Main Outcome Measurements Factors being neglected in sports research will be discussed in this study, for example, safety justice is relating to players' risk-taking behaviours during match or training; whether opponents are 'co-workers' and players' safety attitudes towards co-workers can influence players' aggressiveness which relates to injuries and accidents.
Results The framework identified for evaluating OSH awareness will be presented from two dimensions including five themes: rugby management commitment (management safety priority, management safety empowerment and management safety justice) and rugby player involvement (players' safety priority and players' trust in co-workers' safety competence).
Conclusions The findings have theoretical implications for rugby organisations to design a survey to facilitate the development of appropriate behaviour interventions. Furthermore, the framework could be potentially applied in wider sports settings.

247 ABSTRACT WITHDRAWN

248 U.S. RUGBY-7S PLAYERS INJURY INCIDENCE, SEVERITY AND BURDEN EFFECTS BY POSITIONS AND LEVELS OF PLAY

[1,2,3,4]Victor Lopez, [1,2,5]Shen-Ying Richard Ma, [1,6]Meryle G Weinstein, [2]Patria Hume, [7,8,9,10,11]Robert C Cantu, [1,12]Christian Victoria, [1]Sophie C Queler, [1,13]Khalil JA Webb, [1,2,14,15,16]Answorth A Allen. *[1]Rugby Research and Injury Prevention Group, affiliate of Hospital for Special Surgery, New York, USA; [2]Sports Performance Research Institute New Zealand, Auckland University of Technology, Auckland, New Zealand; [3]USA Rugby Empire and New England Geographic Union Rugby Football Unions, New York/Boston, USA; [4]Northeast Rugby Academy, USA Rugby Development Program and USOC-Community Olympic Development Program, New York/Boston, USA; [5]University of Missouri, Missouri Orthopaedic Institute and Thompson Laboratory for Regenerative Orthopaedics, Columbia, USA; [6]New York University, Steinhardt School of Culture, Education and Human Development, New York, USA; [7]Center for the Study of Traumatic Encephalopathy, Boston University School of Medicine, Boston, USA; [8]Department of Neurosurgery and Sports Medicine, Emerson Hospital, Concord, USA; [9]Neurologic Sports Injury Center, Brigham and Women's Hospital, Boston, USA; [10]Concussion Legacy Foundation, Waltham, USA; [11]World Rugby, Independent Concussion Group, Dublin, Ireland; [12]New York University, College of Global Public Health, Urban Epidemiology Lab, New York, USA; [13]University of Arizona, Tucson, USA; [14]Sports Medicine and Shoulder Service, Hospital for Special Surgery, New York, USA; [15]National Basketball Association, New York Knickerbockers, New York, USA; [16]USA Basketball, Colorado Springs, USA*

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Background There are limited injury data for Rugby-7s, and even less data analysed by participation level or days return-to-sport after injury.
Objective To describe injury incidence, severity, and injury burden for three levels of Rugby-7s competition.
Design Prospective descriptive epidemiology study.
Setting U.S. Rugby-7s tournaments/series and championships (n=57; 2010–2014) over 72 tournament days; L1 elite, L2 sub elite, and L3 under-19/college/senior games (exposure=14,591 player-hours).
Participants 24,538 U.S. players (men=17,770; women=6,768; age 13–54 years).
Assessment of Risk Factors Intrinsic and extrinsic risk in match injuries.
Main measurement outcome Incidence (per/1000 player-hour (ph)) and mechanism of injury were captured using Rugby Injury Survey & Evaluation (*RISE*) report methodology. Time-loss injuries, injury severity (days=d) from training/competition (including post tournament) were documented, and injury burden were calculated.
Results Injury incidence (n=491) was not significantly different between levels (L3:30.74/1000ph, CI:27.26–34.54; L2:36.24/1000ph, CI:30.84–42.31; L1:41.78/1000ph, CI:30.8–55.39). Mean injury burden was significantly lower for L3 than L1 and L2 (L3-vs-L2, $P<0.001$; L3 vs L1, $P<0.001$). Greater risk of lower limb injuries was noted in L3-vs-L1 (RR:0.59, CI:0.38–0.95, $P=0.024$). The cohort sustained high head/neck injury rates (22.6%; 13.3/1000ph). Backs had more injuries among levels than forwards (L1 backs 51.8/1000ph, forwards 26.4/1000ph, $P=0.034$; L2 backs 37.7/1000ph, forwards 29.6/1000ph, $P=0.152$; L3, backs 32.76/1000ph, forwards 24.8/1000ph, $P=0.029$; total cohort backs 35.74/1000ph, forwards 26.39/1000ph, RR:1.35; CI:1.12–1.65, $P=0.002$). Average days absent post injury=44.0d (37.8–50.1d) in 68.4% with follow-up data. A significant difference ($P=0.018$) in mean severity days absent from sport was between the L3 (57.1d) and L2 (27.9d) forwards.
Conclusions Competition level and playing position had significant effects on injury burden and nature of injury. The L1 and L2 had higher injury burden than the lower L3. The L1-vs-L3 cohort had a high proportion of head/neck injury risk compared with other injury locations. Backs sustained greater injury incidence rates among all three levels as compared to forwards.

249 THE EPIDEMIOLOGY OF HEAD, NECK AND FACE INJURIES OF ADULT MEN'S AND WOMEN'S U.S. RUGBY-7S PLAYERS

[1,2,3]Shen-Ying Richard Ma, [2,4]Christian Victoria, [4]Danielle C Ompad, [2,5]Meryle G Weinstein, [6,7,8,9,10]Robert C Cantu, [11,2]Jordan Genece, [2,3,12,13,14]Answorth A Allen, [2,3,15,16]Victor Lopez. *[1]University of Missouri, Missouri Orthopaedic Institute and Thompson Laboratory for Regenerative Orthopaedics, Columbia, USA; [2]Rugby Research and Injury Prevention Group, Hospital for Special Surgery, New York, USA; [3]Sports Performance Research Institute New Zealand, Auckland University of Technology, Auckland, New Zealand; [4]New York University, College of Global Public Health, Urban Epidemiology Lab, New York, USA; [5]New York University, Steinhardt School of Culture, Education and Human Development, New York, USA; [6]Center for the Study of Traumatic Encephalopathy, Boston University School of Medicine, Boston, USA; [7]Department of Neurosurgery and Sports Medicine, Emerson Hospital, Concord, USA; [8]Sports Neurology and Concussion Program, Brigham and Women's Hospital, Boston, USA; [9]Concussion Legacy Foundation, Waltham, USA; [10]World Rugby, Independent Concussion Group, Dublin, Ireland; [11]Mt. Sinai Hospital, Department of Dermatology, New York, USA; [12]Sports Medicine and Shoulder Service, Hospital for Special Surgery, New York, USA; [13]National Basketball Association, New York Knickerbockers, New York, USA; [14]USA Basketball, Colorado Springs, USA; [15]USA Rugby Empire and New England Geographic Union RFUs, New York/Boston, USA; [16]Northeast Rugby Academy, USA Rugby Development Program and USOC-Community Olympic Development Program, New York/Boston, USA*

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Background Head and neck injuries are a collision sport concern, however there is a lack of Rugby-7s injury data, particularly in emerging Rugby nations.
Objective To determine the head, neck, and face (HNF) match injury rates and characteristics in US Rugby-7s.
Design Prospective descriptive epidemiology study.
Setting USA Rugby-sanctioned tournaments/series and championships (2010–2016).

Participants 42,054 adult U.S. players (3,481 teams and 7,673 Rugby-7s matches).
Assessment of Risk Factors Match injury rates, site, type, and severity.
Main measurement outcome Incidence (per 1000 player-hour (ph)), severity and details of mechanisms were captured using Rugby Injury Survey & Evaluation (RISE) report methodology. All-injuries (medical-attention and time-loss) and time-loss injuries were defined. Days (d) absent before return-to-training/competition (including post-tournament) were recorded.
Results A total of 498 HNF injuries were encountered (all-injury rate=16.7/1000ph; men=17.3/1000ph; women=15.5/1000ph; IRR:1.1; CI:0.9–1.4). Head/face was the most commonly injured site (all-injuries=90.8%; time-loss=86.8%) followed by neck/cervical spine (all-injuries=9.2%; time-loss=13.2%). Concussions were the most common type of injury (36.7%; 6.1/1000ph) followed by facial lacerations (28.7%; 4.8/1000ph). Incidence of concussions was similar between sexes (IRR:1.0; CI:0.7–1.3). Longer return-to-sport were seen among women (46.4d) than men (32.1d; $P=0.047$) post-concussion. Scalp/face lacerations were more common among men than women (IRR:2.5; CI:1.6–4.1; $P<0.001$). Time-loss injuries occurred similarly among men and women (IRR:1.5; CI:1.0–2.6; $P=0.061$). HNF injury severity was similar between sexes (29.3±32.4 days absent from play). The tackle (71.5%) was the most common injury event. Men sustained HNF injuries mostly with direct contact with another player (IRR:1.3; CI:1.0–1.7; $P=0.023$), while women were injured with impact with the playing surface (IRR:1.8; CI:1.0–3.2; $P=0.032$).
Conclusions Incidence of HNF injuries were similar between sexes among U.S. rugby-7s players. Sex differences with concussion severity and contact mechanism of HNF injuries were seen between sexes. Recognition of HNF injury patterns and sex differences will allow for a more effective injury prevention plan in this emerging U.S. collision sport.

250 NEW ZEALAND SUPER RUGBY INJURY SURVEILLANCE: MATCH INJURIES FROM 2015–2018

[1]Danielle Salmon, [1]Ian Murphy, [1]Kenneth Quarrie, [6]Greg MacLeod, [6]Asheer Singh, [6]Adam Letts, [2]John Roche, [2]Deborah Robinson, [2]Martin Swan, [3]Theo Dorfling, [3]Cameron Shaw, [4]Katherine Rottier, [4]Kevin Bell, [5]Stephen Kara, [5]James McGarvey. *[1]New Zealand Rugby, Wellington, New Zealand; [2]Crusaders Super Rugby Franchise, Christchurch, New Zealand; [3]Hurricanes Super Rugby Franchise, Wellington, New Zealand; [4]Chiefs Super Rugby Franchise, Hamilton, New Zealand; [5]Blues Super Rugby Franchise, Auckland, New Zealand; [6]Highlanders Super Rugby Franchise, Dunedin, New Zealand*

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Background Rugby union is a collision-based sport, as such the occurrence of injuries resulting in time-loss from participation is inevitable. In 2015 New Zealand Rugby (NZR) began an injury surveillance program with all NZ-based Super Rugby teams to capture all time-loss injuries.
Objective To examine the incidence, burden, severity, nature and cause of match injuries in NZR Super Teams.
Design A prospective observational study.
Setting Match injuries sustained during the 2015–2018 Super rugby seasons.
Patients (or Participants) All contracted rugby players (n=190) over the four seasons.
Main Outcome Measurements Primary outcomes of interest were incidence (injuries/1000 player match-hours), injury burden (days absence/1000 player-match-hours), median severity (days absence), location (%), diagnosis (%) and mechanism (%).
Results From 2015–2018 the following incidence was documented 122, 85, 94 and 81 injuries/1000 player-match-hours respectively. During the first year the initial injury incidence was 122 injuries/1000 player-match-hours, which was significantly higher than 2018, 81 injuries/1000 player-match-hours. The days absence increased over the period from a median of 7 days missed in 2015 (burden: 2262 days absence/1000 player-match-hours) to 16 in 2018 (burden: 3206 days absence/1000 player-match-hours). There was a significant difference in the incidence of injury by position, where forwards sustained 106 injuries/1000 player-match-hours and backs 85. The most at risk position was the hooker (118 injuries/1000 player-match-hours) and the lowest inside backs (59 injuries/1000 player-match-hours). Tackling was the most common mechanism of injury 27%, followed by being tackled 25% and collisions 12%. The head was the most common injury location (19%), followed by the shoulder (13%) and knee (10%). The three most commonly diagnosed injuries were sprains (28%), concussions (20%) and muscle rupture/strains/tear/cramp (16%).
Conclusions The current data supports the international trend in professional rugby where the time-loss associated with each injury is increasing, resulting in higher levels of injury burden.

251 A STUDY ON PREVALENCE AND RISK FACTORS ASSOCIATED WITH INJURIES OF INTER-UNIVERSITY RUGBY PLAYERS IN SRI LANKA BASED ON PLAYING POSITION

Pasindu Silva. *University of Sri Jayewardenepura, Colombo, Sri Lanka*

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Background Sri Lankan university rugby players only have 3–4 years to understand the game and master its techniques. Due to the nature of the game, players can be seriously injured without proper skills.
Objective This study aimed to understand the injury patterns of University-level rugby players according to their positions.
Design This prospective study of university-level rugby players was carried out after the Sri Lanka University Games (SLUG) 2019 concluded.
Setting The study population was players in the squads of universities that participated in SLUG 2019, which is considered an amateur rugby tournament.
Patients (or Participants) The participants who volunteered were screened with the following inclusion criteria: 1. Age range: 23±3 years, 2. Registered for SLUG 2019, 3. Injury-free for a window of 6 months before the start of the season, 4. Free from systemic injuries
Interventions (or Assessment of Risk Factors) The study examined which player positions are more prone to injuries. Accordingly, the risk factors identified were: contact injury, contact event, injury location and injury type.
Main Outcome Measurements Significant associations between the player position and the above-mentioned risk factors were explored.
Results The most injury-prone position was the Lock position (18.4%) whereas the least injury-prone positions were Fly-