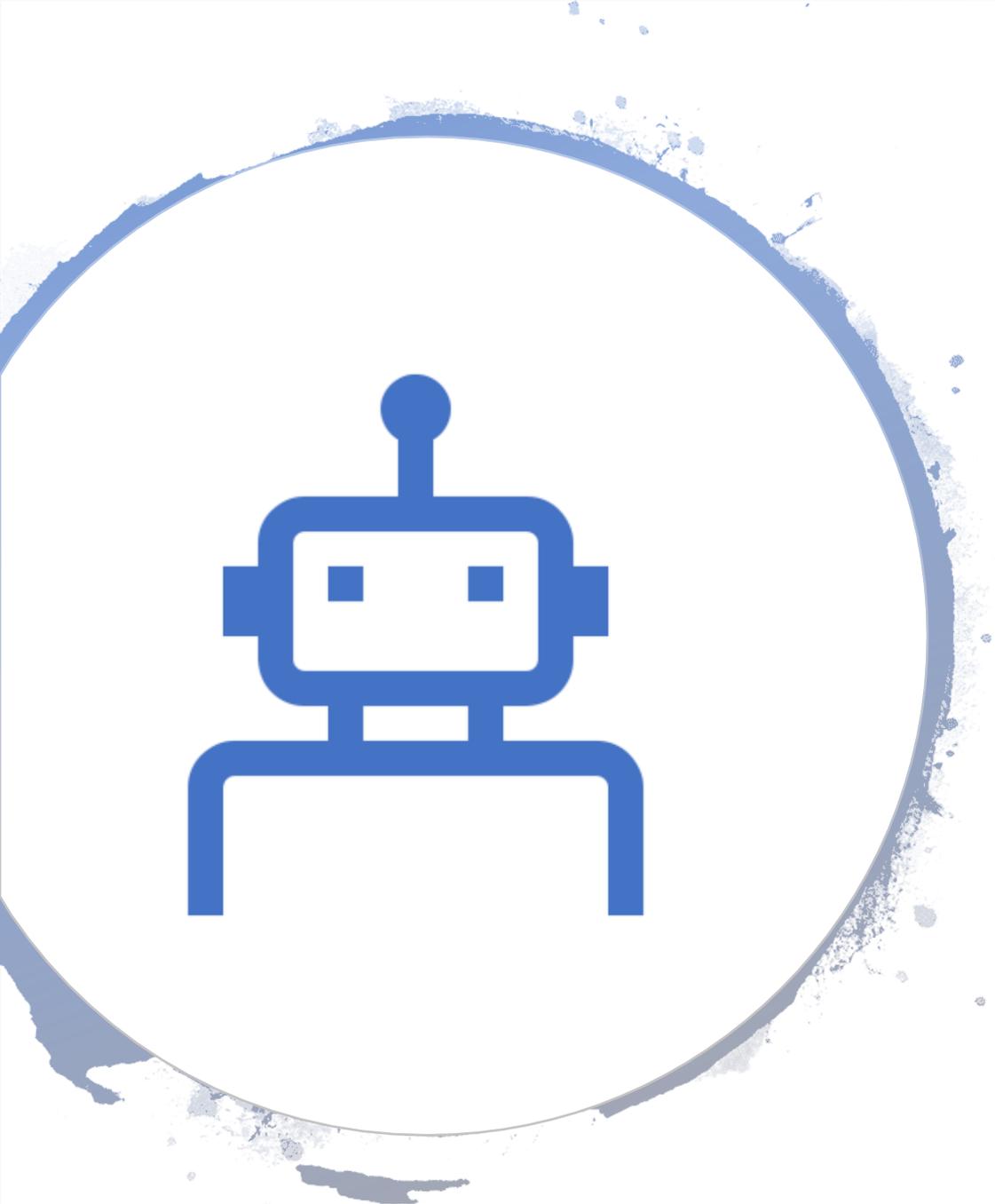


# Scoliosis





# Objectives

- Be able to define Scoliosis
- What are the different types of scoliosis and what age group do they effect
- What are the common signs and symptoms of scoliosis
- Understand how it is diagnosed and what tests are used to diagnose it
- When someone has scoliosis what are the treatment options for them.
- Understand the different types of braces that are used for those with scoliosis

# Introduction to Scoliosis

- “scoliosis” is a Greek word meaning crooked
- It is a lateral curvature of the spine in the upright position

# What is Scoliosis

- Scoliosis is usually found in the thoracic or lumbar vertebrae and can be associated with kyphosis or lordosis.
  - Kyphosis- excessive outward curvature of the spine, causing hunching of the upper back.
  - Lordosis- exaggerated abnormal inward curvature of the lower back
- Idiopathic Scoliosis accounts for 85% of all scoliosis cases.
- Condition detected in children between ages of 10 and 15 years.
- Girls affected more often than boys.
- About 2 in 100 people have a mild form of scoliosis.

# Causes of Scoliosis

Idiopathic

Neuromuscular

congenital

# Causes of idiopathic

- Idiopathic scoliosis is the diagnosis when all other causes are excluded and comprises about 80 percent of all cases. Adolescent idiopathic scoliosis is the most common type of scoliosis and is usually diagnosed during puberty.

## Idiopathic Scoliosis



Presented By Siti Nur Rifhan Kamaruddin



# Causes of Congenital Scoliosis

- **Congenital scoliosis** results from embryological malformation of one or more vertebrae and may occur in any location of the spine. The vertebral abnormalities cause curvature and other deformities of the spine because one area of the spinal column lengthens at a slower rate than the rest.
  - Since these abnormalities are present at birth, congenital scoliosis is usually detected at a younger age than idiopathic scoliosis.

# Causes of Neuromuscular scoliosis

- **Neuromuscular scoliosis** encompasses scoliosis that is secondary to neurological or muscular diseases. This includes scoliosis associated with cerebral palsy, spinal cord trauma, muscular dystrophy, spinal muscular atrophy and spina bifida.
  - This type of scoliosis generally progresses more rapidly than idiopathic scoliosis and often requires surgical treatment.



# Signs & Symptoms

- There are several signs that may indicate the possibility of scoliosis.
  - Shoulders are uneven – one or both shoulder blades may stick out
  - Head is not centered directly above the pelvis
  - One or both hips are raised or unusually high
  - Rib cages are at different heights
  - Waist is uneven

Due to changes in the shape and size of the thorax, idiopathic scoliosis may affect pulmonary function

# How is Scoliosis Diagnosed



**Scoliosis is usually confirmed through a physical examination, an x-ray, spinal radiograph, CT scan or MRI. The curve is measured by the Cobb Method and is diagnosed in terms of severity by the number of degrees.**

A positive diagnosis of scoliosis is made based on a coronal curvature measured on a posterior-anterior radiograph of greater than 10 degrees.



**A standard exam that is sometimes used by pediatricians and in grade school screenings is called the Adam's Forward Bend Test. During this test, the patient leans forward with his or her feet together and bends 90 degrees at the waist**

# Treatment

- When there is a confirmed diagnosis of scoliosis, there are several issues to assess that can help determine treatment options:
  - Spinal maturity
  - Degree and extent of the curve
  - Location of the curve
  - Will the curve progress
- Patients with scoliosis may utilize electrical stimulation to alleviate pain and biofeedback for education with proper posture and positioning.
- Breathing exercises and a strengthening program for the trunk and pelvic muscles are indicated.
  - In severe cases surgery may be indicated to help fix the curve if no other interventions are working.

# Bracing



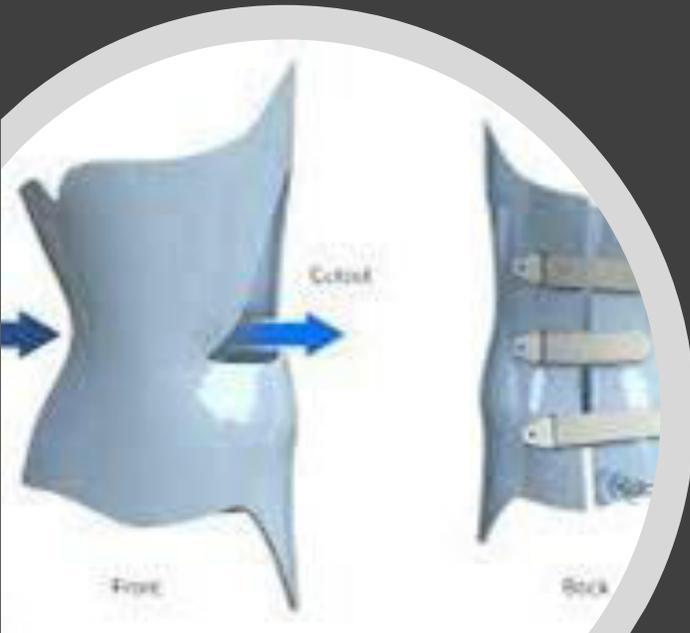
- Braces are only effective in patients who have not reached skeletal maturity. If the child is still growing and his or her curve is between 25 degrees and 40 degrees, a brace may be recommended to prevent the curve from progressing
  - The brace will be molded to hold your spine in a straighter, unrotated position. It does this by putting pressure on the outer edge of your curve. This will cause you to stand up straighter as you pull away from this pressure.



## Bracing cont

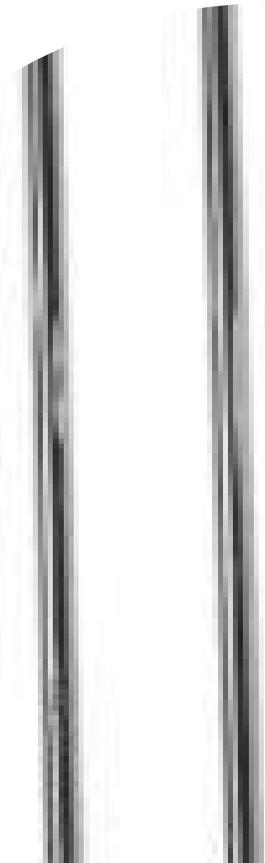
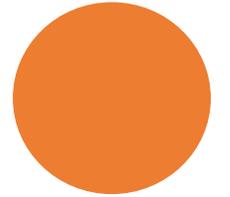
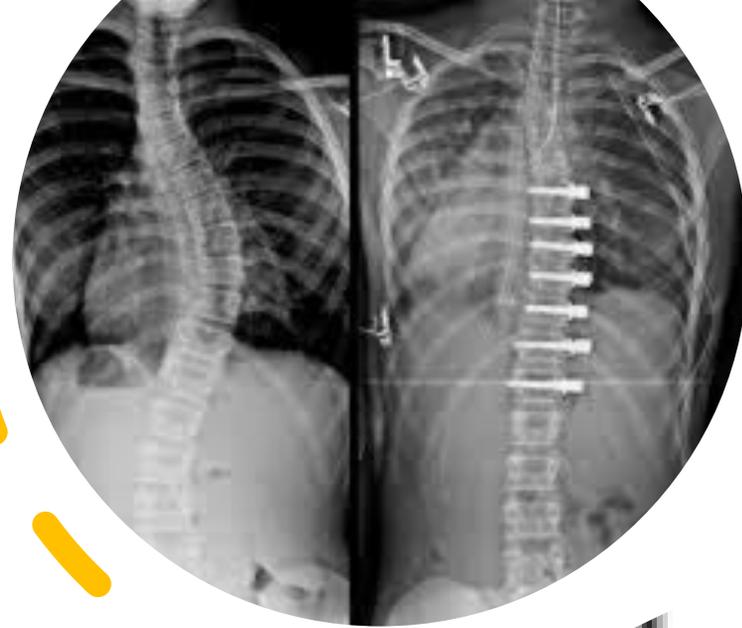


- Bracing treatment aims to apply corrective forces on the spine to release load on the concave (inner) part of the curve and increase load on the convex (outer) part of the curve.



# Surgery for severe scoliosis

- Patients with scoliosis that is great than 40 degrees usually requires surgical spinal stabilization.
  - One method to surgically correct scoliosis is through posterior spinal fusion and stabilization with a Harrington rod.



# References

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