

High-Dose Vitamin C (PDQ®)

Overview

- Vitamin C is a nutrient found in food and dietary supplements. It is an antioxidant and also plays a key role in making collagen (see [Question 1](#)).
- High-dose vitamin C may be given by intravenous (IV) infusion (through a vein into the bloodstream) or orally (taken by mouth). When taken by intravenous infusion, vitamin C can reach much higher levels in the blood than when the same amount is taken by mouth (see [Question 1](#)).
- High-dose vitamin C has been studied as a treatment for patients with cancer since the 1970s (see [Question 2](#)).
- Laboratory studies have shown that high doses of vitamin C may slow the growth and spread of prostate, pancreatic, liver, colon, and other types of cancer cells (see [Question 5](#)).
- Some laboratory and animal studies have shown that combining vitamin C with anticancer therapies may be helpful, while other studies have shown that certain forms of vitamin C may make chemotherapy less effective (see [Question 5](#)).
- Animal studies have shown that high-dose vitamin C treatment blocks tumor growth in certain models of pancreatic, liver, prostate, and ovarian cancers, sarcoma, and malignant mesothelioma (see [Question 5](#)).
- Some human studies of high-dose IV vitamin C in patients with cancer have shown improved quality of life, as well as improvements in physical, mental, and emotional functions, symptoms of fatigue, nausea and vomiting, pain, and appetite loss (see [Question 6](#)).
- Intravenous high-dose ascorbic acid has caused very few side effects in clinical trials (see [Question 7](#)).
- While generally approved as a dietary supplement, the U.S. Food and Drug Administration (FDA) has not approved the use of IV high-dose vitamin C as a treatment for cancer or any other medical condition (see [Question 9](#)).

Updated: April 8, 2015

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