Jessica Mee, **BSc, PhD, FHEA**

UKRI Future Leaders Fellow

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Key Positions

Since 2024	UKRI Future Leaders Fellow, *University of Worcester, UK*
Since 2024	Director, Female Heat Laboratory, *University of Worcester,* UK
Since 2024	Steering Group Member: Global Climate and Health Summit, *Physiological Society,* UK
2019-2024	Senior Lecturer, *University of Worcester,* UK
2019-2021	Expert Panel Member: Beat the Heat, Tokyo Olympics, *English Institute of Sport,* UK
2015-2019	Lecture, *Bangor University,* UK
2012-2015	Visiting Lecturer, *University of Brighton,* UK
2011-2015	Sport and Exercise Science Technical Instructor, *University of Brighton,* UK
2011-2016	PhD Researcher, *University of Brighton,* UK

Relevant work in the area of the proposal talk

My doctoral research reported that females require more daily exposures to hot ambient conditions to establish hallmark heat acclimation adaptations, compared with males. My doctoral research then developed a mixed methods heat acclimation approach, which combined daily exercise in the heat with a sauna exposure. This method accelerated the rate of heat adaptation in females, confirming a time efficient strategy (i.e., five daily exposures vs. 10), which limits interference with preparations for relocation to a hot climate. A strength of this work is the control and assessment of menstrual status via plasma oestrogen and progesterone, due to the known effect on thermoregulation; this control is lacking from a large proportion of female-based studies.

- **Mee, J.A.** Doust, J. and Maxwell, N.S. (2015). Repeatability of a running heat tolerance test. *Journal of Thermal Biology* 49-50, 91-97. doi: 10.1016/j.jtherbio.2015.02.010.
- **Mee, J.A.** Gibson, O.R. Doust, J.D. Maxwell, N.S. (2015). A comparison of males and females' temporal patterning to short- and long-term heat acclimation. *Scandinavian Journal of Medicine and Science in Sports*, 25 (Suppl. 1), 250-258. doi: 10.1111/sms.12417.
- **Mee, J.A.** Gibson, O.R. Tuttle, J.A. Taylor, L. Watt, P.W. Doust, J.H. Maxwell, N.S. (2016) Leukocyte Hsp72 mRNA transcription does not differ between males and females during heat acclimation. *Temperature*, 3 (4), 549-556. doi: 10.1080/23328940.2016.1214336.
- **Mee, J.A.** Peters, S. Doust, J. and Maxwell, N.S. (2018). Sauna exposure immediately prior to short-term heat acclimation accelerates phenotypic adaptation in females. *Journal of Science and Medicine in Sport,* 22 (2), 190-195. doi: 10.1016/j.jsams.2017.06.024.

Since then, my research has pioneered the post-exercise HWI protocol, a simple to administer, accessible, time efficient, cost-effective strategy, with a series of publications demonstrating the large magnitude of hallmark heat acclimation adaptions.

- Zurawlew, M.J. **Mee, J.A.** Walsh, N.P. (2018). Heat Acclimation by Post-Exercise Hot Water Immersion in the Morning Reduces Thermal Strain During Morning and Afternoon Exercise-Heat-Stress. *International Journal of Sports Physiology and Performance.* 13 (10). 1281-12867. doi: 10.1123/ijspp.2017-0620.
- Zurawlew, M.J. **Mee, J.A.** Walsh, N.P. (2018). Post-exercise hot water immersion elicits heat acclimation adaptations in endurance trained and recreationally active individuals. *Frontiers,* 18 (9)1,824. doi: 10.3389/fphys.2018.01824.
- Zurawlew, M.J. **Mee, J.A.** Walsh, N.P. (2019). Post-exercise hot water immersion elicits heat acclimation adaptations that are retained for at least two weeks. *Frontiers.* 8 (10), 1080. doi: 10.3389/fphys.2019.01080.
- McIntyre, R.D. Zurawlew, M.J. Oliver, S.J. Cox, A.T. **Mee, J.A.** Walsh, N.P. (2021). A comparison of heat acclimation by post-exercise hot water immersion and exercise in the heat. *Journal of Science and Medicine in Sport.* 24 (8):729-734. doi: 10.1016/j.jsams.2021.05.008.
- McIntyre, R.D., Zurawlew, M.J., **Mee, J.A.,** Walsh, N.P., Oliver, S.J. (2022). A comparison of medium-term heat acclimation by post-exercise hot water immersion or exercise in the heat: adaptations, overreaching, and thyroid hormones. *American Journal of Physiology Regulatory, Integrative and Comparative Physiology,* 323(5): R601-R615. doi: 10.1152/ajpregu.00315.2021.

In 2024 I established research independence and developed the Female Heat Laboratory, where we are studying how to reduce heat strain in females across different ages, fitness levels, body sizes, and menstrual or hormonal states. This work is part of a 4+3-year UKRI Future Leaders Fellowship, funded by the Medical Research Council (MRC). The project aims to identify the physiological and hormonal mechanisms that influence female thermoregulation and heat adaptation, and to develop effective, evidence-based strategies to reduce heat-related health risks and optimise performance in hot environments.

Additional relevant publications

- Gibson, O.R. **Mee, J.A.** Tuttle, J.A. Taylor, L. Watt, P.W. Maxwell, N.S. (2015). Isothermic and fixed intensity heat acclimation methods are similarly effective in heat adaptation following short and long-term timescales. *Journal of Thermal Biology* 49-50, 55-65. doi: 10.1016/j.jtherbio.2015.02.005.
- Gibson, O.R. **Mee, J.A.** Tuttle, J.A. Taylor, L. Watt, P.W. Maxwell, N.S. (2015). Isothermic and fixed intensity heat acclimation methods elicit equal increases in Hsp72 mRNA. *Scandinavian Journal of Medicine and Science in Sports*, 25 (Suppl. 1), 259-268. doi: 10.1111/sms.12430.
- Gibson, O.R. James, C.A. **Mee, J.A.** Willmott, A.G.B. Turner, G. Hayes, M. Maxwell N.S. (2019). Heat alleviation strategies for athletic performance: a review and practitioner guidelines. *Temperature.* doi: 10.1080/23328940.2019.1666624.
- Willmott, A.G.B., James, C.A., Jewiss, M., Gibson, O.R., Brocherie F., **Mee, J.A.** (2025). Hot Yoga: A Systematic Review of the Physiological, Functional and Psychological Responses and Adaptations. *Sports Medicine Open.* 11(1): 110. doi: 10.1186/s40798-025-00917-7.

Recent Relevant Invited Speaker Conference Presentations

- **Mee J.A.** Sex-Specific Considerations in Thermal Physiology. Thermal Physiology in Health and Disease: Mechanisms and Therapeutic Applications. Brunel University of London. 3rd and 4th June 2025.