






Nutrients are chemicals found in food that our bodies need to survive. There are **two** main groups of nutrients – **macronutrients** (nutrients needed in larger amounts) and **micronutrients** (nutrients needed in smaller amounts)

| Macronutrient | Classification | Food Source | Function | Deficiency | Excess |
|--|---|--|--|--|---|
| Fat 9 Kcal per gram | <p>Saturated – from animals and coconut oil, need to eat less, they contribute to CHD.</p> <p>Unsaturated – from vegetables, do not contribute to CHD, eat more of these and less of saturated.</p>  | <p>Butter, lard, dripping, poultry skin, fat on meat – bacon, ham, mince beef</p> <p>Olive, sunflower, avocado, rape seed</p> | <p>Primary energy source</p> <p>Insulates to keep the body warm</p> <ul style="list-style-type: none"> Protects bones and kidneys from damage providing a cushion layer Provide fat soluble vitamins A, D, E and K. | <p>Weight loss</p> <ul style="list-style-type: none"> The body will chill quickly because there is not enough fat to insulate The body will easily bruise as there is not a thick enough cushion of fat for protection Body will not receive enough vitamins A, D, E and K as these are found in foods containing fat | <p>Obesity, type 2 diabetes, coronary heart disease, skin complaints, pain in joints.</p> <p>Cardiovascular disease</p> |
| Carbohydrate 4 Kcal per gram | <p>Starch – slow release of energy</p> <p>Sugar – fast release of energy</p> <p>NSP – Non Starch Polysaccharides (fibre)</p>  | <p>Bread, potato, pasta, rice, wheat, cous cous</p> <p>Sugar, sweets, drinks, cake, chocolate, biscuits</p>  | <p>Primary energy source</p> <p>NSP get rid of waste products: produce soft, bulky faeces. Keeps digestive system healthy; controls weight; helps us feel fuller for longer, slows down digestion and absorption of carbs. So helps to control blood sugar levels. Could help reduce cholesterol levels.</p> | <p>Rare in the UK</p> <p>Weight loss</p> <p>Lack of weight, tiredness</p> <ul style="list-style-type: none"> Severe weakness Not enough NSP = constipation. May lead to cancer of the bowel | <p>Weight gain – If the diet has more energy (carbs) than it needs, the body converts and stores as fat. Type 2 diabetes, tooth decay (dental caries).</p> |
| Proteins 4 Kcal per gram | <p>HBV – animal sources and soya</p> <p>LBV – vegetable sources</p> <p>Complementation – eating more than 1 HBV proteins together.</p> | <p>Meat, poultry, game, offal soya</p> <p>Peas, beans, lentils, chickpeas</p> <p>Baked beans on toast</p>  | <p>Secondary energy source. growth and repair.</p> | <p>Kwashiorkor, marasmus</p> <p>Children will not grow properly. Hair loss, nails and skin in poor condition</p> <p>Easily develop infections due to weakened immune system.</p> | <p>Too much nitrogen in the body is dangerous. The liver and kidneys have to work harder to remove it. This puts them under stress and could harm them.</p> |

| Micronutrient | Classification | Food Source | Function | Deficiency |
|---|----------------|--|---|---|
| Vitamin A  | Fat soluble | Animal (retinol); milk, cheese, butter, eggs, liver, kidney, oily fish, added to veg. fat spreads plant (beta carotene): cabbage, spinach, kale, lettuce, peas, orange/red/yellow veg. + fruit | <ul style="list-style-type: none"> Keeps the skin healthy Helps us see in dim light Helps children to grow Keeps mucous membranes moist and healthy An antioxidant | Dry + infected skin + mucus membranes • A Children don't grow properly • Night blindness leading to total blindness • Poisonous in excess e.g. in supplements, especially to unborn babies. |
| Vitamin D | Fat soluble | Sunlight on skin; oily fish, meat, eggs, butter, added to veg. fat spreads, fortified breakfast cereals | Helps calcium to be absorbed in the body • Helps calcium to strengthen the bones and teeth | • Bones weaken + bend = Rickets in children + Osteomalacia in adults |
| Vitamin E | Fat soluble | Soya, corn oil, olive oil, nuts, seeds, whole wheat, veg. fat spreads | • an antioxidant (helps prevent heart disease + cancer) | A deficiency is rare |
| Vitamin K | Fat soluble | Green leafy veg. liver, cheese, green tea | Helps the blood to clot when the body is injured | • Babies sometimes lose some blood at birth |
| Vitamin B | Water soluble | Meat, milk, cheese, eggs, veg. fresh + dried fruit wholemeal bread, fortified breakfast cereals, flour | Helps energy to be released from food in the body | • Beri—beri affects nerves + Muscles. Pellagra (diarrhoea, dementia, |
| Vitamin B12 | Water Soluble | Liver, meat, fish, cheese, fortified breakfast cereals, yeast | Works with vitamin B9 to make healthy red blood cells • Keeps nerve cells healthy | Pernicious anaemia. May lead to spina bifida in babies |
| Vitamin C | Water soluble | Fruits + veg. especially citrus fruits (e.g. oranges, lemons, limes, grapefruit), blackcurrants, kiwi, Brussel sprouts, cabbage, broccoli, new potatoes, milk + liver | <ul style="list-style-type: none"> Helps the body absorb iron Keeps connective tissue, which binds the body cells together, healthy an antioxidant | Scurvy • Anaemia (not enough iron absorbed) • Bleeding under skin • Loose teeth • Wounds do not heal |



