0.2: 0.1–0.4, p=0.0002; males >50 yrs vs females >50 yrs, 0.4: 0.2–0.9, p=0.0323), running pace (6–<7 min/km vs 8–<9 min/km, 0.4: 0.2–0.8, p=0.0062; 7–<8 min/km vs 8–<9 min/km, 0.5: 0.3–0.9, p=0.0299) and route (up vs. down, 0.5: 0.3–0.8, p=0.0046).

Conclusion Older females, slower runners and route (down run) were independent factors associated with higher risk of serious/life-threatening MEs in a 90 km ultramarathon. These data will form the basis to design and implement prevention programs to manage risk of sMEs at these events.

**073** 

### PROMOTION OF PARA ATHLETE WELL-BEING IN SOUTH AFRICA (THE PROPEL STUDIES), PART II: IDENTIFICATION OF SLEEP-ASSOCIATED RISK FACTORS

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**Background** Good sleeping habits are necessary for optimal practice and performance, as well as for athlete health. Although the sleep characteristics of elite athletes are well described, research is limited on the sleep profile of similar-level para athletes.

**Objective** To evaluate sleep quality, sleepiness and chronotype of para athletes in South Africa.

**Design** Descriptive, cross-sectional survey.

**Setting** National to international level para athletes competing in the 2019 National Championships.

**Patients (or Participants)** A total of 124 athletes (93 males; 31 females) with a mean age 26.7 (±9.2).

**Interventions (or Assessment of Risk Factors)** Chi-square, with Fisher’s exact tests were used to evaluate differences in sleep latency, efficiency, daytime dysfunction, sleep duration, chronotype and sleepiness between ‘good’ and ‘poor’ quality sleep groups.

**Main Outcome Measurements** Pittsburgh Sleep Quality Index (PSQI), the Epworth Sleepiness scale and Morningness-Eveningness Questionnaire (MEQ-SA).

**Results** Fifty-eight percent (58%) of athletes identified as morning types, while 38% identified as intermediate types. Forty-eight percent (48%) were classified as having ‘poor’ and the remainder as having ‘good’ sleep quality. Moderate to severe daytime sleepiness was present in 30% of athletes. Thirty percent (30%) reported sleep duration of 5–6 hours per night, while 5% slept less than 5 hours. Morning types were significantly associated with the ‘good’ quality sleep group (p<0.001, V=0.35) and the ‘sleepiness’ group were associated with the ‘poor’ quality sleep group (p=0.04, V=0.19). Additionally, athletes with ‘poor’ sleep quality were associated with shorter sleep duration (p<0.001, V=0.63), greater sleep latency (p<0.001, V=0.62), lower sleep efficiency (p=0.001, V=.45), greater daytime dysfunction (p<0.001, V=.40) and greater sleep disturbances (p<0.001, V34).

**Conclusions** The majority of athletes in this study presented with poor sleep quality. These findings demonstrate a need to identify, address and prevent possible mechanisms affecting poor sleep quality in this population.

**074** 

### PROMOTION OF PARA ATHLETE WELL-BEING IN SOUTH AFRICA (THE PROPEL STUDIES), PART III: FACTORS ASSOCIATED WITH MENTAL HEALTH

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**Background** Mental health was measured with the Trait component of the State/Trait Anxiety Inventory (STAI) and the Kessler Psychological Distress Scale (K-10).

**Results** The mean score for the STAI was 39.2 (±9.3) units. A quarter (25%) of all athletes scored 45 and above, in line with the Trait component of the State/Trait Anxiety Inventory (STAI). Mental health was measured with the Trait component of the State/Trait Anxiety Inventory (STAI) and the Kessler Psychological Distress Scale (K-10).

**Conclusions** The study found high rates of psychological distress among para athletes, which is an important first step towards the development of prevention strategies. There is a need to further understand and identify mechanisms affecting mental health in this population.