U.S. Rugby-7s Men's and Women's Ankle Injury Incidence and Mechanism: A 7-Year Comparison

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Disclosure

International Society of Arthroscopy, Knee Surgery, &
Orthopedic Sports Medicine 2023 Biennial Congress
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The authors would like to thank the following:

- USA Sevens LLC & USA Rugby (USAR) for attendance at their events.
- USA Rugby Empire GU RFU and New England GU RFU for their pilot research grants.
- National Operating Committee on Standards for Athletic Equipment (NOCSAE) for their recent grant enabling us to continue our work.

The project received no commercial sponsorship and does not endorse a product; therefore, there is no conflict of interest.

Background

Rugby-7s Population Rapidly Growing:

- 2021: Estimated 7.6 million rugby active players and participants worldwide

(World Rugby)[1]

- After introduction into the Olympics in 2016, interest in *rugby-7s* has continued to grow.

(Engebretsen & Steffen)[2] (Tucker)[3]

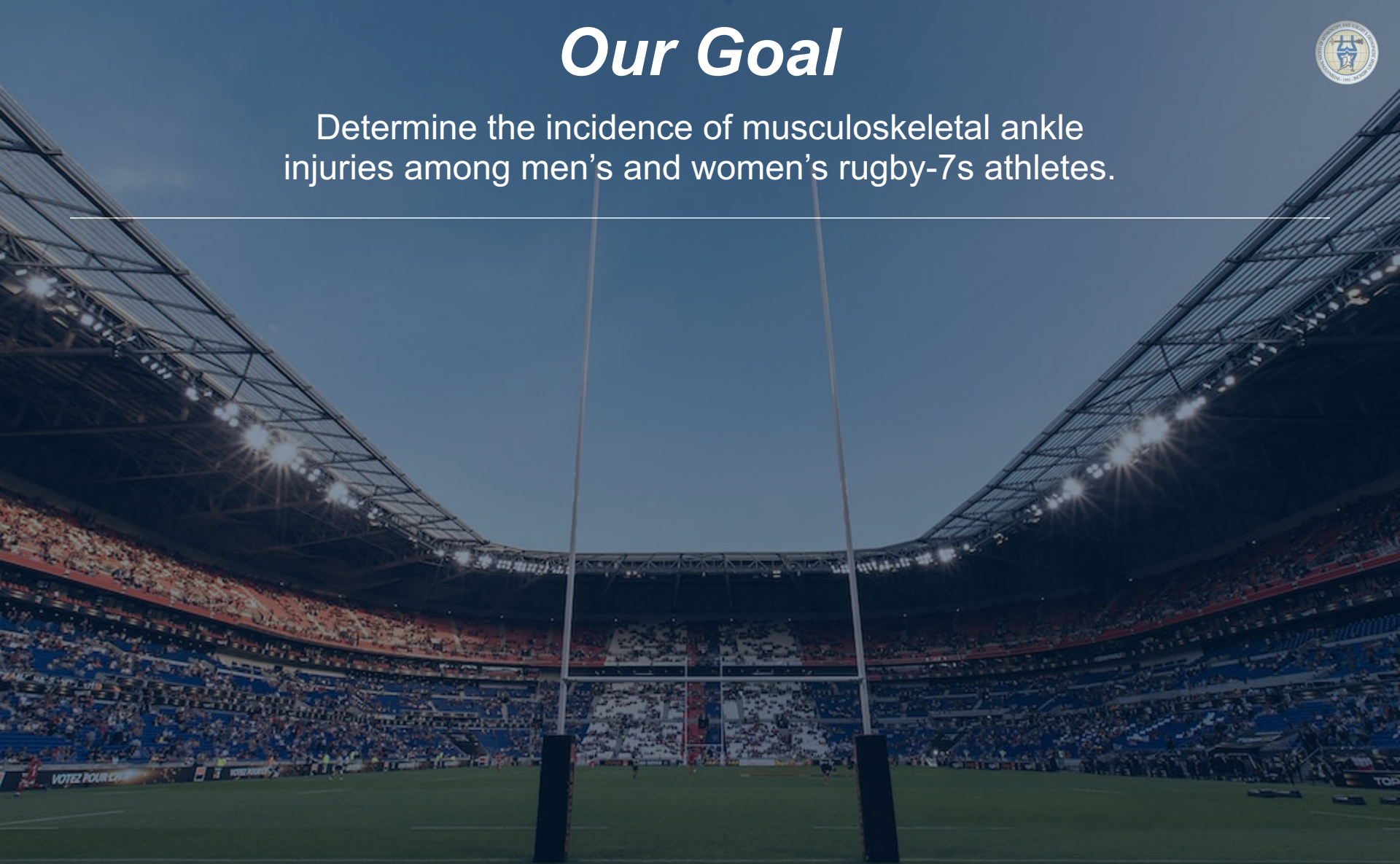
Lower Extremity Injuries:

- There are limited investigations on U.S. Rugby-7s, especially focusing on the lower extremity.
- Initial research indicates that the lower extremity is one of the most injured body regions in Rugby-7s, especially among women.

(Lopez et al.)[4], (Mirsafaei et al)[5], (Cruz-Ferreira et al.)[6]

Our Goal

Determine the incidence of musculoskeletal ankle injuries among men's and women's rugby-7s athletes.



All definitions and procedures in this study comply with the World Rugby consensus statement Fuller et al[7]

Methodology & Design

- 7-year prospective epidemiological study of USA Rugby-sanctioned 7-a-side events (2010-2016)
  - N = 41,442 (Men = 29,007; Women = 12,435); no under-19 athletes
  - All levels of play (amateur-elite)
  - Exposure of 24,449 playing hours (ph)
- Tournament-sanctioned healthcare providers diagnosed player injuries
- Research Data Collectors (RDCs) used Rugby Injury and Evaluation (RISE) Report surveillance tool to collect data onsite
  - Follow-ups were conducted within 6 months

Definitions

- **Injury**: "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."
- **Time-Loss Injury**: "an injury that resulted in a player being unable to take part of a full rugby match."
- **Medical-Attention Injury**: "an injury that resulted in a player that was evaluated and returned to match play."
- **Contact Injury**: injury caused by direct contact with another player or the ground
- **Non-Contact Injury**: injury caused by something other than direct contact with another player or the ground

Fuller et al[7]

Lopez et al[8]

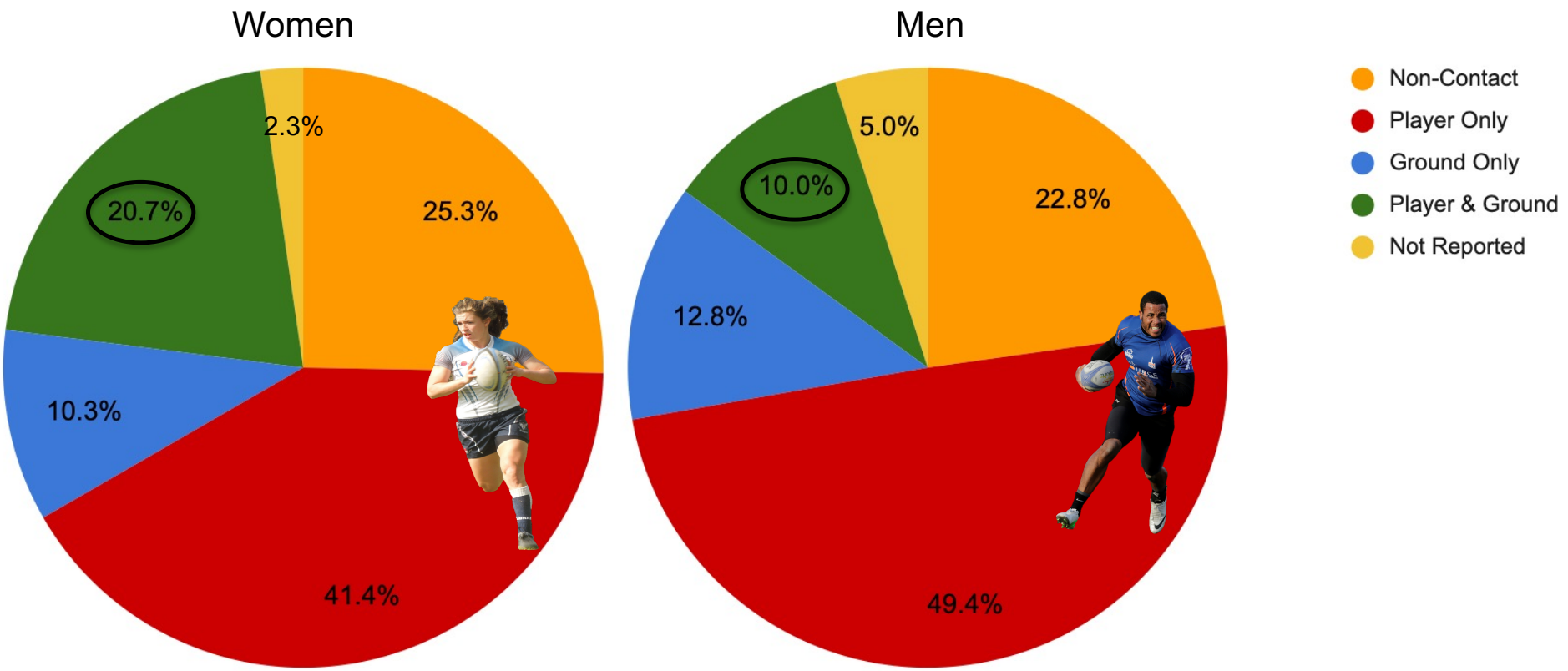
Results

- Total ankle injury incidence = 11.53/1000 ph (n=282)
- Total *musculoskeletal* ankle injury incidence = 10.96/1000ph (n=268; 95%)
  - Time-loss=4.21/1000ph (n=103; CI: 3.44-5.10)
  - Medical Attention=5.93/1000ph (n=145; CI: 5.00-6.98)
- There was no difference by sex (P=0.43)
  - Males=10.57/1000ph (n=180)
  - Female=11.71/1000ph (n=87)
- Sprains & ligament injuries were the most common musculoskeletal injury (n=241)
  - Males = 9.52/1000ph (n=162)
  - Females =10.50/1000ph (n=78) (P=0.47)
- The tackle was the phase of play that generated the most musculoskeletal ankle injuries
  - Tackle = 6.58/1000ph
  - All Other Phases of Play = 4.01/1000ph (P<0.01)
- New musculoskeletal injuries > recurrent musculoskeletal injuries (P<0.01)
- Sprains & ligament injuries were the most common time-loss (n=87; 84%) and recurrent injuries (n=71; 90%)

Ankle Injury Incidence by Type

Injury Type	Incidence (per 1000ph)	
	Men (n)	Women (n)
Abrasions/Bruises/Contusions	0.41 (7)	0.67 (5)
Sprains/Ligament Injuries	9.52 (162)	10.50 (78)
Tendon Injury/Rupture	0.12 (2)	0.13 (1)
Muscle Rupture/Strain	0.18 (3)	0.40 (3)
Fractures	0.65 (11)	0.67 (5)
Dislocations	0.12 (2)	- (-)
Total	10.99 (187)	12.38 (92)

Mechanism of Injury: Contact Type



- Contact injuries (7.89/1000ph) were more frequent than non-contact injuries (2.58/1000ph) (P<0.01)
- Contact injuries due to the **combined impact of another player and the ground** were more frequent among women (2.42/1000ph, n=18) as compared to men (1.06/1000ph, n=18) (P=0.01).

Conclusions

- Despite limited available data, musculoskeletal ankle injuries appear to be very common in both the men's and women's emerging ruby-7s populations
- Males and females have similar patterns of injury
  - Exception of contact injuries involving both another player and the ground
- Foot stability and technique during contact events (i.e., tackles) should be emphasized, especially among females.
- Strengthening and flexibility exercises should be integrated into training to improve range of motion and stability of the ankle joint

Thank You!

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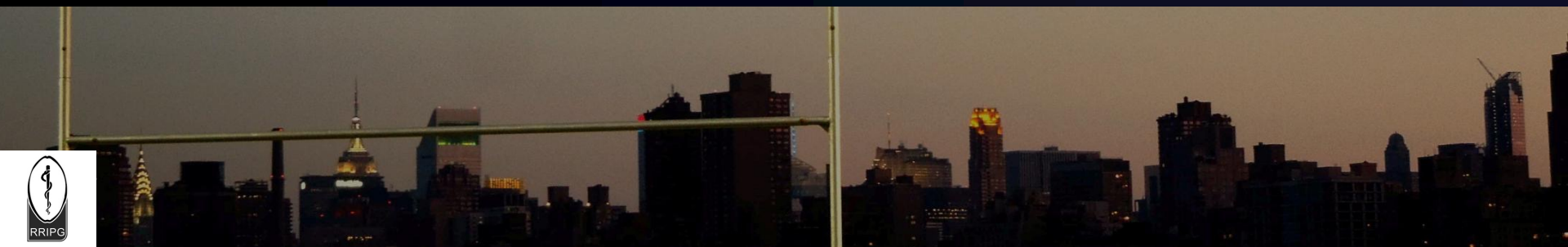

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