The individual responsible for the health care of athletes need practical means to determine lower extremity injury risk in athletes. Comparing the relationship of these two commonly used field tests could enhance this practical ability.
**PURPOSE:** to determine the relationship between a calculated ratio between VJ power and SLJ power ratio is sensitive in determining injury risk.
**METHODS:** Participants included 26 female NCAA-I athletes. The study examined data from testing conducted on the athletes prior to an off-season training cycle. Isokinetic testing at 60°/sec and 180°/sec, VJ height and SLJ distance results were examined. Average power ratios and the peak power ratios were calculated. Correlation and linear regressions analyzed relationships. Significance was set at the .01 level.
**RESULTS:** Hamstring % BW at 60°/sec (p=.000, r=.788) correlated with success in the VJ height and SLJ distance (p=.000, r=.757). Hamstring % BW at 180°/sec (p=.000, r=.765) correlated with success in the VJ height. At 180°/sec, hamstring % BW (p=.000, r=.742) correlated with success in the SLJ distance. The predictors (p=.009, r=.920) for peak power in the VJ were peak force, average velocity, athlete mass, and peak velocity. Stepwise linear regression indicated average velocity was the most important factor (p=;001, r=.825). Success in VJ height for power factors was average velocity (p=.000, r=.840). The predictors (p=.029, r=.919) for average power in the SLJ were peak force, average velocity, athlete mass, and peak velocity. Stepwise linear regression indicated average velocity (p=.000, r=.840) was the most important component to SLJ distance. Regression for the average ratio z-score was significant (p = .001, r = .738). The sport that athletes participated provided significance for average z-score ( p = .004, r = .741) and peak z-score (p = .004, r = .747).
**CONCLUSIONS:** Strength imbalance could affect an athlete's performance by limiting their ability to lower than optimal levels. An imbalance could also increase the risk of injury in an athlete. Using the performance tests of the VJ and the SLJ to determine the tendency in muscle dominance would allow sports medicine and strength staff to develop appropriate interventions tailored to the athlete to decrease the imbalance.

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2639 Board #162 June 3, 11:00 AM - 12:30 PM

**Can We Improve The Bosco Test? A Biomechanical Analysis**

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*(No relationships reported)*

Power output (PO) testing of athletes has been a central topic for the sports community, with common debates about the "Gold Standard" to predict sports performance. Despite its technical and conceptual constraints, the Bosco Test—using repeated vertical jumping—has outlasted many others due to its practicality and reliability. The test results, however, do not reflect expected PO differences from widely different athletes.
**PURPOSE:** To compare average power output (APO) results as calculated directly from instantaneous vertical ground reaction forces (IVGRFs), with the Bosco Test APO.
**METHODS:** 18 sedentary adult males (21.6±2.4 years, 67.2±11.3 kg, 1.77±0.05 m), 6 volleyball players (22.0±3.4 years, 72.3±12.5 kg, 1.84±0.10 m), 6 marathon runners (30.8±7.7 years, 73.2±11.0 kg, 1.75±0.05 m), and 6 swimmers (32.2±6.91 years, 78.8±4.6 kg, 1.77±0.06 m) performed a 60-s Bosco Test on a Force Plate. Total time in the air, total number of jumps, and IVGRFs were recorded from the force plate signal. APO (Watts/kg) was calculated from 'efficient' IVGRF using both the conventional Bosco methodology and PotevAA, our proposed method, for the same trials. Two-way ANOVAs with repeated measures were used to compare APO for the different groups and between methods.
**RESULTS:** APO was greater for Bosco (15.8±1.9 Watts/kg) than for PotevAA (8.0±1.8 Watts/kg) over the full 60s of the protocol (p<0.0001), as well as for each 15 s interval (p<0.0001). Both methods detected differences among sport groups (p<0.0001), but no differences were found between athletes (Bosco: 16.02±1.97 Watts/kg, PotevAA: 8.38±1.85 Watts/kg) and sedentary participants (Bosco: 15.58±1.88 Watts/kg, PotevAA: 7.56±1.63 Watts/kg, main effect p = 0.15; interaction p = 0.65).
**CONCLUSIONS:** Contrary to our expectations, APO differences detected by PotevAA were even smaller than those detected by Bosco; neither test discriminated satisfactorily among groups. We failed to show that PotevAA, a theoretically sound method to calculate APO directly from IVGRF during the positive vertical impulse of a 60-s jump series, could improve the conventional Bosco calculation.

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2640 Board #163 June 3, 11:00 AM - 12:30 PM

**Reliability of the Myotest® Height Displacement Measure among Hispanic Collegiate Athletes**

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*(No relationships reported)*

Vertical jump involves a complex motor pattern that requires advanced coordination between inferior and superior limbs. It is the simplest indirect assessment of the stretch and shortening cycle (SSC) used in the field to assess training effects and performance. The Myotest® accelerometer is a small portable device that measures change in velocity during a vertical jump and provides estimates of height displacement and power, a useful information for coaches and trainers. However, the device has not been tested among experienced Hispanic collegiate athletes.
**PURPOSE:** To evaluate the intrasession reliability of the height displacement estimate obtained with the Myotest® through a vertical jump in experienced Hispanic collegiate athletes (basketball, volleyball, track and field).
**METHODS:** A group of 30 Hispanic collegiate athletes (15 males, 15 females) completed 3 Squat Jumps (SQJ) and 3 Countermovement Jumps (CMJ) wearing the Myotest® attached to a belt around the waist. Each participant was encouraged to perform the highest jump possible in each attempt followed by 3 minutes of rest. The reliability of the Myotest® was evaluated using intraclass correlation coefficients (ICC), standard error of measurement (SEM), and coefficients of variation (CV). Also, a repeated measure ANOVA with Bonferroni post hoc test was used to detect differences between jumps.
**RESULTS:** Mean age of male and female athletes (20.6 ± 1.5 and 20.6 ± 1.6 years, respectively) was not different (P > 0.05). The Myotest® showed good reliability for the SQJ (ICC= 0.84, SEM= 2.9 cm, CV= 8.6%) and CMJ (ICC= 0.95, SEM= 2.0 cm, CV= 5.2%). The estimated height displacement was not different between jumps in SQJ (33.2 ± 7.7, 33.4 ± 6.8, and 34.2 ± 6.3 cm, P>0.05); however, there were differences between the first and second jump and between the first and third CMJ (37.8 ± 9.2, 39.3 ± 9.2, and 39.6 ± 9.0 cm, P<0.05).
**CONCLUSION:** These results suggest that the Myotest® offers reliable information of height displacement in a maximal vertical jump; therefore, providing useful information that can be measured in the field. To obtain the maximal height displacement with the CMJ, athletes need to perform a minimum of three jumps.

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2641 Board #164 June 3, 11:00 AM - 12:30 PM

**Effects Of Reduced Relative Implicit And Explicit Feedback On Lower Extremity Jump-landing Mechanics: A Preliminary Analysis**

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*(No relationships reported)*

Implicit (IF) and explicit (EF) feedback are two motor learning strategies that have been demonstrated to alter biomechanical movement patterns. While both strategies have been utilized for injury prevention, it remains unclear which strategy may be more effective.
**PURPOSE:** To examine the effects of reduced relative IF and EF video feedback on lower extremity landing mechanics.
**METHODS:** Seventeen participants (23.5±0.9 years, 1.72±0.1m, 67.7±11.5kg) were randomly assigned to three groups: IF (n=6), EF (n=5), and Control (CG) (n=6). 12 box-drop jumps were performed three times a week for six weeks. IF and EF groups received video feedback, while CG received no feedback. IF was cued to focus their attention in overall jump, while EF was cued to focus on knocked knees, bowleg and shallow knee flexion. Participants viewed 2 video recordings for each plane (sagittal and frontal), in



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