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

of

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BSc (University of Victoria, 2001)

“The Extent to which the King-Devick Test and Sport Concussion Assessment Tool 3 Predict 3-Dimensional Multiple Object Tracking Speed”

School of Exercise Science, Physical and Health Education

Wednesday, January 11th, 2017
12:00 p.m.
Medical Services Building
Room 210

Supervisory Committee:
Dr. Brian Christie, School of Exercise Science, Physical and Health Education, University of Victoria (Supervisor)
Dr. Viviene Temple, School of Exercise Science, Physical and Health Education, UVic (Member)

External Examiner:
Dr. Jodie Gawryluk, Department of Psychology, UVic

Chair of Oral Examination:
Dr. Karen Courtney, School of Health Information Science, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Objective: To determine the extent to which aspects of the Sport Concussion Assessment Tool 3 (SCAT3) or Child SCAT3 (C-SCAT3), and the King-Devick Test (KDT) predict Three-Dimensional Multiple Object Tracking (3D-MOT) speeds. Participants: A sample of 304 healthy, non-concussed participants with a sporting history (101 females, 203 males) ranging in age from 7-29 years (mean age = 16.05 +/- 4.36) were included in the analysis. Methods: Participants completed the SCAT3, KDT and 3D-MOT in a single visit. Data Analysis: A regression analysis was performed to determine the degree to which aspects of the SCAT3 (immediate memory (IM), coordination (COOR), delayed recall (DR)), and the KDT predicted 3D-MOT scores. Results: Using the stepwise method, it was found that KDT, DR and COOR explain a significant amount of the variance in the speed of the 3D-MOT ($F(3, 256) = 11.82, p < .000$ with an $R^2 = .12$. The analysis shows that KDT (Beta = -0.01, $p < .000$), DR (Beta = 0.07, $p < .02$), and COOR (Beta = .23, $p < .03$), were significant predictors of 3D-MOT scores. Conclusions: This study suggests that the KDT, DR, and COOR significantly account for 12% of the 3D-MOT scores, however, there is a large portion of variability unaccounted for by the SCAT3 or C-SCAT3 and KDT. This shows that 3D-MOT may be able to evaluate post-concussion impairments beyond the SCAT3 or C-SCAT3 and KDT. Future studies should examine this relationship post-injury and through concussion recovery. This could provide valuable information to better inform clinicians responsible for making return to play determinations.