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Carbohydrates

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Synonyms

CHO; Saccharide

Definition (and Description)

A carbohydrate is an organic compound, i.e., a compound containing a carbon atom. In addition to carbon, all carbohydrates also comprise the atoms hydrogen and oxygen and share the common formula $C_nH_{2n}O_n$, where n is any whole number. The name carbohydrate is derived from the bonding of a water molecule to a carbon atom, thus carbohydrates are hydrates of carbon.

Carbohydrates can be classified into several categories. Monosaccharides are the most basic units, and when two monosaccharides are chemically bonded, a disaccharide carbohydrate is formed. Oligosaccharides are generally considered to be carbohydrates with three to ten

monosaccharides, and polysaccharides are carbohydrates with more than ten of these basic units. In nutrition, carbohydrates are often categorized into “simple” and “complex” forms. Simple carbohydrates include monosaccharides and disaccharides (sugars), whereas complex carbohydrates are oligosaccharides and polysaccharides (starches). Carbohydrates, despite being nonessential dietary constituents, function primarily as source of energy and are a particularly important fuel for high-intensity exercise.

Cross-References

- ▶ Diet
- ▶ Glucose
- ▶ Insulin

References and Further Readings

- Bender, D. A. (2002). *Introduction to nutrition and metabolism* (3rd ed.). London: Taylor & Francis.
- McArdle, W. D., Katch, F. I., & Katch, V. L. (2001). *Exercise physiology. Energy, nutrition and human performance* (5th ed.). Baltimore: Lippincott Williams & Wilkins.