**Background** Rugby Union has one of the highest risks of injury and concussion in team sports globally. Despite growing participation, little data exists surrounding injury rates and specific characteristics which may be associated with injury onset, and in particular concussion.

**Objective** To identify suspected injury and concussion events in women’s varsity rugby union

**Design** Video-analysis study using validated suspected injury definition criteria.

**Setting** University women’s rugby

**Participants** Women’s ‘Canada West’ varsity rugby athletes (2017–2019 seasons)

**Interventions (or Assessment of Risk Factors)** Video-analysis of game events leading to suspected injury and concussion

**Main Outcome Measurements** Suspected injury and concussion based on content validation and consensus by nine rugby-specific researchers, therapists, and sport medicine physicians

**Results** There were 225 suspected injuries recorded in 48 games (Injury rate (IR)= 115.1/1000 hours [95% CI:100.5–131.2] or 4.7 injuries per match). The on-field medical attention IR was 93.1/1000 hours (95% CI:80.1–107.6: 3.8 per game). Suspected concussions accounted for 26% of injuries (30.2/1000 hours: 95% CI:23.0–38.9: 1.2 per game). The attacking team sustained 64.0% of injuries. Removal from play was observed for 28.9% off suspected injuries. The most common injury locations were head/neck (28.4%) and lower extremity (27.6%). The tackle accounted for 67.1% of all injuries, with a propensity of 11.2/1000 tackle events (95% CI:9.5–13.2) or 3.1 tackle-related injuries/game. Of tackle-related injuries, 63.6% were to the ball carrier, while 52.2% of tackle-related concussions were to the ball carrier.

**Conclusions** This study adds to the growing body of literature examining women’s rugby union. The rate of suspected injury is high compared with other rugby injury studies. It is acknowledged that suspected injuries and not supported by prospective injury surveillance. The high proportion of tackle-related suspected injuries warrants further investigation into specific characteristics which may be associated with injury onset, and in particular concussion.