

Nutrition Unit Notes

What are nutrients?

Naturally occurring substances which our body needs to function properly; found in food

What are the 6 nutrients?

Proteins
Carbohydrates
Fats
Vitamins
Minerals
Water

What is a calorie?

A calorie is a unit of heat energy found in food.

What is the most important nutrient?

Water is required for every single function of the body. 3 – 5 days without it.

Which nutrients contain calories?

Proteins, Carbohydrates, & fats

How many calories do carbohydrates, proteins, and fats contain?

Proteins (4 cal / g), Carbohydrates (4 cal / g), & fats (9 cal / g)

Which nutrient is calorie dense?

Fat: it contains more than twice the calories that the other two contain.

PROTEIN

What are proteins made of?

Proteins are made up of small units called amino acids. Amino acids link together to form chains which make up protein molecules. There are 20 dietary amino acids.

What two types of proteins are there?

Complete Protein	Incomplete Protein
<i>Complete proteins contain the 9 essential amino acids. Your body can take these 9 essential amino acids, and build the other 11 on its own, as long as the 9 essential amino acids are present.</i>	<i>Incomplete proteins are missing one or more of the 9 essential amino acids. Some foods have 19 amino acids, but one missing, is an essential amino acid. Thus, the food is considered incomplete, as it is missing one of the essential amino acids.</i>

List the functions of protein in your diet:

- Provide energy
- Build and repair muscle and skin tissue
- Build and repair of hair and nails
- Produce hormones

What are essential amino acids?

The 9 amino acids your diet needs to supply so that your body can manufacture the other 11. Your body takes the 9 essential amino acids, breaks them down, and builds all 20.

CARBOHYDRATES

What are carbohydrates made from?

Carbohydrates are made from a combination of high levels of carbon, hydrogen, and oxygen. These molecules are joined together to form a sugar known as Glucose.

What are the two types of carbohydrates?

Complex Carbohydrates	Simple Carbohydrates
<ul style="list-style-type: none">• Made up of sugars that link together to form starches.• Excellent sources of energy.• Do not taste sweet• Lower Insulin response	<ul style="list-style-type: none">• Made from sugars which burn quickly• Quick source of energy, but not good for more than 45 minutes• Taste sweet• High insulin response resulting in the “sugar crash”

What is the only function of carbohydrates?

Provide us with energy

What is fiber?

Fiber is a complex carbohydrate that the body can't break down or digest.

What is insulin and how does it work?

Insulin is a hormone released by the pancreas that is required to convert carbohydrates into glucose. Insulin allows glucose to move into the muscles and out of the blood stream. If these sugars stay in the blood, the blood can become septic and potentially send the individual into a Diabetic coma or even death.

What is Diabetes?

Diabetes is a disease in which the body does not produce or properly use insulin. Insulin is a hormone that is needed to convert sugar, starches and other food into energy needed for daily life. There are two types of diabetes:

Type I (Genetic)	Type II (Develops over time)
Results from the body's failure to produce insulin, the hormone that "unlocks" the cells of the body, allowing glucose to enter and fuel them. It is estimated that 5-10% of Americans who are diagnosed with diabetes have type 1 diabetes.	Results from insulin resistance (a condition in which the body fails to properly use insulin), combined with relative insulin deficiency. Most Americans who are diagnosed with diabetes have type 2 diabetes.

American Diabetes Association, 2007

FATS

What are fats made from?

Fats are made up of lipids. Lipids are small clusters of glycerides.

What are the two types of fats?

Saturated Fat	Unsaturated Fat
<ul style="list-style-type: none"> • Found in animal products / sources • Remains a solid at room temp • Bad Fat: responsible for heart disease • Linked to cholesterol 	<ul style="list-style-type: none"> • Found in plant products / source • Remains a liquid at room temp • Good Fat: not linked to heart disease • Not linked to cholesterol

List the functions of fat:

Stored energy
Cushioning for internal organs
Lubrication for joints

Body heat regulator
Oil for hair, skin & nails
Dissolves fat soluble vitamins

What is cholesterol?

A waxy substance found naturally in animal products which can bind to the walls of the heart, arteries, and veins which can lead to heart attack. Made from Phospholipids. There are two types of cholesterol (HDL & LDL). HDL is the good cholesterol (French Paradox).

What is important about the body and how it burns fat?

You need to eat fat for your body to burn fat. Low or no fat diets seldom reduce body fat %. Instead, they decrease the lean body mass (muscle) and increase the body fat %.

VITAMINS

What are vitamins?

Metabolic catalysts that help the body digest, burn, and use the food we eat. They assist in almost every single chemical reaction in the body, especially the functioning of the brain.

What are the two types of vitamins?

Water Soluble
Dissolve in water

Fat Soluble
Dissolve in fat

List the vitamins according to their correct group or type:

Water Soluble
B1, B2, B3, B6, B12
Folate (Folic Acid)
Pantothenic Acid
Biotin
C (Ascorbic Acid)

Fat Soluble
A, D, E, K

What is the function of vitamins?

To assist in each and every chemical reaction of the body.

MINERALS

What are minerals?

Natural elements which occur naturally in rocks and soil

What are the two types of minerals?

Macro – Minerals
Needed in large amounts

Micro – Minerals (Trace Minerals)
Needed in small (trace) amounts

List the minerals according to their correct group or type:

Macro – Minerals
Calcium
Magnesium
Phosphorus
Sodium
Potassium

Micro – Minerals (Trace Minerals)
Fluoride
Iodine
Iron
Sulfur
Copper
Zinc
Chloride

What is hemoglobin?

Iron containing substance required for transporting oxygen to the body.

What is anemia?

Red blood cells do not contain enough hemoglobin. Weak tired, & easily sick as the result of low blood Iron.

What are Electrolytes?

Electrolytes are a special group of minerals that help transport water between cells of the body. They are responsible for proper hydration. They are:

- Potassium
- Sodium
- Chloride

Which Minerals Build Bones?

The minerals responsible for bone growth and density are:

- Calcium
- Magnesium
- Phosphorus