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Topic **Prevention-Screening**Title **Adolescent soccer is correlated with an increase of kyphosis but a reduction of low back pain: a controlled cross-sectional survey.**Authors **Negrini S, Zaina F, Atanasio S, Fusco C, Taiana M, Tessera S.**

Abstract **Objectives:** verify relationship among LBP and posture in adolescent soccer players.

Background. Both in adults and children a U correlation has been proven between sport activities and low back pain (LBP). A long discussion exists about the possible influence of sport activities on spinal growth. Soccer is widely practiced by pupils in many different countries.

Methods. We clinically evaluated 102 males practicing agonistic soccer two to three times per week in the age range 11-16, and compared them to a normal sample of 180 schoolboys of the same age range. We also proposed a validated questionnaire on LBP prevalence and clinical characteristics that was compared to a normal sample of 668 schoolboys. The collected validated measurements were plumbline distances from kyphosis apex (C7, T12 and L3) and ATR according to Bunnell. We calculated the Sagittal Index (SI: sum of the distances of C7 and L3), and the Sagittal Ratio (SR: C7/L3 - relationship between kyphosis and lordosis). According to previous studies, we considered these normal references: 5° (ATR), and cm 1.5-5.5 (C7), 2.8-7.0 (L3) 5.5-11.0 (SI) 0.37-1.31 (SR). We used normality tests, ANOVA and chi-square; the Kruskal Wallis test for non parametric data was also applied.

Results. We found statistically significant increases of the plumbline distances from kyphosis apex in C7 (36.6 ± 1.0 vs 33.6 ± 0.7) and T12 (23.0 ± 0.6 vs 21.3 ± 0.8) as well as an increase of SR (0.80 ± 0.03 vs 0.73 ± 0.02). We did not find more pathological cases in soccer pupils than in normals for any of the considered parameters. When compared to normals, soccer players had a statistically significant reduction of most of the LBP parameters. Among LBP sufferers, intensity of LBP was similar in the two populations.

Conclusion. Apparently soccer adolescent players have less LBP than controls, while they have a group a tendency to the increase of kyphosis, with an unbalance between the two sagittal curves in favour of kyphosis (increase of the Sagittal Ratio). Even if these changes were statistically significant, they were not clinically significant. We did not find an increase of pathological cases (spinal deformities), but this population was small to detect these variations.

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