

Climatic Physiology Group Meeting

Tuesday, 1st September 2026

(Abstract submission deadline 1st July 2026)

Abstract to be sent via email to josh.foster@kcl.ac.uk

Title of Talk: Menopausal Women in a Warming World: A Methodological Framework for Thermoregulatory Research

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Introduction: As global temperatures rise, tolerance to heat stress is becoming a critical public health concern. While heat research has begun to address the underrepresentation of women, menopausal women remain almost absent from this literature. Perimenopause, postmenopause, and hormone replacement therapy (HRT) use represent distinct hormonal states altering thermoregulation, including vasomotor control and sweating responses. Yet these vulnerable populations, facing real-world heat exposure, are routinely combined or excluded. This paper presents the first methodological framework for classifying and scheduling menopausal populations in heat research.

Methods: This paper critically evaluates current practice in heat research involving menopausal populations and draws on established classification guidelines. A two-part framework is proposed: 1) classification and grouping of menopausal populations, 2) experimental trial scheduling guidance tailored to distinct hormone characteristics.

Results: Part 1. Perimenopausal, postmenopausal, and HRT users should be treated as discrete groups. Classification should draw on menstrual history, symptom profile, prospective tracking and, where feasible, follicle stimulating hormone concentrations and clinical confirmation from a medical professional. For HRT users, classification should be based on length of use, brand, formulation, route and regimen. **Part 2.** Perimenopausal participants, with regular menstrual cycles, should be scheduled in the same cycle phase (day 3-5 post bleed or 6-8 post ovulation), with progesterone verification where feasible. Those with irregular cycles should be scheduled consistent with other study groups. Postmenopausal participants, with low, stable hormone concentrations, and HRT users, with more predictable hormone profiles, allow greater scheduling flexibility. Across all groups, detailed documentation of menopausal symptoms is essential to support robust data interpretation.

Conclusions: Menopausal women are a population at risk of rising global temperatures yet methodologically overlooked in heat research. This framework equips researchers to generate accurate, comparable, and translationally meaningful evidence on menopausal women's heat responses – a critical step towards protecting this population in a warming world.

Speaker career stage (Ph. D candidate, Postdoc, Lecturer/Asst Prof, Senior Lecturer/ Assoc Prof, Professor): Ph. D candidate