

Scoliosis

Scoliosis is an abnormal sideways curve of the spine. The cause is usually unknown. Surgery is recommended in severe cases.

In profile, the healthy spine has three natural curves that form a loose 'S' shape: at the neck, upper back and lower back. From the rear, the healthy spine should look straight. When a person has scoliosis, they have an abnormal sideways curve that makes the spine look tilted when viewed from the rear.

Scoliosis tends to develop in late childhood. About one in every two people is thought to have mild scoliosis, which is painless, does not worsen and does not need treatment. However, severe scoliosis is a painful and debilitating condition that tends to worsen with age. About three children out of every 1000 have scoliosis that needs medical treatment.

Symptoms

Scoliosis can be mild, moderate or severe. The symptoms and signs of scoliosis can include:

- One shoulder tilted down towards a raised hip, as if the child is leaning sideways
- Prominent ribs
- A protruding shoulder blade
- Tilted waist
- The curve is more pronounced when the child bends forward.

Different types of scoliosis

Some of the different types of scoliosis include:

- **Idiopathic (cause unknown) scoliosis** – this is the most common type of scoliosis, accounting for about eight cases out of every 10.
- **Infantile idiopathic scoliosis** – usually develops before the age of three years. Boys are more commonly affected.
- **Juvenile idiopathic scoliosis** – usually develops between three and 10 years of age. Girls are more commonly affected.
- **Adolescent idiopathic scoliosis** – most cases of scoliosis tend to develop prior to adolescence and during the growth spurt. Girls are more commonly affected.
- **Adult scoliosis** – scoliosis is uncommon in adults. Adult scoliosis is sometimes caused by a degenerative joint problem. In most cases, the scoliosis started in childhood but was not diagnosed until later in life.

Known causes

About two cases of scoliosis in every 10 have a known cause, including:

- **Uneven leg length** – having one leg shorter than the other causes the hips to tilt. To compensate, the shoulders tend to tilt the other way. This is known as 'compensatory scoliosis'.
- **Neuromuscular conditions** – such as cerebral palsy. Muscle spasms can pull the vertebrae out of alignment.
- **Certain diseases** – such as osteoarthritis.

Current theories about idiopathic scoliosis

Current theories about the possible causes of idiopathic scoliosis include:

- **Genetic factors** – in some cases scoliosis appears to run in families. The precise genetic abnormality is currently unknown but is being investigated.
- **Congenital abnormalities** – some children may be born with defects in certain structures including the brain stem and spinal cord. These defects may play a role in the development of scoliosis in some cases.
- **Other abnormalities** – including problems with connective tissue (such as ligaments) or the nervous system.
- **Hormone problems** – some researchers theorise that hormones may contribute to scoliosis because the condition is more common in children who are approaching adolescence.

Progressive scoliosis

Most cases of scoliosis are mild and do not need medical treatment. However, progressive scoliosis is a curve that worsens as the years go by. Without medical treatment, progressive scoliosis can cause:

- Constant back pain
- Inflammation of the back bones (vertebrae)
- Breathing difficulties as the ribcage is compressed
- Injury to the heart and lungs caused by deformities of the ribcage
- Susceptibility to chest infections such as pneumonia
- Problems with pregnancy because of the increased load on the already compromised spine
- Increased risk of bone loss
- Physical disability that may prevent working and impair quality of life
- Increased risk of osteoporosis in later life.

Risk factors for progressive scoliosis

Risk factors may include:

- **Gender** – girls are more commonly affected than boys.
- **Age of onset** – generally speaking, scoliosis found in young children will resolve as they get older. If, however, the curve is progressive, it is likely a severe deformity will develop. Babies born with infantile idiopathic scoliosis tend to be at increased risk.
- **Severity of the curve's angle** – severe angles are more likely to worsen than mild angles.

Diagnosis methods

Any abnormal curve in a child's spine should be investigated, regardless of whether or not the child feels any pain. Scoliosis is almost always painless at first. A child should also be screened if there is a family history of the condition.

Scoliosis is diagnosed by using x-rays and careful physical examination. Factors that are assessed during the examination include:

- The shape of the curve (for example, an 'S' or 'C' shape)
- The location of the curve (in the upper back, lower back or both)
- Whether the curve leans towards the left or right side
- The angle of the curve.

Treatment options

There is no evidence to suggest that scoliosis can be successfully managed with exercise, physiotherapy or chiropractic treatment. In severe cases, treatment may include:

- **Orthopaedic brace** – the brace is an option for children prior to adolescence. However, the brace does not guarantee a cure. In some cases, the spine may grow straight during adolescence. In other cases, the brace can only prevent the curve from worsening, or delay the need for surgery.
- **Surgery** – severe cases need surgical correction. Various operations are available. An operation called 'posterior spinal fusion and instrumentation' may be recommended. This involves chocking the affected vertebrae with bone usually harvested from the patient's pelvis. Surgically implanted rods, hooks, screws, wires or other devices keep the spine straight while the transplanted bone knits with the vertebrae. The implants are usually permanent.

Where to get help

- Your doctor
- Orthopaedic surgeon.

Things to remember

- Scoliosis is an abnormal sideways curve of the spine.
- Surgery to straighten the spine is recommended in severe cases.
- There is no evidence to suggest that scoliosis can be successfully managed with exercise, physiotherapy or chiropractic treatment.

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

Scoliosis Association of Australia

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