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## Osteoporosis in children

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### Summary

- Osteoporosis causes bones to become weak and lose their strength.
  - Osteoporotic bones break more easily than normal bones.
  - Osteoporosis in children is a rare condition that is usually caused by an underlying medical condition.
  - Treatment depends on the cause, but may include dietary changes, a supervised exercise program and treatment for any underlying medical condition.
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Osteoporosis is a condition that causes bones to become weak and lose their strength, making them break more easily than normal bones. When this condition occurs in children it's called juvenile osteoporosis.

This rare condition is usually caused by an underlying medical condition, certain medication used to treat a medical condition, or lifestyle factors such as poor diet and lack of exercise. This is known as secondary osteoporosis.

Less commonly, osteoporosis will occur for an unknown reason. This is known as idiopathic juvenile osteoporosis.

### Our bones

Our bones are living tissue that is constantly growing, rebuilding, replacing and repairing. From the time we're born, to about 25 years of age, we build more bone than we lose. This helps us grow and develop strong skeletons that will support us throughout our lives.

In children with juvenile osteoporosis, this process is altered. Not enough bone is built, or too much bone is lost, or it could be a combination of both of these. Bones become less dense, lose strength and break more easily.

Osteoporosis is more common in older people, especially in postmenopausal women, however it can occur at any age.

### Causes of juvenile osteoporosis

In most cases, juvenile osteoporosis is caused by an underlying medical condition, certain medications used to treat a medical condition or a lifestyle factor.

Causes include:

- medical conditions – including juvenile idiopathic arthritis, osteogenesis imperfecta, diabetes, kidney disease, hyperthyroidism, Cushing's syndrome, inflammatory bowel disease, cystic fibrosis and anorexia nervosa
- medication – such as some types of cancer treatments, anticonvulsant medication (used to manage epilepsy) or corticosteroids (used to treat a wide range of conditions including arthritis and asthma)
- lifestyle factors – inadequate nutrition (especially lack of calcium and vitamin D), or excessive exercise that leads to disruption of the menstrual cycle. Children who are bedridden or have prolonged periods of immobility are at increased risk of juvenile osteoporosis because they're unable to participate in weight-bearing activities that encourage bone density. Inadequate dietary intake, smoking and alcohol may also lead to juvenile osteoporosis.

### Symptoms of juvenile osteoporosis

Osteoporosis may not cause any obvious symptoms that you can see. That's why osteoporosis is often called a silent condition; there are usually no signs or symptoms until a bone breaks.

## Diagnosing juvenile osteoporosis

Juvenile osteoporosis is usually not diagnosed until after a child has broken a bone. Diagnosis may include:

- medical history
- physical examination
- medical histories of family members to find out if a genetic disorder is the cause
- a bone scan – dual energy x-ray absorptiometry (DEXA) to test bone density
- blood tests.

## Idiopathic juvenile osteoporosis

Sometimes no underlying cause can be found. In these rare cases, the condition is called idiopathic juvenile osteoporosis. A child with this condition tends to have symptoms such as pain in the lower back, hips and feet, often accompanied by difficulty walking, and spinal deformities.

Generally, idiopathic juvenile osteoporosis tends to resolve by itself, and most children will experience a complete recovery of bone tissue. However, in some children disability may extend into adulthood. The reason for this is unknown.

## Long-term risks of osteoporosis in children

Throughout childhood, we're building up our peak bone mass, which is achieved before the age of 30. The more bone mass we have, the stronger our bones, and the lower the risk of osteoporosis later in life.

Without treatment, juvenile osteoporosis can affect bone integrity and increase the child's risk of osteoporosis and osteoporotic fractures later in life.

That's why diagnosing and treating juvenile osteoporosis as soon as possible is so important.

## Treating juvenile osteoporosis

In most cases, juvenile osteoporosis can be treated. Treatment depends on the cause but may include:

- diagnosing and treating an underlying medical condition
- changing medication – if this is the cause, your doctor may lower the dose or prescribe a different medication
- encouraging your child to take part in a regular and appropriate exercise – talk with a physiotherapist or exercise physiologist about creating an exercise program that promotes bone growth, is safe and won't cause a fracture
- increasing calcium in the diet – including dairy products (such as milk, cheese and yoghurt) and other sources of calcium (such as leafy green vegetables, tofu, nuts, legumes) and calcium-fortified foods (for example, soy milk). Talk with your doctor or a dietitian if you need some advice on ways to increase calcium in your child's diet
- adequate vitamin D – we obtain most of our vitamin D from the sun, so it's important your child's skin (hands, face, arms) is exposed to the sun for five to ten minutes every day in the warmer months (avoiding the hottest period of the day), and about 30 minutes in the cooler months. The exact amount of time needed will depend on your child's skin colour and where you live in Australia. For most people, it's unlikely that adequate quantities of vitamin D will be obtained through diet alone. If you're not sure if your child is getting enough vitamin D, talk with your doctor
- taking calcium and vitamin D supplements if necessary – talk to your doctor about this
- protecting your child against fractures – for example, by avoiding contact sports
- avoiding caffeine (for example, coffee, tea and some soft drinks)
- medication – may be needed to help manage symptoms (such as pain after a fracture), or in severe juvenile osteoporosis to encourage bone strength. Discuss medication options with your doctor.

## Where to get help

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**[betterhealth.vic.gov.au](http://betterhealth.vic.gov.au)**

- Your doctor
- Paediatrician
- Physiotherapist
- Exercise physiologist
- Dietitian
- **MOVE muscle, bone & joint health**. National Help Line Tel. (03) 8531 8000 or 1800 263 265
- Osteoporosis Australia Tel. 1800 242 141

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

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