Scoliosis Physical Therapy Using the Schroth Method

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<u>What</u> is scoliosis? <u>How</u> does it happen? <u>Why</u> does it happen? <u>Who</u> 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^{o}**
- **Moderate: 30-49^{o}**
- **Major: >50^{o}**

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

Scoliosis Research Society Recommendations:

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

- **25-45deg**
    - **Conservative management**
    - **Skeletal maturity reached= follow up every 5 years**
    - **Skeletal maturity not reached= consider bracing with 4-6month follow ups**

- **40-50deg+**
    - **Surgery**

Support

- **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:**
    - **Pelvis shift**
    - **Ribcage shift**
    - **Prominences**
    - **Concavities**
    - **Shoulder/scapular height**
    - **Head Position**
- **Evaluation:**
    - **Typical Ortho evaluation with MMT, reflex, ROM, flexibility**
    - **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:**
    - **Positive Adam's Test**
    - **Lateral spine deviation**
    - **Bone deformity—structural changes**
    - **Rotation in vertebrae**

- **Functional:**
    - **Negative Adam's test**
    - **Lateral deformity**
    - **No bone deformity**
    - **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**

www.kinespherept.com

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