

**Knowledge
Organiser**

Food & Nutrition

Topic: Micro nutrients

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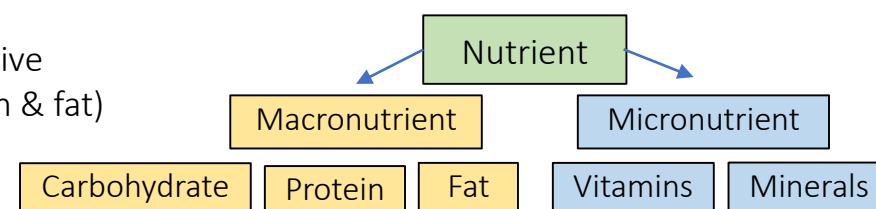
Food & Nutrition

Topic: Micro nutrients

Nutrients: Chemicals which provide nourishment and are needed to survive

Macro: LARGE. Nutrients needed in large amounts (carbohydrate, protein & fat)

Micro: SMALL. Nutrients needed in small amounts (vitamins & minerals)



Vitamins

Fat soluble – A, D, E & K

Not required on a daily basis, as stored in the liver

Water soluble - B & C

Needed daily as the body cannot store them

Cooking and processing. Vitamins are lost in water and heat. Vegetables should be steamed rather than boiled so the vitamins aren't lost in the water.

Several functions for each but generally keep the body healthy (this is the only time you can write 'healthy' in an exam!)

Needed in tiny amounts – measured in mg or ug.

Minerals

Minerals:

Calcium, Iron, Potassium, Magnesium

- elements on the earth and in foods that our bodies need to develop & function.

Trace elements:

Sodium, Iodine & Fluoride

- are needed in even smaller amounts.

Needed in tiny amounts – measured in g or mg.

Free radicals harm body cells. Can cause high blood pressure, obesity, heart disease, stroke & cancer.

Antioxidants - natural substances which protect the body from free radicals. Found in fruit and vegetables so eating a variety of colours is important.

Nutritional supplements - Pills with nutrients added. These should only be taken under medical advice – not as a substitute. They can react with medication and cause excess intake of a vitamin.



What is the difference between sodium and salt?

Sodium is a mineral which regulates water levels in the body and controls nerves/muscles.

Salt is sodium chloride. To convert sodium to salt (amount) multiply the sodium level by 2.5.



Type	Function	Source	Deficiency	Excess
Vitamin A FAT SOLUBLE	Helps vision Helps immune system	Orange veg and fruit (<i>carrots do help you see in the dark!</i>) dairy, egg yolk, oily fish, fortified spread	RARE but vision problems & night blindness (cant see in the dark)	Effect on bone health Excess in pregnancy - birth defects
Vitamin B WATER SOLUBLE	Releases energy from food Helps nervous system *B9 – reduces spina bifida in foetus'	Cereals (not as in breakfast cereals), dairy, eggs, liver, meat. *B12: mostly found in animal products (vegans need from fortified foods/supplements)	Lack of energy, mouth sores, muscle waste (Beri Beri). *B9: spina bifida in unborn babies	Rare – anaemia,
Vitamin C WATER SOLUBLE	Helps absorb iron Resists infection and helps heal wounds	Citrus fruits, dark green leafy vegetables, potatoes	Iron deficiency due to not absorbing iron Scurvy (wounds)	None – the body flushes out any excess
Vitamin D FAT SOLUBLE	Helps absorb calcium For strong teeth and bones	Sunlight, eggs, liver, oily fish, fortified foods	Prevents calcium absorption = rickets & osteoporosis	Damage to kidneys
Iron (mineral)	Helps to make haemoglobin in red blood cells which carry oxygen to cells	Red meat, liver, whole grain cereals, green leafy vegetables, fortified breakfast cereal, all flour is fortified with iron	Anaemia (tiredness, weak, pale) *Teenage girls need more iron due to menstruation	Constipation, vomiting, stomach pain
Calcium (mineral)	Strengthen and maintain teeth & bones Blood clotting, Growth in children	Dairy foods, dark green leafy vegetables, fortified soya drinks	Bone problems: Rickets & osteoporosis	Stomach pain, diarrhoea, kidney damage

Water

The human body is 50-75% water
2 litres a day



Function:

Makes up blood which transports nutrients
Removes waste products through urine and faeces
Lubricates joints

Sources:

Water, milk,, juice, tea, soup, fruit and vegetables,

Deficiency:

Dehydration (dry mouth, dizzy, headaches)

Key Words

Deficiency – A lack or a shortage of something.

Excess – Too much of something.

Free radicals - Harm body cells. Can cause high blood pressure, obesity, heart disease, stroke & cancer.

Antioxidants - Natural substances which protect the body from free radicals. Found in fruit and vegetables so eating a variety of colours is important.

Fortified - The process of adding micronutrients (essential trace elements and vitamins) to food. E.g. iron in breakfast cereals, calcium in white flour and bread

Immune system - The organs and processes of the body that provide resistance to infection and toxins. Organs include the thymus, bone marrow, and lymph nodes.

Beri Beri –Nutritional disorder caused by a deficiency of thiamin (vitamin B1) - damage of the nerves and heart.

Osteoporosis – A disease where increased bone weakness increases the risk of a broken bone - common in elderly

Rickets - A condition that affects bone development in children. It causes the bones to become soft and weak, which can lead to bone deformities

Anaemia - A condition in which there is a deficiency of red cells or of haemoglobin in the blood, resulting in fatigue (tiredness) and weakness.

Dehydration - occurs when your body loses more fluid than you take in. - dizzy, headaches.



Useful sites. Type these links into your browser or scan the QR codes:

Video: tinyurl.com/k5nxrrq

GCSE Pod: tinyurl.com/yaucs54u

Test: tinyurl.com/ycon57c4



What might be asked in an exam?

Grade 1-3 – identify vitamins in foods, recipes, menus and diets

Grade 4-6 – explain functions of vitamins and minerals, state deficiencies and excesses

Grade 7+ - analyse or evaluate a recipe, menu or diet. Be able to recommend changes from looking at health issues in a diet.

Exam
preparation