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Functional Medicine

QUOTE GM #47

2019-05-04

Title

Created

IT APPEARS THAT VITAMIN B12 PRESENTS ANTIOXIDANT ACTIVITY!

Nutrients, 2019 Feb 25;11(2). pii: E482. doi: 10.3390/nu11020482.

Vitamin B₁₂ in Relation to Oxidative Stress: A Systematic Review.

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Abstract

The triage theory posits that modest micronutrient deficiencies may induce reallocation of nutrients to processes necessary for immediate survival at the expense of long-term health. Neglected processes could in time contribute to the onset of age-related diseases, in which oxidative stress is believed to be a major factor. Vitamin B₁₂ (B12) appears to possess antioxidant properties. This review aims to summarise the potential antioxidant mechanisms of B12 and investigate B12 status in relation to oxidative stress markers. A systematic query-based search of PubMed was performed to identify eligible publications. The potential antioxidant properties of B12 include: (1) direct scavenging of reactive oxygen species (ROS), particularly superoxide; (2) indirect stimulation of ROS scavenging by preservation of glutathione; (3) modulation of cytokine and growth factor production to offer protection from immune response-induced oxidative stress; (4) reduction of homocysteine-induced oxidative stress; and (5) reduction of oxidative stress caused by advanced glycation end products. Some evidence appears to suggest that lower B12 status is related to increased pro-oxidant and decreased antioxidant status, both overall and for subclinically deficient individuals compared to those with normal B12 status. However, there is a lack of randomised controlled trials and prospective studies focusing specifically on the relation between B12 and oxidative stress in humans, resulting in a low strength of evidence. Further work is warranted.

KEYWORDS: B12; ROS; age-related diseases; antioxidant; cobalamin; deficiency; micronutrients; oxidative stress; subclinical deficiency; triage theory

PMID: 30823595 PMCID: PMC6412369 DOI: 10.3390/nu11020482