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WRESTLING INJURIES DURING THE TOKYO 2020 OLYMPIC GAMES

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10.1136/bjsports-2021-IOC.207

Background Understanding the incidence and characteristics of injuries in each sport helps to implement more effective preventive measures. Studying this information after the occurrence of the COVID-19 pandemic was particularly important. Accordingly, the medical commission of the United World Wrestling (UWW) has implemented a systematic surveillance of injuries during the Tokyo 2020 Olympic Games.

Objective To assess the injury profile of elite senior wrestlers in Men's Greco-Roman (GR), Men's Freestyle (FS), and Women's wrestling (WW) during the Tokyo 2020 Olympic Games.

Design Descriptive epidemiologic study.

Setting Clinical.

Participants 286 senior qualified wrestlers participated in Tokyo 2020 Olympic Games.

Interventions UWW injury surveillance database system.

Main Outcome Measurements Athlete's demographic, weight category, injury type, severity, location and mechanism.

Results A total of 286 athletes sustained 28 injuries during 322 matches; 9.8 injuries per 100 athletes (12.1% in men; 5.2% in women) and 8.7 injuries per 100 bouts. Among the 3 styles, WW had the lowest injury rate (5.2%) and FS showed the highest rate (12.8%). More injuries were observed in the low-weight categories (64.3%). The most common injury type was skin laceration and contusion (60.6%) due to direct contact and the most common site of injury was head and face (71.4%). In sum, 78.6% of all injuries were categorized as mild, 10.7% as moderate and 10.7% as severe.

Conclusions No serious or catastrophic injury was recorded during wrestling competitions of the Tokyo Olympic Games, and most injuries were minor. The overall rate of wrestling injuries during the Tokyo 2020 Olympic Games was higher than the 2016 Rio Games but lower than the 2012 London Olympic Games. The severity of injuries, however, was the lowest since the 2004 Athens Olympic Games. COVID-19 pandemic did not result in a higher rate of severe injuries, nor more overuse injuries.

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INJURIES IN YOUTH VOLLEYBALL PLAYERS AT A NATIONAL CHAMPIONSHIP COMPETITION: INCIDENCE, RISK FACTORS AND MECHANISM OF INJURY

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10.1136/bjsports-2021-IOC.208

Background Sport-related injuries present a substantial burden in youth sport. Injury surveillance data in youth volleyball is scarce. Understanding injury and concussion burden can inform prevention strategies.

Objective To evaluate injury incidence rates, types, mechanism, and potential risk factors in youth volleyball.

Design Prospective cohort study.

Setting 2018 Canadian Youth National Volleyball Tournament.

Participants All tournament players were invited to participate (9616 players). 1876 players [466 males, 1391 females, mean age 16.2 years (1.26)] consented to participate (19.5%).

Assessment of Risk Factors Sex (male/female), age group (U14, U16, U18), level of play [elite (top 30%) vs. non-elite].

Main Outcome Measures Players completed a questionnaire (demographic information, injury, and concussion history). All medical attention injuries were recorded by tournament medical personnel via injury report form (e.g., mechanism, type). Injury was defined as any physical complaint seeking onsite medical attention. Concussion was defined using the 5th International Consensus Conference on Concussion in Sport. Exploratory multivariable Poisson regression was used to analyze potential risk factors (sex, age group, level of play) for injury, adjusted for cluster by team and offset by athlete-exposures (AEs).

Results Of the 105 total injuries [6.15 injuries/1000 AEs (95% CI: 5.01 to 7.47)], concussion was the most common (n=28; 26.2%), followed by knee (n=16; 15.0%) and ankle injuries (n=15; 14.0%). Most concussions occurred due to ball-to-head contact (61.5%) and were unanticipated (84.6%). There was no difference in injury risk by sex (IRR_{F/M}: 1.40; 95% CI: 0.73 to 2.66). Players in U18 had significantly lower rates of injury, compared to U16 and U14 (IRR_{U16}: 2.44; 95% CI: 1.22 to 4.87; IRR_{U14}: 3.58; 95% CI: 1.60 to 8.02).

Conclusion Players in U18 had the lowest injury rates. More research is needed to elucidate why younger age groups reported more injuries and develop volleyball specific injury and concussion prevention strategies.

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PERCEIVING, REPORTING AND MANAGING AN INJURY – PERSPECTIVES FROM NATIONAL TEAM FOOTBALL PLAYERS, COACHES AND HEALTH PROFESSIONALS

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10.1136/bjsports-2021-IOC.209

Background Injury perceptions and related risk-mitigating interventions are context-dependent. Despite this, most injury surveillance systems guided by established consensus statements are not context-specific as they do not integrate stakeholders' perspectives. Accordingly, to address the injury problem in context, injury surveillance systems need to be aligned with the stakeholders' injury perceptions and practices related to its reporting and management.

Objective To explore how Maltese national team football players, coaches, and health professionals (stakeholders) perceive a football-related injury and how their context influences their perceptions and behaviours towards reporting and managing a football injury.

Design A qualitative exploratory design was used.

Setting This study was undertaken at the Malta Football Association (MFA), responsible for the Maltese national football teams.

Participants 13 semi-structured interviews with Maltese female and male national team football players (n=7), coaches (n=3), and health professionals (n=3) were conducted. Data were analysed inductively using thematic analysis.

Results Three themes were identified: (1) *How do I perceive an injury?* consisted of various constructs of a sports injury, yet commonly defined based on performance limitations. (2) *How do I deal with an injury?* encapsulated the process of managing the injury (3) *What influences my perception, reporting and management of an injury?* comprised personal and contextual factors that influenced the perception and, consequently, the management of an injury.

Conclusions The injury surveillance system implemented within the Maltese national football team should make use of performance limitations as the main injury definition. Injury perception, reporting and management are influenced by the socio-ecological context. In acknowledging this influence, ongoing human interaction should be involved between stakeholders in all the processes of the injury surveillance system, emphasising its active role to optimise the players' injury risk mitigation and management.

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OVERALL, REGION- AND TISSUE-SPECIFIC INJURY RATES IN UK SUMMER OLYMPIC MALE AND FEMALE ATHLETES

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10.1136/bjsports-2021-IOC.210

Background Existing studies have reported that female athletes are at increased risk of particular injury types e.g. ACL rupture and bone stress injury, and have reduced risk of others e.g. hamstring injury. Other sport-specific studies have reported that female athletes generally have higher risk of injury in some sports, lower risk in others. No previous study has compared male and female injury rates across a range of summer Olympic sports.

Objective To determine whether male and female athletes experience injuries at different rates within the UK High Performance System.

Design Retrospective cohort study.

Setting UK summer Olympic sports.

Participants 914 athletes (439 female, 475 male).

Interventions There was no intervention.

Main Outcome Measurements Incidence rate ratio (IRR) comparing overall injury rates (as incidence per athlete year) and risk ratio (RR) comparing overall injury burden (training days restricted or unavailable per athlete year) for male and female athletes. The IRR and RR were also compared for injuries in different regions as well as different tissue types.

Results Female athletes had both a greater overall injury rate (females 2.6 injuries per athlete year, males 2.1; IRR 1.23, 95% CI 1.17 to 1.2330, $p < 0.001$) and overall injury burden (females 42.58 days training affected per athlete year, males 35.0; RR 1.211.22, 95% CI 1.201.21 to 1.231.24, $p < 0.001$) than male athletes. Female athletes have a higher risk of lumbar/pelvis, foot and ankle injuries (among others) and a higher risk of superficial/skin, ligament/joint and bone injuries.

Conclusions Female athletes are at greater risk of suffering an initial injury with more subsequent training time-loss than male athletes. The higher risk of ligament/joint and bone injuries supports previous analyses of gender-specific injury rates. Further work is required to determine causal mechanisms so that tailored mitigation strategies can be developed for female and male athletes.

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UNDERSTANDING HEALTH PROBLEMS OF BASKETBALL REFEREES

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10.1136/bjsports-2021-IOC.211

Background Basketball referees are responsible for rule length and decision making. They have high physical and psychological demand during the match.

Objective To understand the health problems of basketball officials, such as disorders or musculoskeletal injuries and their complaints.

Design Prospective cohort study.

Setting Referees of Basketball Federation of São Paulo.

Patients (or Participants) Initially, 78 referees were assessed, over 18 years old, both sexes and with more than 1 year of practice. Participants who refused to participate were not included, and participants who refused to stay in the study during follow-up were excluded. The participants number varied over the follow-up weeks, with at least 42 participants.

Interventions (or Assessment of Risk Factors) An initial assessment of the basketball referees was made at the annual physical assessment day of Basketball Federation of São Paulo and then they were followed online weekly for 12 weeks.

Main Outcome Measurements The initial assessment was made using an assessment form with personal data, practice and injury historic and knowledge about injury prevention. The weekly follow up was done using the questionnaire Oslo Sports Trauma Research Center (OSTRC) questionnaire to assess health problems.

Results Mean age was 36.5 (± 9.8) years, 66 (84.6%) were male. The most reported injuries by the referees in the 3 months prior the initial assessment were knee injuries (26.9%), mainly at the time of fitness training (65.4%). During the follow-up, musculoskeletal injuries had weekly mean prevalence of 17.4% (16.5 - 18.3) versus 3.2% (0.4 - 6.0) for illness. Regarding injuries, the ankle was the most affected region for acute injuries and the knee for overuse injuries.

Conclusions Basketball referees were mainly affected by lower limb injuries. Considering the injury profile and the prevalence of associated musculoskeletal complaints found in this study, it appears that injury prevention programmes should be developed and integrated into the fitness training routine of the referee.

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INJURY PREVALENCE IN DUTCH HANDBALL OVER THE SEASON 2018–2019

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10.1136/bjsports-2021-IOC.212