

**Objective** To describe Olympic-career related significant ( $\geq 30$  days duration) injuries.

**Design** Cross-sectional survey.

**Setting** The survey was promoted and distributed in eight languages, worldwide via email and social media to Olympians who competed at a Summer and/or Winter Olympic Games and considered themselves retired from Olympic level training and competition.

**Patients (or Participants)** 3,357 Olympians (44% female), median age 44.7 yrs (16–97) from 131 countries and 57 Olympic Sports (42 summer, 15 winter), mean  $1.6 \pm 0.9$  Olympic Games per Olympian.

**Interventions (or Assessment of Risk Factors)** Olympic-career participation and significant injury history.

**Main Outcome Measurements** Injury prevalence by sport and anatomical region.

**Results** There were 3,746 injuries reported in 2,116 Olympians equating to 63.0% of Olympians (female 68.1%, male 59.2%; Summer 62.0%, Winter 69.0%) reporting at least one significant Olympic-career related injury. Overall, 1.1 significant injuries per Olympic-career were reported, with 63.8% ( $n=2389$ ) of injuries occurring in training. By sport (Summer and Winter, respectively), injury prevalence was highest in handball (82.2%), badminton (78.4%) and judo (77.2%), and alpine skiing (82.4%), freestyle skiing (81.6%), and snowboarding (77.3%), and lowest for shooting (40.0%) and swimming (48.5%), and biathlon (40.0%) and curling (54.3%) (sports with  $n \geq 20$  participants). The knee (20.6%), followed by the lumbar spine (13.1%), and shoulder (12.9%) were the most common affected injury locations.

**Conclusions** Overall, almost two thirds of Olympians reported sustaining at least one significant Olympic-career related injury. Similar to prospective injury studies, injury prevalence varied across sports, with the knee, lumbar spine and shoulder most commonly affected. It is important to understand the nature and causes of injuries during the entire career of an elite athlete, in order to better inform injury prevention and future athlete health initiatives.

#### 060 THE EPIDEMIOLOGY OF INJURY AND ILLNESS OF ATHLETES AT THE INDIAN OCEAN ISLAND GAMES 2019

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**Background** The Indian Ocean Island Games is a multi-sport event that occurs every four years and includes athletes from seven islands of the Indian Ocean, namely, Comoros, Reunion, Mayotte, Madagascar, Maldives, Seychelles, and Mauritius.

**Objective** This study aims to describe the injury and illness epidemiology of the athletes participating during the 2019 Indian Ocean Islands Games.

**Material and Methods** This prospective cohort study recorded injury and illness cases from athletes who competed in these Games. All medical physicians received detailed instructions

and training on data collection using an injury report form. All athletes (minor and adults) who provided consent, or consent given from the minors' guardians, were included in this study. Athletes who did not provide consent for this study were excluded.

**Results** 1 521 athletes (531 women and 990 men) reported 160 injuries (injury incidence rate of 10.5%) and 85 illnesses (illness incidence rate of 6%). The percentage of distribution of injuries were highest in football and basketball. Most injuries occurred during competition compared with training. Joint sprains were the most common type of injury (28%), followed by muscle strains (19%). Men suffered most injuries (79% vs. 21%). Similarly, men sustained more illness than women (57% vs. 43%). Most illnesses affected the respiratory system (67%), and infection was the most common cause of illness (84%) in participating athletes.

**Discussion** These findings are similar to previous events in other parts of the world. However, unique ailments, not previously reported on, were discovered.

**Conclusion** Epidemiological data from this study can be inferred to athletes who compete in similar multi-sport events and/or Olympic Games in the Indian Ocean region.

#### 061 AVERAGE RACE DAY ENVIRONMENTAL DATA UNDERESTIMATES INDIVIDUAL ATHLETE ENVIRONMENTAL EXPOSURE IN A MASS-PARTICIPATION ENDURANCE CYCLING EVENT WITH A STAGGERED START: A SAFER STUDY IN 97946 CYCLISTS

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**Background** Race starting time is often staggered over several hours in large mass-participation endurance sports events. Athlete exposure to environmental conditions changes as wet-bulb-globe-temperature (WBGT) changes during race day. Slower participants may be exposed to changing environmental conditions for a longer duration. In most studies environmental conditions are reported using an average WBGT for the race day.

**Objective** To calculate individual average WBGT (iWBGTavg) for each race participant and compare (iWBGTavg) to the average WBGT on race day (WBGTavg).

**Design** Retrospective, cross-sectional study.

**Setting** Cape Town Cycle Tour (109 km), South-Africa, 2012–2014.

**Participants** Race starters ( $n=97946$ ).

**Assessment of Risk factors** WBGTavg for each year was calculated using the data over 11hours (race start at 6am; cut-off at 5pm) from the weather station at the geographical mid-point of the race. iWBGTavg for each race starter was calculated using individual start times, finishing times and data from automated weather stations on route. Factors that possibly affect the variation in measurement of WBGT are individual staggered start category (start time) (<07h00, 07h01–08h00, 08h01–09h00, >09h00) and total race exposure category (hours) (<3hr45min; 3hr45min–4hr30min; 4hr31min–5hr30min; >5hr30min).