Marathon des Sables 2018

Optimizing Ultra-Marathon Performance

Environmental Extremes Lab

University of Brighton

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Environmental Extremes Lab

Heat Stress Tests, Acclimation Protocols and Physiological Support

The Environmental Extremes Laboratory (EEL) offer several MdS packages dependent upon your preparation requirements. These can be tailored for individual or group bookings to prepare effectively.

- Individual screening tests for heat tolerance
- Simulated pacing strategies within the hot, dry conditions
- Equipment checks and educational resources
- Sweat rate and sodium concentration assessments
- Physiological profiling: Lactate threshold & $\dot{V}O_{2max}$ tests
- Heat acclimation protocols ranging; 5, 10 & 15 days

Marathon des Sables Heat Acclimation

In 2017, EEL Supported 15 athletes during 4-6 days of heat acclimation protocol. This included once & twice daily heat sessions in 45°C, 20% relative humidity before departing for Morocco. The exercise-heat stress methods we prescribe are research informed by the University of Brighton.

Over the course of the heat acclimation we typically observed reductions in resting and exercising core temperature and heart rate, in addition to improvements in sweat rate, plasma volume and thermal comfort. This provides MdS athletes with greater confidence in their ability during the extreme conditions and provides self-awareness on their individual heat tolerance levels.

The Environmental Extremes Laboratory (EEL) is part of the University of Brighton. We have a long history of delivering high quality, research informed consultancy work.
While forming partnerships with a wide range of organisations, both nationally and internationally, we support numerous explorers and athletes to prepare effectively and reduce the risk of injury in an attempt to improve endurance performance.

EXPERIENCED TEAM

The EEL has a team of experts in the field of Sport & Exercise Science, in particular Environmental Physiology who provide high quality support and services that are both applied and research informed.

Our lab director Dr. Neil Maxwell has vast experience with environmental extremes support and has published extensively in the international, scientific literature in areas allied to thermal tolerance and stress during endurance exercise.

FACILITIES

Our environmental chamber can control ambient temperature (-20 to +50°C) & relative humidity (20 to 95%), thereby simulating different environmental climates. We can investigate heat acclimation strategies, heat response testing, sweat tests & precooling modalities to examine how the body copes during extreme thermal environments.

PREPARATION

Ineffective physiological responses within extreme environmental heat stress, not only reduces performance but places a large strain on the body, impairing cognitive, cardiovascular, & thermoregulatory function, which is severely detrimental to your health & well-being.

Optimizing Ultra-Marathon Performance

Heat Screening and Acclimation

SCREENING

We are able to asses and determine individual physiological responses towards the heat stress you are likely to experience during the Marathon des Sables.

The initial screening session provides information on how your body will cope within stressful situations & determine strategies to alleviate the detrimental physiological strain during training, competition and expeditions

PREPARATION

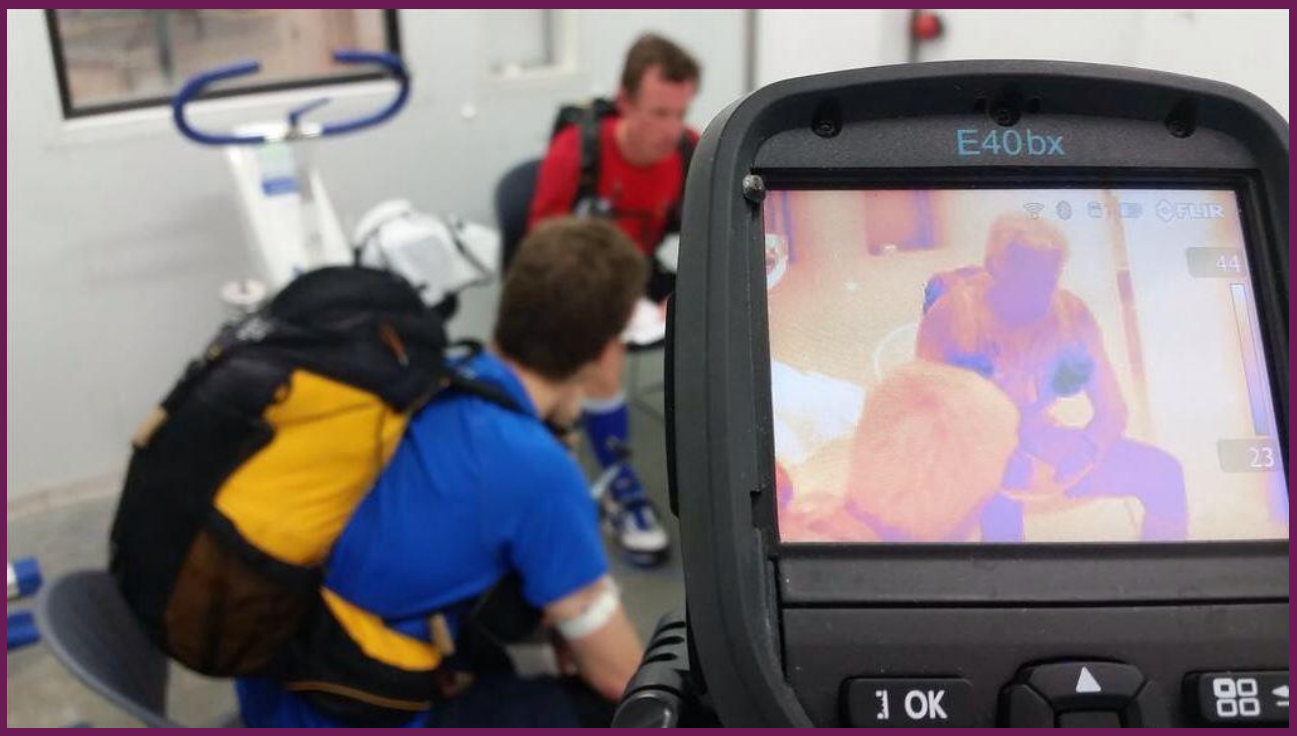
The body can adapt to artificial environmental conditions during repeated exposures within acclimation protocols.

These provide advantageous affects within the real environment. Heat acclimation reduces cardiovascular and thermoregulatory strain, while increasing sweat rate, plasma volume and improving thermal comfort.

EDUCATION

We provide seminars & resources related to extreme heat stress, highlighting the detrimental effects of the high risk situations during training and the MdS.

Our experience in heat based preparation includes Tokyo 2020 Olympic, the Jungle and Great Wall marathons, Marathon des Sables, and the Cambodian, Badwater and Atacama Crossing Ultra-marathons.



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