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Continuing research shows that adequate intakes of vitamin C and zinc improve symptoms and shorten the duration of respiratory tract infections (including the common cold).

VITAMIN C AND ZINC ESSENTIAL FOR HEALTHY IMMUNE FUNCTION

During times of infection or stress, vitamin C concentrations in plasma and blood cells rapidly declines. Research has shown that vitamin C supplementation can improve several elements of the human immune system such as antimicrobial and natural killer cell activities, proliferation of lymphocytes (white blood cells), chemotaxis*, and delayed-type hypersensitivity. During an inflammatory response, adequate vitamin C contributes to the integrity and health of the cell membranes which protect against excessive free radical damage.

Inadequate zinc status is also known to impair cellular immunity by impairing phagocytosis and natural killer cell activity. Therefore, both nutrients play important roles in immune function and the healthy resistance to infectious agents, reducing the risk, severity, and duration of infectious diseases. This is particularly important in populations with insufficient intake of these nutrients, such as low-income families and the elderly.

A large number of randomized controlled trials with advanced intakes of vitamin C and zinc document that adequate levels of vitamin C and zinc may reduce symptoms and shorten the duration of respiratory tract infections, including the common cold. Research also indicates that adequate vitamin C and zinc reduce the incidence and improve the outcome of pneumonia, malaria, and diarrhea infections, especially in children in developing countries.

* **Chemotaxis** is the phenomenon in which bodily cells, bacteria, and other single-cell or multicellular organisms direct their movements according to certain chemicals in their environment. Vitamin C is known to influence neutrophil chemotaxis, or white blood cell movement in response to infectious agents.

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