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Role of Concussion History in Exercise Tolerance Among Collegiate Aged Females

Abstract

Concussion, a form of mild traumatic brain injury, is caused by a force to the head or body. During recovery, concussion symptoms can contribute to decreased exercise tolerance. The Buffalo Concussion Treadmill Test (BCTT) is used to assess symptom exacerbation thresholds during exercise in individuals rehabilitating from concussion. Since no current studies examine the effects of concussion history on exercise tolerance in college-aged females, this study used BCTT performance to investigate differences in exercise tolerance in collegiate-aged females with and without a concussion history.

Participants were females ($n = 39$) between 18 and 30 years old (mean age = 22.69 ± 3.88 years) who completed demographic and concussion history questionnaires and the BCTT. As an index of exercise tolerance, the number of minutes the participant completed on the test and their heart rate at their stopping point were assessed. Independent-Samples t-tests were run with 95% confidence intervals to determine if differences existed between those with and without concussion history.

No significant differences in performance on the BCTT were found. The mean number of minutes completed by each group on the test did not vary significantly ($t(37) = .651, p = .502$), nor did the maximum heart rate at the end of the test ($t(33) = .389, p = .649$). Since no meaningful associations could be drawn between concussion history and exercise tolerance in this sample of collegiate-aged females, more research is needed to determine if performance would differ significantly based on the number of past concussions or length of time since last concussion.