

Vitamin C, Respiratory Tract Infections, Stress

A brief summary with supporting literature

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Vitamin C

Reduction of respiratory tract symptoms during URIs

Vitamin C (2 grams orally) was associated with reduced bronchoconstriction when compared with those receiving a placebo in response to inhaled histamine (Bucca et al., 1990).

Vitamin C exerts a number of effects against histamine. Specifically, it prevents its secretion by white blood cells and increases its detoxification. Vitamin C helps to relieve allergic symptoms, prevents local inflammatory reactions, and provides an antihistamine-like effect (Sharma and Wilson, 1979).

Vitamin C assists in the manufacturing of adrenal hormone (needed to combat stress imposed by allergic reactions), enhances T-cell and phagocyte function, and increases immunoglobulin production (Johnston et al., 1992).

Vitamin C supplementation for reducing duration and severity of symptoms of the common cold has been studied in numerous trials (Hemila and Chalker, 2013). In this most recent meta-analysis, regular supplementation of doses of 1 to 2 grams (29 trials, n=11,306) was associated with a significant reduction in the duration and severity of symptoms of the common cold, while therapeutic supplementation (only around the time of the infections) was not.

Stress

Free radical production increases during times of stress. Vitamin C is an essential “aqueous phase” antioxidant. A recent study using data from the Australia stroke prevention trial (Kolko et al., 2014); n=786) showed that vitamin C blood levels were associated strongly with longer telomere lengths in participants.

Animals with vitamin C deficiency were more susceptible to stress-induced heart damage, which was relieved with vitamin C supplementation (Kim et al., 2013).

Important for proper immune function

Vitamin C has been intensively studied for its crucial role in normal immune function, particularly for proper functioning of phagocytes, neutralization of harmful oxidants, for normalizing histamine activity, enhancement of human natural killer cell activity, enhancement of interferon synthesis, and regulation of cytokines (Ball, 2004).

Antioxidant to moderate inflammation and counteract tissue damage

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