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Injury in D III Volleyball Players is Associated with Preseason Jump and Hop Measures

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(No relationships reported)

PURPOSE: Collegiate volleyball (VB) players are at risk for sports injuries. Reported time-loss injury rates for female Division III (D III) collegiate VB players range from 4.0 to 5.4 injuries per 1000 athletic exposures (AEs). Identifying risk factors in this population may help coaches to reduce injury rates via targeted training programs. The purpose of this prospective cohort study was to determine the ability of 2 functional performance tests (FPTs) [the standing long jump (SLJ) and/or the single-leg hop (SLH) for distance] to identify female D III VB players who may be at an increased risk for a non-contact time-loss lower quadrant (LQ = low back and lower extremities) injury.

METHODS: 68 female VB players (18.9 ± 1.0 years old) from 5 D III teams performed 3 trials of each FPT in the preseason. Off-season training habits were also collected. Mean SLJ and SLH distances (normalized to height) were used for study analysis. Injury rates were calculated per 1000 AEs for initial and subsequent injuries. Crude and adjusted odds ratios (OR) were calculated to identify the risk association between preseason FPT measures and LQ injury.

RESULTS: The mean SLJ distance was $0.82 \pm .09$ and the mean SLH distances were 0.68 ± 0.09 (R) and 0.68 ± 0.11 (L). Fourteen initial time-loss injuries [thigh/knee region = 5; foot/ankle region = 9] and 2 subsequent time-loss injuries (foot/ankle = 2) occurred during the study. The initial time-loss injury rate was 3.0 (95% CI: 1.7-5.0) per 1000 AEs and the subsequent injury rate was 5.6 (95% CI: 0.9-18.4) per 1000 AEs. Individual test performance did not discriminate risk; however, a limb symmetry index (LSI) > 10% was associated with an increased risk of LQ injury (OR = 3.8; 95% CI: 1.0, 13.5). Suboptimal FPT scores and an LSI > 10% was associated with an increased risk of LQ injury (OR = 21.2; 95% CI: 2.1, 210) and foot/ankle (FA) injury (OR = 14.3; 95% CI: 2.0, 102.9). Adjusted OR were calculated for the aforementioned categories adjusting for off-season weightlifting reports: 1) LSI > 10% (AOR 5.5; 95% CI: 1.3, 22.3); 2) suboptimal FPT scores and LQ injury (AOR 25.7; 95% CI: 2.2, 299); 3) suboptimal FPT scores and FA injury (AOR 16.3; 95% CI: 1.9, 139).

CONCLUSIONS: Suboptimal performance on a battery of FPTs may be useful as a screening tool to identify female D III VB players at risk for a non-contact time-loss LQ injury.