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Objectives: Rugby Sevens is a future Olympic collision sport that is played globally with a high incidence of injury. The sport is growing exponentially in the U.S. There is limited injury data on Rugby Sevens. Currently, there is no study evaluating incidence of injury in the National Rugby Sevens population in the U.S. The objective of this study was to characterize the injury rates among amateur Rugby Sevens players in the U.S.

Methods: This was a prospective descriptive injury epidemiology study involving American Rugby Sevens tournaments from 2010-2013. The injury data were collected from both male and female Rugby Sevens players (13, 524 players) and conformed to the international consensus statement on rugby injury definitions. The study included a total of 1,127 teams competing in under-15 to national candidate level tournaments (USA Rugby Local Area, Territorial Union, National and All-Star Sevens Series, USA Sevens Invitational and Collegiate Rugby Championships). A total of 2746 matches were played, 2734 lasting 14-minutes (0.23 hours) in length and 12 lasting 20-minutes (0.33 hours) in length. The overall injury exposure for all players was 8858.9 playing hours (7 players per side * 2 teams per match * 0.23 hours per match * 2734 matches + 7 players per side * 2 teams per match * 0.33 hours per match * 12 matches). Player injury data were reported as proportion (%), mean (SD), and rate of injury as injuries per 1000 playing hours.

Results: Incidence of combined medical attention and time-loss injuries was 97.7/1000 playing hours (n=875 injuries) (23.6±5 years old). Time-loss injuries alone were encountered at 43.1/1000 playing hours (n=380 injuries) (forwards, 14.3/1000, n=127; backs 25.7/1000, n=228) (RR: 1.8; 1.53-2.11, P < 0.001). Elite/national male competitors (242.6/1000) were injured more often than lower playing levels (147.6/1000) (P < 0.001). Most injuries were acute injuries (96%) that occurred during the tackling phase of play (97%), and it resulted mainly from contact with an opposing player (67%). The main injuries seen were ligament sprain in lower extremities (43%). Upper extremity injuries were seen more often among male players (76%) than female players (24%) (RR: 0.31,CI: 0.25-0.40, P < 0.001). Knee injuries were seen more often in women's elite players than men's elite players (P = 0.014). Head/neck injuries (backs, 58%; forwards, 42%) occurred more often in male players (74%) (RR: 0.34; CI: 0.26-0.44, P < 0.001).

Conclusion: Injury prevention in American Rugby Sevens should focus on proper tackling technique as most injuries in our series occurred during tackling. We also saw a significant number of head/neck injuries in our U.S. playing population, which may reinforce the importance of proper tackling technique in this collision sport. The rate of head/neck injuries (23%) in our U.S. cohort (National candidates, 25%; lower competitors, 23%) was higher than the rate reported among international male Rugby Sevens players (5%) (Table 1). Overall, our National candidates had higher rates of time loss injuries than lower American amateur playing levels. Our observed injury rate among U.S. elite players is also higher than that reported for international male Rugby Sevens population. Understanding the injury profile of American Rugby Sevens is important to healthcare providers and would direct the growth and safety of this growing collision sport, allowing safe return-to-play decisions and formulation of prevention protocols.

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TABLE I: Comparison of Injury Rates in Rugby Sevens by Body Region in the Literature

	Injuries / Athletes	Head & Neck Injuries	Upper Extremity Injuries	Trunk Injuries	Lower Extremity Injuries	Other	Player-hours of match exposure	Incidence of Injury/1000 player hours
American 7s (men & women) 2010-2013 Amateur to Elite/National Candidates	380/ 13524	23.4%	25.9%	6.5%	42.8%	1.4%	8858.9	43.1 (time-loss)
Local Area Union 7s (Lopez et al AJSM 2012) Amateur Men & Women	48/ 1536	33.3%	31.3%	18.8%	14.6%	2.0%	866.4	55.4 (combined medical attention & time-loss)
Rugby Sevens World Series (Fuller et al CJSM 2010)(International Men)	104/ 290	4.9%	17.5%	7.8%	69.9%	1.9%	979.1	106.2(time-loss)