

## Vitamin C, Reflex Sympathetic Dystrophy and Complex Regional Pain Syndrome

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When I was in school, I remember being told that *reflex sympathetic dystrophy* (RSD) was the modern term for *causalgia*, a condition first described by doctors during the Civil War. After graduation, I recall attending a seminar and learning that *causalgia* was the correct term to use if RSD was severe. Because of the confusion surrounding these two terms (as well as others), the condition was re-named in the mid 1990s to *complex regional pain syndrome* (CRPS), with CRPS Type 1 replacing RSD and CRPS Type 2 replacing *causalgia*. The differences were that the nerve dysfunction in CRPS Type 1 patients stemmed from traumas like sprains, fractures and surgeries, in which there was no direct nerve damage. The CRPS Type 2 label was reserved for those with a direct nerve injury. (However, due to the fact that the symptoms of the two classes do not differ, many doctors and therapists continue to call the condition RSD.)

### Characteristics of CRPS

Table 1: Skin Changes in the Area of CRPS\*

Thinning  
Shiny appearance  
Swelling  
Sweatiness or moistness  
Redness, white color, blue color  
Increased temperature or decreased temperature  
Increased hair growth or hair loss  
*\*Not all changes are seen in all patients.*

CRPS is most likely to occur following trauma to an extremity that requires immobilization, such as a fracture, surgery or gunshot wound. However, it can even occur after a minor sprain or even a blood draw. The hallmark symptoms are intense burning pain and extreme skin sensitivity. A host of skin changes can also occur. (Table 1) Joint stiffness, muscle contractions, weakness and muscle atrophy can occur after three or more months.

### Vitamin C for CRPS: What Recent Research Suggests

The authors of a 2009 study<sup>1</sup> called it a "quasi experiment" because it compared the outcomes of 392 patients in successive years who had foot and ankle surgeries. The first group (July 2002 - June 2003) numbered 177 patients; the second group (July 2003 - June 2004) included 215 patients. Patients in the second group only were given 1,000 mg of vitamin C a day for 46 consecutive days following their surgery. Study findings are shown in Table 2.

Table 2: Post-Op Vitamin C and CRPS Incidence

	No Vitamin C	Vitamin C
Number of Patients	177	215
CRPS Cases	18	4
% CRPS Cases	9.6%	1.7%

The results of this "quasi experiment" mirror an earlier study in 2007<sup>2</sup> involving wrist fractures, in which there was a 10 percent rate of CRPS in patients given placebo, a 1.8 percent rate of CRPS in patients given 500 mg of vitamin C and a 1.7 percent incidence of CRPS in a third group given 1,500 mg vitamin C for 50 days after their wrist injuries.

### Practice Recommendations

Based on these two studies, the simple addition of 500 mg of vitamin C a day for two months following extremity trauma appears to reduce of the incidence of CRPS by 80 percent. Whether you practice nutrition or not, anytime you have a patient who has a upper or lower limb injury requiring casting or surgical repair, remind them to take some extra vitamin C. Not only will it help healing by its well-recognized effect on collagen formation and free-radical reduction, but it also just may prevent CRPS. And as anyone who has had a CRPS patient will tell you, the best treatment is prevention.

### References

1. Besse JL, Gadeyne S, Galand-Desme S, et al. [Effect of vitamin C on prevention of complex regional pain syndrome type 1 in foot and ankle surgery.](#) *Foot and Ankle Surgery*, 2009;(15)179-182.
2. Zollinger TE, Tuinebreijer WE, Breederveld RS, et al. [Can vitamin C prevent complex regional pain syndrome in patients with wrist fractures? A randomized controlled multicenter dose-response study.](#) *J Bone Joint Surg (U.S.)*, 2007;(89):1424-1431.

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