Pantothenic Acid Encyclopedia Article

Pantothenic Acid

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Contents

Pantothenic Acid Encyclopedia Article.....1

Contents.....2

Pantothenic Acid.....3

Pantothenic Acid

A member of the vitamin B family, pantothenic acid functions primarily as part of an enzyme system involved in fat and carbohydrate metabolism. First recognized as a growth factor for yeast in 1933, it was isolated in 1939 by Richard Kuhn in Heidelberg and synthesized a year later by Roger John Williams and coworkers in the United States. Although tests showed its vitamin nature by its ability to prevent certain metabolic failures in animals, the compound aroused little interest for almost a decade.

Then, in 1947, Fritz Lipmann, a German biochemist who immigrated to the United States in 1944 and did important work in carbohydrate metabolism, discovered a compound he called coenzyme A. This compound, Lipmann reported, played an important role as a catalyst for the transfer of two carbon groups in vital acetylation reactions in the body (one of these reactions, for instance, is the formation of acetylcholine, a substance essential to the transmission of nerve impulses). Lipmann then went on to show that pantothenic acid not only formed part of coenzyme A but was crucial to its functioning. The seemingly unimportant little vitamin, then, clearly played a more vital role in the metabolic process than was previously believed.

Today, we have also learned that pantothenic acid appears essential for the synthesis of steroids, including cholesterol, and the adrenal cortical hormones. Fortunately, pantothenic acid is widely distributed in plants and animals (its name, in fact, came from the Greek word "panthos" which means "everywhere") and deficiencies are extremely rare.