

# **Cervical Supine Side Bending versus Cervical Supine Traction Radiographs: Which is better in Predicting Proximal Thoracic Flexibility for Lenke 1 and 2 Adolescent Idiopathic Scoliosis?**

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## **Objective**

This study compared between cervical supine side bending (CSSB) and cervical supine traction (CST) radiographs to assess the flexibility and to predict the correctability of the proximal thoracic curve for adolescent idiopathic scoliosis Lenke 1 and 2 patients.

## **Materials and Method**

Thirty Lenke 1 and 2 AIS patients scheduled for PSF surgery were recruited. A standing whole spine radiograph, a physician supervised CSSB radiograph and CST radiograph were performed. The patients were further divided into 3 subgroups to be sub-analyzed: PT <25°: Proximal Thoracic Cobb Angle < 25°, PT 25°-35°: Proximal Thoracic Cobb Angle 25°-35° and PT >35°: Proximal Thoracic Cobb Angle > 35°. These patient demographic and radiological parameters were recorded: age, gender, male, weight, height, body mass index, proximal thoracic Cobb angle, main thoracic Cobb angle, CSSB Cobb angle, CST Cobb angle, post-operation proximal thoracic Cobb angle. From the data collected, curve flexibility and curve correction index were calculated and compared.

## **Results**

The CSSB Cobb angle ( $16.6^{\circ} \pm 10.4^{\circ}$ ) was significantly smaller than CST Cobb angle ( $23.8^{\circ} \pm 10.6^{\circ}$ ) for all the patients and also in every sub-groups ( $p < 0.05$ ). The CSSB flexibility ( $45.4^{\circ} \pm 20.0^{\circ}$ ) was significantly higher than the CST flexibility ( $21.1^{\circ} \pm 17.6^{\circ}$ ) for all patients and also in every sub-groups ( $p < 0.05$ ). The CSSB correction index was significantly nearer to the value 1 when compared to the CST correction index for all patients, PT 25°-35°, and PT >35° ( $p < 0.05$ ).

## **Conclusion**

Cervical supine side bending radiographs was more superior in demonstrating proximal thoracic flexibility and more accurately predicts its correctability compared to the cervical supine traction radiographs.