SCOLIOSIS AND EXERCISE
WHAT IS SCOLIOSIS?

- Defined by one or more lateral curvatures in the spine >10°
  - Spine appears as an “S” or “?” shaped curve rather than a straight line when viewed from the back

- Potential Signs of Scoliosis:
  - Uneven shoulders
  - One shoulder blade appears higher than the other
  - Uneven waist
  - One hip higher than the other
  - Ribs bulge out on one side
- Fixed curve in the spine
  - Lumbar, thoracic, or thoracolumbar
- Usually mild and needs no treatment
- Causes:
  - Most cases develop in children age 9-14 during their growth spurt in puberty
  - But also:
    - Idiopathic
    - Neuromuscular
      - Eg muscular dystrophy, polio, cerebral palsy, neurofibromatosis
    - Osteopathic
    - Congenital
NON-STRUCTURAL AKA FUNCTIONAL SCOLIOSIS

- **Spine is structurally normal**
  - Postural response to an underlying condition

- **Curve is temporary**
  - Adam’s Forward Bend Test
    - Curve goes away when the client bends over

- **Causes**
  - Difference in leg length
  - Muscle imbalance/habit
  - Muscle spasm
  - Inflammatory condition

- Can be treated by correcting the underlying problem
Observation
- Monitor condition and intervene if it progresses

Physical Therapy & Occupational Therapy
- Assessment, intervention, ongoing evaluation
- Manage physical symptoms
- Schroth method
- Postural training
- Adaptive and compensatory strategies

Bracing & Casting
- Can be used during physical activity
- Prevent force sideways across a joint
  - Shown to stop progression in idiopathic scoliosis
- Casting shown to fully correct progressive infantile scoliosis

Surgery
- For cases with high likelihood of progression >45°
- Spinal fusion
WHAT CAN WE DO AS EXERCISE SPECIALISTS?

- CANNOT treat structural scoliosis
- Help correct muscle imbalances
  - Coach clients in Schroth method as designated by PT
- Provide moral support and encourage them
  - Mental and physical coach
- Help them achieve their goals!
Client Needs:
- Increase ROM
- Address muscular imbalances
  - Strengthen weaker muscles
  - Stretch tight muscles

Contradictions:
- Severe cases: decreased lung capacity
  - Due to excessive spinal curve
  - Limitation for aerobic exercise
- Post-surgery
  - Medical clearance

Specific needs will vary based on the individual!
Carefully follow doctor or PT’s diagnosis of which muscle groups are too weak and which are too tight.

Specific to each individual

- Some exercises may be good for one person and counterproductive for another!
  - Different spinal abnormalities

Focus on coordination, ROM, and specificity of exercises.
Objective: Correct muscle imbalances, improve posture, and increase ROM
Frequency: 3x/week; client may train coordination more often
Intensity: Initially very light; increase as needed
Type: Flexibility, resistance, coordination
Time: 30 minutes; budget adequate time for each of the objectives
EXERCISES FOR INDIVIDUALS WITH SCOLIOSIS – STANDING SIDE STRETCH

- For lengthening muscles on the tight side
- Feet flat on ground, shoulder width apart
- Can do this against a wall and/or in front of a mirror
- 5 sets, both sides
- Hold the stretch for 20-30 seconds
  - Don’t bounce!
- Careful not to overstretch
EXERCISES FOR INDIVIDUALS WITH SCOLIOSIS – ARM AND LEG EXTENSIONS

- For strengthening postural muscles of the back

- Center hips on stability ball
- Extend arm and opposite leg

- 3 sets, 16 reps
- Focus on tightening core during contraction

- Modify!