
Abstract

BACKGROUND:
Vitamin B6 is thought to be a most versatile coenzyme that participates in more than 100 biochemical reactions. It is involved in amino acid and homocysteine metabolism, glucose and lipid metabolism, neurotransmitter production and DNA/RNA synthesis. Vitamin B6 can also be a modulator of gene expression. Nowadays, clinically evident vitamin B6 deficiency is not a common disorder, at least in the general population. Nevertheless, a subclinical, undiagnosed deficiency may be present in some subjects, particularly in the elderly.

OBJECTIVE:
This review gives a complete overview over the metabolism and interactions of vitamin B6. Further, we show which complications and deficiency symptoms can occur due to a lack of vitamin B6 and possibilities for public health and supplemental interventions.

METHODS:
The database Medline (www.ncbi.nlm.nih.gov) was searched for terms like "vitamin B6", "pyridoxal", "cancer", "homocysteine", etc. For a complete understanding, we included studies with early findings from the forties as well as recent results from 2006. These studies were summarised and compared in different chapters.

RESULTS AND CONCLUSION:
In fact, it has been proposed that suboptimal vitamin B6 status is associated with certain diseases that particularly afflict the elderly population: impaired cognitive function, Alzheimer's disease, cardiovascular disease, and different types of cancer. Some of these problems may be related to the elevated homocysteine concentrations associated to vitamin B6 deficiency, but there is also evidence for other mechanisms independent of homocysteine by which a suboptimal vitamin B6 status could increase the risk for these chronic diseases.