## What is Complex Regional Pain Syndrome (CRPS)?

Complex Regional Pain Syndrome, a chronic pain disorder, is divided into two categories: Reflex Sympathetic Dystrophy (type I) and Causalgia (type II).

## What does CRPS Look Like?

Symptoms of Complex Regional Pain Syndrome can include abnormal swelling, abnormal hair or nail growth, abnormal skin color or temperature changes, abnormal sweating, limited range of motion, and movement disorders.

Pain is often described as deep, aching, cold, and/or burning, and may be associated with increased skin sensitivity. Pain is generally rated moderate to severe and is disproportionate to any inciting event.

## Evaluation of CRPS for Functional Rehabilitation

Active range of motion (AROM) is measured with a goniometer and edema is gauged via volumeter. Principal areas to assess are strength, coordination, dexterity, skin/vasomotor changes, pain/sensation and active use of the extremity during functional activity.

In severe cases of CRPS, splinting or bracing may be utilized to promote increased circulation and nutrition to the area, facilitate normal tissue length and improve functional positioning.

## Treatment Protocols

Treatment objectives for CPRS are to minimize edema, normalize sensation, promote normal positioning, decrease muscle guarding and increase independence in all areas—mobility, work, leisure and activities of daily living (ADL). Active weight bearing exercises are emphasized.

**Edema** is managed using specialized garments (Jobst® garments, Isotoner® gloves, Coban™) and manual edema mobilization techniques.[1] Stress loading and AROM activities are also fundamental in managing edema. Elevation of the extremity can be effective; however it can sometimes become part of a cycle of guarding and disuse.

**Desensitization** techniques are implemented to assist with normalizing sensation to the affected area. This consists of progressive stimulation with very soft material to more textured fabrics or materials. Stimulation can be graded from light touch to deep pressure and from consistent to intermittent with each material.

Contrast baths that gradually broaden the temperature difference between the two can work toward tolerance of heat or cold.[1]

**Posture** is an important component to consider in treating CRPS. Proper posture and alignment can minimize protective guarding of the extremity, promote balanced use of muscles and facilitate improved functional use of the affected extremity

**Stress Loading** consists of two principles: scrubbing and carrying. A stress loading program promotes active movement and compression of the affected joints for 3 to 5 consecutive minutes, three or more times each day. Though stress loading may initially produce an increase in pain or swelling of the extremity, after several days a decrease in symptoms will begin to be evident. Use of the affected extremity in daily tasks is encouraged throughout rehabilitation to inhibit muscle guarding and disuse atrophy.[2,4,5]

**Scrubbing** consists of moving the affected extremity in a back/forth motion while weight bearing through the extremity.[4,5] Scrubbing is performed with the patient in quadruped for upper extremity involvement and in elevated sitting or standing for lower extremity involvement.[2]

For upper extremity involvement, the patient holds a scrub brush with the hand on the affected side. For lower extremity involvement, a long Velcro® strap can assist in fastening the brush to the bottom of the foot. The patient then scrubs against a hard surface, keeping the bristles of the brush in full contact with the surface, while maintaining constant pressure on the brush. The amount of weight placed through the affected extremity and the duration of the activity are gradually increased.

Modifications can be made to enhance performance or compliance. For example, upper extremity scrubbing may be done standing at a table or counter. Persons with limited wrist extension may benefit from using a handled brush.[2] The Dystrophile® is a device designed to facilitate consistent weight bearing and compliance during scrubbing by activating a light when the patient has reached the preset load.

**Carrying,** or loading, is the second component in the stress loading protocol. Small objects are carried in the hand on the affected side, progressing to a handled bag loaded with increasingly heavier weight. Carrying should be performed throughout the day, whenever the patient is standing or walking. [4,5]

The lower extremity can be loaded in a variety of ways. Walking is an important loading technique if care is taken to ensure weight bearing through the affected leg during gait, especially when an assistive device is used. Increased weight bearing can be accomplished with verbal/physical cueing or by having the patient carry a weighted object or bag on the affected side. Loading can also be facilitated by engaging the patient in activities that promote weight

shifting and balance (i.e. ball toss) or by placing the non-affected foot onto a small footstool during static standing tasks.

## Treatment progression

Once the patient is actively engaged in an edema management and stress loading program, treatment can progress toward increasing functional use of the extremity. As the pain and edema decrease, the patient will be better able to tolerate and participate in AROM, coordination, dexterity and strengthening tasks. Proprioceptive neuromuscular facilitation (PNF) patterns are often well tolerated during treatment.[2]

The therapist can help the patient to gradually improve AROM and flexibility through gentle progression of active and active-resistive exercises or gait training. These should be done within the patient's tolerance and avoided in insensate situations (as after a nerve block).

Pacing and pain management techniques, such as appropriate rest breaks, alternating tasks, thermal or EMG biofeedback, diaphragmatic breathing and relaxation techniques can assist the patient in minimizing pain flares while participating in intensive rehabilitation.

## Treatment Summary

The overall role of the therapist during rehabilitation of CRPS is to guide the patient through a program designed to minimize pain and edema while maximizing functional use of the extremity. As CRPS varies greatly in severity and duration, it is very important for the therapist to demonstrate enthusiasm, support and encouragement of the patient during the treatment process.

The patient, in turn, must be actively involved in integration of treatment techniques into all daily activities to achieve optimal function of the affected extremity.

## References


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# Treating Complex Regional Pain Syndrome/Reflex Sympathetic Dystrophy Syndrome

## A Guide for Therapy


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