

Vitamin C

Vitamin C is a water-soluble vitamin and an essential nutrient, vital for growth and development. It helps the body absorb iron and assists in healing processes. It is commonly used as a preservative.

PREPARATIONS: Since the body does not produce or store vitamin C, it is a necessary dietary requirement. Food sources include kiwifruit, citrus fruits, strawberries, capsicum, tomatoes, broccoli and green vegetables. Many fruit and vegetable juices and some cereals are fortified with vitamin C.

CHEMICAL NAME: Ascorbic acid. Mineral ascorbates are buffered, less acidic and therefore purported to be less irritating to the gastrointestinal tract; however, there is little evidence to support this.

RECOMMENDED DAILY DOSES: Typically the daily adult intake for vitamin C is 75–90 mg/day. Certain people require higher daily doses, e.g. smokers (requiring 30% more), during pregnancy or breastfeeding, post surgery and burn victims. For most people, a healthy diet will provide an adequate dose of vitamin C.

MANUFACTURER CLAIMS: Apart from the established benefits of Vitamin C, claims have been made that it supports immunity and improves resistance to infections, such as the common cold.

EVIDENCE FOR EFFICACY: A Cochrane systematic review of over two dozen controlled trials has shown that using vitamin C during a common cold might shorten the duration of chest and throat symptoms, but not those of 'nose colds', suggesting that it may only be effective in lower respiratory tract infections. Vitamin C failed to reduce the incidence of colds in the general population, although incidence was halved in participants who endured heavy acute physical stress (exercise) and whose diet was low in vitamin C.

Summary Message

For most people, a healthy diet will provide an adequate dose of vitamin C. Use of vitamin C may reduce the duration of symptoms but not the incidence of the common cold. High doses (>2 g/day) can have adverse effects and may interact with warfarin and aluminium. Vitamin C should be used cautiously with oestrogens, cancer chemotherapy, HIV medications, statins and fluphenazine.

The current evidence for routine vitamin C supplementation is not justified. However, given the low cost and good safety profile the risks for supplementation are minimal.

ADVERSE EFFECTS: Vitamin C is considered safe in up to several grams a day, although high doses (>2 g/day) can cause headache, insomnia, diarrhoea, nausea, vomiting, heartburn, abdominal bloating and cramps, and kidney stones. Administrations of up to 100 g IV have been given without adverse effects in healthy people. Vitamin C may affect glucose levels and affect blood pressure. Chewing vitamin C may lead to dental erosion.

DRUG INTERACTIONS: Evidence is conflicting on vitamin C and warfarin and doses of 1 g/day do not appear to be clinically significant. Higher doses of vitamin C (2 g/day) may decrease the effectiveness of warfarin, necessitating monitoring of INR levels. Vitamin C also interacts with aluminium and should be taken 2–4 hours apart. It should be used cautiously with oestrogens, cancer chemotherapy, HIV medication, statins and fluphenazine.

Key references

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- Douglas RM, Hemila H, Chalker E, Treacy B. Vitamin C for preventing and treating the common cold. *Cochrane Database Syst Rev.* 2007:CD000980.
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