

## **IDIOPATHIC SCOLIOSIS**

Glenn R. Buttermann, M.D.

February 16, 2007

Idiopathic scoliosis typically affects children during growth of which a small percentage require treatment. The spinal deformity affects the thoracic, lumbar, or both regions. Along with the side-to-side deformity, there may be abnormalities in the sagittal plane (side perspective), such as round back, or more commonly, straightening (lordosing) of the thoracic spine resulting in a narrowed chest cavity. Scoliosis is a three-dimensional deformity, including rotation, or twisting, of the spine leading to rib-cage asymmetry; this is often the first clinical sign of scoliosis. Advanced cases of scoliosis may affect pulmonary function and pain is more common in scoliosis children.

Depending upon the type of curvature and severity, treatment may include bracing or even spinal surgery. Bracing is the only nonoperative treatment that has withstood the test of time. However, bracing is not routinely successful in preventing progression, and occasionally may aggravate the rib hump or be psychologically challenging. Braces which extend up to the neck ring may cause malocclusion and orthodontic problems.

For those patients who progress to the point of requiring surgical intervention, instrumented fusion surgery with bone graft is the standard of care. The types of instrumentation include rods combined with hooks and screws, and are attached to the spine through the chest or via the back. Some new constructs are very powerful in correcting scoliosis, but have drawbacks producing shoulder asymmetry or increasing the thoracic lordosis. The various types of instrumentations have their own particular advantages and disadvantages, and thus treatment must be individualized.

Idiopathic scoliosis is most difficult to treat in the adults. Adults may have had treatment of the thoracic curvature when they were young but the lumbar compensatory curve progresses with age. Adults may also have a degenerative scoliosis related to aging, but the curve magnitudes are typically less severe, and the history of the curve differs from that of the idiopathic type. For advanced cases, adult surgery often necessitates fusing the entire thoracolumbar spine with profound limitations in mobility.

Studies at Midwest Spine Institute found that pain in children with idiopathic scoliosis who had surgery, improved to normal. The adults, had significant improvement in their average pain, but did not improve to that of normal controls. Current research is focusing on nonfusion techniques for scoliosis surgery.