

Vitamin C & Pain



Michael Smith, PhD MDsc

Recent clinical studies suggest vitamin C levels are low in certain patient groups such as post-surgical, those suffering infections and in cancer. Important studies report that vitamin C decreases pain in chronic regional pain syndrome (CRPS) and both acute and post-herpetic neuralgia. **Perhaps this common antioxidant plays an important role as an analgesic?** There have been several recent reports on this topic in medical journals which help us with the answer.

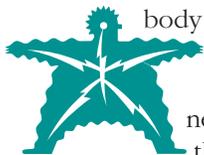
How does vitamin C reduce pain?

There seems to be two mechanisms by which vitamin C helps reduce pain. 1) The first is by acting as an enzyme cofactor, helping the enzyme that activates small peptides responsible for the synthesis of endomorphins₁. Endomorphins are natural pain relievers which are non-narcotic but very efficient in reducing chronic pain. Unfortunately, the lifetime of an endomorphin is short so repeated biosynthesis is required to throttle pain. Since vitamin C is rapidly consumed during this biosynthesis, one needs to continually replenish vitamin C to synthesize more pain-relieving endomorphins. 2) The second mechanism for pain relief is by reducing inflammation₂. This is evidenced by following the lowered level of the important clinical marker, C-reactive protein, by vitamin C. The C-reactive protein itself directly activates inflammation; less C-reactive protein means less pain.



Can vitamin C help fibromyalgia (FM) pain?

There has not been a published study following FM pain and vitamin C levels. However, there is a recent report of the correlation between back pain and low plasma vitamin C levels (hypovitaminosis C) in over 4,700 US adults₅. The large study reports the prevalence of hypovitaminosis C in the general population is high and strongly correlates with neck, lower back and leg pain. *In general, people suffering pain have low plasma vitamin C levels.* The areas of the



body followed in this study are similar to painful areas associated with FM. Of note, oxidative stress markers are higher in FM, indicating a need for antioxidants as part of the therapy for this population₆.

How about back pain?

Hypovitaminosis C in America is very common. A national study, NHANES, reported strong associations between low vitamin C levels and spinal pain, both neck and lower back pain. Increasing vitamin C intake should help relieve back

pain for many people; this is a major medical problem affecting millions of citizens.

What about bone fractures?

There are several publications reporting reduction of chronic regional pain syndrome (CRPS) which is sometimes associated with large bone fractures. The American Academy of Orthopaedic Surgeons continues to recommend vitamin C supplements to prevent CRPS for patients with distal radius (arm bone) fractures. These findings suggest that recovery from fractures of other bones would be aided with oral vitamin C.



Can one reduce pain medications, such as morphine or gabapentin, with vitamin C?

It was recently reported that high dose vitamin C decreases postoperative pain for the immediate 24 hours after major surgery and reduces morphine consumption during the first post-op day without an increase in perceived pain₃. Other independent reports are consistent with this finding₄. A high plasma concentration of vitamin C was achieved by intravenous means. The target dose was 50 mg/kg body weight – which would be about 2.5 to 5 grams of C for a person of “normal” weight. This means that post-op pain can be reduced by use of oral vitamin C but the patient must be vigilant and take vitamin C continually during recovery.

Does C help pain from shingles?

This is often termed post-herpetic neuralgia (PHN). Treatments with analgesics, antiviral drugs, low energy laser therapy and vaccination have all been attempted to alleviate acute pain associated with PHN, but only with variable success. For those patients who stay on a therapeutic amount of vitamin C the beneficial results increase with time – that is, daily supplementation with vitamin C significantly reduces PHN pain over time.



Vitamin C & Pain Q&A

continued



Does C have a role in inflammatory pain?

A recent study involving over 200 subjects reports strong correlations between some inflammatory markers and important nutrients. The key clinical marker for inflammation, C-reactive protein, was found to strongly correlate with the plasma levels of vitamin C. The patients with low plasma vitamin C also had high levels of C-reactive protein, indicating pain and the presence of inflammation.

What are the typical study doses?

From 1 up to 5 grams of vitamin C each day (1,000 mg to 5,000 mg), depending on body weight. This is below the amount for bowel irritation, which is usually greater than 10 grams per day. Vitamin C should be taken several



times a day in divided doses, in reasonable amounts of 500 mg/dose to be more effective in maintaining steady state vitamin C levels and reap its medicinal benefits.

Michael Smith PhD MDSc, has advanced studies in biochemistry, physiology and medicine. Dr. Smith has co-authored more than 30 scientific and medical articles in journals and lectured extensively. He has designed many new diagnostic tests for clinical use. Dr. Smith became interested in nutritional supplements after reading Linus Pauling and while doing research on oxygen and carbon monoxide toxicities. A technical version of this article with references is available for health care professionals upon request to the editor@e-tyh.com.

©TyH Publications (M. Squires) & M. Smith PhD MDsc

For informational purposes only and not intended to diagnose, cure, treat or prevent any medical condition.

More Articles by Dr. Smith in the TyH Health Library Online

- ◆ Alpha Lipoic Acid, Aiding the Treatment of Diabetes
- ◆ B1 (Thiamin), A Requirement for Life
- ◆ CoQ10 & Statin Drugs
- ◆ CoQ10, The Latest News for Fibromyalgia
- ◆ Fibromyalgia & Pain, is it Genetic?

Health POINTS

Published in *Health Points*. This article is protected by copyright and may not be reproduced without written permission. For information on a free catalog, please call TyH Publications, 1-800-801-1406 or write TyH Publications, 12005 N. Saguardo Blvd., Ste. 102, Fountain Hills, AZ 85268. E-mail editor@e-tyh.com. For information on TyH products, visit our website at www.e-tyh.com