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ORIGINAL RESEARCH

SPORTSMETRICS™ TRAINING IMPROVES POWER AND LANDING IN HIGH SCHOOL ROWERS

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ABSTRACT

Background: Successful rowing participation requires leg power, back strength, cardiovascular endurance, and balance. SportsMetrics™ training improves lower limb alignment, hamstring peak torque, and vertical jump height; however, this training has not been used in athletes who row and may have different outcomes based on experience level.

Purpose/Hypotheses: The purpose of this study was to compare the effects of a six-week SportsMetrics™ training program on vertical jump height (VJH), Y Balance Test (YBT), and Drop Jump Screening Test (DJST) between novice and varsity high school rowers. The authors hypothesized that following Sportsmetrics™ training; novice rowers would not be different from varsity rowers in VJH and YBT. All rowers will have improved normalized knee joint separation distance in DJST following training.

Study Design: Cross sectional.

Methods: 52 (31 varsity: 16.4 ± 0.8 years, 62.0 ± 9.0 kg, 1.7 ± 0.1m [mean ± SD], 21 novice: 14.5 ± 0.7years, 58.6 ± 5.4 kg, 1.7 ± 0.1m [mean ± SD]) high school rowers completed the Sportsmetrics™ training and participated in the study. Varsity rowers were defined as a returner; any new rower was considered novice. Differences in age, weight, and height were examined using independent t-tests. Repeated measures ANOVA assessed pre- to post-training differences between groups in VJH, YBT composite score (CS) and reach asymmetry (ASY), and normalized knee joint separation distance (DJST).

Results: VJH significantly improved for all athletes from pre- to post-training (mean ± SD: 29.0 ± 7.0 vs. 31.9 ± 5.1cm; $p = 0.001$) and normalized knee separation distance significantly increased for all athletes pre to post training at the pre-landing (mean ± SD: 58.2 ± 12.5 vs. 68.7 ± 7.4%; $p < 0.001$), landing (mean ± SD: 49.4 ± 18.2 vs. 66.3 ± 14.2%; $p < 0.001$), and take off (mean ± SD: 47.8 ± 18.4 vs. 64.8 ± 13.8%; $p < 0.001$) phases of the jump; there was no effect for group. There was no difference in varsity and novice pre to post training in YBT CS (99.3 ± 7.5 vs. 99.7 ± 7.1%; $p = 0.53$) or ANT ASY (mean ± SD: 3.4 ± 4.6 vs. 2.7 ± 2.3; $p = 0.36$).

Conclusions: SportsMetrics™ training improved VJH regardless of experience level; which suggests that rowers may have more leg power following training. Normalized knee joint separation distance increased to greater than 60% of hip joint separation distance following training, indicating that training reduced serious knee injury risk.

Level of Evidence: Level 3

Keywords: Drop Jump Screening Test, Rowing, Sportsmetrics™, Vertical Jump Height, Y-Balance Test

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