

Validation of wearable technology for individualised physiological strain monitoring in occupational heat stress

The Human Potential Translational Research Programme, Yong Loo Lin School of Medicine, NUS is currently recruiting volunteers for the above research study.

Try out the latest wearable technology to help us evaluate their accuracy and reliability for use in heat exposed occupations.

Four laboratory sessions at M16/M17 in NUS:

1. **VO₂max test** (~3 hours): Assess aerobic fitness
2. **Familiarisation trial + WRC trial** (~5 hours/visit): In firefighter bunker gear and running shoes.
 - Treadmill walk at 4-6 km.h⁻¹ with an incline set at an intensity of 40 to 60% VO₂max, until volitional exhaustion or until core temperature of 40.0°C is reached.
3. **Running trial** (~3 hours): In physical training attire and running shoes
 - Treadmill run at 60 to 70% VO₂max until volitional exhaustion or until core temperature of 40.0°C is reached.

Physiological parameter measurements: Core temperature (ingestible telemetric pill), heart rate, skin temperature, height, weight, skinfold, urine specific gravity and sweat sampling (sweat prototype)

Inclusion criteria:

1. Healthy volunteers aged between **21 and 35**.
2. **2.4 km run timing of 9 to 15 minutes** in the past 12 months.
3. **VO₂max of 40 to 60 ml/kg/min**.
4. **Consistent menstrual cycle** and **no consumption of oral contraceptives** for at least 3 months prior to and during participation of this study (female volunteers).
5. Non-smoker.
6. No history of prior gastro-intestinal surgery, surgery or trauma to the mucosal membrane, or pelvic or abdominal surgery.
7. No history of inflammatory and motility bowel disorders, intestinal obstruction and swallowing disorders.
8. No history of respiratory diseases, heat injuries or heart diseases.
9. **No scheduled Magnetic Resonance Imagery (MRI)** within 7 days from consumption of temperature capsule.

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You will be required to attend a pre-trial medical screening

Reimbursement will be given for your time and effort in this study