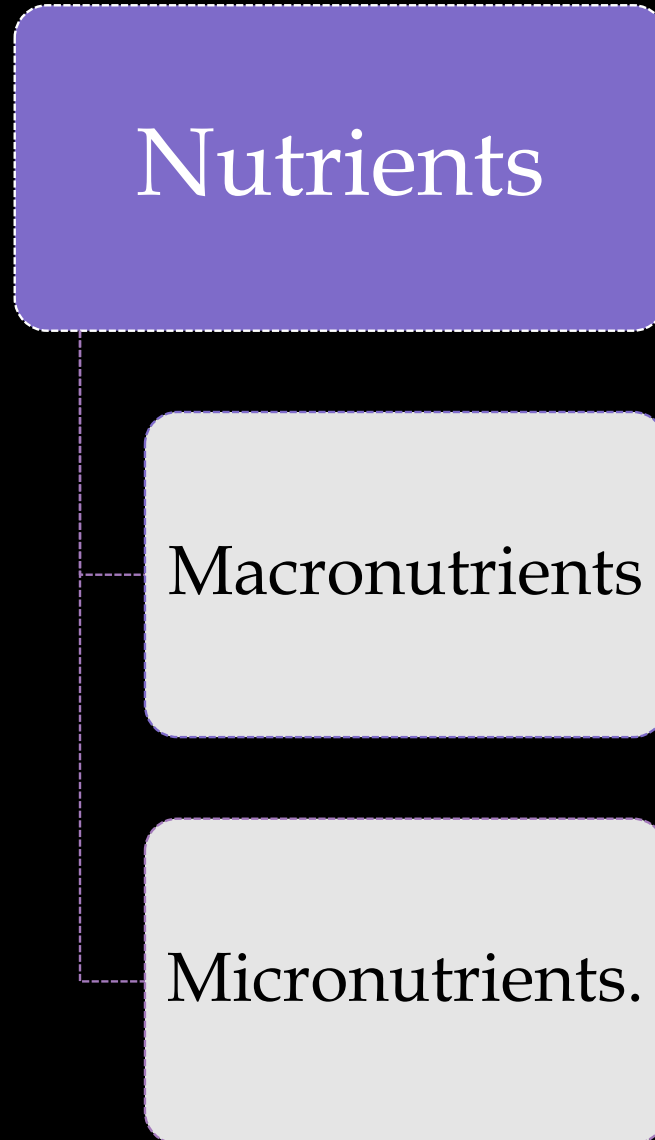


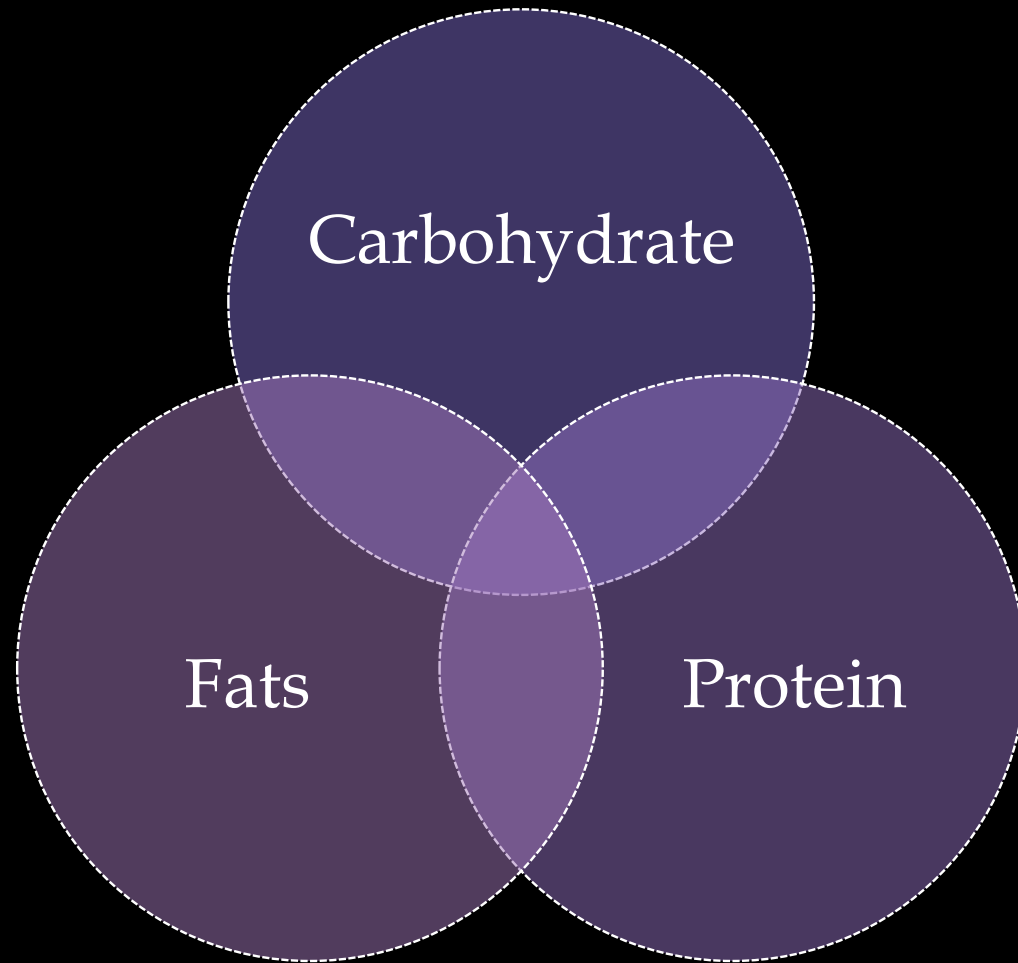
Nutrients



Types of Nutrients

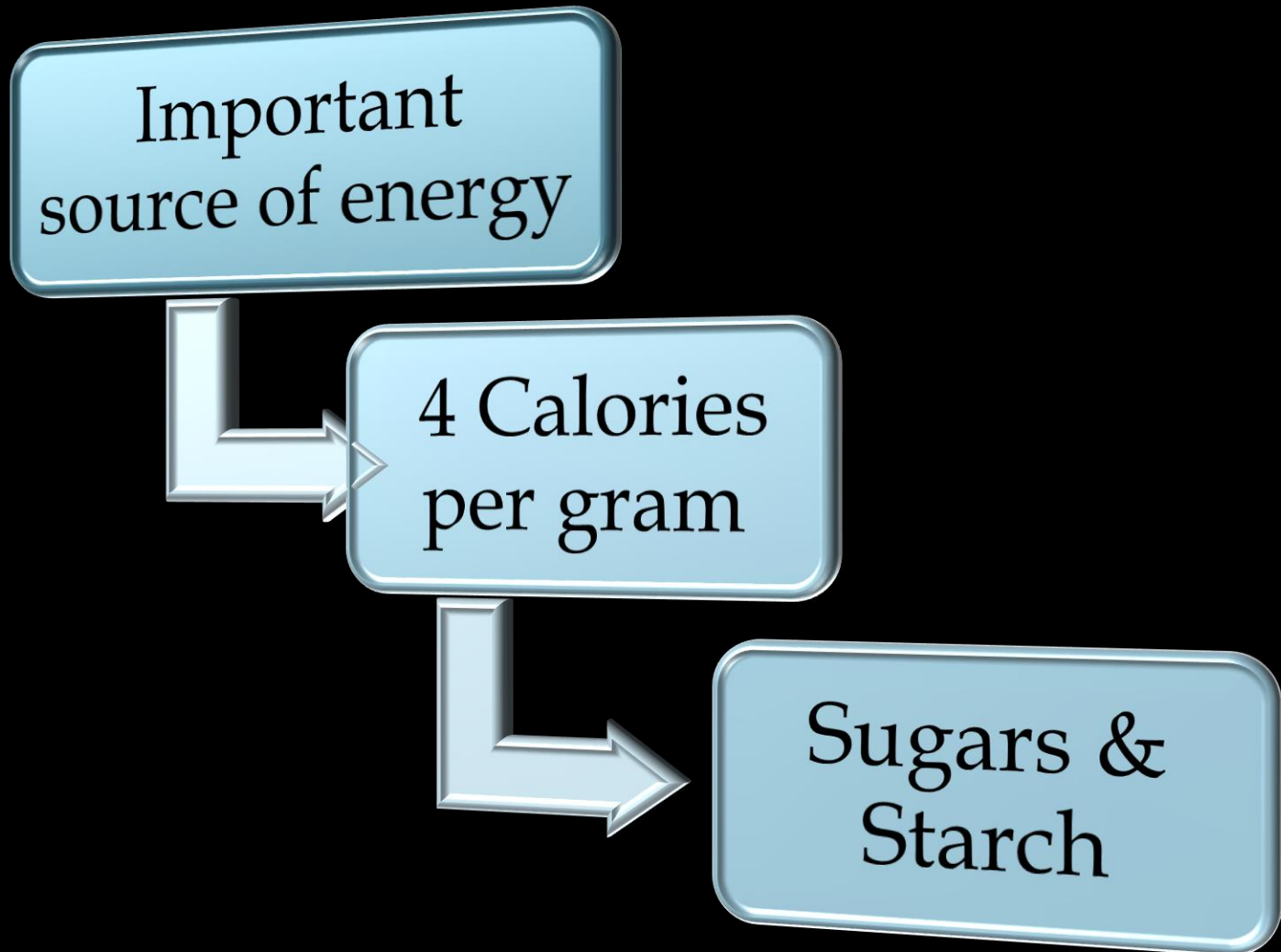


Macronutrients



Macronutrients are measured in grams (g)

Functions of Carbohydrates?



Where is carbohydrate found?



Sucrose

- Table sugar
- Bakery sweets



Complex carbs

- Breads
- Grains



Lactose

- Milk
- Cheese, Butter



Lactose

- Pasta
- Potato



Fructose

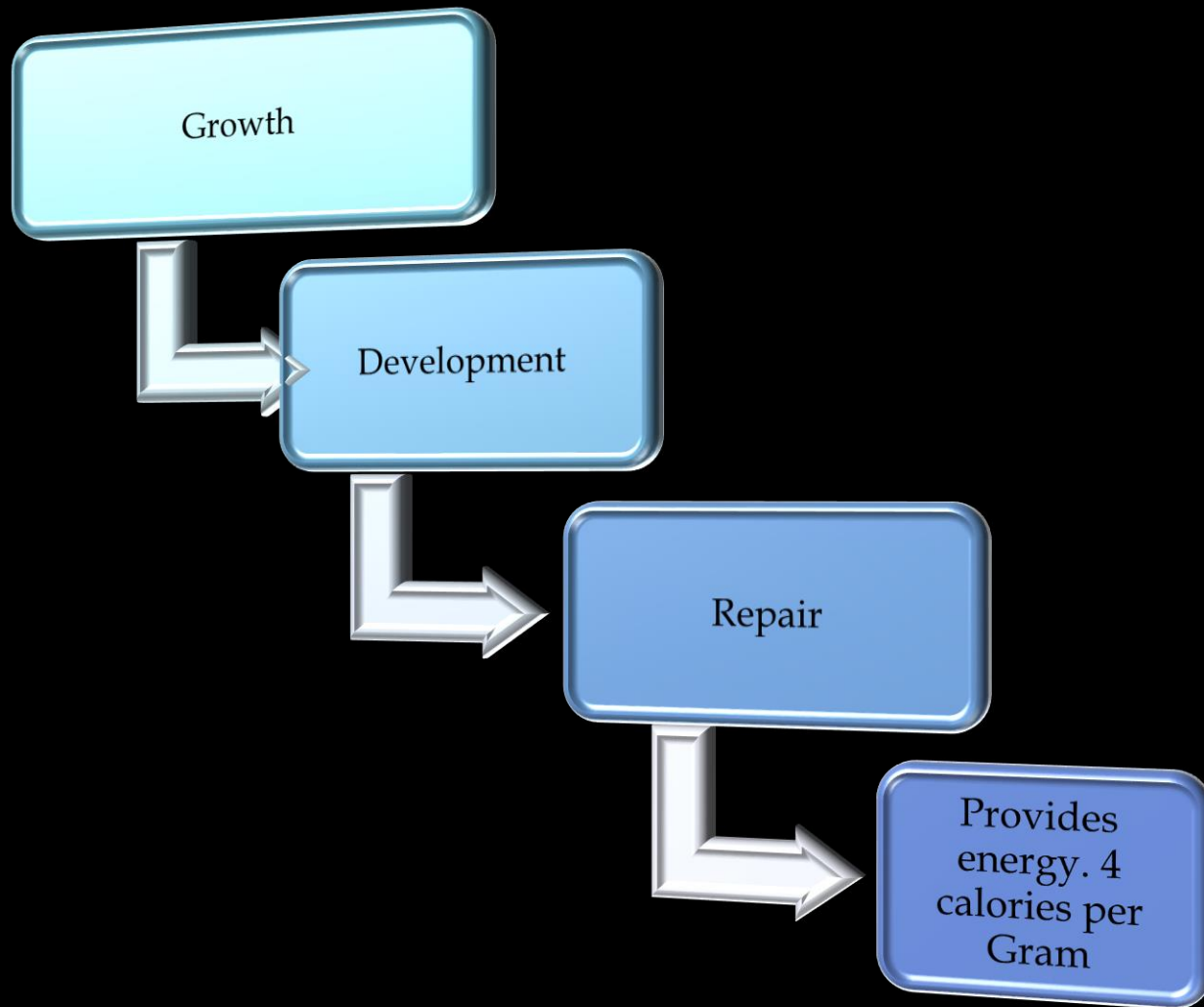
- Fruits
- Vegetables



Fructose

- Cereals
- Corn

Functions of proteins?



Why is protein needed?

The body needs protein to repair tissue. Some people have extra protein needs.

Babies, children and adolescents need protein for growth.

Pregnant women need extra protein for the growth of their baby. Women who are breastfeeding need protein to produce milk.

Vegans and strict vegetarians need to eat a wide variety of foods to meet their protein needs.

Where is protein found?

Protein is found in meat, fish, eggs, and dairy foods.



Protein is also found in non-animal sources, e.g. cereal products, nuts and pulses.



What is the function of fat?

Fat provides the body with essential fatty acids and energy.

One gram of fat provides 9 calories per gram

Fat provides a store of energy for the body.

Fat also provides protection for the major organs in the body.

Fat carries important fat soluble vitamins (A, D, E and K) and is important for their absorption.

Facts about fat

Fat is made up of fatty acids and glycerol.

Types of fatty acids include:

- saturated;
- unsaturated;
 - monounsaturated;
 - polyunsaturated.

Fat is needed for health, but only in moderate amounts



Where is fat found?

Saturated fat can be found in meat, coconut oil, palm oil, cakes, biscuits, and lard.



Monounsaturated and polyunsaturated fat can be found in rapeseed oil, olive oil, oily fish, avocado and some margarines and low fat spreads.



Micronutrients

The micronutrients are divided into:

- ▣ vitamins;
- ▣ minerals.

Vitamins are needed in much smaller amounts than Macronutrients. Amounts are measured in milligrams ($1\text{mg} = 0.001\text{g}$) and micrograms ($1\mu\text{g} = 0.001\text{mg}$).

What are micronutrients?

Vitamins and minerals which your body only needs in small amounts as opposed to macronutrients (fat, protein, carbohydrate) that your body needs many grams of each day.

Fruits, Vegetables, and Whole Grains provide you with many micronutrients.

Fruits and vegetables can help reduce your risk of certain diseases.

Most foods provide you with more than one nutrient.

Micronutrients - vitamins

Vitamins are found in a wide variety of foods and they have many uses within the body.

There are two groups of vitamins:

- fat soluble vitamins, e.g. vitamins A, D, E and K
- water soluble vitamins, e.g. B vitamins and vitamin C.

What is the function of vitamin A?

Vitamin A is needed for normal structure and functioning of the skin and body linings, e.g. in lungs.

If also helps with vision in dim light, as well as keeping the immune system healthy.

This vitamin is fat soluble.

Where is vitamin A found?

Vitamin A is found in liver, whole milk, cheese, butter, carrots, dark green leafy vegetables and orange coloured fruits, e.g. mangoes and apricots.



What is the function of vitamin D?

Vitamin D is needed for the absorption of calcium and phosphorus from foods, to keep bones healthy.

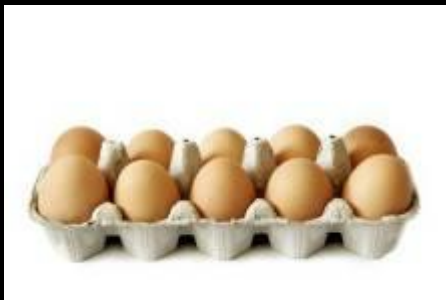
Vitamin D is also a fat soluble vitamin.

A lack of vitamin D causes rickets in children, where the legs are bent. Osteomalacia occurs in adults deficient in vitamin D. This causes pain in the bones and muscles.

Where is vitamin D found?

The sources of vitamin D include oily fish, eggs, fortified cereals and margarine.

The body can make vitamin D when the skin is exposed to sunlight and the diet



What do water-soluble vitamins do

Water-soluble vitamins are essential to our health and can dissolve in water making them easily secreted. Since they are not stored in our body, they must be consumed on a regular basis. They aid in energy metabolism, and many aid in metabolism of carbohydrates, fatty acids, and amino acids.

What are the functions of B vitamins?

B vitamins are water soluble vitamins needed for the release of energy from food.

There are many different B vitamins and each has a specific function in the body.

Where are B vitamins found?

The B vitamins can be found in a variety of foods, such as bread, cereals, milk, meat, potatoes, and fortified breakfast cereals.



What is the function of vitamin C?

Vitamin C is a water soluble vitamin needed for the normal structure and function of body tissues

Vitamin C also helps the body to absorb the mineral iron from non meat sources such as vegetables.

It also assists the healing process.

A lack of vitamin C in the diet causes bleeding gums, and wounds take longer to heal.

This deficiency disease is called scurvy.

Where is vitamin C found?

Sources of vitamin C include fresh fruits, especially citrus fruits and berries, green vegetables, peppers and tomatoes. Vitamin C is also found in potatoes (especially in new potatoes).



Minerals

Minerals have many uses in the body:

- ▣ to form bones and teeth;
- ▣ as part of body fluids;
- ▣ to help nerves work.

The amount of different minerals needed by the body changes over time.

What is the function of calcium?

Calcium is very important when the bones are growing.

Calcium is an important mineral needed by the body:

- ▣ to form, strengthen and maintain bones and teeth;
- ▣ for normal functioning of muscles;
- ▣ for blood clotting.



Where is calcium found?

The sources of calcium are milk, cheese and other dairy products, some leafy green vegetables such as broccoli, fortified soya bean products and bread.

Vitamin D helps the body to absorb calcium.



What is the function of iron?

Iron is used by the body to form a substance called haemoglobin in red blood cells. These transport oxygen around the body.

Iron is also required for normal metabolism and removing waste substances from the body.

Adolescent girls and women need more iron than boys because they lose blood each month through menstruation.

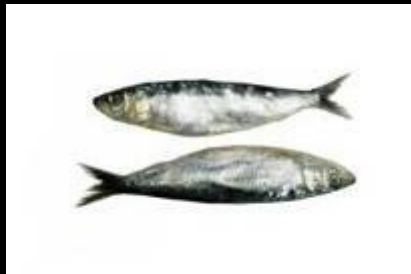
A lack of iron leads to iron deficiency anaemia.



Where is iron found?

Iron is found in animal and plant sources. Sources high in iron include liver, red meat, pulses, nuts, eggs, dried fruits, poultry, fish, whole grains and dark green leafy vegetables.

Iron from meat sources is easier for the body to absorb.



What is the function of sodium?

Sodium is found in all cells and body fluids. It helps to regulate body water content and balance electrolytes.

Sodium is also involved in the use of energy, as well as the functioning of the central nervous system.

High intakes of sodium are linked to high blood pressure which increases the risk of stroke and coronary heart disease.



Where is sodium found?

Sodium is found in very small amounts in raw foods.

Sodium is often added as salt during processing, preparation, preservation and serving.



Macro and micronutrients

Macronutrients

- ▣ Carbohydrate
- ▣ Protein
- ▣ Fat



Micronutrients

Fat soluble vitamins

- ▣ Vitamin A
- ▣ Vitamin D

Minerals

- ▣ Calcium
- ▣ Iron
- ▣ Sodium

Water soluble vitamins

- Vitamin B
- Vitamin C