

Adolescent idiopathic scoliosis

What you're feeling

Adolescent idiopathic scoliosis means your spine has grown with a sideways curve and a twist. It affects about 2% to 3% of children. Most of the time, the curve itself causes no pain at all. What families usually notice first is a change in shape rather than a feeling: one shoulder sitting higher than the other, a rib hump showing on one side of the back when you bend forward, or one hip sticking out more than the other.

When back pain does happen, it is usually mild. Fewer than 10% of people with this condition have long-lasting back pain. If you do have pain, it may sit in the lower back or around the curve itself, and it often flares after sport or a long day of sitting at a desk or in class. Pain that is strong, wakes you at night, or keeps getting worse is not typical of this condition and is always worth telling your doctor about, because it needs a closer look.

Day to day, the curve can affect how your clothes sit, with a hem or collar looking uneven in the mirror. Standing for a long time or carrying a heavy school bag can feel harder on one side. Some people feel self-conscious about their back or shoulders, and that worry is a real part of living with scoliosis, not just vanity. If it is weighing on you, say so at your appointment, because support exists for it too.

Curves behave differently depending on their size and where they sit in the spine. Small curves under 20 degrees often stay the same or improve on their own. Bigger curves can grow during the teenage growth spurt, which is why your doctor measures your curve on X-ray and keeps an eye on it over time. Once your skeleton stops growing, a curve under 30 degrees rarely changes much, while larger curves can keep growing slowly through adult life.

What's actually happening

A healthy spine looks straight from behind and stacks up like a neat tower of blocks. In scoliosis, the spine grows with a sideways curve and, at the same time, the small bones of the spine rotate, or twist, towards the outside of the curve. That twist is what pushes a rib cage out of line and creates the rib hump you may have seen when bending forward. So this is not just a bend in one direction. It is a three-dimensional change in shape, happening in the curve, the twist and the front-to-back profile of your spine all at once.

Why does it happen? The honest answer is that no one knows for certain. The condition is called idiopathic, which means the cause is unknown. It tends to run in families, so genes play a part, and growth itself plays a

part too. During the teenage growth spurt, when the skeleton is growing quickly, an unevenly growing spine can be pushed further out of shape. The curve then tends to keep progressing until the skeleton stops growing.

Curves are measured in degrees on an X-ray, and the size of the curve matters. Curves under 20 degrees often stay the same or improve on their own. Curves over 30 degrees during the growth spurt almost always keep growing, and a curve that passes 30 degrees at the fastest point of growth is likely to need surgery. Once growth is finished, large curves can still change slowly. Curves over 50 degrees in the chest area, or over 40 degrees in the lower back, can keep worsening by about 1 degree each year. Very large curves, over 60 degrees, can start to crowd the lungs and affect breathing.

The changes you notice, such as uneven shoulders or a rib hump, are the visible result of the curve and the twist working together. The spine itself is otherwise healthy bone, and the goal of any treatment is to keep the curve small and your body moving well.

What we can do about it

The first rung is watching and waiting. If your curve is under 20 degrees and you still have substantial growth ahead of you, we simply observe it with check-ups and X-rays rather than treat it. Exercises are sometimes offered alongside this. Physiotherapy aims to improve your posture, movement and quality of life, and some programs teach you to hold your spine in a corrected position yourself. The effect on the curve itself is small, so we do not rely on exercises alone to stop a curve growing. Chiropractic manipulation, electrical stimulation and traction have no evidence behind them for scoliosis, so we do not recommend them.

If your curve sits between 20 and 45 degrees and you still have substantial growth remaining, we usually suggest a brace. A brace is a rigid jacket worn under clothes. Its job is not to straighten the spine but to stop the curve getting worse while you finish growing. Once your skeleton has stopped growing, bracing no longer helps, and a mature curve under 50 degrees generally just needs watching rather than treating.

Surgery enters the conversation when a curve passes 50 degrees, or when a curve is heading past 45 degrees in someone still growing. At that size, bracing cannot hold it, and large curves tend to keep worsening by about 1 degree each year even after growth finishes. The operation we most commonly offer is a spinal fusion, where the curved part of the spine is straightened and then held with metal implants until the bones knit together in the corrected position. We fuse as few segments of the spine as the curve allows, and the aim is a balanced spine that stops the curve from progressing further. Surgery is a shared decision between you, your family and us, weighing the deformity against your long-term goals, and it has its own page if you want the detail.

What to expect

The outlook depends mostly on how big your curve is and how much growing you have left. While your skeleton is still growing, a curve that starts to progress usually keeps going until growth finishes. Growth stops at about fourteen and a half years in girls and sixteen and a third years in boys. Once your spine has finished growing, the curve generally stops getting worse, though larger curves can still change slowly through adult life.

How much a curve changes after growth ends depends on its size at that point. Curves under 30 degrees barely move over the following decades. Curves between 30 and 50 degrees in the chest area can add around 10 degrees over 40 years, and those in the lower back around 15 degrees. Curves between 50 and 75 degrees grow more, adding up to around 29 degrees in the chest and around 19 degrees in the lower back over the same span. This is why a curve past 50 degrees at the end of growth is the usual point where surgery is considered, and why we keep checking curves for years, sometimes decades, rather than a single season.

If your curve is managed well while you are still growing, the realistic goal is a spine that stays balanced and stops progressing. Bracing can hold curves of 40 degrees or less in growing children, whether worn full time or part time. Surgery for larger curves aims to stop the curve worsening for good. Being honest about the other side: untreated curves that pass 50 degrees carry the greatest risk of steady worsening through adulthood, and some people have lower quality of life and less capacity to work decades after diagnosis. Very large chest curves can also affect breathing, and up to 19% of people with this condition have moderately reduced lung function before any surgery.

That is why we examine carefully and sometimes order extra imaging before any treatment decision.

When to see someone

See your GP if you notice any of the shape changes described earlier: uneven shoulders, a rib hump when bending forward, or one hip sticking out. Ask for a specialist review if your curve measures 20 degrees or more, since treatment is generally recommended from that size. Because this condition runs in families, it is worth having your children checked too.

Some signs need a closer look rather than routine watching. Pain that is strong, wakes you at night, or keeps getting worse is not typical of scoliosis and needs prompt assessment. So does any weakness, numbness or change in feeling in your arms or legs, or anything unusual on the skin of your lower back such as a dimple or a patch of hair. These can point to a problem within the spine itself, and they need proper imaging to rule it out.

Go to an emergency department if you suddenly lose feeling or movement anywhere, or if you develop trouble breathing alongside a large chest curve.