simple units called amino acids. There are 23 different amino acids and there is a limitless variety of proteins possible from these amino acids. Every cell in the body contains some protein, each with special properties and functions. Nine of the 23 amino acids we need cannot be manufactured by the body. These are called the essential amino acids and must be eaten daily. Animal proteins, including meat, fish, poultry, dairy products and eggs contain all the essential amino acids. They are therefore called complete proteins. There is also protein in vegetables. However, vegetables are called incomplete protein because they do not contain all the essential amino acids. When a vegetable protein is eaten by itself, your body cannot take full advantage of it as a protein source; however, certain vegetables, such as rice and beans can make up for the others' deficiencies. In a sense, a complete protein for your body's use is made.

Most people eat one third to one half as much protein as is needed. Excess protein puts strain on the liver and kidneys and promotes bone loss which could result in bone fractures. You can also get fat eating too much protein since most protein contains a high percentage of fat. In addition,

protein cannot be stored by your body. You need a proper supply daily.

Fats

Fat is an integral part of many of our basic foods: nuts, seeds, meat, poultry, fish, eggs, milk, cheese, and ice cream. It is also added in many foods and used for baking and frying. As you see, fat is difficult to avoid.

You need a mere tablespoon of dietary fat daily to maintain good nutrition. The average adult consumes more than 6 tablespoons of fat a day. Your body actually makes fat from proteins and carbohydrates if you eat more calories than you need for energy. This is how the pounds add up.

Fats also decrease the nutrient value of food by increasing the number of calories that food provides. A good example is for the same number of calories you get more nutrients from a baked potato than from an equal amount of calories in french fries. With the American emphasis on less saturated animal fat, less cholesterol, and more polyunsaturated vegetable fat, choosing foods in grocery stores and restaurants has become a little easier. When dining out, choose the “dieter’s special” and always try to avoid fried foods. Convenience foods such as “Lean Cuisine” or “Weight Watchers” is not only for the person trying to avoid calories but to avoid fat as well.

Carbohydrates

Carbohydrates are the main suppliers of your body’s energy. There are two basic kinds of carbohydrates - the starches, called complex carbohydrates, and the sugars, called simple carbohydrates. Carbohydrates can also be refined (processed) or unrefined (natural). Natural carbohydrates, both starches and sugars, are found in foods like potatoes, rice, pasta, wheat, milk, apples, oranges. . . During

digestion, these carbohydrates are broken down into glucose (blood sugar). This blood sugar provides the body the essential energy for your entire body. Many foods such as cookies, cake and candy add large amounts of refined or processed carbohydrates. They are low in nutrients for the large number of calories they contain. You can add body weight in the form of fat if you eat an excess of these empty calories. Think about carrying that extra package in the form of body fat - not muscle mass when you add these empty calories to your diet.

A diet rich in unrefined, complex carbohydrates is as important for good health as other nutrients. Ounce for ounce, carbohydrates have the same number of calories as pure protein (four calories per gram) and less than half the calories in fat (nine calories per gram).

Fiber

Fiber is a non-nutrient carbohydrate from plants that cannot be digested by human beings. While it provides basically no calories to the body, it does great things for the body. There are many types of fiber. Bran is just one of them and is not the total answer. For example, bran, which is a cellulose, absorbs water and smooths the functioning of the large bowel. Essentially bran moves waste more rapidly through the colon helping to prevent constipation. Grains (oatmeal and dried beans) and pectins (found in most fruits) primarily influence absorption in the stomach and small bowel. By binding with bile acids, they decrease fat absorption and lower blood cholesterol.

High fiber diets are generally good for you. However too much fiber or at least certain types of fiber rich foods may cause gas, bloating and diarrhea. A lack of dietary fiber, however, can lead to constipation. If you cannot chew fibrous foods like fresh fruits, vegetables and whole grains, instead of laxatives, use a natural laxative like Metamucil. You may feel laxatives are the only thing that works for you; but,

chronic use speeds the passage of food through the digestive tract which decreases the absorption of essential nutrients.

Try to use the primary rule of nutrition and eat a variety of foods to eliminate any problems with fiber. If you do have difficulty chewing ordinary foods, dentures that fit well may be the solution. But, if this is not possible, there is a good variety of baby foods on the market. Be certain to purchase pure ingredients rather than combination dinners. Enjoy wholesome bread with your meal and experiment with some of the new hot cereals in grocery and health food stores.

Water

Water is a very important nutrient. When you have COPD you quite often breathe faster, thus, lose a great deal of moisture through evaporation and cause a “water deficit.” The moisture lost by evaporation comes from your lungs and upper airways. Haven’t you experienced a dry mouth or nose? This occurs in the lower airways as well as in the upper airways. Loss of moisture causes mucus to become thick and sticky and very difficult to bring up from the lungs.

Unless you are on a carefully monitored, reduced-fluid diet (usually only in a hospital), water is the best treatment for fluid retention. When the body does not get enough water, it sees this as a threat for survival and begins to retain water in extracellular spaces (outside the cells). Have you noticed swollen feet, legs or hands?

Diuretics are often given to overcome retained fluids; however, the body again sees a threat and will replace the lost water as quickly as it can. Thus, the swollen feet and legs return.

It may be very necessary for you to take diuretics; however, do not be afraid to drink plenty of fluids while taking this medication. You can help the body overcome water retention by giving it plenty of water. The kidneys will flush out body waste as it keeps a healthy water balance.

Excess salt puts more strain on the system. Your body can tolerate only a certain concentration of sodium; so, the more salt you use, the more water your kidneys retain to dilute it. Cut down on your salty diet and drink more water. How much water is enough? You should drink at least an extra 8 to 10 glasses of water every day. This is not counting beverages taken with meals. The total requirements for water may vary among individuals according to local and seasonal climate, amount of perspiration and other diseases which may require restriction of fluids. If you find it difficult to drink this much water, try adding a little lemon or fruit juice.



Your Basic Diet

Your basic diet should be low in processed food, meats, fats, sugar and salt. You do not have to eat something different at every meal or every day for that matter. If you like it and know it is good for you, then enjoy it. Follow the suggested basic food groups listed below. Buy foods you know are healthy. Leave the over processed foods on the shelves. Many of the additives found in the highly processed, overrefined, color enhanced, unnaturally preserved foods we find in grocery stores today are potentially harmful. Additives are most abundant in foods that we would all be better without. Candy, cold cuts, sausages, artificial beverages, snack foods, and other artificial products are filled with additives that offer little nutrition and usually contain too much fat and sugar. If you can't read the label, much less pronounce it, consider a banana instead.



Everyday you should choose foods from each group:

Milk Group (High Calcium) - Choose at least two portions: low-fat or fat free milk, cheese (preferably low cholesterol), yogurt, lowfat ice milk. . .

Meat Group (Protein) - Choose at least two servings: fish, poultry, meats, eggs. Nutritionists have found that with increased stress, extra protein is necessary. However, excess protein produces no known benefit, and in all probability is linked to many diseases including heart disease and cancer. Red meat is also not necessary in the diet. Chicken or fish is low in fat and much easier to digest.

Grain Group - Choose at least four servings: whole grain bread, cereal, pasta.

Fruit-Vegetable Group - Choose at least four servings: dark green leafy vegetables, yellow/orange vegetables, fruit (such as a banana), and citrus fruit.

Many foods perform more than one benefit to the body. Foods in the milk and meat group give you high calcium and protein and foods in the grain and fruit-vegetable groups give high sources of vitamins A and C as well as high fiber. There is still another group which claim foods from the basic four but is not usually included in the basic four. It is the energy group. They are foods made of complex carbohydrates. You should include a minimum of three to four servings daily: cereal, pasta, sweet or white potatoes, macaroni, rice and beans.

Eating right will improve your general health. A moderate variety of foods is ideal for you and moderate is emphasized. If you like a particular food at breakfast and lunch and if it is from the basic four plus the energy group,

enjoy it. Don't try to change your entire eating habits all at once. This may add unneeded stress. If you like cooked oatmeal for breakfast and that is what you have had for the past five years, don't change it. The old-fashioned kind, not the instant, leads the pack in cooked cereals, since oats contain the most protein of any commonly eaten cereal. You may wish to cook oatmeal or any hot cereal with lowfat milk if you are not choosing enough foods from the milk group.

Vitamins

Vitamins are absolutely necessary for proper growth and maintenance of all the cells in the body. Many doctors are prescribing vitamins and taking vitamins themselves. They realize that some people do not and some cannot eat food rich in vitamins and minerals: some make poor choices of food, some are unable to eat much at all, some have allergies to a great number of foods, etc.

Vitamin A

Vitamin A helps protect the mucous membranes of the nose, mouth, throat and lungs. When these membranes are healthy, chances of colds, sinus trouble and other respiratory diseases are lessened. Deficiency of Vitamin A causes these membranes to become dry, making it difficult for the respiratory tract to function properly. Poor skin tone and night blindness, the inability to adjust to dark after light or vice versa are also symptoms of Vitamin A deficiency. Vitamin A is also believed to help prevent lung and bladder cancers. Studies showed that heavy smokers who ate low levels of Vitamin A were four times as likely to get lung cancer as those who consumed adequate amounts of Vitamin A.

Vitamin A is important for maintaining the growth and health of bones and teeth. Vitamin D is often found in

conjunction with Vitamin A and is necessary for proper absorption and deposition of calcium in the bones. Some foods rich in Vitamin A are fresh, green and yellow vegetables, i.e., asparagus, beet greens, broccoli, butternut squash, carrots, sweet potatoes, spinach; fruits, i.e., apricots, mango, papaya; liver and fish-liver oil. Cod-liver oil was hailed as a “healthful tonic” long before Vitamin A was isolated.

B-Complex

You need an adequate amount of the B-Complex vitamins daily since they are water-soluble; that is, they will dissolve in water and will be lost by the body through normal elimination. These vitamins are also frequently destroyed in the processing of many of the foods which line the grocery shelves.

Doctors frequently prescribe a good B-Complex vitamin tablet. B vitamins are synergistic; that is, the combined effect of all the B vitamins work together better than if they are taken separately. Nevertheless, each B vitamin has a specific role.

Thiamine, B₁, is necessary for proper functioning of the central nervous system and the nerves in the rest of the body. Beriberi, caused by severe thiamine deficiency, is a disease of the nervous system. Fortunately, this has been eradicated in our country; but, your diet still should include adequate amounts of thiamine to maintain a strong nervous system. Thiamine also stimulates the appetite and is important for blood building and circulation. Foods rich in Thiamine are liver, ham, legumes, brown rice, whole wheat, brewer’s yeast, sunflower seeds, almonds, nuts, avocado and soybeans.

Riboflavin, B₂, is an essential part of living cells, for the body cannot manufacture new cells nor can damaged cells be repaired without this vitamin. Riboflavin is also necessary for helping body cells utilize oxygen, build red blood cells and antibodies, assimilate iron and metabolize

carbohydrates, fats and proteins. Mild deficiencies are common and can be avoided by eating a proper diet. Foods rich in riboflavin are liver, beef, chicken, eggs brewer's yeast, brown rice, green leafy vegetables, sunflower seeds and peanuts.

Niacin, B₃, improves your circulation and quiets digestion. Extreme niacin deficiency causes pellagra, a disease characterized by skin eruptions and nervous gastric disorders which is fortunately under control in our country. Proper levels of niacin are helpful in preventing weakness, irritability, insomnia and abdominal pains. Foods rich in niacin are liver, chicken, tuna, whole wheat flour, brewer's yeast, beans, dates, figs, green leafy vegetables and peanuts.

Pyridoxine, B₆, together with riboflavin, B₂, forms the coenzyme pyridoxal phosphate. This complex, along with other mechanisms, is involved in the metabolism of fats and carbohydrates and most importantly protein metabolism. Proper concentrations of pyridoxal phosphate must be present in order for amino acids, the building blocks of protein, to be utilized by the body. Pyridoxine is also helpful for regulating hormone and water balance, and many dermatologists use a pyridoxine to treat skin problems such as acne and seborrhea. Foods rich in pyridoxine are brewer's yeast, wheat germ, brown rice, beans, bananas, melon, prunes and peanuts.

Cobalamin, B₁₂, is crucial for the proper formation of red blood cells. When there is a lack of cobalamin or a condition in which cobalamin is not properly absorbed in the intestines, pernicious anemia can occur. When this form of anemia occurs, both blood formation and the nervous system are damaged. Research has also demonstrated that cobalamin aids in the immunogenic system, that is, it enhances resistance to infection. Common foods rich in cobalamin are liver, beef, fish, eggs, wheat, soybean, greens, olives, tomatoes, cabbage, celery, kale, broccoli, leeks and cheese.

Folic acid, like cobalamin, is also necessary for proper red blood cell formation and, as in pernicious anemia,

the red blood cells are abnormally large and misshaped. This abnormality of the red blood cell does not allow it to carry oxygen properly to all parts of the body causing weakness, irritability, fatigue and often, extreme shortness of breath.

An inadequate amount of folic acid can make the body more susceptible to infections. Furthermore, a deficiency of this B vitamin can cause improper absorption of even the small amount that is in the system, thus, creating a vicious cycle. A deficiency of Vitamin C can magnify folic acid deficiency because adequate amounts of ascorbic acid, Vitamin C, are necessary to activate folic acid in a form easily used by the body. Folic acid is a good appetite stimulant and it also helps brain function and cell growth. Among some of the foods rich in folic acid are liver, spinach, broccoli, potatoes, beets, brown rice and wheat.

Pantothenic acid is known as the anti-stress B vitamin. Lack of this vitamin severely effects the adrenal glands which have many functions. They regulate the hormones called corticosteroids. Failure of the adrenal glands may lead to Addison's Disease which manifests itself in excessive weakness and fatigue, loss of weight, darkening of the skin, diarrhea, nausea and vomiting.

Other functions of the adrenal glands are to help regulate the nervous system, blood pressure, heart action and other activities through the secretion of adrenalin. Adrenalin makes it possible for the body to meet emergency and stress in what is called the "fight or flight" response. Pantothenic acid is also good for allergies as it has anti-histamine action. Some foods rich in pantothenic acid are liver, wheat bran, brewer's yeast, sunflower seeds, peanuts, beans, broccoli, carrots, cauliflower, lima beans and eggs.

Biotin is needed for normal growth of cells and is used in treating dermatitis and other skin conditions. This B vitamin is found in most of the foods you eat and can be manufactured, to some extent, in your intestines. Some foods rich in biotin are beef, lamb, fish, eggs, milk, cheese, almonds, bananas, raisins, whole grain products and nuts.

Choline is essential for the health of all nerve fibers. At the end of all nerves are glands that produce a substance called acetylcholine which is essentially made up of choline. When one nerve is stimulated, the message is relayed on to the next nerve and to the next one and so on. This impulse could not take place if acetylcholine was not released to bridge the gap between each nerve. The entire body can become weak if there is a deficiency of this B vitamin and, in extreme deficiencies of choline, severe neuromuscular conditions can develop. Some foods rich in choline are brewer's yeast, fish, soybeans, wheat germ, eggs, lecithin, green leafy vegetables, seeds and legumes.

PABA, Para-aminobenzoic acid, is little known yet is part of the B-complex. PABA helps produce and is found in folic acid. It also helps produce pantothenic acid which affects the adrenal glands. PABA is used in sunscreen lotions preventing sunburn due to ultraviolet sun rays. A recent study show that PABA also helps wrinkling and premature aging of the skin. It is also good for blood cell formation, hair pigmentation and intestinal bacterial activity. Some foods rich in PABA are liver, eggs, brewer's yeast, bran, molasses, whole grains and wheat germ.

Vitamin C

Vitamin C, ascorbic acid, is water soluble and heat sensitive. Therefore, it cannot be stored in the body nor can it withstand the high heat of cooking. Vitamin C has many purposes. It is considered by many to be an overall detoxifier; that is, it either directly or indirectly helps activate all the defense mechanisms of the body.

Vitamin C has been used to alleviate a number of health problems including stress, colds, infection, carbon monoxide poisoning caused by environmental pollution, trauma, arthritis, diabetes, high blood pressure, cholesterol, heart disease and more. Some foods especially rich in Vitamin C are fresh oranges, strawberries, green peppers,

broccoli, cabbage and honeydew melon. Everyday, you should have a good source of Vitamin C.

Vitamin D

Vitamin D, the “Sunshine Vitamin,” so named because it is formed naturally when the sun’s ultraviolet rays are absorbed into the body transforming a particular substance in the skin into Vitamin D. Vitamin D is essential for growing and maintaining healthy bones and teeth. It is necessary for the natural absorption and deposition of calcium in the bones. This vitamin not only protects infants and children from rickets but protects adults from osteoporosis, a condition causing disintegration and fragility of the bones. Foods rich in Vitamin D are cod liver oil, tuna, eggs and Vitamin D enriched milk.

Vitamin E

Vitamin E has been found to improve many circulatory conditions (heart disease), pain in the leg muscles (charlie horse) and abnormal blood clotting which may cause embolism. Vitamin E is also able to combine with oxygen forming a natural antioxidant. Antioxidants inhibit or slow down toxic oxide reactions in the body. Foods rich in Vitamin E are spinach, broccoli, whole grain rice and wheat, peanuts and safflower oil.

Minerals

To complete your balanced diet you need sufficient amounts of minerals. Calcium, phosphorous, magnesium, sodium, potassium and chloride are needed in relatively large amounts while iron, copper, zinc, selenium, chromium, fluoride, iodine and molybdenum are needed in small, trace

amounts. The following is a description of some of the required minerals.

Calcium and Phosphorus

The body needs phosphorus to help absorb calcium for strong bones. In addition, if calcium and phosphorus are sufficient, the absorption of lead from air pollution is reduced. Calcium is also necessary for proper functioning of muscles and energy production. If calcium levels drop drastically, muscles shake and quiver and the heart may stop beating. Foods rich in calcium are milk products. Phosphorus is widely distributed in most foods.

Magnesium

Magnesium is needed for normal growth and development and is important for nerve and muscle activity. Refined and processed foods are robbed of magnesium; therefore, many diets are low in this important mineral. Foods rich in magnesium are whole grain wheat, blackstrap molasses, unpeeled potatoes and nuts.

Sodium, Potassium and Chloride

Sodium and chloride make up table salt. Although they are necessary minerals, the question still remains how much is necessary for the body. Sodium and potassium levels may become out of balance when the sodium intake is excessive, when hot weather causes profuse sweating or when large, excessive quantities of water are drunk daily.

A delicate balance of sodium and potassium is necessary for every cell to function properly. A potassium deficient diet or excessive sodium diet causes water retention; therefore, the volume of blood increases and the blood

pressure may be elevated. Foods rich in potassium are meats, fish, fruits (especially bananas), nuts and grains.

Iron

Iron is needed by the body for building red blood cells which carry oxygen to all the cells in the body. A person with a small appetite or one who is always dieting may be prone to iron deficiency (anemia). Anemia causes tiredness, weakness and inability to perform.

Arterial blood is cherry-red in color when it has a sufficient amount of iron. If iron is lacking, the blood is said to be thin or pale because there is less hemoglobin in the red blood cell. Hemoglobin contains iron and is the colored protein in the red blood cell. Foods rich in iron are red meats, liver, dark leafy vegetables, whole grains, soybeans and molasses.

Iodine

Iodine is needed for production of thyroxin, a hormone produced by the thyroid glands in the neck. A deficiency of thyroxin causes fatigue, cold hands and feet, low blood pressure and weight gain even on a low calorie diet. Severe iodine deficiencies can result in goiter (enlargement of the thyroid glands). This enlargement of the thyroid glands is an effort of the body to produce more thyroxin. Iodized salt and seafood are good sources of iodine.

Zinc

Zinc has been shown to promote the healing of wounds and to intensify the sense of taste and smell. Taste and smell affect the appetite and a good appetite reflects good health. In addition, iron deficiency anemia has been related to zinc

deficiency. In some areas of the U.S., the soil is deficient in available zinc. This has led to the addition of zinc in animal feeds sold in those areas. Foods rich in zinc are beef, pork, lamb, fish, brewers yeast, onions, peas, spinach and whole grains.

Increased amounts of refined or synthetic foods reduce the intake of important vitamins and minerals in the body. In addition, constant or heavy use of laxatives, antibiotics, antacids, diuretics, oral diabetic drugs, some anti-inflammatory drugs, certain cancer drugs, among others, can result in a deficiency of vitamins and minerals. There is controversy about vitamin therapy. Scientists and nutritionists will continue to research and debate; however, what you eat definitely affects the health and well-being of the body. For you, good nutrition may include vitamin and mineral supplements. Note: If you choose to take vitamin and mineral supplements, it is best to take part of them after each meal, or if you take your vitamin and mineral supplements all at once, take them after the largest meal of the day.