Scoliosis

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Effect of specific exercises on the sagittal profile of scoliotic spines

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from 4th International Conference on Conservative Management of Spinal Deformities
Boston, MA, USA. 13–16 May 2007

Published: 12 October 2007

Scoliosis 2007, **2**(Suppl 1):S7 doi:10.1186/1748-7161-2-S1-S7

This abstract is available from: http://www.scoliosisjournal.com/content/2/S1/S7

Objective

To evaluate the three-dimensional (3D) correction effect, particularly in the sagittal plane, of Schroth exercises [1,2] in patients with idiopathic scoliosis (IS) by using a surface topography system.

Study design

A retrospective unselected series of fifty consecutive patients (48 females, age 15.7 years) diagnosed with IS, were measured with the formetric system [3] before and after an intensive course of rehabilitation. This system provides quantitative values to asses the spine in the frontal, sagittal and transversal planes. We have designed a specific scale based on objective data in order to define the vertebral column in the sagittal plane as *harmonic* (minimum score 0) or *disharmonic* (maximum score 20).

Results

During the course of treatment, trunk imbalance improved from 11.6 to 8.1 mm ($p < 0.001$), and lateral deviation in the frontal plane decreased from 14.1 to 11.3 mm ($p < 0.005$). Surface rotation also decreased, from 7.4 degrees to 6.6 degrees ($p < 0.01$). Although maximum and regional sagittal angles decreased, the harmonic score improved from 10.4 to 9.6 ($p < 0.05$).

Conclusion

Scoliotic patients tend to keep their sagittal regional angles close to normal values but showing a disharmonic configuration. Schroth exercises can correct the spine in 3D, reducing such a disharmony.

References

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