Nutritional Influences on Illness
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Do Vitamin C Supplements Really Help the Common Cold?

While the first reports suggesting that vitamin C may reduce cold symptoms were published in the 1930s and 1940s, serious interest in the subject developed following the publication of *Vitamin C and the Common Cold* by Linus Pauling in 1970. Based on his review of published studies, Pauling stated that supplemental ascorbic acid, in doses of 1 g daily or greater, significantly decreases both the incidence and severity of the common cold. The following year, Pauling published one of the very first meta-analyses in the field of medicine, in which he demonstrated a significant decrease in total morbidity in subjects ingesting vitamin C supplements.

We know that, during a cold, the concentration of vitamin C falls in both the plasma and leukocytes. Neutrophils become activated as part of the cellular immune defenses, and activated neutrophils greatly enhance ascorbate oxidation. Supplementing with vitamin C elevates plasma ascorbic acid, which then passes into ascorbate-depleted tissues where it may enhance the neutrophil's ability to dispose of the infectious agents. Moreover, the vitamin has been shown to enhance interferon production and may actually disrupt the nucleic-acid strands of viruses.

At least 55 placebo-controlled studies have now sought to determine whether vitamin C supplementation can benefit the common cold; yet the issue remains controversial. The best summary of the accumulated evidence comes from a Cochrane Review that looked at supplement dosages of at least 200 mg daily. Despite the common wisdom, the authors found that starting vitamin C supplementation following the onset of cold symptoms was generally ineffective – perhaps because the dosages prescribed were too low.

By contrast, the findings were more positive for people who took vitamin C supplements routinely. Colds were less severe, and cold duration was reduced by eight percent in adults and 13.5% in children. When only the pediatric trials providing at least 1 g of vitamin C daily were analyzed, the reduction in cold duration was increased to 18.5%. (The great majority of adult studies provided 1 g daily, suggesting that a larger dosage than that given to the children may have resulted in greater benefits.) Although the relative risk of most people developing a cold was only nominally lower, the relative risk was cut in half for people under severe stress (e.g., competitive athletes or soldiers on subarctic exercises).

The Cochrane Review also summarized three laboratory placebo-controlled studies in which healthy volunteers in residence were intentionally infected with cold viruses while receiving prophylactic vitamin C. The one study that involved natural transmission of the virus from infected volunteers found that supplementation (2 g daily starting 3.5 weeks before exposure) reduced the mean cumulative severity score and mucus weights. Moreover, 19 of the 24 supplemented volunteers developed a cold compared to 22 of the 24 on placebo.

In the other two studies, the virus was artificially instilled in the noses of the volunteers, and vitamin C prophylaxis was provided for a shorter period of time. One found a reduction in cold severity from supplementation (3 g daily starting two weeks before exposure), but no reduction in duration; the other (1 g daily starting three days before exposure) found no benefit.

Finally, when the reviewers pooled the data from the seven large prophylaxis trials that reported adverse effects, 5.7% of the vitamin C recipients reported symptoms which they attributed to the vitamin supplement compared to 6.0% of those taking placebo.

We still have to learn the ideal dosage for maximal benefits. Pauling suggested at least 6 g a day in order to keep leukocytes adequately supplied. He could be correct, but there is too little research to date with higher dosages to determine the ideal dosage – although there is good reason to suspect that, for the vast majority of the studies, the dosages utilized were sub-optimal. For example, an adult study found that 6 g daily was associated with twice the benefit of 3 g daily, while a child study found that 2 g daily was associated with twice the benefit of 1 g daily.
Thus the evidence to date clearly shows that vitamin C supplementation is effective in combating the common cold, at least when it is taken daily throughout the year at an adequate dosage. The ideal dosage has yet to be determined and is likely to be greater than the dosages provided in most of the studies reported to date; similarly, its potential efficacy is likely to be greater than the disappointing results reported in some of these studies. Moreover, the evidence is that the supplement produces no adverse effects at the dosages utilized.

Notes

More information can be found in the second edition of Dr. Werbach's classic SourceBook, Nutritional Influences on Illness, and in his updated and expanded CD-ROM with the same title. A free brochure on his books is available from Third Line Press Inc., 4751 Viviana Drive, Tarzana, California 91356, USA. (800-916-0076; 818-996-0076; Fax: 818-774-1575; e-mail: tlp@third-line.com; Internet: www.third-line.com). •

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