

## Effect of scoliosis specific exercise on pain and function in adults with idiopathic scoliosis: results of a retrospective study

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**Introduction** Adults with idiopathic scoliosis frequently suffer for low back pain, have an impaired quality of life, reduced self-esteem and poor psychological wellbeing. Moreover, there's a risk of progression if the curve is larger than 30° Cobb. Conservative approaches, including bracing and exercise are frequently proposed to these patients, but the evidence about their benefits is scant.

**Objective** The aim of the present study is to check the changes in pain and quality of life in adults with idiopathic scoliosis and chronic low back pain (LBP) after six months of specific exercise.

**Methods** Design: retrospective cohort study Setting: tertiary referral center for scoliosis and spinal deformities Population: all the patients visited in the last 2 years in our center with idiopathic scoliosis diagnosed during growth and chronic low back pain (excluded "de novo" adult scoliosis), who had at least 2 clinical evaluations with complete data (SRS-22 and radiography). Outcome measures: SRS-22 and SRS-7 Treatment: all patients were trained to perform at home SEAS exercises for about 90 minutes a week divided in different self-established session. An expert therapist had one to one training sessions with the patients usually once every 30-60 days. Procedure: after the initial evaluation, patients were prescribed SEAS exercises and evaluated again after a 6 months treatment period. Statistical analysis: Wilcoxon for ordinal data and t- test continuous data.

**Results** Twenty-four patients (5 males) were included (age  $30.8 \pm 10.5$ ), the main curve was  $50 \pm 12^\circ$  Cobb, TRACE 7 (6-8). On average the patients performed the SEAS exercises for  $110 \pm 58$  per week, with a median of 5 times per week. At baseline, the values of SRS 22 items were: Pain 3 (3-5), Function 5 (4-5), Mental Health 4 (3-4), Image 3 (2.25-3.75). The SRS-22 total score was 3.75 (3-4) while the SRS-7 was  $41.1 \pm 6.6$ . After treatment, Pain improved to 4 (3.25-5,  $p=0.049$ ), while the other items didn't change significantly. The SRS-22 total score improved to 4 (3.5-4,  $p=0.031$ ), while the SRS-7 score didn't change.

**Conclusions** A six months treatment with SEAS specific exercises for scoliosis improved pain in adults with idiopathic scoliosis and chronic LBP. Function, Image and Mental Health didn't change, even if the total score of the SRS-22 did. This can be explained by the change in pain, that was larger than the minimal important clinical difference and that probably influenced the total score of the SRS-22. This seems consistent with the stability of the SRS-7, that didn't change, and which focus in a unidimensional way on the overall Quality of Life giving less relevance to pain as a single item.