Complex regional pain syndrome (CRPS)
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.

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 sweeter 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)

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More information

Brains and nerves

The following content is displayed as Tabs. Once you have activated a link navigate to the end of the list to view its associated content. The activated link is defined as
Active Tab

Brain and nerve basics
Brain and head injury
Brain tumours
Brain related conditions
Epilepsy and seizures
Nerve related conditions
Spinal cord
Speech and language
Tests and procedures

Brain and nerve basics

• Brain
  Messages relay between the brain and the motor and sensory nerves of the body in a constant ‘conversation’.

• Brain death
  Brain death differs from other states of unconsciousness in important ways.

• Brain surgery

betterhealth.vic.gov.au
Brain surgery is performed for a number of reasons, including alterations in brain tissue, brain blood flow and cerebrospinal fluid.

- Central nervous system birth defects

Folic acid taken before conception, and during at least the first four weeks of pregnancy, can prevent around seven out of 10 cases of neural tube defects.

- Coma

A wide range of illnesses, conditions and events can cause coma.

- Epilepsy and Young People - Diagnosis (video)

Epilepsy is the world's most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve.

- Nervous system

The nervous system helps all the parts of the body to communicate with each other.

### Brain and head injury

- Acquired brain injury

The long-term effects of brain injury will be different for each person and can range from mild to profound.

- Alcohol related brain impairment

A person with alcohol related brain impairment (ARBI) might experience problems with coordination, thinking, planning and memory.

- Alcohol related brain impairment - memory loss

If a person with alcohol related brain impairment is aware of their memory limits, they can learn how to deal with them.

- Alcohol related brain impairment - support

People with alcohol related brain impairment benefit when their life is organised and follows a good structure.

- Brain injury and sexual issues

A brain injury can change the way a person experiences and expresses their sexuality.

- Head and spinal injuries first aid

Head injuries can be serious and require urgent medical attention. A hard blow to the head from a fall, knock or assault can injure the brain, even when there are no visible signs of trauma to the.

- Head injuries and concussion

There is no specific treatment for mild head injury other than plenty of rest, and not overdoing things.

- Subarachnoid haemorrhage

A subarachnoid haemorrhage is any bleed located underneath one of the protective layers of the brain known as the arachnoid layer.

- Subdural haematomas

Subdural haematomas are blood clots formed underneath one of the protective layers of the brain.

### Brain tumours

- Acoustic neuroma

In its earlier stages, an acoustic neuroma can present similar symptoms to other, less serious conditions, which may delay diagnosis and treatment.

- Brain tumours - cancer

Brain cancer symptoms and treatment depend on which part of the brain is affected.

- Brain tumours - gliomas

Gliomas are brain tumours associated with the three types of glial cell in the brain.

- Meningioma

A meningioma is a non-cancerous brain tumour and responds well to treatment.

- Pituitary tumour

Generally, pituitary tumours are benign and slow growing, and pituitary cancers are extremely rare.

### Brain related conditions

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Creutzfeldt-Jakob disease (CJD)
Creutzfeldt-Jakob disease is characterised by physical deterioration of the brain, dementia and walking difficulties.

Dementia explained
Dementia is not a normal part of ageing and can happen to anybody.

Epilepsy and Young People - Diagnosis (video)
Epilepsy is the world's most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve.

Headache
Although nearly all of us will experience a headache during our lifetime, persistent headaches need to be medically investigated with tests such as scans, eye tests or sinus x-rays.

Headache – migraine
Migraine causes a severe and throbbing headache, usually on one side of the head, as well as symptoms such as nausea.

Hydrocephalus
Hydrocephalus is the abnormal enlargement of the brain cavities (ventricles) caused by a build-up of cerebrospinal fluid.

Leukodystrophy
Leukodystrophy refers to a group of inherited disorders that affect the white matter of the brain, which causes loss of normal brain functions.

Stroke explained
A stroke interrupts blood flow to an area of the brain and is a medical emergency.

Epilepsy and seizures

Epilepsy and employment
Many people living with epilepsy are successfully employed across a range of professional fields.

Epilepsy
Medication can provide seizure control for approximately 70 per cent of people with epilepsy.

Epilepsy and exercise
It is rare for a person with epilepsy to have a seizure during physical activity, but you should always take safety precautions when exercising.

Epilepsy and Young People - Diagnosis (video)
Epilepsy is the world's most common serious brain disorder and is characterised by a tendency to have recurrent seizures. Most seizures are spontaneous and brief yet self-limiting and can involve.

Epilepsy - first aid and safety
Good seizure management is an important part of reducing the risks associated with epilepsy.

Epilepsy in children
Children with epilepsy generally have seizures that respond well to medication, and they enjoy a normal and active childhood.

Epilepsy - lifestyle issues
Learn about your epilepsy so that you can make informed decisions about your lifestyle.

Fever - febrile convulsions
A febrile convulsion is a fit that occurs in children when they have a high fever.

Fibromyalgia
Fibromyalgia is a condition associated with widespread pain and tenderness.

Medicinal cannabis
Medicinal cannabis is a legal, high quality medicine that can be prescribed for people by their doctor.

Nerve related conditions

Bell's palsy
Majority of people with Bell's palsy, around 90 per cent, will recover completely with time.

- Carpal tunnel syndrome
  Carpal tunnel syndrome can be caused by repetitive hand movements, pregnancy and arthritis.

- Complex regional pain syndrome (CRPS)
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- Diabetes type 2
  Type 2 diabetes may be prevented, but it cannot be cured.

- Diabetic neuropathy
  Diabetes is the most common cause of neuropathy.

- Eyes - optic neuritis
  Optic neuritis is inflammation of the optic nerve that causes blurred, grey and dim vision.

- Friedrich's ataxia
  To the casual observer, a person with Friedrich ataxia may seem to be drunk.

- Guillain-Barré syndrome
  Most people with Guillain-Barré syndrome experienced some form of viral or bacterial infection before the onset of symptoms.

- Neuralgia
  Neuralgia is pain in a nerve pathway. Generally, neuralgia isn’t an illness in its own right, but a symptom of injury or a particular disorder.

- Pins and needles
  Pins and needles is a sensation of uncomfortable tingling or prickling, usually felt in the hands or feet.

Spinal cord

- Quadriplegics - tendon transfer surgery
  Many quadriplegics could live more independent lives with a highly specialised operation called tendon transfer surgery.

- Spina bifida
  Folate can prevent up to 70 per cent of spina bifida cases if taken daily for one month before conception and during the first three months of pregnancy.

- Spinal cord injury - paraplegia
  Most people who have a spinal cord injury are young males, who have a greater tendency to indulge in risky behaviour.

- Spinal muscular atrophy (SMA)
  A child with spinal muscular atrophy type 1 rarely lives beyond three years of age.

- Syringomyelia
  Syringomyelia is the growth of a cyst in the spinal cord that may result in paraplegia or quadriplegia if not treated.

Speech and language

- Childhood apraxia of speech
  Childhood apraxia of speech affects a person's ability to organise the muscles used in speech.

- Dyslexia
  Dyslexia is a type of specific learning difficulty (SLD) in which the person has difficulties with language and words.

- Stuttering
  Children who stutter should see a speech pathologist, preferably before they start school.

Tests and procedures

- CT scan
  The CT scan is a medical imaging procedure that uses x-rays and digital computer technology to create detailed images of the body.

- EEG test
In a person with epilepsy, an electroencephalogram (EEG) may show bursts of abnormal discharges in the form of spikes and sharp wave patterns.

- MRI scan
  The MRI scan is a medical imaging procedure that uses a magnetic field and radio waves to take pictures inside the body.
- PET scan
  PET scans are tests that show how an organ or tissue is working.
- X-ray examinations
  An x-ray examination uses a special machine to take two-dimensional pictures of internal body structures to help diagnose conditions or injuries.

Related Information

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- Pins and needles
  Pins and needles is a sensation of uncomfortable tingling or prickling, usually felt in the hands or feet.
- Sciatica
  Most cases of sciatica resolve by themselves within six weeks to three months.
- Eyes - optic neuritis
  Optic neuritis is inflammation of the optic nerve that causes blurred, grey and dim vision.
- Guillain-Barré syndrome
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Related information on other websites

- Australian and New Zealand College of Anaesthetists
- Mayo Clinic - Complex regional pain syndrome

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Complex regional pain syndrome (CRPS)

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