

2 main types –
Sugars (simple)
Starches (complex) Fibre (complex)

Sugar (simple)

These are easily digestible as they are made up of the most basic sugar molecules. This means they can be absorbed quickly causing blood sugar levels to rise quickly and give the body a short burst of energy.



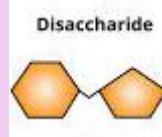
Perfect for a sprinter!

Monosaccharides – one molecule



Mono = one

Disaccharides – two molecules



Di = two

Sugars can be found naturally or are added to food, the body digests these in the same way.

Naturally occurring sugars (glucose, fructose)
Found in fruit and vegetables, honey



Added sugars
Found in cakes, sweets, fizzy drinks



Excess (too much)

If we take in more energy from carbohydrates than the body uses the excess is converted to fat and stored.



This can cause obesity – obesity is linked to a number of health issues including – Coronary Heart Disease (CHD), Type 2 Diabetes and Stroke.

Too much sugar can cause tooth decay.



Carbohydrates

– needed for energy

Deficiency (too little)

A lack of carbohydrates can also impact our body and cause health issues.

Blood sugar levels drop which can lead to hunger, dizziness and tiredness.



If we don't have enough carbohydrates for energy our body uses fat stored in our body, this can lead to becoming underweight.

The body may also use protein which causes us to become weaker.

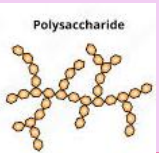
Starch (complex)

These take longer to digest as they are made up of many glucose molecules meaning each must be broken down before the body can use them as energy. They gradually increase blood sugar levels and provide a slow, steady release of energy.



Perfect for a long distance runner!

Polysaccharides – many molecules



Poly = many

Starch can be found in foods such as pasta, rice, potatoes, bread and cereals.



Whole grain starchy foods also have a high fibre content.

Fibre – NSP (non starch polysaccharide)



This type of carbohydrates helps keep the digestive system working properly. It also helps us feel fuller for longer.

Fibre can be found in a range of foods including –

Fruit, wholemeal and wholegrain foods – bread, rice, pasta, flour, vegetables, lentils, beans and seeds.

2 main types –

Sugar (simple)

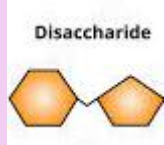
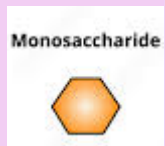


Monosaccharides –

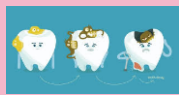
Mono =

Disaccharides –

Di =



Excess (too much)



Carbohydrates

– needed for energy

Deficiency (too little)

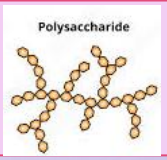


Starch (complex)



Polysaccharides –

Poly =



Fibre – NSP (non starch polysaccharide)



Functions

Growth and repair of tissues in the body

Enzymes for digestion

Antibodies to help fight infection

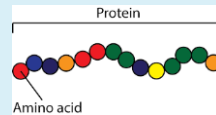
Secondary function is energy

Proteins are made up of amino acids – these are the building blocks of the body.

Essential amino acids can't be made by the body so must come from the food we eat.

Adults need 8

Children need 10



High Biological Value Protein (HBV)

These contain all the essential amino acids the body needs.

HBV Protein are mainly found in animal sources – meat, fish, eggs, poultry and dairy.



Soya beans and quinoa are plant based HBV protein foods.

Excess (too much)

Can put pressure on the liver and kidneys that process proteins

Deficiency (too little)

Impaired growth – not growing to full height

Poor hair, skin, nails

Lower immune system, higher risk of catching infections, wounds not healing as quickly
Kwashiorkor in severe cases



Protein

– needed for growth and repair

Alternative Proteins

Vegetarians don't consume meat and some don't consume animal products so need to get Protein from alternative sources.

Soya – Soya beans are HBV, can be eaten whole or used to make soya milk.

TVP – Textured vegetable protein, made from soya beans into meat type products – sausages, burgers, ready meals.

Tofu – curdled soya milk, texture dependant on water content, can be used in curries, stir fries.



Low Biological Value Protein (LBV)

These are missing one or more of the essential amino acids the body needs.



LBV Protein is only found in plant sources – lentils, nuts, peas, seeds and most beans.

Protein complementation

Combination of LBV Proteins to ensure we are getting all the essential amino acids in one meal

LBV + LBV = HBV



Examples include – beans on toast, lentil soup and bread.

Groups who need more Protein

Different people need different amounts of Protein
some groups who need more are –



Children and adolescents – at this age there are rapid growth spurts and development

High physical activity level (PAL) - those with high PAL need more protein for muscle growth and repair.

Pregnant women and nursing mothers – protein to help the baby grow and for lactation.

Functions

Excess (too much)

Deficiency (too little)

Low Biological Value Protein (LBV)



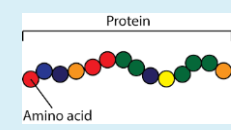
Protein complementation

LBV + LBV =



Adults

Children



Alternative Proteins



High Biological Value Protein (HBV)



Protein

– needed for growth and repair

Groups who need more Protein



Functions

Concentrated energy

Fat soluble vitamins (A,D,E,K)

Essential fatty acids (omega 3 & 6)

Insulation to stay warm

Protect bones and organs

Cholesterol for cell membranes

Saturated Fats

These are solid at room temperature and usually come from animal sources such as meat, processed meat like sausages and burgers, salami, butter, lard and cheese.

A plant source of saturated fat is coconut butter.

Saturated found can also be divided into 'visible' and 'invisible' fats.

Visible Fat – the white rind on bacon or steak – this can be cut off to reduce fat content.



Invisible – the fat used to as an ingredient in foods such as cakes and biscuits.



Excess (too much)

Too much fat can lead to weight gain and in turn obesity.

Obesity is linked to health issues such as Type 2 Diabetes.

Cholesterol can also be increased, this increases the risk of High Blood Pressure and cardiovascular diseases such as Coronary Heart Disease (CHD), Stroke or Heart Attack.

Fat

– energy, nutrients, insulation

Deficiency (too little)

Vitamin deficiency in fat soluble vitamins (A,D,E,K)

Fat in the body can be used for energy which results in weight loss.

Less means less insulation meaning an individual will become cold more quickly.

Also organs and body are less protected from knocks and falls.

Unsaturated Fat

These are soft or liquid at room temperature and come from plant sources such as vegetable oils – sunflower, rapeseed and olive oil.

Also avocado, nuts and seeds.



Unsaturated fats have been shown to lower blood cholesterol.

Monounsaturated – 1 C=C double bond

Mono = one

Polyunsaturated – more than 1 C=C double bond

Poly = many

Essential Fatty Acids Omega-3 and Omega-6

The body is unable to produce these fatty acids so we must consume them as part of our diet.

Omega-3 help brain function and may reduce the risk of heart disease, they are found in – oily fish and seeds. Aim for at least one portion of oily fish per week.



Omega-6 helps lower blood cholesterol and reduce inflammation, they are found in – chicken, nuts and vegetable oils



Functions

Excess (too much)

Unsaturated Fat



Saturated Fats

Fat

– energy, nutrients, insulation

Monounsaturated –
Mono =

Polyunsaturated –
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Essential Fatty Acids Omega-3 and Omega-6

