Title - Comparison of Maximal Aerobic Capacity Between the Treadmill and a Skiing Ergometer
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Mentor(s) and Mentor Email - Dr. Andy Bosak (ambosak@liberty.edu)
Student name(s) and email(s) – Hannah Nelson (henelson4@liberty.edu)

Abstract: Cross-country skiing is known to be an extremely aerobically demanding sport. Therefore, the use of a skiing ergometer (ie. SkiErg) to replicate similar aerobic training is increasing in use in lab and fitness settings. The SkiErg (SE) is widely used in gyms, research laboratories, and rehabilitation centers, and provides a low impact and total body cardiovascular and muscular endurance workout. Technique for training on the SE can be quickly learned and adapted for immediate use by most individuals. Because of its lower cost and minimal required floor space, this piece of fitness equipment can be used at almost any location for exercise and training. Due to the benefits, convenience, and accessibility, the SE may be a viable alternative max or peak graded exercise test (GXT) mode. To the best of the researchers' knowledge, a comparison of aerobic capacity between a SE and treadmill has not been assessed utilizing female subjects. Therefore, the purpose of this study was to compare treadmill (TM) VO_2max values vs. those elicited from a SkiErg GXT in college females. Descriptive data was measured on averagely fit college-age females. In a counterbalanced order and separated by 72 hours of rest, each subject completed 2 GXT protocols to the point of volitional exhaustion on a TM and SE. Max or peak values for VO_2, HR, VE, and RER were compared between TM and SE using a Paired-Samples t-Test with an alpha level at $p \leq 0.05$. Peak RPE was compared using a Wilcoxon Signed Rank Test. From this study, an alternative mode of exercise testing could be created for use by various populations. Future research should assess how gender, protocol

variations, SE technique, or various athletic populations may impact VO_2 values during a peak SE GXT.