

unequal pull of the muscle on one side of the spine causes it to rotate to one side," says Dr Tan Chong Tien, a scoliosis specialist in private practice.

But in eight out of 10 cases, the cause remains unknown. Which is really a mystery, adds Dr Tan.

"The bone structure, nerve and muscles are all normal but the spine rotates on its own to one side in the chest area, usually to the right side.

"This pushes the ribs towards the back on the right side and the ribs on the left are pushed forward. Instead of a level back, you get a hump on the right side. Some girls also complain of what they think are unequal breasts because of the uneven chest wall," he adds.

For these "unexplained" cases, especially in girls, Prof Wong puts it down to faster physical and sexual maturation among the adolescent girls of today. What can be done about scoliosis? Experts share their opinions...

### Q: What causes scoliosis?

**Prof Wong:** Contrary to popular belief, heavy school bags, long hours hunched up in front of the computer and poor posture do not cause scoliosis in children. Parents should be reassured that it's not something they didn't do, or did wrong. Unfortunately, other than being born with scoliosis, the cause of it remains unknown.

### Q: Will standing straight or swimming help?

**Prof Wong:** No, to date, only the constant wearing of a brace and surgery have proven effective. However, alternative treatment like chiropractic manipulation, electrical stimulation and nutritional supplements seem to help in some cases.

For example, some patients with idiopathic or unexplained scoliosis have curves that don't increase in size. In such patients, it may appear that the alternative treatment has prevented progression of the curve. In cases where the size of the curve has decreased, it could be because X-ray measurements of the same curve vary when measured at different times or by different doctors, not as a result of any treatment.

### Q: What is a brace and when is it necessary?

**Dr Tan:** A brace is like an armour plate made of thick plastic worn under the arm and around the pelvis, depending on the length of the curve. It's almost like a clamp around the spine to prevent the deformity from getting worse. A brace is recommended when there's a 20- to 30-degree spinal curve.

### Q: How often should you do an X-ray to track the curve?

**Dr Tan:** If a child enters a growth spurt and the curve is more than 20 degrees, the condition should be reviewed every three months. But after the growth spurt, a six-monthly check is okay; it's best not to X-ray the child too often. For girls, the growth spurt is usually around the time of the first period. For boys, it's usually around the time their voice changes.

### Q: When is surgery needed?

**Prof Wong:** Surgery is necessary when the spinal curve is 40 degrees or more in a growing child.

**Dr Tan:** In surgery, an S-curve that's 54 degrees at the top and 48 degrees at the bottom, can be corrected to 25 degrees and 8 degrees, respectively. Two titanium rods about 5 or 6mm in diameter are placed onto the back of the spine. The

## Can Physiotherapy Help?

It depends on whether the scoliosis is structural (fixed) or functional (a result of habits), says Elaine Koh, a physiotherapist in private practice.

Functional scoliosis results from imbalance in tissue, posture, a habit of walking lopsided, or even leg length discrepancies.

While there is "very little chance" of correcting structural scoliosis, physiotherapy can help functional scoliosis.

Postural exercise – correcting a slouch or fixing the ergonomics of the desk, and musculo-skeletal rehabilitation – where a child is taught how to contract and stretch certain muscles, can make a difference.

surgery takes four hours, and a patient is hospitalised for five to seven days, with three to four days of complete bed rest.

### Q: How rapidly does scoliosis worsen, particularly in girls?

**Prof Wong:** It's not known why scoliosis occurs more in girls. The rate of worsening in girls also varies. It averages 1 to 2 degrees a month during the adolescent growth period. After skeletal maturity, curves that are 50 degrees or more increase at the rate of 1 to 2 degrees a year.

### Q: Does scoliosis ever "correct" itself as the child grows?

**Prof Wong:** Unfortunately, this is very rare, and if it does occur, it's usually in children who have not reached puberty. However, not all cases of idiopathic or unexplained scoliosis worsen.

### Q: What's the worst that can happen if it's untreated?

**Prof Wong:** Progressive curves that are untreated can result in severe trunk deformity. The patient gets progressively shorter and the spine deformity causes a big and unsightly hump over the back.

**Dr Tan:** In very rare cases, the deformed thoracic spine can deform the chest, and the patient may feel breathless. Very poor lung function may cause the heart to fail. **IM**

Photography by Marcus Yeo

## More girls with curved spines

The most common scoliosis in Malaysia is Adolescent Idiopathic Scoliosis, which affects youngsters between the ages of 10 to 14, says Dr Siow Yew-Siong, an Orthopaedic and Spine Specialist who sub-specialises in spinal disorders. He adds that girls have a 9:1 ratio to boys for severe curves of more than 40 degrees, and a 3:1 ratio for curves between 10 to 20 degrees. This ratio clearly shows girls are more prone to suffer from this medical problem of a crooked spine.

A study done in Kuala Langat, Banting, over a period of four years (1997 to 2000) on 10,000 school children showed 400 students out of 10,000 had curved spines of more than 25 degrees and required X-rays for further treatment. Another 20 out of the 10,000 needed corrective surgery, as they had curves of more than 45 degrees. Conducted by Dr Deepak AS and Dr DSK Choon of the Department of Orthopaedic Surgery, University of Malaya, the study was a clear indication of rising rates of scoliosis in the country.