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

of

LAURA ST. JOHN

BA (Wilfrid Laurier University, 2015)

“Heart rate variability profiles of Special Olympics athletes at rest, during submaximal exercise, and in recovery”

School of Exercise Science, Physical and Health Education

Tuesday, April 25, 2017
12:00pm
David Turpin Building
Room A136

Supervisory Committee:
Dr. Viviene Temple, School of Exercise Science, Physical and Health Education, University of Victoria (Supervisor)
Dr. Lynneth Stuart-Hill, School of Exercise Science, Physical and Health Education, UVic (Co-Supervisor)

External Examiner:
Dr. Patrick Neary, Department of Kinesiology and Health Studies, University of Regina

Chair of Oral Examination:
Dr. Michael Masson, Department of Psychology, UVic

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

The change in R-R intervals between adjacent heartbeats is referred to as Heart Rate Variability (HRV). HRV data provides information regarding an individual’s Autonomic Nervous System (ANS), specifically the ANS’s two branches, the Sympathetic Nervous System (SNS) and the Parasympathetic Nervous System (PNS). The HRV of a healthy, well-conditioned heart is large at rest, while low HRV is associated with adverse health outcomes such as diabetes, heart disease and early mortality. There has been a substantial amount of HRV research conducted with typically developing individuals. One group who is greatly underrepresented in research is individuals with intellectual disabilities. Currently, no studies have been undertaken with Special Olympics athletes. Therefore, the purpose of this study was to create HRV profiles at rest, during submaximal exercise, and at recovery of adult Special Olympic athletes. The study also sought to examine the impact that Down syndrome, age, sex, and medication on HRV profiles. The current study found that although heart rate responded appropriately during the three testing conditions (rest, exercise, recovery) the athletes were sympathetically dominated across all three conditions, indicating an imbalance between the SNS and the PNS. In addition, male and female athletes were significantly different with regards to low frequency and high frequency power. It is possible that anxiety or excitement about the testing influenced some athletes, and future research should examine how additional protocol familiarization could impact the HRV profiles within this population. Additionally, more research with larger sample sizes is needed to more fully understand the impact that age, etiology of intellectual disability, and medication use may be having on HRV profiles.