057 SLEEP AND GENERAL HEALTH PREDICT HIGHER INJURY RATES IN ENDURANCE ATHLETES: A PROSPECTIVE STUDY

[2]Kieran O'Sullivan, [2,3]Richard Johnston, [2]Roisin Cahalan, [4]Laura Bonnett, [1]Mark Maguire, [1]Phil Glasgow, [5]Sharon Madigan, [2]Thomas M Comyns. *[1]Irish Rugby Football Union, Dublin, Ireland; [2]University of Limerick, Limerick, Ireland; [3]La Trobe Sport and Exercise Medicine Research Centre, School of Allied Health, La Trobe University,, Melbourne, Australia; [4]Department of Biostatistics, University of Liverpool, Liverpool, UK; [5]Sport Ireland Institute, National Sports Campus, Dublin, Ireland*

10.1136/bjsports-2021-IOC.54

Background Rates of injury among endurance sporting participants are high, as are subjective health complaints (SHCs - e.g. poor sleep, low mood). However, there is limited prospective data evaluating the relationship between SHCs and rates of new injury.
Objective To examine longitudinal associations between SHCs, sleep quantity and new injury within an endurance sport population.
Design Prospective cohort study.
Setting Competitive, sub-elite, endurance sports.
Patients (or Participants) Ninety-five endurance sporting participants recruited from running, triathlon, swimming, cycling and rowing disciplines. 92.6% of 95 participants submitted data for all 52 weeks, with the remainder completing $\geq$ 30 weeks.
Main Outcome Measurements Participants submitted weekly data regarding SHCs (cardiorespiratory, gastrointestinal and psychological/lifestyle), sleep quantity, training load and new injury episodes. Applying a 7- and 14-day lag period, a shared frailty model was used to explore new injury risk associations with total SHCs and sleep quantity, as planned a-priori.
Results Seven-day lag psychological/lifestyle SHCs were significantly associated with new injury risk (Hazard ratio (HR) =1.32; CI 95%=1.01–1.72, p<0.04). Whilst cardiorespiratory (HR=1.15; CI 95%=0.99–1.36, p=0.07) and gastrointestinal (HR=0.77; CI 95%=0.56–1.05, p=0.09) SHCs were not significantly associated. New injury risk had a significant increased association with 14-day lag <7hrs/day sleep quantity (HR=1.51; CI 95%=2.02–1.13, p<0.01) and a significant decreased association with >7hrs/day sleep quantity (HR=0.63, CI 95%=0.45–0.87, p<0.01. A secondary regression analysis demonstrated no significant association with total SHCs and training load factors (Relative Risk (RR)=0.08, CI 95%=0.04–0.21, p=0.20).
Conclusions To minimise an increased risk of new injuries within an endurance sporting population, this study demonstrates that psychological/lifestyle SHCs and sleep quantity should be considered. The study also highlights a lag period between low sleep quantity and its subsequent impact on new injury risk. No association was demonstrated between subjective health complaints, sleep quantity and training load factors.

058 INJURY, ILLNESS AND COACHING STYLE: ASSOCIATIONS WITH BURNOUT IN YOUNG ELITE ATHLETES

[1]Nils Fredrik Holm Moseid, [1]Christine Holm Moseid, [2]Pierre-Nicolas Lemyre, [1]Morten Wang Fagerland, [1]Roald Bahr. *[1]Oslo Sports Trauma Research Center, Department of Sports Medicine, The Norwegian School of Sport Sciences, Oslo, Norway; [2]Department of Coaching and Psychology, The Norwegian School of Sport Sciences, Oslo, Norway*

10.1136/bjsports-2021-IOC.55

Background Previous research indicates that psychological factors is associated with injury incidence. The associations between health burden, psychological health and coaching style have, to our best knowledge not been investigated.
Objective Explore associations between health burden, need-supportive coaching and athlete burnout after three years in elite sports high school.
Design Mixed prospective and retrospective cohort study. We collected health data for 124 weeks, the first 26 weeks prospectively, the remaining 98 weeks retrospectively by interview. Participants completed a web-based survey at the end of the study period.
Setting Three Norwegian High School Sport Academies.
Patients (or Participants) 210 students, of which 202 graduated after three years, 8 dropped out before graduation.
Interventions (or Assessment of Risk Factors) We measured health burden using The Oslo Sports Trauma Research Centers Questionnaire on health problems, results are presented per 1000 arbitrary units. Participants completed the 'The Supportive Coach' (SC), a ten-item questionnaire that measures the athlete's perceived support from the coach in the psychological domains of autonomy, competence and relatedness, on a 1–5 scale. We used linear regression for statistical analysis.
Main Outcome Measurements The Athlete Burnout Questionnaire (ABQ) score. ABQ measures symptoms of athlete burnout on a 1–5 scale.
Results Average ABQ-score was 2.3 (mean, 95% confidence interval: 2.2 to 2.4). Average yearly health burden was 0.96 (median, range 0.03–6.9). Average SC-score was 4.0 (median, range: 1.3 to 5.0). Health burden, adjusted for coaching style and major life events, was associated with increasing symptoms of burnout (B: 0.1, 0.09 to 0.21, p<0,001). Need-supportive coaching is associated with decreasing symptoms, (B: -0.24, -0.35 to -0.14, p<0.001).
Conclusions An increasing health burden is associated with increasing symptoms of athlete burnout. A need-supportive coach is associated with decreasing symptoms. Coaches should be aware of symptoms of burnout in ill and injured athletes, and consider using a need-supportive approach.

059 OLYMPIC-CAREER RELATED SPORTS INJURY EPIDEMIOLOGY: THE RETIRED OLYMPIAN MUSCULOSKELETAL HEALTH STUDY (ROMHS)

[1]Debbie Palmer, [2]Dale Cooper, [3]Carolyn Emery, [4,5]Mark Batt, [6,7]Lars Engebretsen, [5,8]Brigitte Scammell, [7]Torbjørn Soligard, [6]Kathrin Steffen, [3,9]Jackie Whittaker, [7]Richard Budgett. *[1]Institute of Sport, PE and Health Sciences, Moray House School of Education and Sport, University of Edinburgh, Edinburgh, UK; [2]School of Allied Health Professions, University of Leicester, Leicester, UK; [3]Sport Injury Prevention Research Centre, Faculty of Kinesiology, University of Calgary, Calgary, Canada; [4]Nottingham University Hospitals Trust, Nottingham, UK; [5]Centre for Sport, Exercise and Osteoarthritis Versus Arthritis, Queens Medical Centre, Nottingham, UK; [6]Department of Sports Medicine, Oslo Sports Trauma Research Centre, Norwegian School of Sport Sciences, Oslo, Norway; [7]Medical and Scientific Department, International Olympic Committee, Lausanne, Switzerland; [8]School of Medicine, University of Nottingham, Nottingham, UK; [9]Department of Physical Therapy, University of British Columbia, Vancouver, Canada*

10.1136/bjsports-2021-IOC.56

Background There are numerous studies describing elite athlete injury patterns seasonally and during major sporting events, however little is known about injury patterns during an elite athlete's entire sporting career.

Objective To describe Olympic-career related significant (≥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±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≥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

[1,2]Daniel Garnett, [3]Chandra Adisha Bholah, [3]Yannick D'Hotman, [3]Krsna Sunassee, [4]Jon Patricios, [5]Benita Olivier, [1]Saul Cobbing. *[1]Physiotherapy Department, College of Health Sciences, University of KwaZulu Natal, Durban, South Africa; [2]Department of Physiotherapy, Faculty of Health Sciences, University of Pretoria, Pretoria, South Africa; [3]Comité d'Organisation de la 10ème Edition des Jeux des Iles de l'Océan Indien (COJI 2019), Port Louis, Mauritius; [4]Wits Sport and Health (WiSH), School of Clinical Medicine, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa; [5]Physiotherapy Department, Faculty of Health Sciences, University of the Witswatersrand, Johannesburg, South Africa*

10.1136/bjsports-2021-IOC.57

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

[1]Sonja Swanevelder, [2,3]Martin Schwellnus, [2,3]Nicola Sewry, [1,4]Esme Jordaan. *[1]Biostatistics Unit, South African Medical Research Council, Cape Town, South Africa; [2]Sport, Exercise Medicine and Lifestyle Institute (SEMLI), Pretoria, South Africa; [3]IOC Research Centre, South Africa, Pretoria, South Africa; [4]Statistics and Population Studies Department, University of the Western Cape, Cape Town, South Africa*

10.1136/bjsports-2021-IOC.58

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 midpoint 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).