VESTIBULAR, OCULOMOTOR AND EXECUTIVE FUNCTION IN CLEARED TO PLAY FEMALE COLLEGIATE SOCCER AND LACROSSE ATHLETES

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Background and Purpose: Athletes experiencing multiple head impacts in sports such as lacrosse and soccer may be competitively playing in the presence of undetected central vestibular dysfunction despite baseline testing and return to play guidelines. Understanding the prevalence of vestibular dysfunction and best testing practice is paramount for the overall health of these athletes. The purpose of this study is to assess vestibular, oculomotor, and executive function in cleared to play collegiate female soccer and lacrosse athletes.

Participants: 42 female soccer and lacrosse athletes, ages 18-23.

Methods and Materials: Participants had a single assessment that tested near point convergence (NPC), trail making test A and B, head impulse, head shake nystagmus, and dynamic visual acuity (DVA).

Analysis: Vestibular and oculomotor testing reported descriptively. Mann-Whitney analysis compared trail making test A and B results of participants with positive central vestibular tests to those without positive testing.

Results: 73% of soccer and 65% of lacrosse participants had at least one positive vestibular, oculomotor, and/or executive test. Furthermore, 23% of soccer players and 15% of lacrosse players demonstrated at least two positive tests. The DVA and the NPC were the most frequently positive tests among soccer and lacrosse athletes respectively. There were no significant differences in the trail making test A or B.

Conclusions: Over half of the athletes competitively playing at the time of data collection had at least one positive vestibular test. The DVA and NPC tests may have high utility in identifying unresolved central vestibular dysfunction. Further research should determine the best cluster of tests to examine unresolved impairments and explore the impact on athletes’ academic and athletic performance.

Implications: Baseline, return to play guidelines and targeted intervention for athletes in head impact sports may be better informed using a battery of certain vestibular tests regardless of concussion history.