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BACKGROUND

- Rugby is a popular international sport with approximately 3.2 million players registered with World Rugby.¹ In Calgary, senior boys rugby union was introduced in high schools in the 1973/74 season, senior girls rugby was added in the 1997/98 season and due to the popularity among females, junior girls was added in the 2017/18 season.
- A previous systematic review with meta-analysis combining injury definitions reported a pooled incidence rate of 26.7 injuries per 1000 player hours for players under the age of 21.²
- However, generalizing rugby injury rates across countries may be challenging due to differences in playing conditions, sport culture and player experience.
- There are very few Canadian rugby studies and a paucity of studies specifically examining female rugby players suggesting a need for further research.

OBJECTIVE

To estimate sex-specific match and training injury rates as well as mechanisms of injury, for rugby union players (15-18) participating on high school teams in Calgary, Canada. This is part of a larger program of research **SHRED** Injuries (Surveillance in High Schools to Reduce Injuries and their consequences).

METHODS

Study Design

This is a prospective cohort study.

Participants

Male (n=225) and female (n=214) players were recruited from 15 teams (8 male, 7 female) in 6 high schools prior to the 2018 high school rugby season.

Observation Technique

A validated injury surveillance system was used to capture baseline medical information, exposure and injury data for the 2018 high school rugby season.

Outcome Measures

A student trainer or study therapist completed an injury report form for injuries that required medical attention, resulted in the inability to complete the session of activity and/or led to the inability to do sporting activity for one day. A certified athletic therapist validated all injury report forms.

Injury Definition

Inability to complete session, and/or requiring medical attention, and/or resulting in inability to participate in a future session.

Analysis

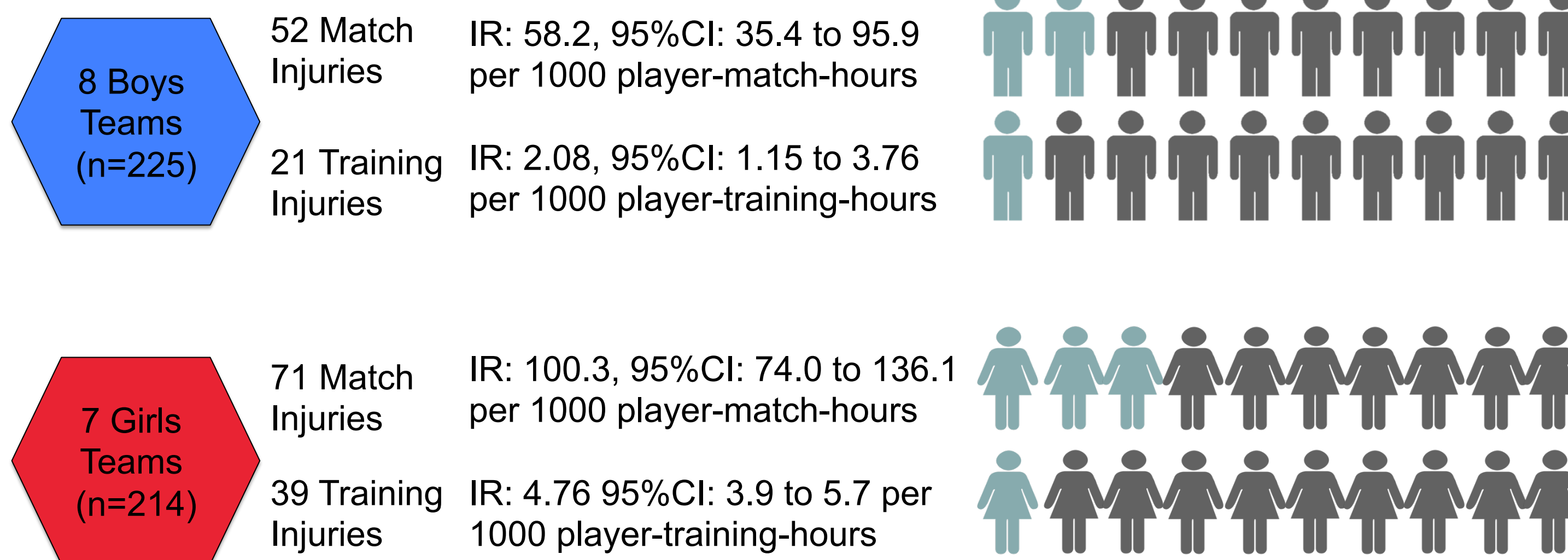
Match and training-related incidence rates (IR) with 95% Confidence Intervals (CI) were estimated using Poisson regression adjusted for cluster by team and offset by player match exposure hours (IR).

Participant Demographics		
Characteristic	Boys Teams N=8 teams (3 junior, 2 senior), n=225	Girls Teams N=7 teams (2 junior, 5 senior), n=214
Grade		
10	67 (29.79%)	92 (42.99%)
11	93 (41.33%)	77 (35.98%)
12	65 (28.89%)	45 (21.03%)
Rugby Experience		
No Experience	87 (38.67%)	89 (41.59%)
Prior High School Experience	121 (53.78%)	115 (53.74%)
Prior Club Experience	46 (20.44%)	32 (14.95%)
Provincial Experience	9 (4.00%)	4 (1.87%)
National Experience	3 (1.33%)	2 (0.93%)
Previous History of Concussion		
No	137 (60.89%)	141 (65.89%)
Yes	84 (37.33%)	68 (31.78%)
Missing	4 (1.78%)	5 (2.34%)

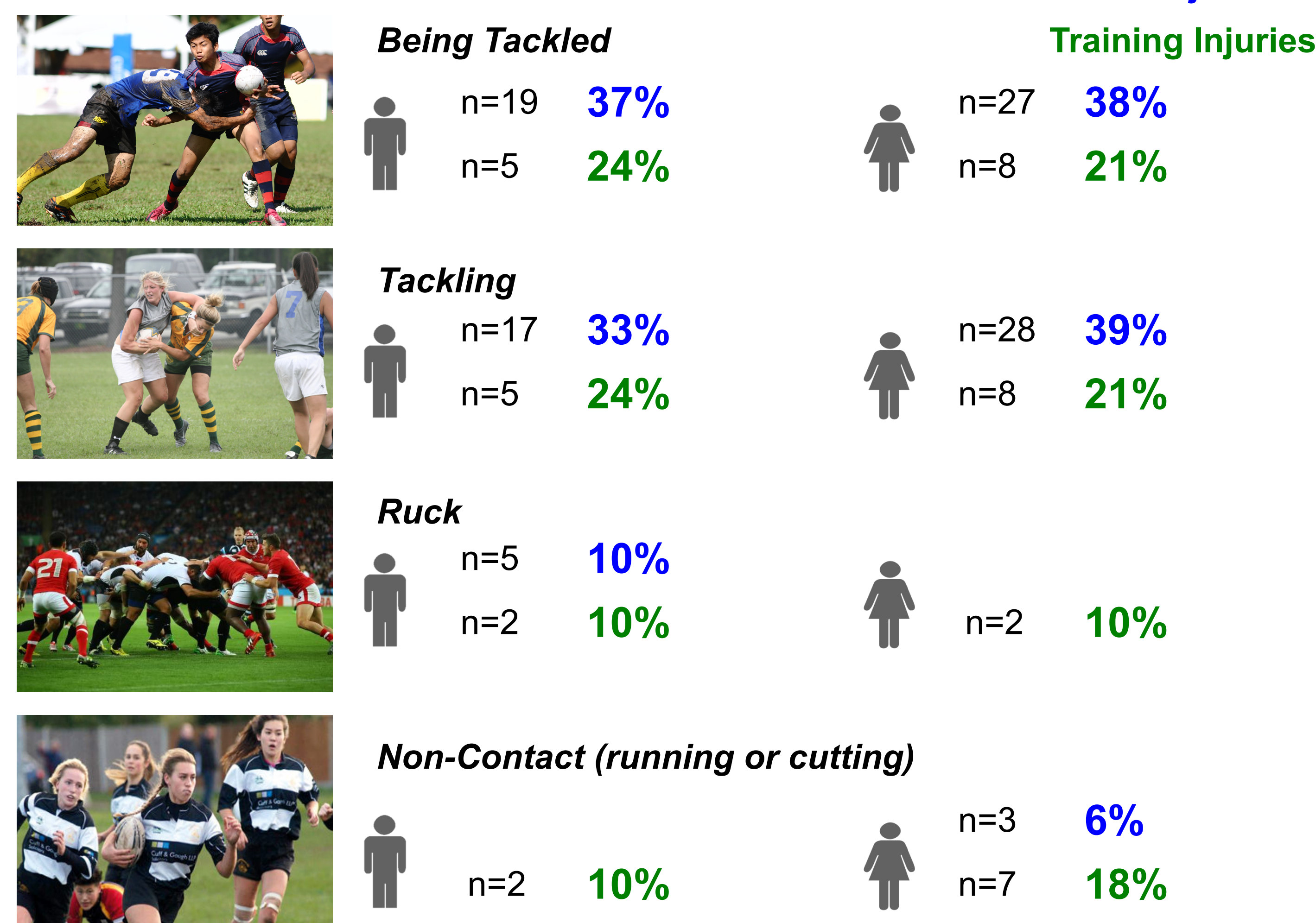
RESULTS

Summary Season Duration and Match and Training Injury Rates

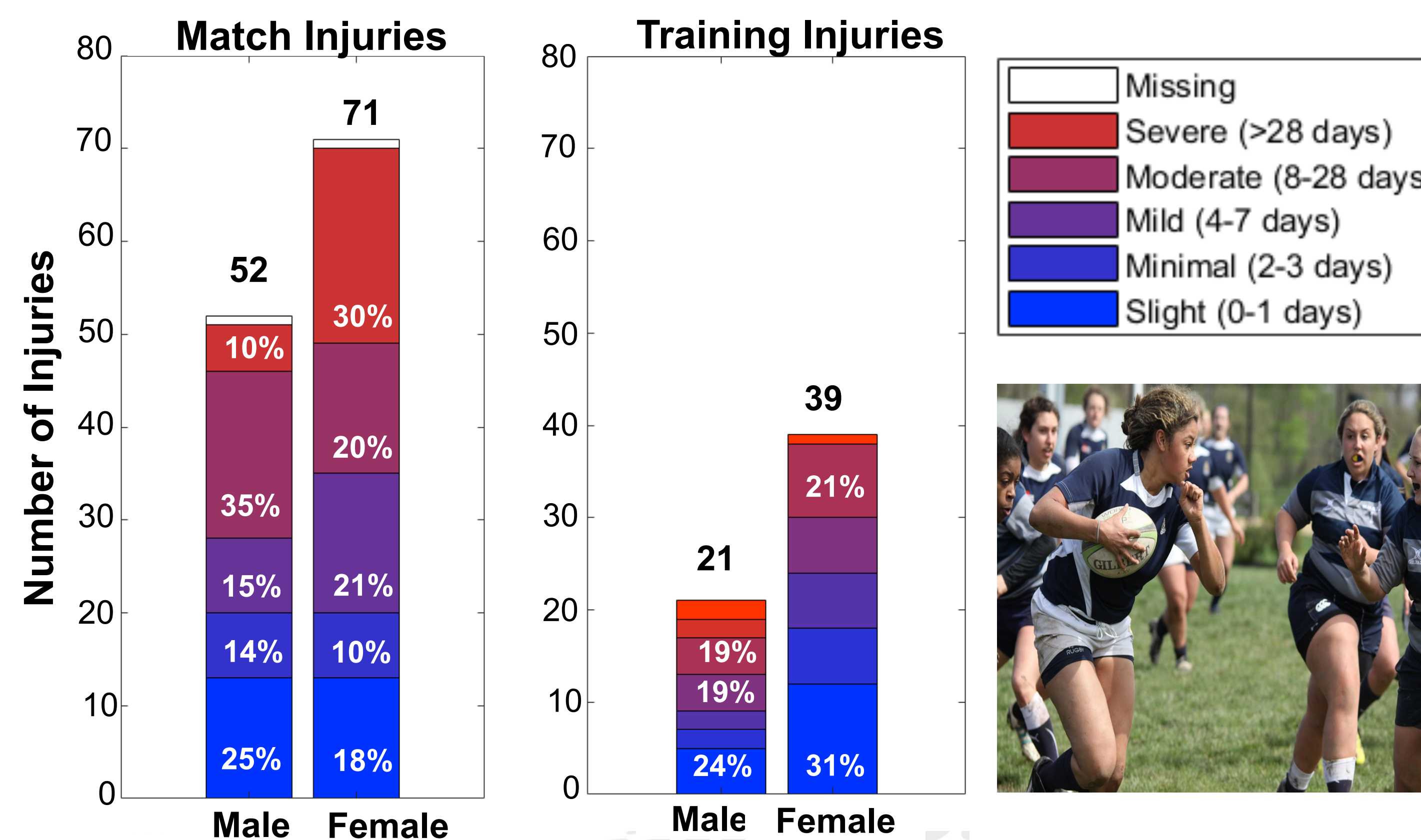
Length of high school season: ~13 weeks: 7 weeks of pre-season, 4 weeks of regular season games and playoffs across 2 weeks



Top Mechanisms of Injury



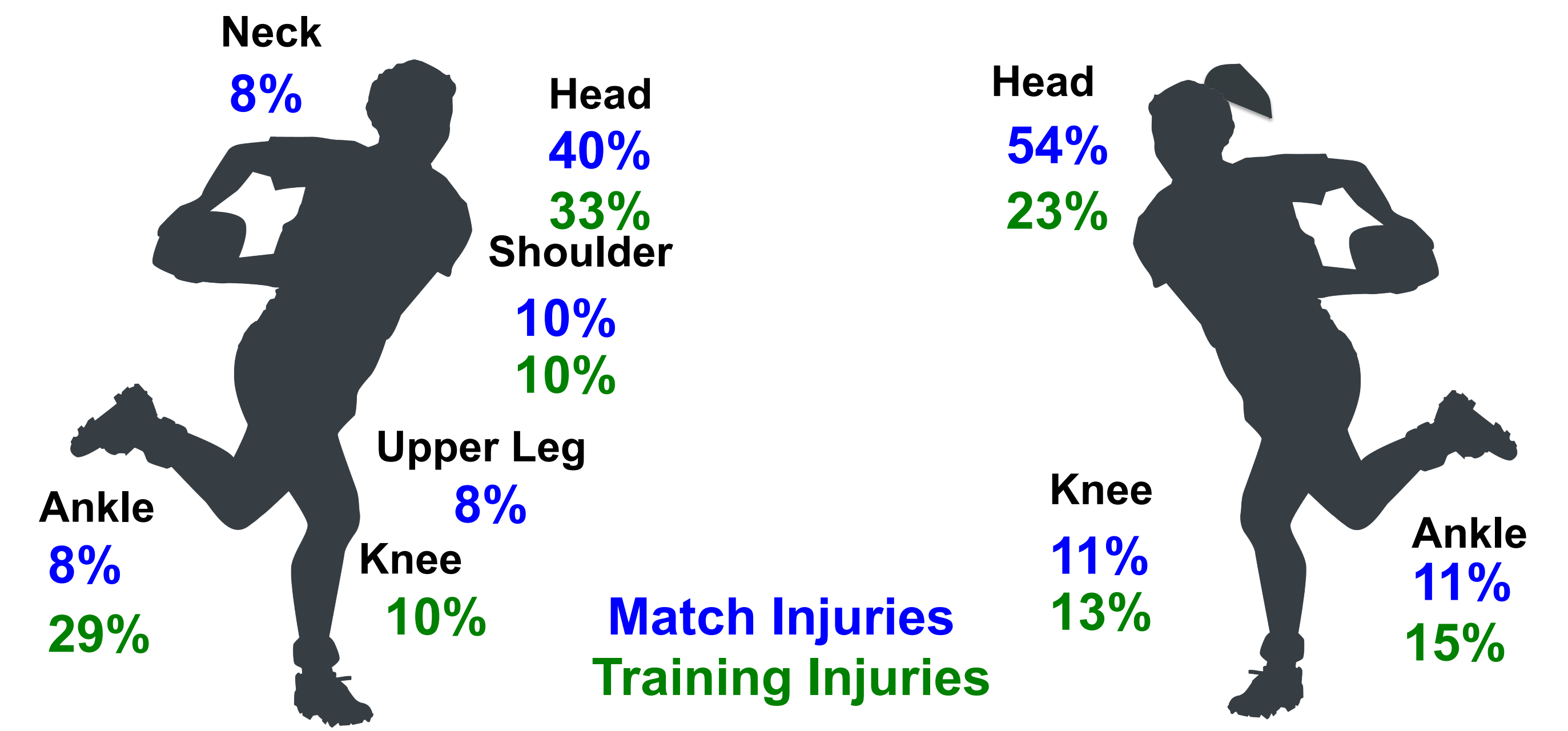
Injury Severity



Injury severity classifications are based on the rugby injury consensus statement.³ Days lost are determined based on the number of calendar days the player was unable to participate in their sport due to injury.

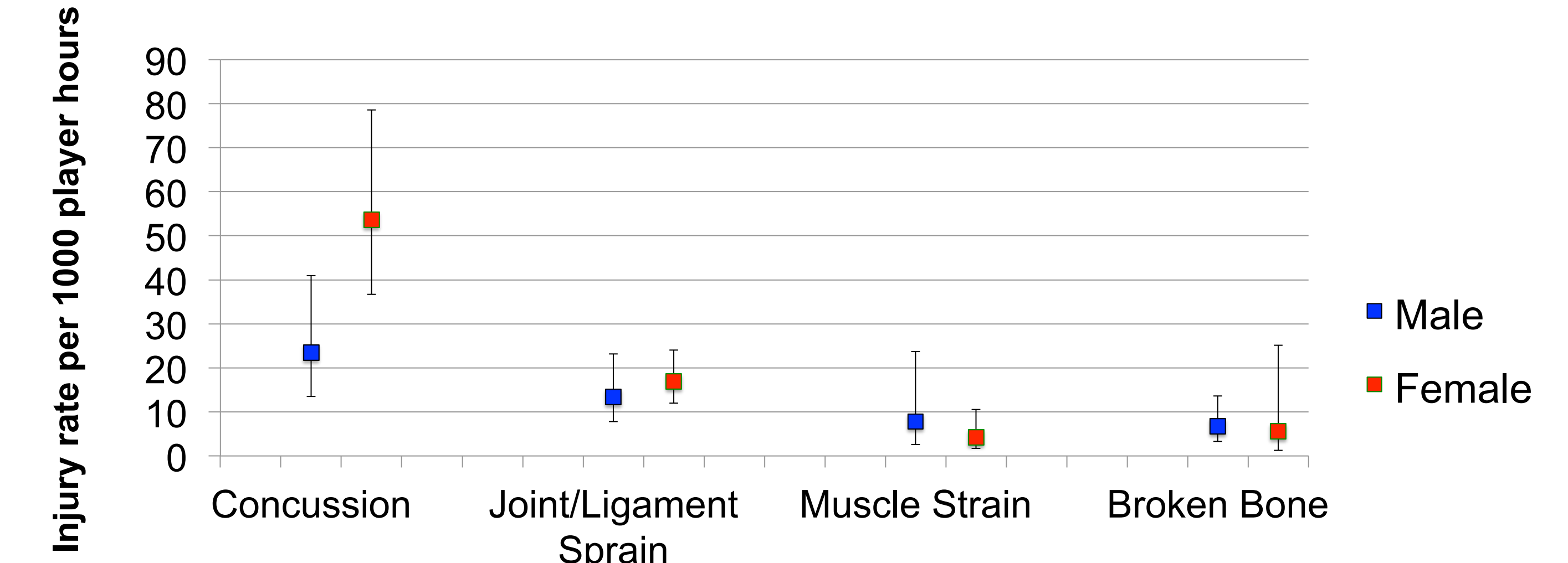
RESULTS

Common Locations Match and Training Injuries



Percentages are based on the number of all reported match or training injuries. Only locations ranked in the top three with regards to proportion for the sex are included.

Common Types of Match Injuries



DISCUSSION & CONCLUSIONS

- The injury rates for high school rugby players in Calgary, Canada are higher than many of the previously reported rates with similar definitions in other countries.²
- Approximately 39% of males and 42% of females in Calgary reported having no prior rugby experience, which may explain the difference in rates from countries where rugby is introduced earlier.
- Improving tackling technique may be an important target for reducing injuries.
- There was a delay in the start of the season and a reduction in the number of matches due to weather; this may affect the generalizability of these findings.

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