Eur J Phys Rehabil Med. 2023 Mar 9. doi: 10.23736/S1973-9087.23.07489-0. Online ahead of print.

Sports participation reduces the progression of idiopathic scoliosis and the need for bracing. An observational study of 511 adolescents with Risser 0-2 maturation stage

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PMID: 36892518 DOI: 10.23736/S1973-9087.23.07489-0

Abstract

Background: In clinics and the literature, there are doubts about the indications and contraindications of sports to support rehabilitation treatment for adolescents with idiopathic scoliosis (IS).

Aim: The aim of the study is to assess sports activities' effect and frequency in a large population of adolescents with idiopathic scoliosis (IS).

Design: Retrospective observational cohort study.

Setting: Tertiary referral institute specialized in the conservative treatment of scoliosis.

Population: consecutive patients in a clinical database of age ≥10, with juvenile or adolescent IS diagnosis, 11-25° Cobb curve, Risser Bone Maturity Score 0-2, no brace prescription, radiographic follow-up radiographs at 12±3 months.

Methods: At 12-month follow-up, radiograph, we considered progression an increase of scoliosis curve ≥5° Cobb and failure an increase to ≥25° Cobb - need of a brace. We calculated the Relative risk (RR) to compare the outcome of participants performing sports (SPORTS) or not (NO-SPORTS). We run a logistic regression with covariate adjustment to assess the effect of sports participation frequency on the outcome.

Results: We included 511 patients (mean age 11.9±1.2, 415 females). Participants in the NO-SPORTS group showed a higher risk of progression (RR=1.57, 95% CI: 1.16-2.12, P=0.004) and failure (RR=1.85, 95% CI: 1.19-2.86, P=0.007) than participants in SPORTS. Logistic regression confirmed that the more frequent the sports activities, the less probable progression (P=0.0004) and failure (P=0.004) were.

Conclusions: This study shows that sports activities have a protective role against progression at 12-month follow-up in adolescents with milder forms of IS. Excluding high-level sports activities, the risks of progression and failure decrease with the increase in sports frequency per week.

Clinical rehabilitation impact: Albeit non-specific, sports can help in the rehabilitation of patients with idiopathic scoliosis and reduce brace prescription.