Micronutrients

Micronutrients are needed in the body in tiny amounts. They do not provide energy, but are required for a number of important processes in the body.

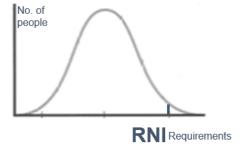
There are two main groups of micronutrients:

- vitamins;
- minerals and trace elements.

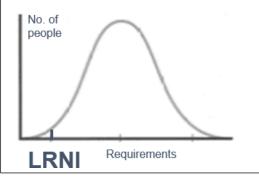
Micronutrients are measured in milligrams (mg) and micrograms (μ g) with 1mg = 0.001g and 1 μ g = 0.001mg.

Micronutrient recommendations

The recommendations for vitamins and minerals are based on the Reference Nutrient Intake (RNI).



When looking at low intakes of micronutrients, the Lower Reference Nutrient Intake (LRNI) is used.



For more information, go to: https://bit.ly/36KUnji

Micronutrient recommendations

People have different requirements for each micronutrient, according to their:

- age;
- · gender;
- physiological state (e.g. pregnancy).



Vitamins

Vitamins are nutrients required by the body in small amounts, for a variety of essential processes.

Most vitamins cannot be made by the body, so need to be provided in the diet.

Vitamins are grouped into:

- fat-soluble vitamins (vitamins A, D, E and K);
- water-soluble vitamins (B vitamins and vitamin C).

Minerals

Minerals are inorganic substances required by the body in small amounts for a variety of different functions.

The body requires different amounts for each mineral.

Some minerals are required in larger amounts, while others are needed in very small amounts and are called 'trace elements'.

Vitamins		
Nutrient	Function	Sources
Vitamin A	Helps the immune system to work	Liver, cheese, eggs, dark green
	as it should and with vision.	leafy vegetables and orange-
		coloured fruits and vegetables.
B vitamins	Thiamin, riboflavin, niacin, folate,	Different for each B Vitamin.
	and vitamin B12 have a range of	
	functions within the body.	
Vitamin C	Helps to protect cells from	Fruit (especially citrus fruits),
	damage and with the formation of	green vegetables, peppers and
	collagen.	tomatoes.
Vitamin D	Helps the body to absorb calcium	Oily fish, eggs, fortified breakfast
	& helps to keep bones strong.	cereals and fat spreads.
Vitamin E	Helps to protect the cells in our	Vegetable and seed oils, nuts and
	bodies against damage.	seeds, avocados and olives.
Vitamin K	Needed for the normal clotting of	Green vegetables and some oils
	blood and is required for normal	(rapeseed, olive and soya oil).
	bone structure.	

Minerals

Nutrient	Function	Sources
Calcium	Helps to build and maintain strong	Dairy, calcium-fortified dairy-
	bones and teeth.	alternatives, canned fish (where
		soft bones are eaten) and bread.
Iron	Helps to make red blood cells,	Offal, red meat, beans, pulses,
	which carry oxygen around the	nuts and seeds, fish, quinoa,
	body.	wholemeal bread and dried fruit.
Phosphorus	Helps to build strong bones and	Red meat, poultry, fish, milk,
	teeth and helps to release energy	cheese, yogurt, eggs, bread and
	from food.	wholegrains.
Sodium	Helps regulate the water content	Very small amounts found in
	in the body.	foods. Often added as salt.
Fluoride	Helps with the formation of strong	Tap water, tea (and toothpaste).
	teeth and reduce the risk of tooth	
	decay.	
Potassium	Helps regulate the water content	Some fruit and vegetables, dried
	in the body and maintain a normal	fruit, poultry, red meat, fish, milk
	blood pressure.	and wholegrain breakfast cereals.
lodine	Helps to make thyroid hormones.	Milk, yogurt, cheese, fish, shellfish
	It also helps the brain to function	and eggs.
	normally.	



Key terms

Micronutrients: Nutrients needed in the diet in very small amounts.

Lower Reference Nutrient Intake (LRNI): Is the amount of a nutrient that is enough for only the small number of people who have low requirements (2.5%). The majority of people need more.

Reference Nutrient Intake (RNI): The amount of a nutrient that is enough to ensure that the needs of nearly all the group (97.5%) are being met. The RNI is used for recommendations on protein, vitamins and minerals.

Vitamin D

Vitamin D is a pro-hormone in the body. It can be obtained in two forms:

- ergocalciferol (vitamin D₂);
- cholecalciferol (vitamin D₃).

Vitamin D₃ is also formed by the action of sunlight. Different to most vitamins, the main source of vitamin D is synthesis in the skin following exposure to sunlight. The wavelength of UVB during the winter months in the UK does not support vitamin D synthesis.



Tasks

- Create an infographic on micronutrients. Focus on the definition of each micronutrient, daily recommendations and source.
- Keep a food diary for four days and calculate the micronutrients provided per day. http://explorefood.foodafactoflife.org.uk

