

SPORTS CONCUSSION

VIRTUAL CONFERENCE
JULY 31–AUGUST 1



AAN SPORTS CONCUSSION CONFERENCE ABSTRACT

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EMBARGOED FOR RELEASE UNTIL 4 P.M. ET., WEDNESDAY, JULY 29, 2020

Abstract Title: No Sex Differences in Risk for Lower-Extremity Musculoskeletal Injury in Concussed Amateur Rugby Players

Objective: To examine sex differences between concussion and lower-extremity musculoskeletal injury (LE-MSI) in community male and female rugby players.

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Background: There is an ~2x elevated risk of post-concussion subsequent MSI in high school through professional athletes. However, the effect of sex on risk is inconsistent and sparse, and rugby provides an ideal population as it's the only collision sport with the same rules for both sexes.

Design/Methods: 1,037 rugby players (31.6 ± 11.3 years, 59.1% male), with at least one year of rugby playing experience, participated in this study, completing an online injury history questionnaire to ascertain concussion (yes/no) and LE-MSI (yes/no) history. A chi-squared test was performed to determine the association between concussion and any LE-MSI; significant findings were followed up with a post hoc odds ratio test. A binary logistic regression with any LE-MSI (yes/no) as the outcome and concussion (yes/no) and sex (male/female) as predictors was performed to determine if there was a sex by concussion interaction.

Results: There was a significant association between concussion and any LE-MSI for all groups. (Overall: $\chi(1) = 13.06$, $p < 0.001$, OR = 2.30 [95%CI: 1.45, 3.65]; Males: $\chi(1) = 7.43$ $p = 0.006$, OR = 2.21 [95%CI: 1.24-3.96]; and Females: $\chi(1) = 5.78$, $p = 0.016$, OR = 2.48 [95%CI: 1.16-5.31]). However, there were no differences for risk of LE-MSI between males and females ($p = 0.99$, $R^2 = 0.024$).

Conclusions: Both male and female community rugby players had a 2x greater risk of LE-MSI, given a history of concussion compared to those without a history of concussion, which aligns with previous studies focused on collegiate athletes. However, there was no difference in risk of LE-MSI between sexes, contrary to smaller, but more controlled studies. Future research should investigate the potential physiological mechanisms for increased risk of LE-MSI.

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