

NLN/ALLIED HEALTH NUTRITION NOTES

Body needs energy:

- 1.) Promote activity of vital organs
- 2.) Maintain body temperature
- 3.) Promote the growth and repair of all body tissues and organs
- 4.) For the performance of work, activity, and exercise

Amount of calories (energy) needed depends on size of body, sex, age, and work being done. Balance of calorie intake and exercise are necessary for a healthy life.

Shortage of calories

- 1.) lack of growth - children
- 2.) weight loss
- 3.) loss of vitality
- 4.) loss of resistance to disease and infection
- 5.) extreme -- starvation and death.

Surplus of calories

- 1.) weight gain
- 2.) reduced activity
- 3.) lack of vitality
- 4.) greater tendency for diabetes I heart disease
- 5.) shorter life span

Carbohydrates contain C, H, O (H and O are in the same ratio as in water -(H₂O).

Monosaccharides - simple sugars

Glucose –

1. moderately sweet! found naturally in foods or is formed by the body during digestion
2. circulates in blood stream and is used by the body to give energy.

Fructose –

1. sweetest of simple sugars and is found in fruits and honey
2. changed to glucose for energy

Galactose

1. results from body breaking down lactose
2. does not occur naturally in foods

Disaccharides - made up of 2 monosaccharides

Sucrose

1. most common in ordinary diet
2. used in cooking and on table
3. contributes 25 % of total carbohydrate intake
4. found in most foods; best sources are: cane and beet sugars, molasses, and maple syrup

Lactose

1. a component of milk in most animals
2. formed in body from glucose
3. furnishes energy for young during lactation
4. not as sweet as sucrose

Maltose

1. formed as an intermediate product during the digestion of starch in the body
2. found in malt grains/malted milk and malted breakfast foods

Polysaccharides many monosaccharides linked together

Starch

1. most common of the carbohydrates
2. found in seeds, roots, tubers
3. starch and dextrin - 50 % of total carbohydrate intake of average American
4. provides glucose upon digestion
5. cooking of starch improves digestion and flavor.

Dextrin formed in the process of breaking down starch to glucose

Cellulose

- 1.) resistant to digestion and not a source of energy
- 2.) "fiber" - serves to give bulk to food mass in intestine aids elimination
- 3.) from tough fibrous parts of plants (stems, leaves, roots, and fruit coverings)

Glycogen

- 1.) form of carbohydrate stored in animal tissues
- 2.) can be changed by the body to glucose for energy
- 3.) stored in liver and muscle tissues
- 4.) reserve supply of carbohydrate

Function of carbohydrates

- 1.) fuel or energy sources (primary importance)
- 2.) body organs
 - a. liver - serves protective function and assists in normal process of metabolism
 - b. heart - Since the heart does not stop to rest, it needs continuous energy. If a heart is damaged, a reduction in blood sugar could cause extra problems.
 - c. central nervous system - stores little glycogen. Glucose must be available to meet energy needs. Brain can suffer damage from prolonged low blood sugar.

Lipids

Fats

- 1.) most concentrated source of energy in food. Made up of C, H,O
- 2.) lighter than water and insoluble in water
- 3.) types
 - a. Plant - olive, safflower, corn oil
liquid at room temperature and digests more easily and mostly unsaturated
 - b. animal- butter
solid at room temperature and mostly saturated

Fatty acids - building blocks of fat
triglyceride is most common - used to provide energy for different metabolic processes. Stored as fat in body tissues.

Other Lipids - physical properties similar to fats

- 1.) oily or greasy
- 2.) insoluble in water, soluble in fat solvents
- 3.) types
 - a. triglycerides - provides energy for metabolic processes
 - b. lecithin - found in egg yolk and synthesized by human body.
 - c. cholesterol - normal useful component of blood and tissues. Found in every animal cell. The amount of cholesterol in food influences the amount of cholesterol in blood.

Function of fats

- 1.) adds flavor to foods
- 2.) feeling of satisfaction after eating
- 3.) concentrated source of energy

Fat is an essential nutrient in the diet to provide the necessary fatsoluble vitamins and essential fatty acids .But when the body takes in too much fat, it is stored in the body and leads to obesity. No more than about 30 - 35 % of calories should come from fats.

Protein - In addition to C, H, O, ; protein contains nitrogen which gives protein many of the peculiar properties that make it unique. Many essential amino acids are not manufactured by the human body and must be consumed in food. expo Lysine, Threonine

Function of Protein

- 1.) growth, maintenance, and repair of body tissues
- 2.) regulate water balance and help maintain proper acid base balance within body.
- 3.) formation of enzymes, antibodies, and some hormones
- 4.) energy when fats/carbohydrates are lacking

Protein need is influenced by:

- 1.) size
- 2.) age
- 3.) physical condition and nutrition history
- 4.) energy foods in diet
- 5.) quality of protein

High Protein Intake

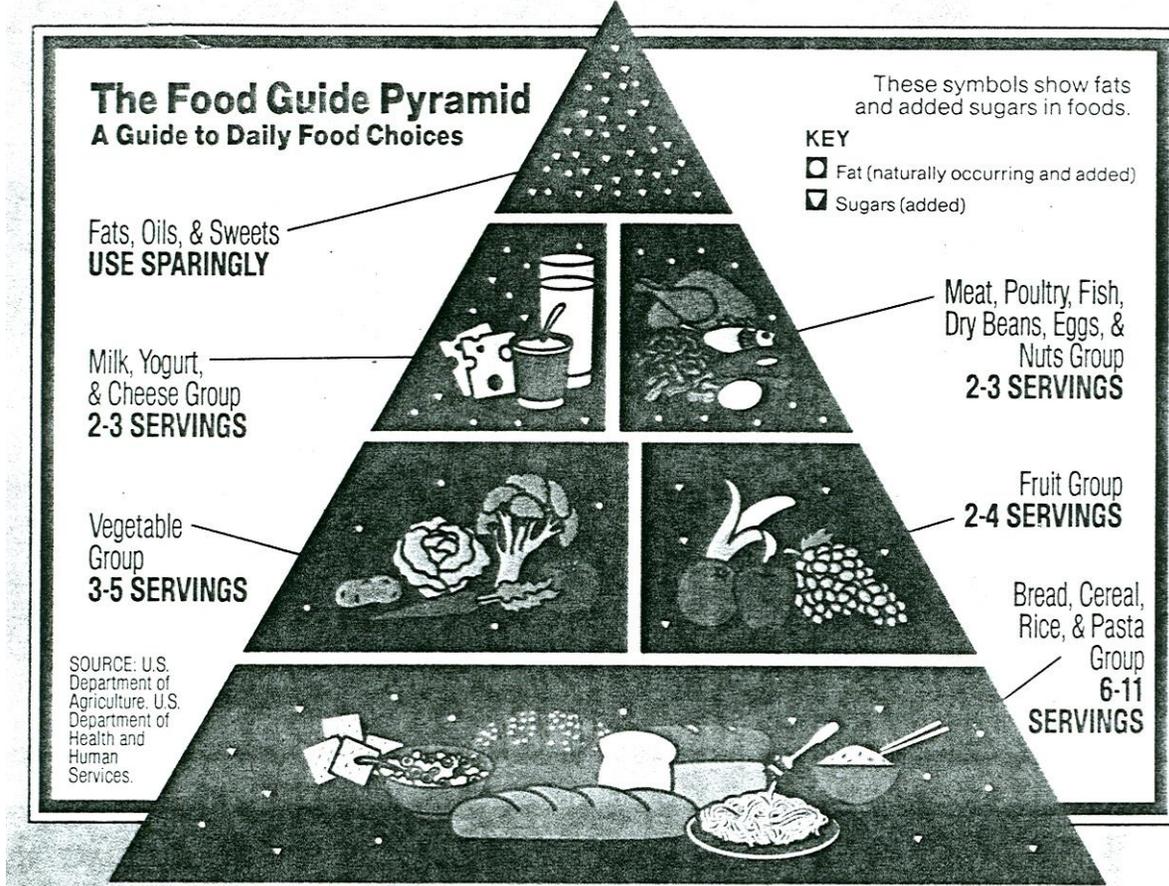
Usually no obvious disadvantage
costly - high cost of meat, etc.

Low Protein Intake

- 1.) Low in quantity or quality
- 2.) Infants or children are mostly affected and leads to malnutrition
- 3.) loss of weight, stunted growth, fatigue, decreased resistance to disease, wound not healing.

Lack of proper food would also decrease mineral and vitamin intake.
Symptoms may be from a combination of these losses.

The Food Pyramid. A Guide to Daily Food Choices.



Bread, Cereal, and Pasta	1 slice of bread 1 ounce of cereal 1/2 cup of rice or pasta	Milk, Yoghurt, and Cheese	1 cup of lowfat milk or yogurt 1 1/2 ounces of natural cheese
Vegetable	1 cup of raw leafy vegetable 1/2 cup of other vegetables, cooked or chopped raw 3/4 cup of vegetable juice	Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts	2 - 3 ounces of cooked lean meat, poultry, or fish 1/2 cup of cooked dry beans, 1 egg, or 2 tablespoons of peanut butter count as 1 ounce of lean meat
Fruit	1 medium apple or banana 3/4 cup of fruit juice 1/2 cup sliced fruit		