

capitolo 15 Il corpo umano: respirazione, alimentazione e circolazione

verifica la comprensione

Leggi il brano e rispondi alle domande.



Triglycerides are essential nutrients

The major lipids in food and stored in the body as fat are the triglycerides, which consist of three fatty acids attached to a backbone of glycerol (an alcohol). Fatty acids are essentially hydrocarbon chains with a carboxylic acid group (COOH) at one end, the alpha (α) end, and a methyl group (CH₃) at the other, omega (ω), end. They are classified as saturated or unsaturated according to their chemical structure. A point of unsaturation indicates a double bond between two carbon atoms, rather than the full complement of hydrogen atoms that is present in saturated fatty acids. A monounsaturated fatty acid has one point of unsaturation, while a polyunsaturated fatty acid has two or more. Fatty acids found in the human diet and



in body tissues range from a chain length of 4 carbons to 22 or more, each chain having an even number of carbon atoms. Of particular importance for humans are the 18-carbon polyunsaturated fatty acids alpha-linolenic (an omega-3 fatty acid) and linolenic acid (an omega-6 fatty acid); these are known as essential fatty acids because they are required in small amounts in the diet. The omega designations (also referred to as n-3 and n-6) indicate the location of the first double bond from the methyl end of the fatty acid. Other fatty acids can be synthesized in the body and are therefore not essential in the diet. About a tablespoon daily of an ordinary vegetable oil such as safflower or corn oil or a varied diet that includes grains, nuts, seeds, and vegetables can fulfill the essential fatty acid requirement. Essential fatty acids are needed for the formation of cell membranes and the synthesis of hormone-like compounds called eicosanoids (prostaglandins, thromboxanes, and leukotrienes), which are important regulators of blood pressure, blood clotting, and the immune response. The consumption of fish once or twice a week provides an additional source of omega-3 fatty acids that appears to be healthful.

- What is the main difference between saturated and unsaturated fatty acids?
- Alpha-linolenic fatty acid is an omega-3 fatty acid. What does the number after the word omega tell us?
- Why are some fatty acids essential to our health?