Influence of Sport Specialization on Landing Technique in Youth Soccer Athletes

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Context: It has been theorized that early sport specialization could have deleterious effects on youth athletes. However, it is unknown if sport specialization actually increases injury risk. The Landing Error Scoring System (LESS) is a clinical tool to evaluate landing technique and has been proven to predict lower extremity injury risk in youth soccer athletes. **Objective:** The purpose of the study was to evaluate the influence of early sport specialization on injury risk as measured by landing technique in youth soccer athletes. **Design:** Cross-sectional

**Setting:** Municipal soccer fields. **Participants:** Forty seven male and 54 female youth soccer athletes (age 9-13 years) volunteered to participate. **Interventions:** Participants and their legal guardian filled out a questionnaire that asked about sport participation history. We divided participants into single-sport and multi-sport athletes. Single-sport athletes were defined as participants that only reported playing one sport within the previous year and multi-sport athletes were required to report playing more than one sport within the last year. Participants performed three trials of a jump landing task while being video recorded from the frontal and sagittal plane. The jump landing task required participants to jump forward from a 30-cm high box a distance of half their height and jump for maximal vertical height immediately after landing. **Main Outcome Measures:** A single rater graded the video from the jump landing task using the LESS, which is a valid and reliable screening tool. The total LESS score was calculated and averaged from the three trials for analyses. An analysis of covariance was performed to evaluate LESS scores between the two groups (single sport, multi-sport) while controlling for sex (α=0.05).

**Results:** There were 27 (9 males, 23 females, age=11±1 year) participants in the single-sport athlete group. There were 74 (38 males, 36 females, age=11±1 year) participants in the multi-sport athlete group. We observed a significant difference between groups for LESS scores (P=0.03). Single-sport athletes performed the landing task with more errors (6.92 ± 1.22) than multi-sport athletes (6.12 ± 1.74). **Conclusions:** This preliminary analysis suggests that early sport specialization may increase injury risk as demonstrated by higher LESS scores, or poor landing technique. **Word Count:** 382