

Oral presentation

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Clinical measurements, radiological and cosmetic improvements in a girl with adolescent idiopathic scoliosis treated with a Schroth rehabilitation program: a single case study

O Herling^{1,2}

Address: ¹Physiotherapist Specialist in Treatment of Spinal Deformity, Ayalon Outpatient Clinic, The Klalit Medical Institute, Tel Aviv, Israel and ²Spinal Research Laboratory, Department of Physical Therapy, The Stanley Steyer School of Health Professions, Sackler Faculty of Medicine, Tel-Aviv University, Israel

Email: O Herling - ornaherling@gmail.com

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Background

The Scoliosis Intensive Rehabilitation (SIR) program is commonly used as a conservative three dimensional treatment for scoliosis. SIR consists of individualized correction of scoliotic posture and breathing pattern with the help of proprioceptive stimulation and physiotherapeutic methods.

Adolescent idiopathic scoliosis (A.I.S.) is a three dimensional deformity of the spine defined as a series of vertebral segments placed in extension, which deflect and axially rotate towards the same side. It represents the combination of torsional regions joined by junctional zones. Established biological risk factors of A.I.S. are growth velocity and potential residual spinal growth assessed by maturity indicators.

The following four factors were established as progressive factors that are related to the "vicious cycle concept":

- asymmetrical loading of the spine;
- vertebral growth modulation;
- spine slenderness;
- growth potential.

The aim of the current single case study was to demonstrate the significant improvement of Cobb angle, clinical measurements and cosmesis using the SIR treatment.

Methods

A 15 year old girl (menarche age 13.3 years, Tanner Stage 5) was referred for an intensive scoliosis rehabilitation after she refused surgical intervention. The following spinal parameters were measured initially: Thoracic Cobb angle = 52°; Risser Sign = 4; angle of trunk rotation (ATR) = 14°; angle of axial rotation = 22° (Perdriolle); Lumbar lordosis = 24°; thoracic kyphosis = 17° (inclinometer). Using the SIR, the goal of treatment was to facilitate correction of the asymmetric posture and to teach the patient how to maintain the corrected posture during her ADL.

Results

After 6 months of individual SIR treatment, the above measured parameters had changed to the following: the thoracic Cobb angle decreased to 42°; ATR decreased to 10°; angle of axial rotation decreased to 15°; lumbar lordosis and Thoracic kyphosis remained almost the same (23° and 16°, respectively). The patient felt comfortable with cosmetic results.

Conclusion

This single case study indicates that SIR can improve Cobb angle, clinical measurements and cosmetic appearance,

avoiding an operation in a young girl with a Cobb angle of above 50° degrees and Risser sign of 4. Further studies are surely required for validating this conclusion.

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