Osteoporosis in children

Summary

- Osteoporosis causes bones to become less dense, lose their strength and break more easily.
- 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.

Osteoporosis is a condition that causes bones to become less dense and lose their strength, making them break more easily. When this condition occurs in children it's called juvenile osteoporosis.

This rare condition is usually caused by an underlying medical condition, certain medications 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.

Bones

To understand osteoporosis, it's helpful to know a little about how bones work.

Bones are made of living tissue that's constantly growing, rebuilding, replacing and repairing. From the time you're born, to about 25 years of age, you build more bone than you lose. Your bones are not only getting bigger during this time, they're also developing their density. This determines how strong they are.

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 the two. Their bones become less dense, lose strength and break more easily.

Osteoporosis and bone structure

If you were able to look inside your bones, you'd see that the inside is a honeycomb-like structure.

In healthy bone, the spaces in the honeycomb are small and densely packed. This makes bones strong enough to provide your body with structure and to protect your insides, while at the same time being light enough for you to move around.

When a person develops osteoporosis, the spaces in this honeycomb structure become larger and bone density is lost. This means the bone loses its strength and becomes more fragile.

Osteoporotic bones break (or fracture) more easily than healthy bone. Even a minor bump or fall can cause a serious fracture.

What causes juvenile osteoporosis?

In most cases, juvenile osteoporosis is caused by:

- an underlying medical condition
- certain medications used to treat a medical condition, or
- lifestyle factors.

Causes of juvenile osteoporosis include:

- medical conditions – including juvenile idiopathic arthritis, osteogenesis imperfecta, diabetes, kidney disease, hyperthyroidism, Cushing’s syndrome, inflammatory bowel disease, cystic fibrosis and anorexia nervosa
- medications such as:
- some types of cancer treatments
- anticonvulsant medication – used to manage epilepsy
- corticosteroids – used to treat a wide range of conditions including arthritis and asthma
- lifestyle factors such as:
  - poor nutrition – especially lack of calcium and vitamin D
  - excessive exercising – this can also lead to disruption of the menstrual cycle in girls
  - excessive lack of exercise or being immobile for prolonged periods of time – bones need regular exercise to grow strong and develop their density.

What are the 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.

How is juvenile osteoporosis diagnosed?
Juvenile osteoporosis is often not diagnosed until after a child has broken a bone.

Diagnosis may include:
- taking a detailed family medical history
- physical examination
- a bone scan – dual energy x-ray absorptiometry (DEXA) to test bone density
- blood tests.

What is idiopathic juvenile osteoporosis?
Sometimes no underlying cause can be found. In these rare cases, the condition is called idiopathic juvenile osteoporosis – 'idiopathic' literally means the cause is not known.

A child with this condition may have symptoms such as:
- pain in the lower back, hips and feet
- difficulty walking
- development of curvature of the spine.

Generally, idiopathic juvenile osteoporosis tends to resolve by itself, and most children will experience a complete recovery of bone tissue. However, in some children, their bones may not become as strong as other people their age, or they may be left with problems relating to bone fractures they’ve had.

Working closely with your child’s healthcare team and following the treatment plan that’s been developed for them is vital. This will give your child the best chance to manage their condition well, prevent fractures and reduce the risk of long-term problems.

What are the 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 the strength and density of bones, and increase your child’s risk of having osteoporosis and osteoporotic fractures later in life.

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

How is juvenile osteoporosis treated?
Your child’s doctor will develop a specific treatment plan for your child’s condition. 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

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encouraging your child to take part in 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 – calcium is essential for bone health. Dietary sources of calcium include dairy products (such as milk, cheese and yoghurt), 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

getting adequate vitamin D – vitamin D helps increase the absorption of calcium, and strengthens our bones. We get most of our vitamin D from exposure to the sun, so it’s important your child’s skin (hands, face, arms) is exposed to the sun every day. The exact amount of time needed will depend on your child’s skin colour, the time of year and where you live in Australia. If you’re not sure if your child is getting enough vitamin D, talk with your doctor

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

supplements – your doctor may prescribe calcium or vitamin D supplements if your child is unable to get enough through diet or exposure to sunlight.

Where to get help

- Your GP (doctor)
- Paediatrician
- Physiotherapist
- Exercise physiologist
- Dietitian
- Musculoskeletal Australia. National Help Line Tel. (03) 8531 8000 or 1800 263 265
- Osteoporosis Australia Tel. 1800 242 141

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