Notice of the Final Oral Examination
for the Degree of Master of Science

of

ADAM KLEEGERBER

BSc (University of Victoria, 2013)

“Relationships between horizontal jump tests and sprint performance”

School of Exercise Science, Physical and Health Education

Tuesday, September 15, 2020
12:00pm
Remote Defence

Supervisory Committee:
Dr. Marc Klimstra, School of Exercise Science, Physical and Health Education, University of Victoria (Supervisor)
Dr. Nick Clarke, School of Exercise Science, Physical and Health Education, UVic (Member)

External Examiner:
Dr. Joe Baker, School of Kinesiology and Health Sciences, York University

Chair of Oral Examination:
Dr. Vivien Corwin, Gustavson School of Business, UVic

Dr. Stephen V. Evans, Acting Dean, Faculty of Graduate Studies
Abstract

Athletic performance assessments are important for identifying physical giftedness, monitoring athlete progress and supporting training recommendations. Sprint performance is a key component in athlete success both in athletics and field-based sports, and talent identification testing batteries often include sprint and jump assessments. Jumping and sprinting share a number of similar characteristics and research has shown that the relationships between sprint and jump tests depend on the recorded segment of the sprinting task, type of jump performed, and the speed and sex of the athlete. The majority of this research has been conducted in small, single sex, similar athlete cohorts and there has yet to be an analysis of a large cohort multi-sport population with both male and female groups. Understanding the relationships between sprint ability and horizontal jump performance, based on large groups of athletes separated by sex can provide great insight into the shared and independent value of sprint and jump performance tests to support athlete testing and development. Therefore, the purpose of this study was to investigate the relationships between horizontal jump tests and sprint performance within different athlete sexes and sprint ability. To the authors’ knowledge, this is the first study with a large population sample of multisport athletes, with differing sprint and jump abilities. The associations and relationships between horizontal jump performance in standing broad jump (SBJ) and standing triple jump (STJ) with 0-10m and 30-40m sprint time in a group of athletes participating in a talent identification event were investigated in this study. Correlations and linear regressions were assessed with athletes grouped only by sex (male (n = 742), and female (n = 610)), and then grouped by sex and speed (fast = -0.5 SD, slow = +0.5 SD) for both 0-10m and 30-40m time separately. When grouped only by sex there were very large and large associations between sprint and jump measures ($r = -0.533$ to $-0.717$), and linear regression equations explained 37.4% to 55.5% of the variance. When grouped by sex and speed, slow athletes showed stronger associations ($r = -0.353$ to $-0.488$) than fast athletes ($r = -0.088$ to $-0.307$). Linear regressions explained 20.3% to 28.5% of the variance in slow athletes, but only up to 12.0% of the variance explained in fast athletes. Linear regressions in slow and fast males all included SBJ as a predictor, but not STJ. Linear regressions in slow and fast females all included STJ as a predictor, but not SBJ. Overall, these results support the use of general sprint and jump tests for slower athletes, the importance of both sprint and jumps tests with higher resolution in faster athletes, as well as the utility of different jump tests to evaluate lower limb performance between sexes.