

Chemistry and diet

Key words

ATP: stands for 'adenosine triphosphate'. This is the compound produced in food + oxygen reactions in the body. ATP is used in many of the chemical reactions in the body to help supply energy.

Body Mass Index (BMI): this is used as a guide to the amount of fat in the body. The BMI is calculated as:-

body weight in kg / height in metres squared

so for someone who weighs 64 kg and is 1.64 m tall,
 $BMI = 64 / (1.64 \times 1.64) = 23.8 \text{ kg/m}^2$

Values for BMI are:-

Underweight	less than 18.5
Normal	18.5—24.9
Overweight	25.0—29.9
Obese	over 30.0

BMI's are not always reliable indicators of obesity for children and teenagers, because body weight and the amount of fat in the body can change a lot as we grow. Athletes may have a higher BMI than normal, because a lot of their body mass is muscle.

Fats and oils: fat and oil language can sound as if it goes around in circles, because everything seems to have at least two names. Chemists often use all the names without really stopping to think. This list of key words should help sort out which names mean the same.

Fat: a solid lipid.

Fatty acid: name for the branch of the letter 'E' part of the lipid molecule.

Glyceride: chemical name for an ester of a fatty acid.

Glycerol: name for the backbone of the letter 'E' part of the lipid molecule.

Lipid: the chemical name for fats and oils - molecules made from mainly carbon and hydrogen atoms arranged in an 'E' shaped structure.

Obese/obesity: this is the word doctors use for someone who is very overweight. An obese person will have a Body Mass Index of over 30 kg/m². Obese people are at risk of serious diseases, including diabetes, heart disease, high blood pressure, stroke (blood clot in the brain), problems with fat in the blood and some types of cancer. Obese women may have problems with their periods.

Oil: a liquid lipid.

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Polyunsaturated fatty acid: a fatty acid which has many carbon-carbon double covalent bonds in the molecule.

Saturated fatty acid: a fatty acid which has no carbon-carbon double covalent bonds, but only single covalent bonds.

Triglyceride: another name for lipid - this is because there are three, or 'tri', sticks on each molecule. These are the branches of the letter 'E' shape.

Unsaturated fatty acid: a fatty acid which has one or more carbon-carbon double covalent bonds in the molecule.

