

Complex regional pain syndrome (CRPS)

Complex regional pain syndrome (CRPS) is a painful condition of a person's arm, hand, leg or foot, which occurs after an injury, such as a fracture. Rarely, CRPS can affect other body parts, such as the face.

Symptoms can range from mild to severe, and may last months or years. We do not know the cause of CRPS, but treatment aims to relieve symptoms and restore limb function (movement and activity). Most people recover fully, but the condition can recur and for a small group of people with CRPS, symptoms may be severe and persist for years. CRPS used to be known as reflex sympathetic dystrophy (RSD).

Females are three times more likely to be affected than males. In adults, the most commonly affected limb is the arm. In children, it is the leg. CRPS affects people in different ways and one person's response to treatment will be different from another person's.

Symptoms of complex regional pain syndrome (CRPS)

The symptoms of CRPS may include:

- burning pain in the arm, hand, leg or foot
- pain that changes in intensity, but often feels much worse than may be expected
- loss of fine motor control
- tremors or spasms
- stiffness
- changes to the skin, hair and nails on the affected limb
- the affected limb is warmer or colder than the unaffected limb
- the affected limb is sweatier or drier than the unaffected limb.

Injuries that may lead to CRPS

Occasionally, people who have had a spinal-cord injury, stroke or heart attack develop CRPS. However, most cases of CRPS occur after an injury to the arm or leg, such as:

- fracture – broken bone
- penetrating injury – such as a deep wound or laceration
- surgery – such as a knee arthroscopy or an operation to treat carpal tunnel syndrome.

Cause of CRPS

CRPS is a pain disorder that can affect different body systems. We do not understand the cause well. Most health professionals believe that a few different factors working together may trigger the symptoms. The way each of these factors contributes to the onset of CRPS may be different for each person.

Triggering factors, called 'disease mechanisms', are thought to include:

- Sympathetic nervous system dysfunction – the sympathetic nervous system is the part of your nervous system that attends to the 'housekeeping' of your body. It controls many involuntary actions in the body such as sweat production, blood flow, and hair and nail growth. Not all people with CRPS have sympathetic nervous system dysfunction.

- Somatic nervous system dysfunction – the somatic nervous system passes messages between the brain and limbs through the spinal cord. A person with CRPS may experience sensations like gentle touch, or warmth or cold as being painful (allodynia) – for example, clothing against the skin or air blowing over a limb. A person with CRPS may also experience strange sensations, such as clumsiness or feeling that their limb doesn't belong to their body.
- Neurogenic inflammation – the redness and swelling of CRPS may be different from the normal redness and swelling that generally follows an injury. Doctors think that the nerves themselves may release chemicals that cause these changes in the affected limb.
- Hypoxia – CRPS may tighten blood vessels. Restricted blood flow reduces oxygen in the body's tissues (hypoxia), which causes pain.
- Psychological factors – some doctors think that a person's reaction to a stressful life event can trigger CRPS, while other doctors strongly disagree. Current research suggests that psychological factors do not play a major role in the onset of CRPS, except in cases of extreme stress. Psychological factors can, however, play an important role in how well a person copes with CRPS.

Diagnosis of CRPS

There is no diagnostic test for CRPS. Diagnosis is based on a person's medical history and their symptoms. Sometimes, a doctor may order blood tests, bone scans, x-rays, CT scans or MRI scans to rule out other conditions that have similar symptoms.

Not all health professionals are familiar with CRPS. This can lead to a delay in diagnosis or a mistaken diagnosis of CRPS when the person does not have the condition. It is important that any diagnosis is made by a health professional who is familiar with the signs and symptoms of CRPS. This may be a doctor, physiotherapist or occupational therapist.

Treatment for CRPS

There is no simple cure for CRPS. Treatment often involves a number of approaches and aims to restore movement and function of the affected limb. Options may include:

- medication – such as pain-relieving medications. Medications that are usually prescribed for other conditions, such as epilepsy or depression, can sometimes help to manage CRPS, although this does not mean that the person has epilepsy or depression
- physical therapy – such as physiotherapy and occupational therapy. Typically, treatment starts with strategies to reduce pain and swelling. This is followed by gentle movement, then muscle-strengthening exercises to improve the functioning of the limb and, finally, exercises to improve the functioning of the person's whole body
- counselling and psychological support – for example, to help the person cope with stress, depression and chronic pain
- intervention therapy – such as nerve blocks. The most commonly used is a sympathetic ganglion block, which involves the use of a local anaesthetic to stop some of the nerves in the affected limb from working
- implant therapy – an operation to place a device such as an electrode or a medication-delivery system is placed into the person's body. The device helps to manage symptoms, including pain. However, implant therapy is considered a last resort when all other methods of pain management have failed.

Long-term outlook for CRPS

Most people recover from CRPS, but for some there is a range of ongoing symptoms that vary from minor to severe. For a small group of people with CRPS, significant pain and disability persist for years.

About one adult in 10 will develop a new bout of CRPS after they have been free of symptoms for some time. Children are more likely to have a relapse than adults. Relapses can happen for no known reason or can occur after surgery for a separate problem.

Current thinking suggests that the risk of relapse can be reduced if certain types of anaesthetic or pain medicines are used during any surgery.

Where to get help

- Your doctor
- Pain management service
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)

Things to remember

- Complex regional pain syndrome (CRPS) is a painful condition of the arm, hand, leg or foot that occurs after an injury, such as a fracture.
- There is no simple cure and no single recommended treatment for CRPS – treatment aims to restore movement and function of the affected limb.
- Most people recover from CRPS.
- Counselling and psychological support can help a person who has CRPS cope with stress, depression and chronic pain.

This page has been produced in consultation with, and approved by:

Austin Health - Pain Management Service

Content on this website is provided for education and information purposes only. Information about a therapy, service, product or treatment does not imply endorsement and is not intended to replace advice from your doctor or other registered health professional. Content has been prepared for Victorian residents and wider Australian audiences, and was accurate at the time of publication. Readers should note that, over time, currency and completeness of the information may change. All users are urged to always seek advice from a registered health care professional for diagnosis and answers to their medical questions.

For the latest updates and more information, visit www.betterhealth.vic.gov.au

Copyright © 1999/2015 State of Victoria. Reproduced from the Better Health Channel (www.betterhealth.vic.gov.au) at no cost with permission of the Victorian Minister for Health. Unauthorised reproduction and other uses comprised in the copyright are prohibited without permission.