

Chronic recurrent multifocal osteomyelitis (CRMO)

Reviewed by SickKids Staff | Last updated: June 5th 2019

Information about an inflammatory disease called chronic recurrent multifocal osteomyelitis which causes pain and swelling in the bones.

Key points

- CRMO causes bone pain and swelling.
- Some children will have a few attacks. Others may have many attacks of bone inflammation.
- CRMO can be treated with medications.

What is chronic recurrent multifocal osteomyelitis?

Chronic recurrent multifocal osteomyelitis (CRMO), also sometimes called chronic nonbacterial osteomyelitis (CNO), involves inflammation of the bone.



Usually, inflammation is a normal process. It causes pain, redness and swelling. It is the way our immune system protects itself from infection and germs. In CRMO, however, there is no infection. Instead, the immune system wrongly attacks normal bone. This causes inflammation.

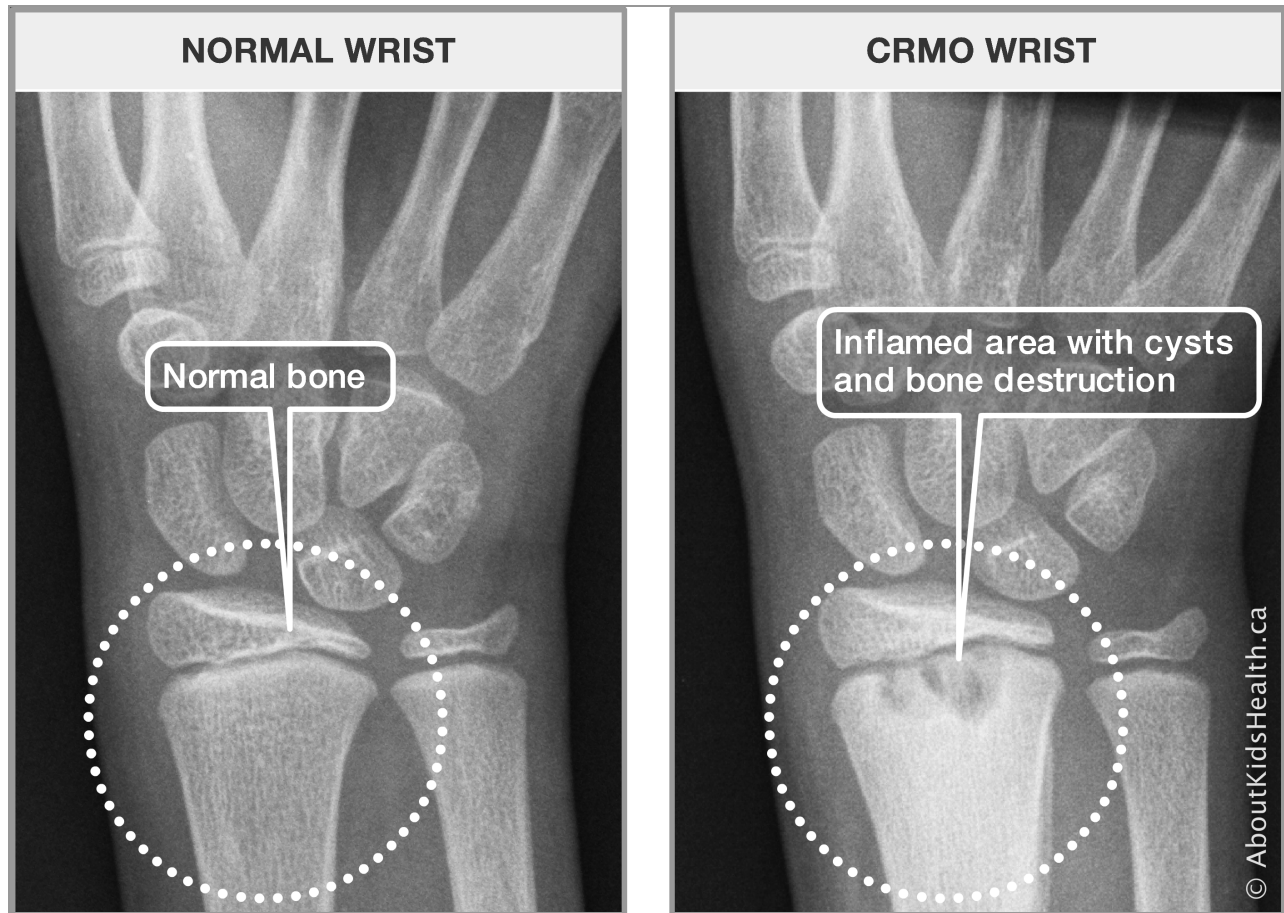
CRMO is slightly more common in girls than boys. It usually starts around the ages of eight to 14 years.

Signs and symptoms of CRMO

Most often, there is pain and swelling of the long bones. There may be one or many sites involved. The most commonly affected areas are near the knee, ankle or wrist. Bones of the

back (vertebrae), pelvis and collarbone can also be involved. The areas may be swollen, warm to touch and difficult to move. Fever may occasionally be present with the bone inflammation. Attacks may last a few weeks to months. Treatment can help reduce the length of the attack.

How CRMO affects bones



CRMO causes inflammation in bones. In the early phase, portions of bone may be destroyed. Later on, as part of the healing process, the bone thickens. The thickening is seen as the whiter and thicker bone on an X-ray.

Causes of CRMO

We do not know the cause of CRMO. Sometimes children with other diseases such as bowel inflammation (colitis) or psoriasis (a skin condition) also develop CRMO. Since the other diseases seem to run in families, CRMO may also be genetic. Researchers are looking into this.

Diagnosis of CRMO

CRMO is a diagnosis of exclusion. This means that other diseases must be excluded before the diagnosis can be made. Many tests are often required. These include blood tests, X-rays, MRI (both of the affected area and the whole body) and often a bone biopsy.

Treatment of CRMO

The goals for treatment are to:

- reduce pain
- improve the ability to move
- prevent any bone deformities or growth changes
- allow the child to lead a normal life

Most attacks of CRMO can be managed with nonsteroidal anti-inflammatory drugs (NSAIDs). These medicines are taken by mouth. They are the first line of treatment. The two most common NSAIDs are [naproxen](#) and indomethacin.

If NSAIDs are not effective, there are other drugs called second line treatments. These include:

- [corticosteroids](#) (prednisone)
- bisphosphonates ([pamidronate](#))
- biologics (etanercept, infliximab, [adalimumab](#), anakinra)

Studies are being done to determine the best second line treatment.

How your health-care team can help

Medications can help. So can other types of treatment.

Physiotherapists help keep the muscles strong and the joints moving properly. Occupational therapists help make daily life easier. They may suggest changes at school or at home. A social worker, nurse or child life specialist can help your child cope with the emotional challenges of having a chronic illness.

Outlook for children with CRMO

Attacks may come and go over several years. Fortunately, attacks usually decrease over time. Studies have shown that children with CRMO can safely take part in normal physical activities. They can usually attend school.

Regular clinic visits help determine the amount of bone inflammation. These visits can also help determine whether your child needs more tests and medications. If other diseases are found, a referral will be made to the appropriate specialist.

School, gym and other activities

If your child is having an attack of CRMO, it may be difficult to do gym class and sports. Most children can figure out what they are able to do. You can help by letting their teachers and coaches know.

Sometimes the pain may make it difficult for children to concentrate. This can make going to school a challenge. Medications will usually enable a child with CRMO to go to school. Let the school know about your child's condition. They can make accommodations if needed.

Follow-up care

Your child will be referred to a rheumatology clinic for follow-up care. Usually, a rheumatology clinic will have a team of doctors and nurses who have experience treating children with CRMO.

Other members of the rheumatology team may include:

- a physical therapist and an occupational therapist to help with your child's movement of joints and maintain muscle strength
- a social worker and a child life specialist to help with any emotional and behavioural problems that might result from the disease
- a dietitian to help with your child's diet and nutrition

Your child may need a blood test during a clinic visit. This will help doctors monitor the disease. They will also check for side effects of the medicine your child is taking. If your child needs to prepare for clinic visits in any other way, the rheumatology team will tell you before the visit.

After you have met the rheumatology team, you will know more about how to care for your child. They will tell you how to plan for future clinic visits.

[Please visit AboutKidsHealth.ca](https://www.aboutkidshealth.ca) for more child health information.

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