

Impact of sports activity on full-time braced patients: an observational study of 785 Risser 0–2 adolescents with idiopathic scoliosis

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Abstract

Introduction. No information is available to determine if sports activity modifies short- and long-term results of adolescents with idiopathic scoliosis (IS) wearing a brace full-time.

Objectives. To assess the effect of sports activities and their frequency in a large population of adolescents with IS, wearing full-time a thoraco-lumbar-sacral (TLSO) brace.

Methods. Design. Retrospective observational multicentric cohort study embedded in a prospective clinical database. **Participants.** All the consecutive patients in a multicenter clinical database of a tertiary referral institute age ≥ 10 , with juvenile or adolescent IS diagnosis, Risser 0–2, TLSO brace prescription and self-reported adherence ≥ 20 hours per day, follow-up out-of-brace X-rays 6 and 18 months after brace prescription. **Outcome measures.** A reduction $\geq 5^\circ$ Cobb at 6-months and 18-months follow-up X-rays was considered an improvement. **Statistics.** Odds Ratio (OR) was calculated to compare the outcome of subjects performing sport and those not performing sports. A logistic regression with covariate adjustment was run to assess if frequency had an effect on the outcome measures.

Results. 785 subjects (mean age 12.7 ± 1.3 , 693 females, Cobb degrees 39.8 ± 11.4) were included. At 6-months and 18-months follow-up subjects performing sports showed higher odds of improvement (OR = 1.62, 95%CI = 1.19-2.20, $p = 0.0011$, and OR = 1.59, 95%CI = 1.17-2.16, $p = 0.0018$, respectively). After adjustments for covariates, at 6-months follow-up only sports activity resulted significant, whereas at 18-months follow-up ATR, sports activity and sports frequency resulted significant ($p = 0.009$, $p = 0.009$, $p = 0.001$, respectively). As the sport's frequency increased, the odds of improvement increased.

Conclusions. This study shows that sports activities increase the odds of improvement at 6- and 18-months follow-up in adolescents with IS treated with a full-time brace. In the long term follow-up, the odds of improvement increase with the increase of sports frequency on a weekly basis. Future studies with different designs should look at single sports.

Key words. Sports, brace, adolescents, idiopathic scoliosis.