



NEUROSURGERY AND SPINE

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## KYPHOSIS

The word "kyphosis" describes a type of curve in the spine.

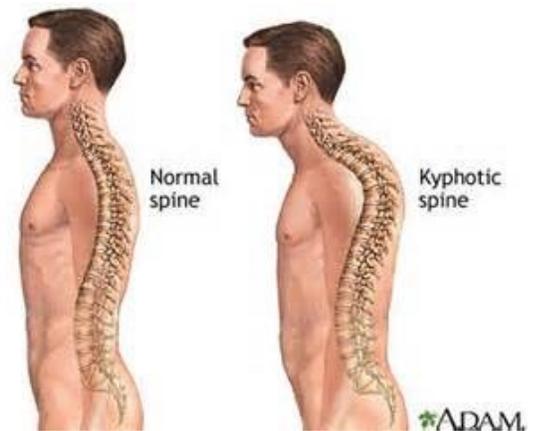
A kyphotic curve is normally present in the thoracic spine (the part of the spine in the chest area). Though the thoracic spine is supposed to be curved, if the curve in a person's thoracic spine is more than 40 to 45 degrees, it is considered abnormal - or kyphotic.

Adult kyphosis can have varying degrees of severity, from minor changes in the shape of your back, to severe deformity, nerve problems, and chronic pain.

Kyphosis is most common in the thoracic spine.

There are several causes of kyphosis in adults.

- **Congenital** - means a condition present from birth. A congenital spine problem affects the development of the spine.
- **Postural kyphosis** - is the result of poor posture.
- **Paralytic disorders** - kyphosis that results as a secondary result of disorders such as Polio, spinal muscle atrophy (a deterioration that leads to paralysis), and Cerebral Palsy (paralysis caused by trauma at birth or developmental defects in the brain).
- **Traumatic** - injury to the spine can lead to both progressive kyphosis and nerve problems in the spine. When the trauma is a vertebral fracture in the thoracic or lumbar spine, 90% of the time some degree of kyphosis will result.
- **Degenerative** - caused by degeneration, or wear and tear of the lumbar (lower) spine.
- **Osteoporosis** - Osteoporosis is a condition that leads to major losses of bone mass, leaving the bones brittle and prone to fractures. Osteoporosis is the most common cause of kyphosis in adults. It is much more common in women than men, due to losses of estrogen in menopausal and postmenopausal women..
- **Other** - systemic disease or resulting from the effects of medical treatment or surgery.



## TREATMENT OF KYPHOSIS

**Conservative Care** - Conservative treatment includes medications, exercise, and certain types of braces to support the spine. If osteoporosis is the cause, treatment of the osteoporosis may slow the progression of the kyphosis.

**Physical Therapy** - Physical therapy and exercise is an important part of treating adult kyphosis. A well-designed exercise program can also provide pain relief in many patients. A physical therapist will develop an appropriate exercise routine for your case. Typical advice includes:

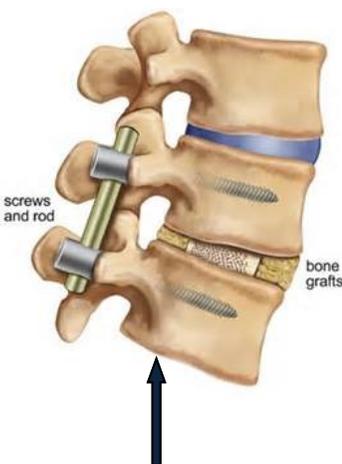
- Learning correct body mechanics to maintain erect posture
- Doing regular non-jarring exercises, such as swimming
- Maintaining high levels of activity
- Doing your daily stretching exercises

**Surgery** - Surgery is recommended only when the expected benefits outweigh the risks. Surgery may be recommended in the following situations:

- **Pain** - The most common reason for surgery is for relief from severe pain which is not manageable through any conservative treatment.
- **Progression of curve** - If the curvature continues to worsen, surgery may be suggested to prevent the problems that come from severe kyphosis.
- **Cosmetics** - In some cases, kyphosis causes physical deformity that is unbearable to the patient. In these cases, surgery is the only option for correcting the condition.

**Type of Surgery** - When kyphosis requires surgery the surgery is usually a multiple level spinal fusion, however each individual patient and the location and degree of kyphosis will be considered before recommendations are made to the patient. Regardless of the type of surgery recommended, the goals of most surgical procedures for adult kyphosis are to:

- Reduce the deformity (straighten the spine as much as possible)
- Stop the progression of the deformity
- Remove any pressure from the nerves and spinal cord
- Protect the nerves and spinal cord from further damage



Example of bone grafts and metal implants used in fusion

The surgical approach may include an operation on the back and/or side of the spine.

The goal is to first straighten the spine and then fuse the vertebrae together into one larger bone using both bony and metal implants such as screws, plates, or rods, in order to help straighten the spine and hold the vertebrae in place while the fusion heals and becomes solid.

