



Watch Your Back

Everyone's spine has natural curves. These curves round our shoulders and make our lower back curve slightly inward. However, some people have spines that also curve from side to side. Unlike poor posture, these curves cannot be corrected simply by learning to sit and up straight.

In this issue of Lifeline, we touch on this condition of side-to-side spinal curves, Scoliosis.

What Is Scoliosis?

Scoliosis is a condition where the normally straight spine curves laterally (side-to-side), forming an "S" shape. When viewed on an x-ray, the spine of a person with scoliosis appears like an "S" or a "C" shape rather than a straight line.

What Are The Types And Causes Of Scoliosis?

There are various types of scoliosis and causes for spinal curvature. The four main types of scoliosis are:

- **Idiopathic scoliosis** is one of the commonest forms of scoliosis. As its name suggests, the cause is unknown. It has been known to run in families but no responsible genes have been identified presently. Idiopathic scoliosis can present at three age groups: infantile (younger than 3 years old), juvenile (3 - 10 years old), and adolescence (older than 10 years old). The commonest age group is the adolescent age group. Children with idiopathic scoliosis appear to be totally healthy without any bone or joint disease in the early part of their lives.
- **Congenital scoliosis** is due to congenital birth defects in the spine and is often associated with other organ defects.
- **Neuromuscular scoliosis** is due to loss of control of the nerves or muscles that support the spine. Common causes of this type of scoliosis are cerebral palsy and muscular dystrophy.
- **Degenerative scoliosis** may be caused by degeneration of the discs (which separate the vertebrae) or arthritis in the joints that link them. Unlike the first three types that present in childhood, this type of scoliosis occurs later in life.

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Scoliosis is not caused by carrying heavy objects (such as heavy school bags on one shoulder), sports or physical activities, poor standing or sleeping postures, or a lack of calcium in the diet.

How Common Is Scoliosis?

Scoliosis affects children of all races but is more common in girls than in boys (ratio of 7:1). In Singapore, the prevalence of adolescent idiopathic scoliosis in schoolgirls is 1.4% at 11 - 12 years of age and 2.2% at 13 - 14 years of age. Thus, the older the child, the higher the prevalence of scoliosis.

What Are Some Signs Of Scoliosis?

Many signs of scoliosis are noticeable and can be detected in early childhood. These include:

- "S" shaped curve in the back when standing
- Curving of the body to one side when viewed from the front or back
- One shoulder that appears higher than the other
- A tilt in the waistline
- In females, one breast may appear higher than the other

Scoliosis in school children is commonly detected during screening in schools by nurses who observe for asymmetry of the trunk when the child bends forward (Adam's forward bending test).

Treatment For Scoliosis

Scoliosis cannot be corrected by learning to sit or stand up straight. Food or vitamin supplements and exercise programmes have not been shown to be of value in treating the condition.

Although about 10% of all male and female adolescents suffer from scoliosis, less than 1% have curves that require medical attention.

Scoliosis can be mild, moderate or severe and treatment may include one or a combination of the following:

Observation

This non-operative treatment of scoliosis involves observing the deformity with regular examinations and follow-up x-rays. Curves that are less than 25 degrees can be observed at 4 to 6 monthly intervals.

A growing child who has a curve greater than 25 degrees will require treatment. A brace may be used to treat progressive curves or curves more than 25 degrees.

Bracing

Bracing is designed to stop the progression of the spinal curve, but it does not reduce the amount of angulation already present. Thoraco-lumbar-sacral orthosis (TLSO) is one of the more commonly used scoliosis braces. Spinal bracing is recommended for growing children with progressive curves. When the curves are large, surgery is the recommended option.

Surgery

Surgery is recommended for growing children with curves that are greater than 40 degrees and for curves that are more than 50 degrees at any age. It is a common misconception that scoliosis does not progress after skeletal maturity. It has now been shown that if left untreated, large idiopathic curves above 50 degrees will continue to progress in adulthood.

Surgical treatment of scoliosis may be indicated for any of these reasons:

- To prevent further progression of the curve
- To control the curve when brace treatment is unsuccessful
- To improve an undesired cosmetic appearance
- For reasons of discomfort or postural fatigue

The most common surgical treatment for scoliosis is a spinal fusion using special stainless steel/titanium rods, hooks, screws and bone graft to carefully straighten the curved portion of the spine. In suitable patients, the surgery can be achieved through thoracoscopic "keyhole" techniques that require only 4 to 5 small openings on the side of the chest.

Using modern spinal instrumentation, scoliosis patients who have undergone surgery lead normal and independent lives and can participate in most, if not all forms of sports. However, in the first few months after surgery, they need to be careful with physical activities. We have on the following page some information that we routinely advise our patients upon discharge after surgery.

Physical Activities

- Avoid activities that could injure your back and do not lift heavy loads (more than 5 kg).
- Do not sit or stand in one position for more than 30 minutes.
- As you recover, you can slowly increase your activity levels. Take a few short walks everyday and increase your walking duration as you recover gradually. You can even climb the stairs if you feel up to it.
- If a brace is prescribed, you are advised to wear it when you are up and about. You can remove it when sleeping.

If you feel greater pain than usual after an activity, you may have over-exerted yourself. Rest for a few hours to allow your back to recover.

Posture

- Do not twist your waist and back. Instead, turn around with your entire body and feet.
- Do not bend at your waist. Instead, keep your back straight and bend your knees.
- Always maintain a good posture when walking and sitting to reduce stress on your back.

Wound Care

- Keep your wound dressing clean and dry.
- You can continue to shower as long as the wound is protected by a waterproof dressing.

Diet And Medication

- There are no special dietary restrictions unless advised by your doctor.
- Take the medication as prescribed by your doctor.

Home Environment

- Sleep on a bed with a firm base.
- Sit on chairs with a firm base and back support. Dining chairs with armrests are recommended.

It is important to see your doctor if you have any of the following symptoms:

- Increased swelling, redness or drainage at the wound.
- High fever (more than 38 °C).
- A sudden increase in pain.
- Increased numbness or weakness in your arms and legs.

After Scoliosis Surgery - Some FAQs

When can I go back to school?

Under normal circumstances, most patients can return to school 3 to 4 weeks after surgery. Your doctor will be able to advise you further.

When can I resume my favourite sports and exercise?

You will be exempted from Physical Education lessons for a year. Avoid jumping, twisting, running or swimming in the initial 6 months after surgery. As each individual's recovery rate is different, your doctor will advise you when you are ready for more physical activities and sports.

Will the surgery affect me in future if I wish to start a family?

No, the surgery does not affect your reproductive abilities.

Will the metallic spinal implants activate metal detectors?

No, these spinal implants are located deep in the body and will not activate metal detectors.

Support for Scoliosis Patients

Scoliosis patients and their family members can receive emotional and social support with NUH's Scoliosis Support Group. Patients and their caregivers can receive interactive and informative discussions about their condition with the team of specialist doctors, nurses, volunteers and healthcare providers. They can also participate in sharing sessions with fellow scoliosis patients.

For more information on the Scoliosis Support Group, please contact Nurse Clinician Lim Ling at 9310 1109 (pager).