

Rehabilitation Principles & Progressions for Idiopathic Scoliosis

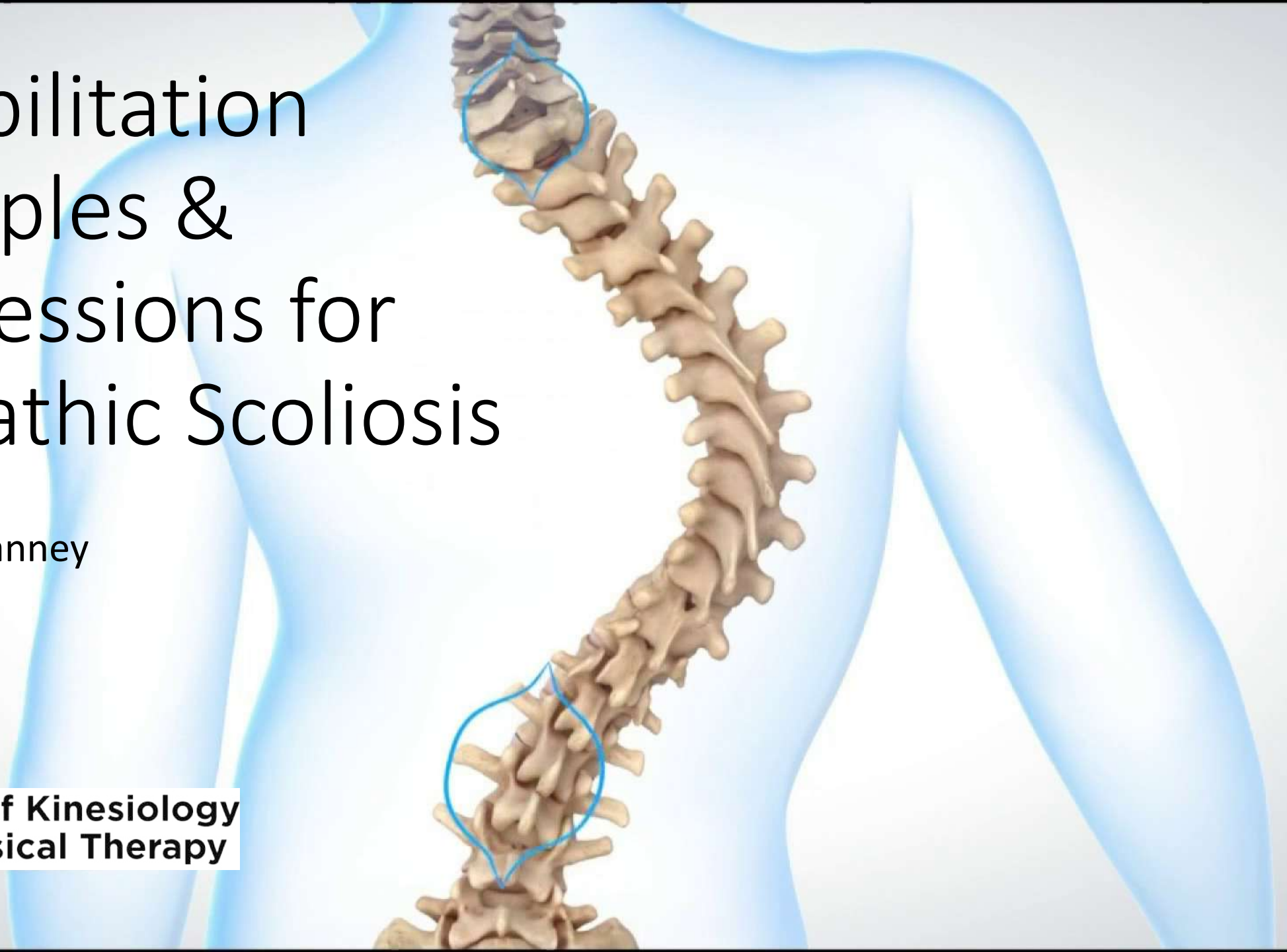
By

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Idiopathic Scoliosis

- Infantile idiopathic scoliosis
 - Diagnosed younger than 3 years
 - 80-90% spontaneously resolve
- Juvenile idiopathic scoliosis
 - Diagnosed 3-9 years
 - Found more frequently in girls
 - Higher risk for progression to more severe curves
- Adolescent idiopathic scoliosis
 - Manifests at or around puberty
 - Accounts for about 80% of all cases of idiopathic scoliosis

Scoliotic spine

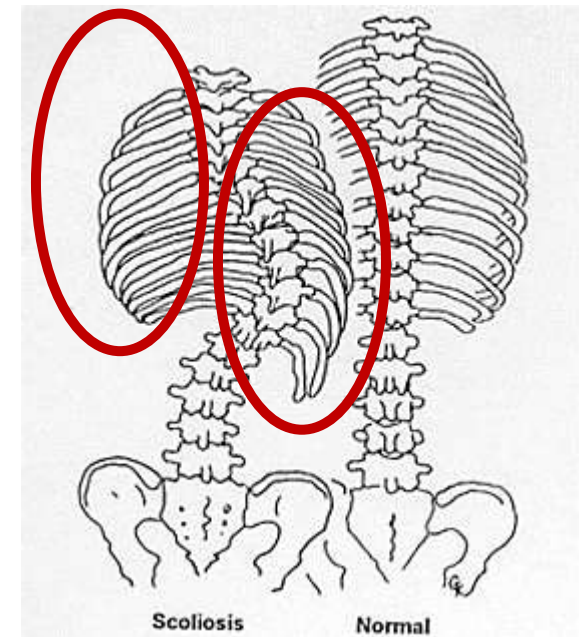
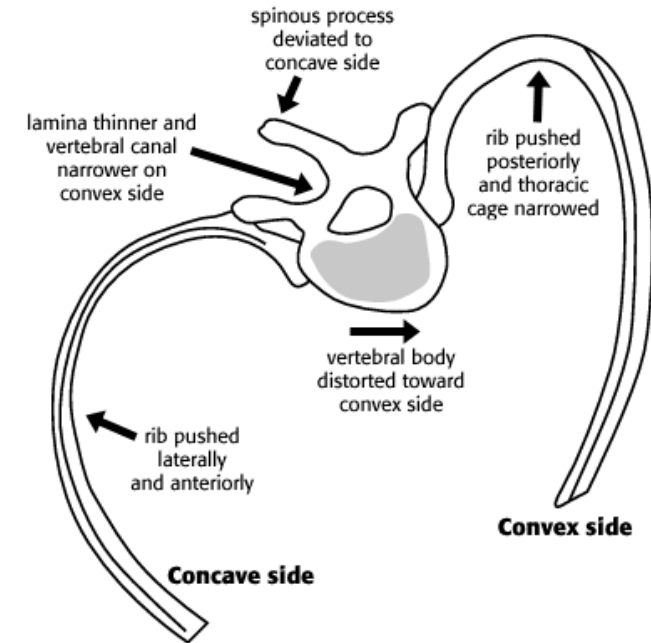


Normal spine



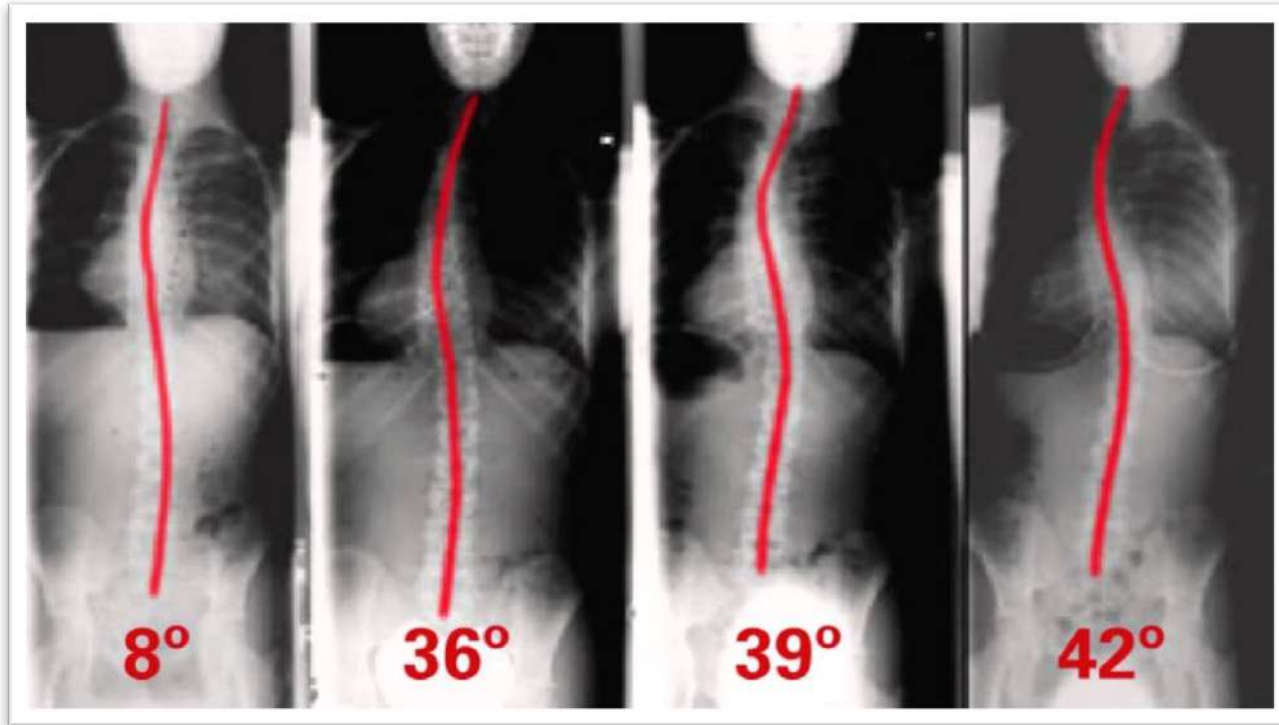
Presentation of Scoliosis

- Named based on direction of convexity
- Concave side - ribs close together
- Convex side – ribs widely separated
- Ribs on convex side are rotated posterior
- Ribs on concave side are rotate anteriorly



Adolescent Idiopathic Scoliosis

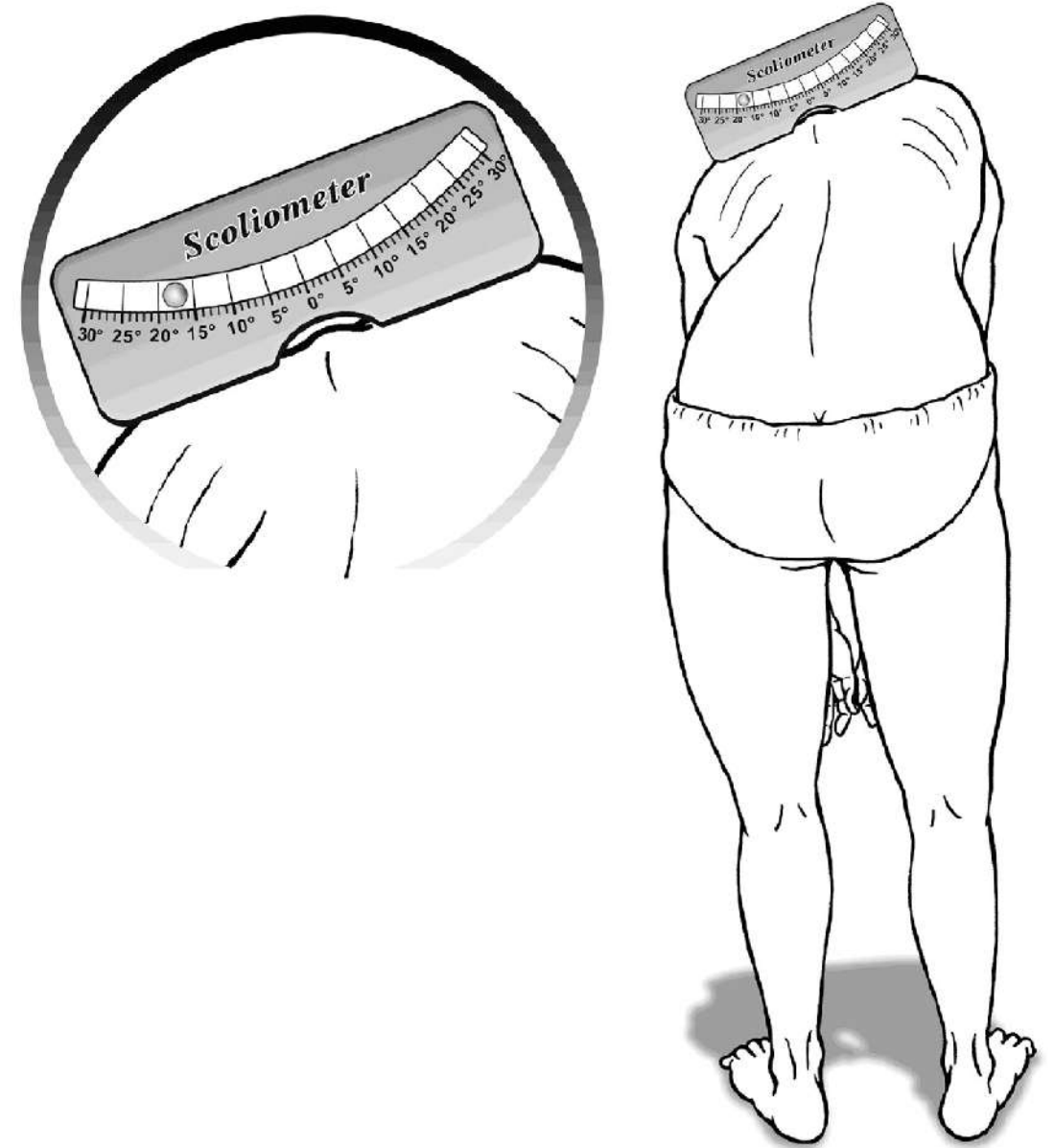
-Risk of Progression-



- Diagnosis at younger age
- Double curve patterns
- Female (approximately 10 > males)
- Curves develop before menarche

Screening

- Visual observation used during Adam's forward bending test
- Structural deformity
 - Cannot be corrected with movement
 - Rotation toward the convexity
- Nonstructural deformity
 - Corrects with movement
 - Can result from length discrepancies, muscle disuse/overuse, habitual postures, and muscle guarding.
- Mild cases of scoliosis often respond to conservative care



Goals of Conservative Care

- Correct postural alignment and asymmetrical postural habits
- Prevent or inhibit further development
- Maintain proper respiration and chest mobility
- Improve overall spinal mobility
- Help resume or maintain functional abilities
- As a general rule:
 - Strengthen muscles on the convex side
 - Stretch muscles on the concave side



Physical exercises as a treatment for adolescent idiopathic scoliosis. A systematic review

STEFANO NEGRINI, GUIDO ANTONINI,
ROBERTA CARABALONA and SILVIA MINOZZI

Systematic review on exercises for scoliosis

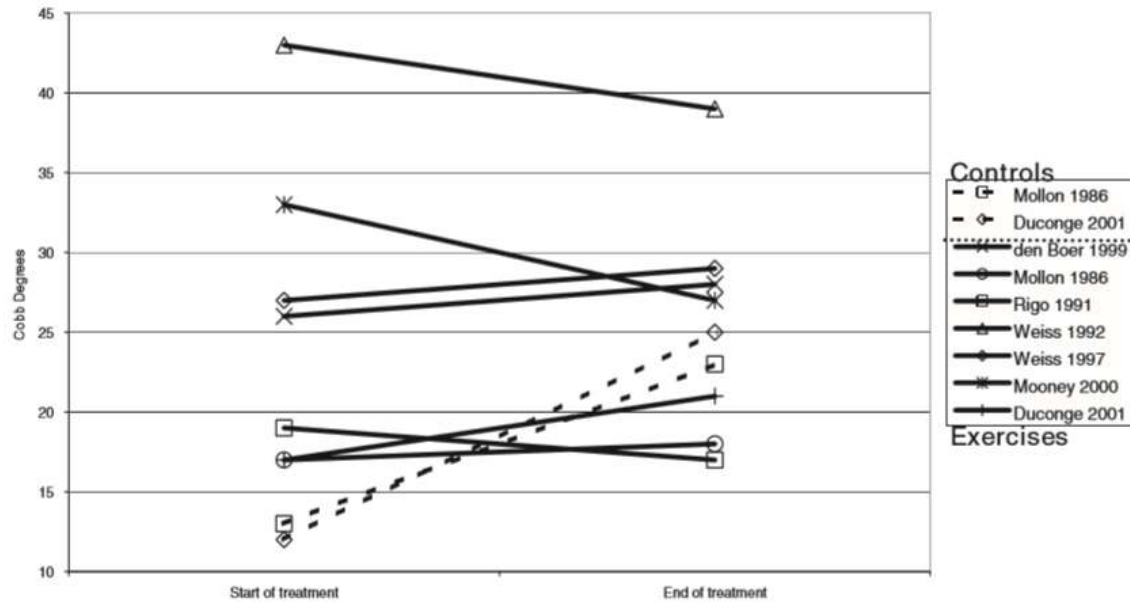
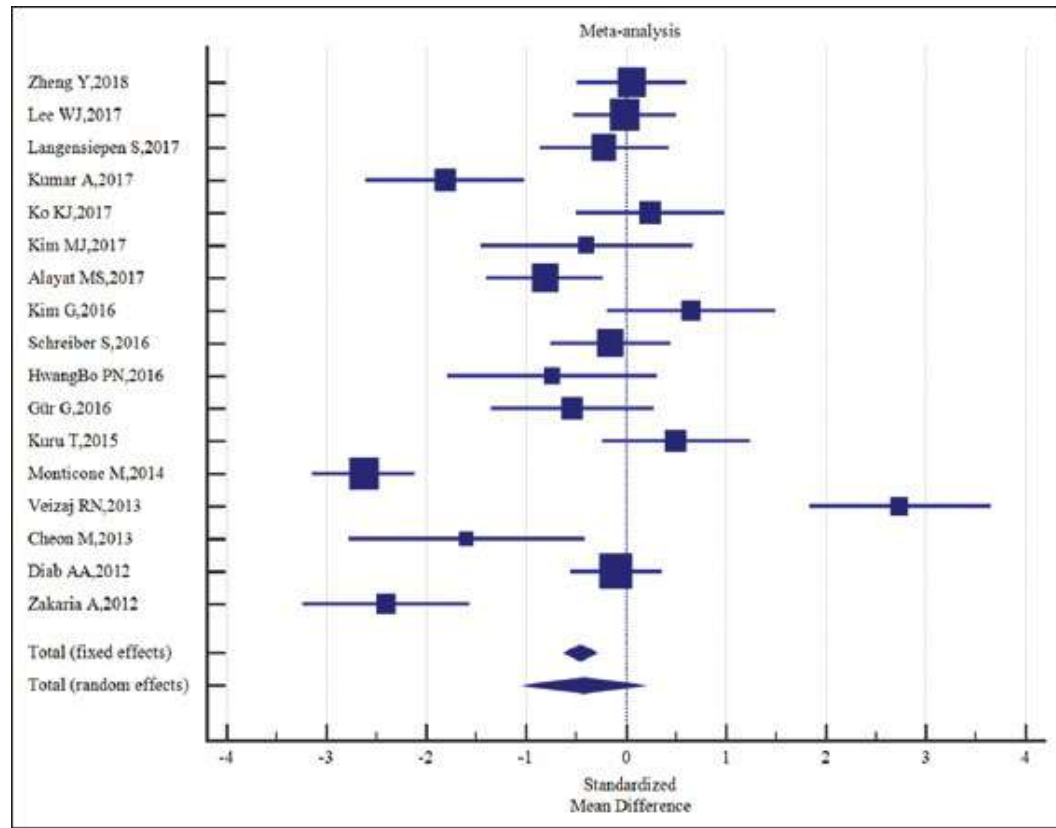


Figure 2 Cobb degrees pre and post treatment in retrieved studies. Data have not been grouped because retrieved studies were heterogeneous according to methods and quality. The results of each study are reported here as the results of one treatment in a case series study. The Den Boer control group is not considered because it was made up of braced patients and not non treated people.

- 11 papers identified
- Methodological quality of the studies was not strong
- Studies generally demonstrated efficacy of exercise to reduce rate of progression or magnitude of the Cobb angle
- Due to poor quality, the literature failed to provide solid evidence for or against the efficacy of exercises
- Suggests the primary goal to prevent curve progression
- This should be point of discussion with patients and their families

Effects of spinal mobilization techniques in the management of adolescent idiopathic scoliosis - A meta-analysis



- 17 controlled trials with a total of 698 cases
- Outcome favorable for exercises with moderate effects on Cobb angle
- Concluded that therapeutic exercise regimes have a role in:
 - *Decelerating* progression of the curve
 - Reducing the *magnitude* of the curve

SYSTEMATIC REVIEW

Effects of the Schroth exercise on idiopathic scoliosis: a meta-analysis

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- 15 studies identified
- Schroth exercise may be more beneficial for patients with a 10 to 30 degree Cobb's angle
- Consider patients' initial curve status before prescribing the Schroth exercise program
- Patients should perform exercises for at least one month for improved outcomes
- Core muscle strength and structural deformity changed after Schroth exercises

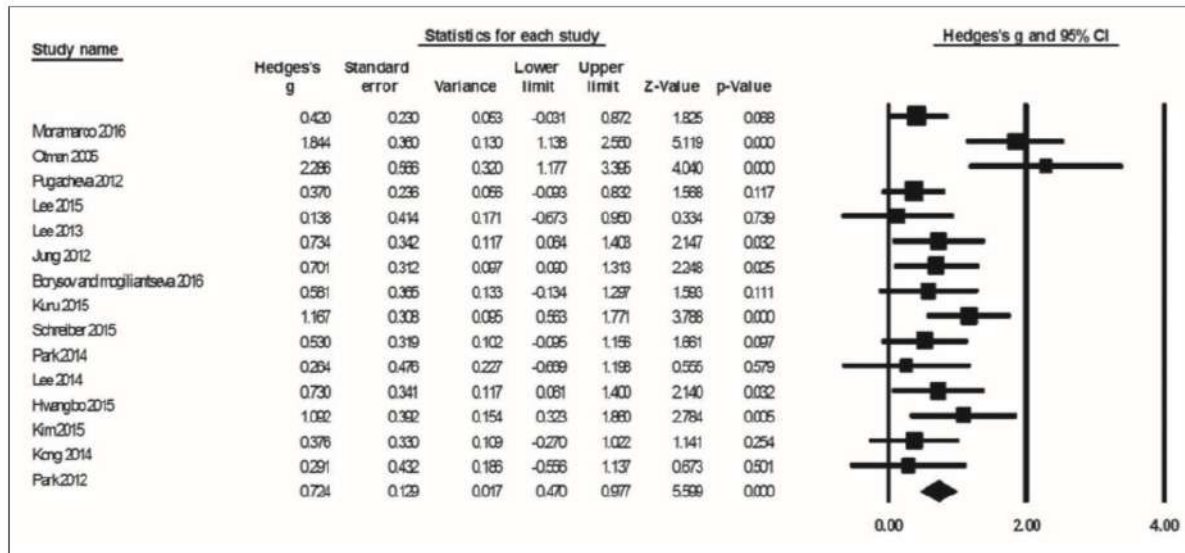


Figure 2.—Forest plot the the 15 included studies.

Mechanical Correction Exercises - Thoracic

- Mobilize RIGHT Side bend
- Mobilize LEFT Rotate
- Strengthen RIGHT side bend
- Strengthen LEFT rotation

**C-shaped
curve to
the right**

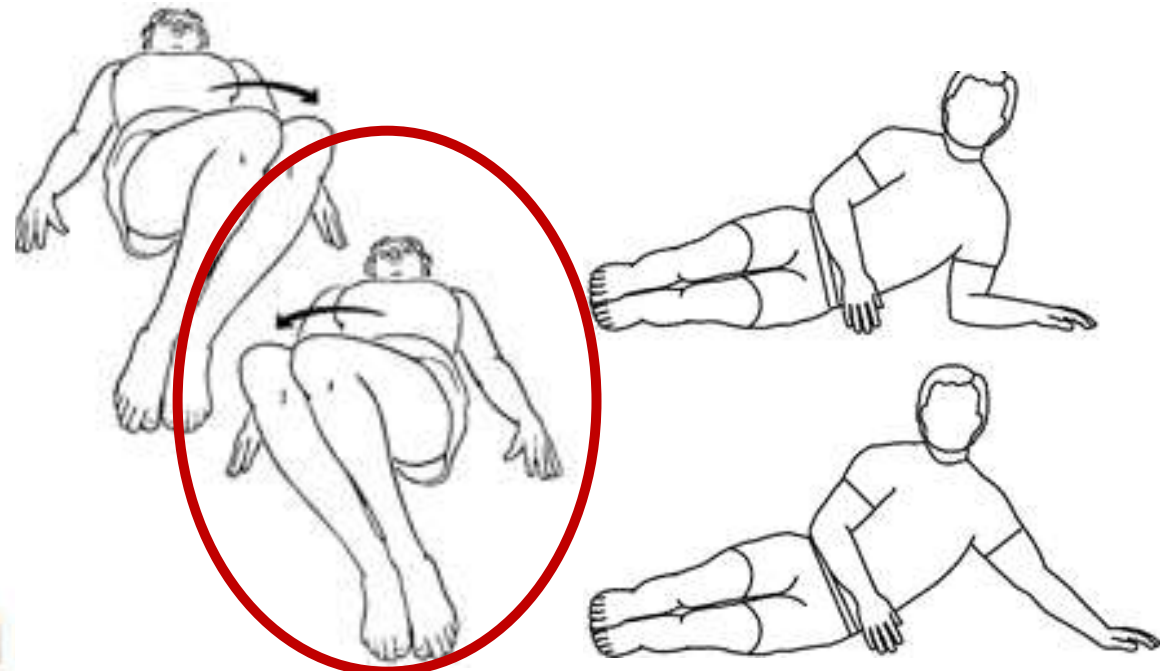


Mechanical Correction Exercises - Lumbar



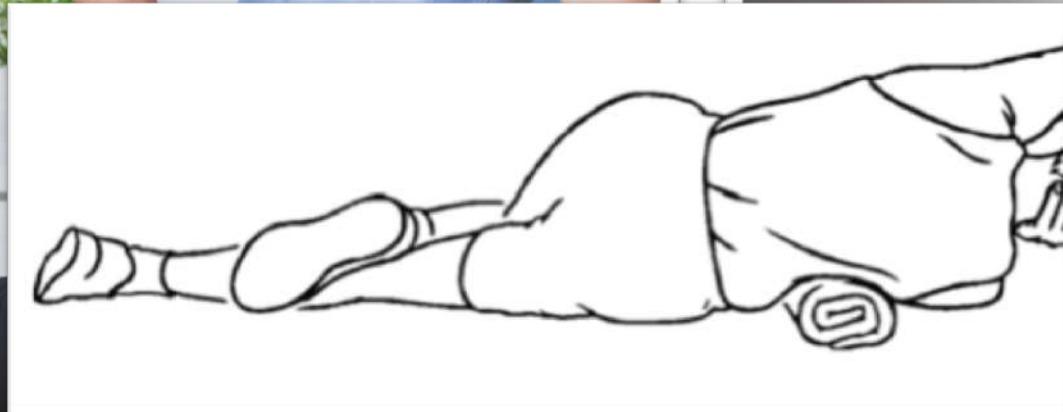
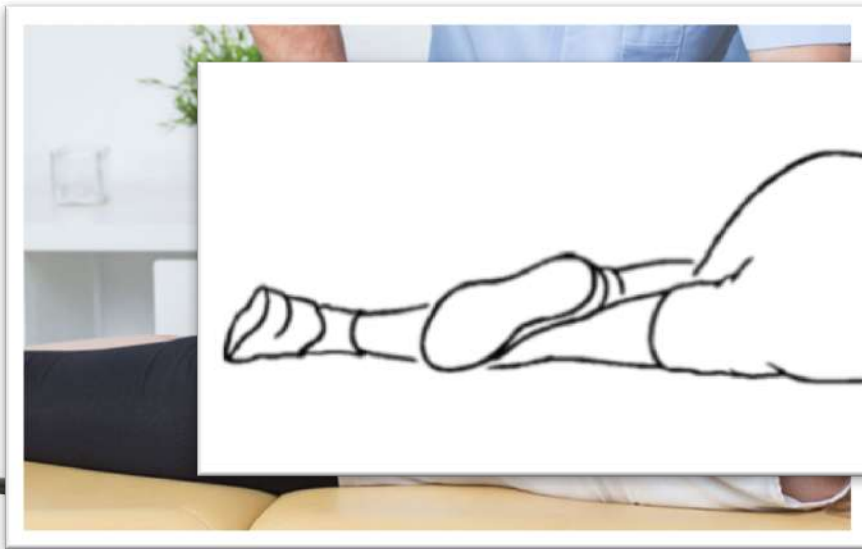
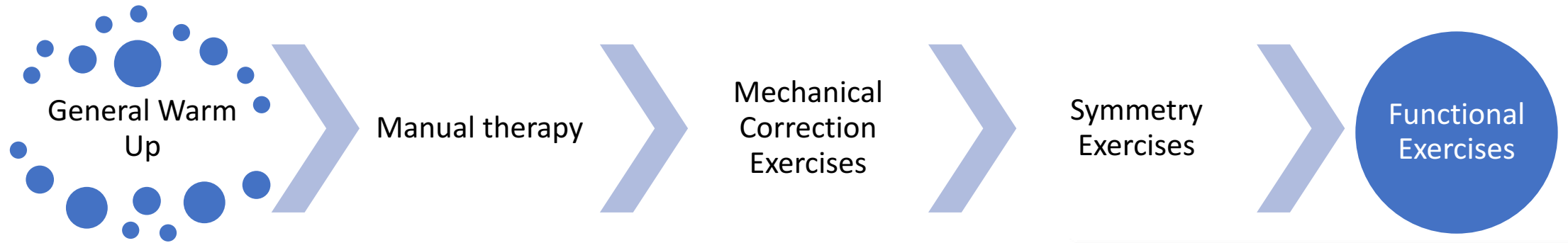
**S-shaped
curve**

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- Mobilize RIGHT Side bend
- Mobilize LEFT Rotate
- Strengthen RIGHT side bend
- Strengthen LEFT rotation

Exercise Progressions



Post Surgical Care

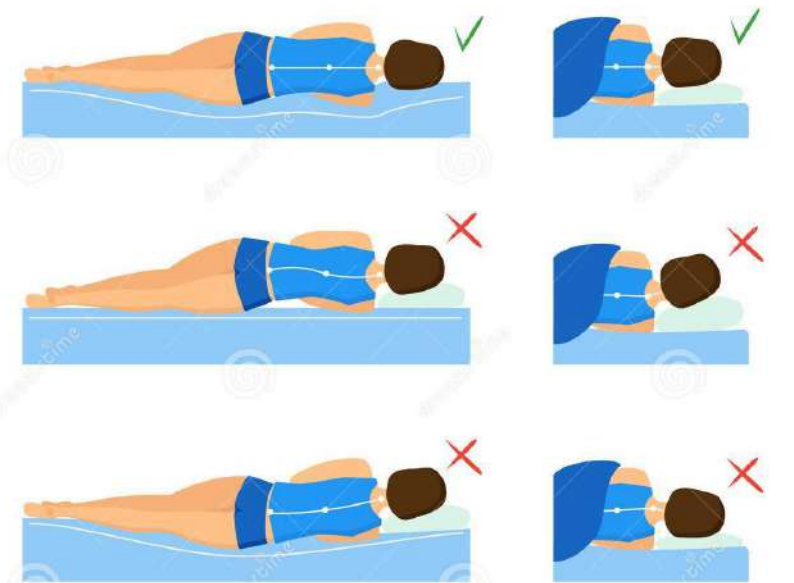


- Reinforce the post surgical protocol and precautions described by the physician
- Answer questions and address concerns regarding the normal course of recovery
- Assist in addressing fear avoidance behaviors early

Post Surgical Recommendations



CORRECT AND INCORRECT SLEEPING POSITION



Bringing it together



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