



Does sport participation increase the risk of stress fractures in adolescents?

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Sports participation is capable of promoting cardiovascular, metabolic and psychological benefits during pediatric ages, as well as improves bone health among adolescents. Studies have shown that young athletes involved in impact sports have greater bone mass than non-athletes. Despite the benefits of sports participation, an increased prevalence of bone injuries in adolescents has raised concerns regarding the safety of intense athletic participation at a young age, since stress fractures can impair growth with potential lifelong effects. On the other hand, the impact of sports participation on the risk of injuries in children and adolescents is not clear due to the existence of conflicting data about the role of bone mineral density (BMD) and different kinds of sports in this complex relationship. Thus, the objective of this study was to verify the association between sports participation and stress fractures among adolescents during 9-month follow-up. The study was carried out in the city of Presidente Prudente, SP, and involved 274 adolescents. Sports participation was evaluated at baseline and the end of follow-up. The occurrence of stress fractures was assessed during the follow-up period and was self-reported by the participants. As potential confounder, we used sex, age, physical maturation, lean soft tissue, engagement in resistance training and BMD. Categorical variables were expressed as rates (and 95%CI) and compared by the chi-square test. The impact of sports participation on the risk of fracture was estimated by Cox regression and expressed as hazard ratio (HR) and its 95% CI. All statistical analyses were performed in the software BioEstat (release 5.0), and statistical significance (p-value) was set at 0.05. The sample was composed of 274 adolescents (164 boys and 110 girls) with a mean age of 12.6 ± 1.8 years old. The number of adolescents reporting no sports participation was 115, while the number of adolescents engaged in any sports was 159. There were 23 stress fractures reported during the 9-months longitudinal study. Adolescents who reported stress fractures were similar in all variables (age, weight, LST, somatic maturation and BMD) to those adolescents who did not report fractures. The risk of stress fractures after 9 months of follow-up was not different when comparing adolescents engaged in sports and non-active ones in the crude analysis (HR= 0.66 (95%CI: 0.29 to 1.50); p-value = 0.325) or after adjustment for confounders (HR= 0.55 (95%CI: 0.17 to 1.80); p-value = 0.324). In conclusion, the findings from this study indicate that sports participation does not seem to be a hazard for risk of stress fracture. Support: FAPESP.

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