INDEPENDENT RISK FACTORS ASSOCIATED WITH ILLNESS-RELATED MEDICAL ENCOUNTERS DURING A 109 KM CYCLING EVENT ARE FEMALES, OLDER AGE, SLOWER CYCLING SPEED AND WARMER ENVIRONMENTAL CONDITIONS: A SAFER STUDY IN 102251 RACE STARTERS

Nicolae Sewry, 2,3 Martin Schwellnus, 3,4 Janelene Killops, 5,6 Sonja Swanevelder, 2,3 Christa Janse van Rensburg, 5,6 Esme Jordaan. 2Sport, Exercise Medicine and Lifestyle Institute (SEMLI), Pretoria, South Africa; 3IOC Research Centre, South Africa, Pretoria, South Africa; 4Mediclinic Southern Africa, Stellenbosch, South Africa; 5Biostatistics Unit, South African Medical Research Council, Cape Town, South Africa; 6Statistics and Population Studies Department, University of the Western Cape, Cape Town, South Africa

Background Illness-related medical encounters (illMEs) are common in mass community-based participation cycling events, but there are limited data on risk factors associated with illMEs in endurance cycling events.

Objective To determine the independent risk factors associated with illMEs in a mass community-based endurance cycling event.

Design Retrospective, cross-sectional study.

Setting Two Oceans Marathons 2012–2015.

Patients (or Participants) 76211 consenting race entrants.

Interventions (or Assessment of Risk Factors) Runners completing a pre-race screening questionnaire reported a history of EAMC and multiple experience and training variables: years of recreational running, months of training, average distance per week, average training speed, and electrolyte disorders (females, older age, and higher aiWBGT). Risk factors associated with illMEs in a mass community-based endurance cycling event were explored using a Poisson regression model.

Results Independent risk factors associated with all illMEs for 3 years were recorded and grouped into common illnesses by organ system affected. The following possible risk factors associated with illMEs were explored: sex, age, cycling speed and environmental exposure [calculated as average individual Wet-Bulb Globe Temperature (aiWBGT)].

Main Outcome Measures Independent risk factors associated with illMEs, serious illMEs, and illMEs by organ system affected using a Poisson regression model.

Results Independent risk factors associated with all illMEs during an endurance cycling event were slow cycling speed (P=0.009) and higher aiWBGT (P<0.001). Risk factors associated with serious illness, life-threatening or death were older age (P = 0.007) and slower cycling speed (P = 0.016). Risk factors associated with specific common illMEs were fluid and electrolyte disorders, females, older age, and higher aiWBGT and cardiovascular illness (older age).

Conclusions Females, older age, slower cycling speed, and higher aiWBGT were associated with illMEs in endurance cycling. These data could be used to design and implement future prevention programs for illME in mass community-based endurance cycling events.

EXPERIENCED RUNNERS WITH AN ABOVE AVERAGE TRAINING LOAD HAVE THE HIGHEST RISK OF EXERCISE ASSOCIATED MUSCLE CRAMPING (EAMC)

Martin Schwellnus, 2,3 Esmee Jordaan. 2Sport, Exercise Medicine and Lifestyle Institute (SEMLI), Pretoria, South Africa; 3IOC Research Centre, South Africa, Pretoria, South Africa; 4statistics and Population Studies Department, University of the Western Cape, Cape Town, South Africa; 5Emeritus Professor of Sport and Exercise Medicine, Faculty of Health Sciences, University of Cape Town, South Africa, Cape Town, South Africa

Background Running experience and training may be risk factors for exercise associated muscle cramping (EAMC).

However, multiple experience and training variables are interdependent. A latent class variable may be used to test associations between multiple experience and training variables and EAMC.

Objective Is there an association between EAMC and a latent class training variable, based on multiple inter-dependent experience and training variables?

Design Cross-sectional study.

Setting Two Oceans Marathons 2012–2015.

Patients (or Participants) 76211 consenting race entrants.

Interventions (or Assessment of Risk Factors) Runners completing a pre-race screening questionnaire reported a history of EAMC and multiple experience and training variables: years of recreational running, months of training, average distance per week, average training speed. Multiple experience and training variables were used to inform a latent class variable dividing runners into mutually exclusive classes so as to best explain the meaning of the chosen classes. Five experience/training classes (ET classes) were identified: ET class 1 (less experienced runners, lowest training) (64%), ET class 2 (average experience, average training) (18%), ET class 3 (fairly experienced, above average training) (8.6%), ET class 4 (2nd least experience, training far above average) (6.4%), ET class 5 (very experienced, above average training) (3%).

Main Outcome Measurements Prevalence of EAMC (%) by ET classes (1–5).

Results There were significant differences in EAMC prevalence among ET classes (p<0.0001). EAMC prevalence was highest in ET class 5 (27%) (very experienced, above average training) vs. ET class 1 (11%) (less experienced runners, lowest training).

Conclusions Runners with more experience and an above-average training profile had the highest prevalence of EAMC. Using ET classes to categorise runners by experience and training, instead of multiple individual inter-dependent training variables, may be more informative to explore relationships between running experience, training variables and medical conditions such as EAMC.

THE USE OF ARTIFICIAL INTELLIGENCE TOOLS TO ESTIMATE RUNNING-RELATED INJURY RISK PROFILES IN RECREATIONAL RUNNERS

Gustavo Leporace, 1 Gustavo Nakaoka, 2 Leonardo Metsavaht, 2,3,4 Luiz Hespahol. 1Institute Brazil of Technologies in Health, RJ, Brazil; 2Masters and Doctoral Programs in Physical Therapy, Universidade Cidade de Sao Paulo (UNICID), SP, Brazil; 3Department of Public and Occupational Health (DPOH), Amsterdam Public Health Research Institute (APH), Amsterdam Universities Medical Centers, location VU University Medical Center Amsterdam (VUmc), Amsterdam, Netherlands; 4Amsterdam Collaboration on Health and Safety in Sports (ACHSS), Amsterdam Movement Sciences, Amsterdam Universities Medical Centers, location VU University Medical Center Amsterdam (VUmc), Amsterdam, Netherlands

Background The development of running-related injury (RRI) prevention programs is based on aetiology described in longitudinal studies. Such studies have been conducted assuming that risk factors may influence the occurrence of RRIs under