

Concussive Injuries in Rugby-7s: A Developing Nation's Experience with a Growing Amateur Sport

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Summary:

Concussions occurred in USA Rugby-7s matches and a formal return-to-play protocol will be important for USA amateur players.

Abstract:

Background: Rugby-7s is a popular international sport, which debuted in the 2016 Olympics. In the United States (USA), it is an emerging sport in the amateur segment. The USA is one of its largest emerging rugby-playing markets in the World. Sports-related concussions are a growing public concern among USA sports.

Objective: To obtain incidence of concussions in amateur USA Rugby-7s matches. We hypothesized that concussive injuries will occur with frequency in USA Rugby-7s.

Design: Prospective descriptive epidemiology study.

Setting: The study encompassed different competitive levels of amateur play in USA Rugby and USA Sevens LLC tournaments.

Participants: A total of 13,644 U.S. players (Men=9,768; Women=3,876; age: 13-49 years) were included between 2010-2013, which encompassed over 28 tournaments and 2,688 matches (Men=1,886; Women=802) in 1,137 sides/teams (Men=814; Women=323).

Main Measurement Outcome: Incidence (per 1000 player-hour (ph)) and biomechanism of injuries were captured (Rugby Injury Survey & Evaluation, RISE, Report). An "injury" was defined as any physical complaint caused by transfer of energy that exceeded the body's ability to maintain its structural and/or functional integrity, sustained by a player during a rugby match. Concussed player were identified as those: 1) who reported a loss of consciousness due to a witness observed head trauma with impact, and/or 2) an event/tournament-sanctioned healthcare provider diagnosed concussion due to observed signs or symptoms indicative of concussion that resulted in a player's reported stoppage of play, player receiving medical attention, and/or player leaving the field or delayed removal from play with sequelae. A "time-loss injury" was defined as an injury that resulted in a player being unable to take part of a full rugby match. Injury severity was defined as days absent before return to training/competition. The injury definitions and methodology conformed to accepted international standards on rugby injury research.

Results: Overall incidence of concussive injuries was 7.7/1000ph. There was no significant difference in frequency between men and women players (men = 7.6/1000ph, women = 8.1/1000ph, P = 0.593). Most concussive injuries were "no loss of consciousness" (86.6%). Higher level of competition (elite level of competition) was associated with

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greater incidence of concussion (18.3/1000ph vs. 6.4/1000ph; RR = 5.4, P = 0.001). A concussive injury resulted in a mean 30.6 days absent from competition (range = 0–135 days). Only 60% of our American cohort reported compliance with the 3-wk stand-down return-to-play recommendations. Among concussed USA players, 43.2% reported more than one concussive injury. Players who had multiple concussive episodes within a year were more severely injured (42.8 mean days absent; 95% CI = 23.0–62.6; P=0.03).

Conclusions: The 7.7/1000ph incidence of concussion among USA amateur Rugby-7s is concerning given international incidences range from 2.6-12.5/1000ph in Rugby-15s and 8.3/1000ph in international elite men Rugby-7s. The 40% of players who did not follow the recommended 3-week stand-down regulation indicates that a formal mechanism to “clear” players for return to play is needed for USA Rugby-7s.