



# **SPINAL ASYMMETRIES AND MEDICAL INTERVENTIONS**

WRITTEN BY: MICHELLE L. LANGE, OTR/L, ABDA, ATP/SMS

# SPINAL ASYMMETRIES INCLUDE SCOLIOSIS, KYPHOSIS AND LORDOSIS. THESE CONDITIONS LEAD TO THE VERTEBRAE OF THE SPINE MOVING OUT OF TYPICAL ALIGNMENT AND ARE OFTEN REFERRED TO AS SPINAL CURVATURES.

*Spinal asymmetries include scoliosis, kyphosis and lordosis. These conditions lead to the vertebrae of the spine moving out of typical alignment and are often referred to as spinal curvatures. The ribs are attached to the spine and so any curvature of the spine impacts the shape of the ribcage as well. Certain medical conditions can lead to spinal asymmetries, including conditions where an imbalance of muscle tone or strength occurs on either side of the spine or where low tone, muscle weakness or paralysis leads to a collapse of the spine. Changes to the spine can happen rapidly during growth in children. If an asymmetry continues to worsen, particularly a lateral scoliosis, internal organs can be compressed and breathing may become difficult.*

A client with spinal asymmetries may be followed by an orthopedic surgeon and rehabilitation physiatrist. X-rays are used to measure the degree of curvature and to monitor changes in the curve. For many clients, it is difficult to get an accurate x-ray from a seated posture due to either an inability to sit upright without postural supports or due to the effects of gravity on the spine.

Treatment options vary by the amount of curvature present and the impact on functioning. In milder spinal asymmetries, therapeutic interventions to stretch shortened musculature and strengthen weakened muscles can be effective. Chiropractic manipulation may restore mobility between vertebrae and reduce curvature. Alternative positioning, including nighttime positioning, can be effective in providing a long time period of a corrected (or as much as possible to correct) position, often in supine to minimize the impact of gravity on the spine. Orthotics, such as a TLSO (Thoracic Lumbar Sacral Orthosis), may also be used to align the spine as much as possible. These can be worn throughout much of the day and night, including within a wheelchair seating system. Orthotics are used more in

the pediatric population and are often discontinued after the child stops growing. Certainly wheelchair seating is designed to minimize the progression of spinal asymmetries. Molded seating systems, in particular, can provide pressure distribution and postural support to an asymmetrical spine and ribcage. This intimate contact may also help minimize further progression of these asymmetries.

In more severe curvatures, surgical intervention may be required. One option is growth rods. This procedure is sometimes used in children who are still

growing in order to delay when a spinal fusion may be required, allowing further growth of the trunk in the meanwhile. These growth rods are manipulated by a minor surgical procedure or by use of magnetically controlled rods that can be manipulated externally. Growing spine rods attach to the top and bottom sections of the spinal curvature and are adjusted as needed to accommodate growth, often every six months. Spinal fusion is often recommended when the spinal curvature is greater than 45 degrees. In a spinal fusion, two or more of the vertebrae are connected to achieve alignment and prevent further movement. Pieces of bone or bone-like material are placed between the vertebrae. Metal rods are often used to hold the spine in as corrected a position as possible as the old and new bone heals. People with severe spinal curvatures may have most of their vertebrae fused and the rods may attach to the pelvis.

---

## CONTACT THE AUTHOR

Michelle may be reached at [michellelange@msn.com](mailto:michellelange@msn.com).

## REFERENCES:

SCOLIOSIS. OVERVIEW AND TREATMENT. MAYO CLINIC.

[HTTP://WWW.MAYOCLINIC.ORG/DISEASES-CONDITIONS/SCOLIOSIS/HOME/OVC-20193685](http://www.mayoclinic.org/diseases-conditions/scoliosis/home/ovc-20193685)

[HTTP://WWW.MAYOCLINIC.ORG/DISEASES-CONDITIONS/SCOLIOSIS/DIAGNOSIS-TREATMENT/TREATMENT/TXC-20193777](http://www.mayoclinic.org/diseases-conditions/scoliosis/diagnosis-treatment/treatment/txc-20193777)

---

**CHANGES TO THE SPINE CAN HAPPEN RAPIDLY DURING GROWTH IN CHILDREN. IF AN ASYMMETRY CONTINUES TO WORSEN, PARTICULARLY A LATERAL SCOLIOSIS, INTERNAL ORGANS CAN BE COMPRESSED AND BREATHING MAY BECOME DIFFICULT.**

---