Press Release Title: Does Concussion Impact Men and Women Differently?

Abstract Title: Effect of Previous Concussion on Baseline Neurocognitive Performance Between Genders

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Abstract: The long-term effects of sports related concussion are relatively unknown within the amateur sports population. Moreover, it is unknown whether gender has a protective role against possible negative consequences of concussion. The objective of the current investigation is to assess the role of gender and previous concussion on long-term neurocognitive performance.

Methods: Demographic and baseline neurocognitive data from 155 male and female collegiate athletes representing 11 sports at a single university were extracted from the National Sport Concussion Outcome Study (NSCOS) database for analysis. Outcome variables included AXON, clinical reaction time, symptom checklist, standardized assessment of concussion (SAC), and Balance Error Scoring System (BESS). Main effects were assessed using chi squared and t-tests, while interaction was tested via two-way analysis of variance.

Results: 46.8% of participants were female, with an average age of 18.2 (SD=0.9) years. 53.6% of athletes currently played a contact sport and 23.2% reported a previous sport related concussion. Athletes reported an average of 0.4 (range 0-8) previous concussions, with an average of 41.3 (SD=40.4) months from most recent injury. Female and males were equally likely to have a history of concussion, even when controlling for playing a contact sport. There was no significant main effect of previous concussion on AXON (p’s>0.05). Independent of concussion history, female athletes reported more symptoms (p=0.01) with greater severity (p=0.02) and performed worse than their male counterparts on clinical reaction time, processing speed, attention, and working memory speed (p’s<0.001) tests. No significant interaction between gender and history of concussion was observed for any outcome variable.

Conclusion: These results support previous findings that neurocognitive performance is not significantly affected by history of concussion. However, the gender differences presented here warrant consideration in clinical practice. Future research should examine the interaction of gender and previous concussion on acute injury outcomes.

Study Supported By: National Collegiate Athletics Association (NCAA)