HOW DO SCHROTH SCOLIOSIS-SPECIFIC EXERCISES (SSE) CHANGE BODY GEOMETRY IN ADOLESCENT IDIOPATHIC SCOLIOSIS (AIS)? RESULTS USING A 3D BODY SCANNER

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Background:

Schroth SSE aims to de-rotate, elongate, and stabilise the spine in a 3D plane but its true effect on body geometry in AIS is unknown.

Objectives:

To investigate the impact of Schroth SSE on body geometry changes in AIS.

Materials and methods:

AIS participants meeting Scoliosis Research Society (SRS) criteria for bracing were recruited for the study. Truncal and pelvis geometry changes were assessed using a 3D body scanner, utilising 12 anatomical landmarks to compute 7 clinical indices. Follow-ups occurred at 12 and 24 months.

Results:

Fourteen AIS participants met the inclusion criteria and all of them were prescribed underarm braces. The mean age was 13.1 ± 1.4 years, BMI was 17.97 ± 2.91kg/m², 71% were female, and 64% had main thoracic curves with a mean major Cobb angle of 31.46 ± 4.59°. Six participants underwent additional Schroth SSE whilst eight participants underwent bracing alone. Both groups were comparable in age, gender, pre-treatment curve magnitude, stage of skeletal maturity, and initial body geometry measurements. Brace compliances were notably similar across both groups (13.86 ± 5.82h vs 10.86 ± 6.82h, p=0.2576). At 2-year follow-up, both groups showed a significant increase in C7-L4 length (4.57 ± 2.24cm, p<0.001) and improved coronal balance (-0.72 ± 1.16°, p=0.022). However, improvements in pelvic balance (-1.12 ± 1.98°, p=0.065) and pelvic rotation (-3.40 ± 3.42°, p=0.321) were not statistically significant. No significant differences in shoulder balance, shoulder rotation, sagittal balance, or major Cobb angle were found between groups at two years.

Conclusion:

Despite the principles of Schroth SSE, 3D body scanning did not reveal significant additional efficacy in improving truncal geometry for participants undergoing Schroth SSE during bracing. All in all, Schroth SSE does not improve body geometry in AIS participants undergoing bracing.