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What are Coenzymes?

Coenzyme, Any of a number of freely diffusing organic compounds that function as cofactors with enzymes in promoting a variety of metabolic reactions. Coenzymes participate in enzyme-mediated catalysis in stoichiometric (mole-for-mole) amounts, are modified during the reaction, and may require another enzyme-catalyzed reaction to restore them to their original state. Examples include nicotinamide adenine dinucleotide (NAD), which accepts hydrogen (and gives it up in another reaction), and ATP, which gives up phosphate groups while transferring chemical energy (and reacquires phosphate in another reaction). Most of the B vitamins (*see vitamin B complex*) are coenzymes and are essential in facilitating the transfer of atoms or groups of atoms between molecules in the formation of carbohydrates, fats, and proteins.

Difference Between Fat and Water Soluble Vitamins.

Sources:

Fat soluble are mainly plants in origin e.g. green leafy vegetables.

Water soluble is mainly animal in origin e.g. red meat and liver.

Storage

Fat soluble vitamins have the ability to get stored in the body for latter requirements.

Water soluble vitamins cannot be stored in the body for long term.

Sensitivity:

Fat soluble vitamins are heat resistant and are not easily destroyed by heat.

Water soluble vitamins are heat labile and are normally destroyed during cooking.

Excretion:

Fat soluble are not excreted in urine.

Water soluble are excreted in urine

Deficiencies:

Manifestations of deficiency in fat soluble vitamins are late because of storage in the liver.

Water soluble vitamin deficiency appears early in the course.

Treatment of deficiency:

Fat soluble vitamin deficiency requires a large dose of vitamin.

Water soluble deficiency requires regular intake of deficient vitamins.

Toxicity:

Fat soluble vitamins are toxic if taken in excess resulting in 'hypervitaminosis'

Water soluble vitamins are unlikely to cause toxicity.