Scoliosis Physical Therapy Using the Schroth Method
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**What is scoliosis? How does it happen? Why does it happen? Who does it happen to?**

Scoliosis Definition:

- 3D deformity of spine and trunk
- includes lateral translation, rotation and collapse

Scoliosis Types:

- Idiopathic
  - Congenital
  - Infantile
  - Juvenile
  - Adolescent
- Other
  - Tumors
  - Neuromuscular

Scoliosis Incidence:

- 2-4% of population
- 5-8x more likely to progress in females in adolescence

Scoliosis Pathogenesis Theories:

- Vertebral growth disorder=asymmetry
- Hypothalamus/leptin
- Rapid vertebral growth=lesser spinal cord growth→asymmetrical vertebral growth

Measurements of Curvature:

- Cobb angle
- Apex, transition points, rotation, wedging
- Mild: 10-29°
- Moderate: 30-49°
- Major: >50°
• **RIGHT thoracic/LEFT lumbar most common**
• Thoracic
• Thoracolumbar
• Lumbar
• Multiple locations
• Double curve
• S curve

Xray Considerations:

• Consider finding EOS xray machine (1/10 regular radiation)
• Breast and pelvic shields
• Facing away from xray machine
• >6ft away from machine
• Study from National Cancer Institute:
  o 70% higher chance of breast CA than general population

Scoliosis Screening:

• Screening: varies by state
• Ideally done 5th, 7th, 9th grade=girls, 7th, 9th=boys

Adolescent Idiopathic Scoliosis

• Primary
  o Cobb angle
  o Current age
  o Skeletal maturity (Risser score)
• Secondary
  o Time between occurrence and Diagnosis/treatment
  o Menarche
  o Family history
  o Bony changes on xray

Scoliosis Research Society Recommendations:

• **11-25 degrees**
  o Conservative management
  o Skeletal maturity reached= follow up as needed
  o Skeletal maturity not reached= follow up every 6 months until mature

• **25-45 degrees**
  o Conservative management
  o Skeletal maturity reached= follow up every 5 years
  o Skeletal maturity not reached= consider bracing with 4-6 month follow ups
• 40-50°+  
  o Surgery

Support

• [www.curvygirlsscoliosis.com](http://www.curvygirlsscoliosis.com)

Society of Scoliosis Rehabilitation and Treatment Recommendations for Physical Therapy:

• Cobb >30° immature  
• Cobb 10-20° (family history, clinical observations)  
• Cobb >45°—surgery rejected/contraindicated  
• Adults with symptoms

Posture Assessment/PT evaluation

• Posture:  
  o Pelvis shift  
  o Ribcage shift  
  o Prominences  
  o Concavities  
  o Shoulder/scapular height  
  o Head Position

• Evaluation:  
  o Typical Ortho evaluation with MMT, reflex, ROM, flexibility  
  o Additional:  
    ▪ Height (sitting and standing)  
    ▪ Wing/arm span  
    ▪ Adams Test: scoliometer  
    ▪ Ribcage excursion (Waist, xiphoid, axilla)  
    ▪ Inspiratory Spirometer  
    ▪ Core assessment  
    ▪ Xray

Structural vs Functional Scoliosis:

• Structural:  
  o Positive Adam’s Test  
  o Lateral spine deviation  
  o Bone deformity—structural changes  
  o Rotation in vertebrae

• Functional:  
  o Negative Adam’s test  
  o Lateral deformity  
  o No bone deformity  
  o No (or minimal) rotation in vertebrae
Schroth Approach to Scoliosis

- **History**: Katharina Schroth, European Treatment Choice
- **Principle 1**: self elongation
- **Principle 2**: Pelvic Corrections, Imagery for filling empty spaces/holding back protrusions, Expansion of areas that cave in, Retain areas that stick out
- **Principle 3**: Breathing to help maintain the above
- **Principle 4**: Muscle activation
  - Once all corrections are made, nervous system needs additional input
  - Stabilization with disassociation of arms/legs
  - Mobilization keeping as symmetrical as possible
  - Develop reference of correctness for movements
  - Teach how to create in other activities

Schroth Evidence

Considerations for your current practice

Contraindications and Considerations:

- **Growing spine**: Neutral spine only, no spine motion exercise, encourage pelvis shift to neutral,
- **Mature Spine**: Consider architecture differences in vertebral shape, no sidebending in opposite direction, work on elongation and stabilization
- **Fused spine**: avoid shearing above and below fusion—work to teach long axis stability

Interested in Schroth Training?

- **Barcelona Schroth Institute**:
  - [http://www.schroth-barcelonainstitute.com/courses.html](http://www.schroth-barcelonainstitute.com/courses.html)

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