

Year 11 food preparation and nutrition- knowledge organiser autumn 1

Nutrition- Macronutrients

Nutrition is the study of nutrients, which are the chemicals we find in foods which are vital for the body to function correctly.

Nutrients are grouped into 2 – **macronutrients** and **micronutrients**

PROTEIN Key word	Meaning
macronutrients	Proteins, carbohydrates and fats which are need by the body in large amounts and measured in grams.
Micronutrients	Vitamins and minerals needed in small amounts and measured in mg milligrams or micrograms
Amino acids	Building blocks of the chains used to make protein in the body
Essential amino acids	These must be supplied to us through food our bodies cannot make them
Non-essential amino acids	These are amino acids which can be made by the body
Oedema	Buildup of fluids in ankles and feet
Anaemia	Bloods inability to deliver sufficient oxygen to cells caused by lack of iron
Kwashiorkor	Malnutrition in third world countries leading to oedema and swollen tummy can result in death

Protein

This is a macronutrient needed for growth, repair, maintenance of body cells and the production of enzymes and hormones and provides energy.

Proteins are made from **amino acid chains** found in animal and vegetables sources

Animals proteins have **HBV high biological value** proteins and are found in milk, cheese, eggs, meat and fish.

Vegetable proteins have **LBV low biological value** proteins and are found in seeds, nuts, beans, lentils, grains. The exception is soya, tofu and Quorn which are HBV.

There are 20 different amino acids – **essential and non-essential**, adults need to have **8 essential amino acids** provided by food (children also need an extra 7 amino acids as their bodies find hem difficult to make).

A lack of protein in the diet (**protein deficiency**) can cause wastage and shrinkage of muscle tissue, oedema, anaemia and Kwashiorkor.

Combining 2 or more LBV protein foods creates **complimentary proteins** which will then provide adequate amounts of all the essential amino acids.

CARBOHYDRATES Key word	Meaning
Starch	Gives slow release energy, keeping us feeling full
Sugar	Releases glucose very quickly giving us short bursts of energy
Dietary fibre	Comes from plants and helps add digestion
Insoluble fibre	Travels through the digestive system but is not digested – absorbs water and helps bulk up poo
Soluble fibre	Makes us feel full and stop us snacking and helps control blood sugar levels
NSP	None starch polysaccharide another name for fibre
Diverticulitis	Inflammation or infection in the large intestine
Piles/ haemorrhoids	Swelling of blood vessels in the rectum

Carbohydrates

These are macronutrients, carbohydrates are broken down into glucose and absorbed into the blood, the pancreas produces insulin allowing the glucose to enter the body cells to produce **energy**.

There are **3 types** of carbohydrates- **Starch, sugar and dietary fibre** (NSP)

Starch is a polysaccharide and is a complex carbohydrate found in potatoes, cereals, rice, vegetables, fruit, whole grains.

Dietary fibre or NSP can be either **insoluble** or **soluble** and is found in whole grains, fruit and vegetables.

A diet lacking in fibre can cause diverticulitis, piles and some types of cancers.

FATS Key word	Meaning
Trans-fats	These are vegetable oils which have been treated to make them solid
Hydrogenation	Passing hydrogen through an oil to make it solid or semi solid at room temperature- this makes the fat less healthy.
Cholesterol	This is a fatty substance which naturally occurs in the blood, it is made in the body and obtained from fatty foods – raised cholesterol levels in the blood stream can lead to blocked arteries.
LDL cholesterol	Low density lipoprotein-This is unhealthy fat and should be eaten in lesser amounts
HDL cholesterol	High density lipoprotein -This is a healthier fat and helps to reduce the risk of strokes and heart attacks
Saturated fats	Have carbon atoms in each molecule joined with hydrogen atoms
Monounsaturated fats	Have one carbon atom in each molecule joined to one other carbon atom, forming a double bond. The double bond blocks any hydrogen molecules from joining the two carbon atoms
Polyunsaturated fats	Have several carbon atoms form double bonds reducing the hydrogen atoms available in the molecule.

Fat is a macronutrient needed for energy, insulation and warmth, protecting the vital organs, acting as a carrier for fat soluble vitamins A,D,E,K, hormone production and supplying essential fatty acids which the body cannot make.

Essential fatty acids are vital for good health but cannot be produced by the body, omega 3 is an essential fatty acid and can be found in eggs, meat, oily fish and vegetable oils and is needed blood clotting and heart health.

All fat molecules contain carbon, hydrogen and oxygen but the molecules can be arranged in different ways to produce different fats.

Saturated fats are the least healthy fats mainly found in animal fats and are linked with coronary heart disease- foods with saturated fats are butter, ghee, cream, cheese and meat fat.

Monounsaturated fats are good fats they help reduce LDL and increase HDL and are found in avocados and olive oil

Polyunsaturated fats are good fats which provide HDL they are found in soya beans and oily fish.