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Abstract Title: Examining symptom provocation on a Multimodal Exertional Test for Concussion in athletes throughout clinical recovery

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ABSTRACT:

Abstract Theme: Mild TBI / Concussion

Topic(s) of Interest: Clinical Research

Purpose of Project: The objective of the study was to determine symptom provocation following each task of a Functional Test for Concussion (FTC) across the first month of recovery.

Methods, Procedure, Results/Outcome, Conclusion: Methods/Procedures: The FTC comprises of four stages, each consisting of three tasks, that increase in complexity based on cardiovascular load, head acceleration, coordination, and cognitive tasks. Healthy athletes completed the FTC at a baseline time point and athletes with concussion completed the FTC at multiple time points throughout recovery (1-, 2-, 3-, and 4-weeks post injury). Pass or fail of the FTC and change in total symptom severity following each task compared to initial score were examined.

Results/Outcome: One-hundred sixteen healthy athletes (female n = 47, male n = 69) and forty-three athletes with a sport-related concussion (female n = 32, male n = 11) completed the FTC. Among the healthy control group, although 6-19.8% of athletes experienced symptom provocation, the mean change in symptom severity scores following each task was 0 and no athletes failed the FTC. In the concussion group, at 1-, 2-, 3-, and 4-weeks post-injury, 46%, 33%, 12%, and 7% of athletes failed the FTC, respectively. Of the athletes that did not fail the FTC, symptom provocation was experienced across all four weeks of recovery. More specifically, 52-63%, 39-54%, 5-32%, and 17-33% of athletes with concussion experienced symptom exacerbation following each FTC task at weeks 1, 2, 3, and 4 post-injury, respectively. The mean change in symptom severity scores ranged between 2-3 at 1-week, 1-3 at 2-weeks, and 0-1 at 3-weeks post-injury. By 1-month post-injury, the mean change in symptom severity score following each task was 0 for athletes with concussion.

Conclusion:

This study provides insight into the subjective responses of healthy athletes and athletes with concussion during a twelve-task functional test. The FTC appears to be able to provoke symptom exacerbation in athletes with concussion with the average change in symptom severity score returning to that of healthy athletes by 1-month post-injury.