Kirstin MacGregor, PhD (she/her)

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Personal summary:

I am a Postdoctoral Research Fellow at the Karolinska Institutet, working within the Integrated Physiology group. My research interests center on sex specific differences in skeletal muscle metabolism in metabolic (dys)function and exercise, aiming to inform therapeutic interventions and improve health outcomes. I have a strong background in translational physiology, with expertise in advanced bioinformatic analyses of multi-omics data.

Current position:

2022-present	**Postdoctoral fellow,** Karolinska Institutet, Integrative Physiology group *Project title:* Exploring the role of epigenetics in the interaction between exercise and metabolism in type 2 diabetes. *Supervisors:* Prof. Juleen R. Zierath, PhD: Prof. Anna Krook, PhD.

Formal education:

2017-2022	**PhD, Health and Sport Sciences**, University of Stirling *Thesis title:* Examining the relationship between menstrual cycle phase with metabolic control and adipose micro-RNA expression. *Supervisors:* Dr Colin N. Moran, PhD; Dr Ian J. Gallagher, PhD.
2016-2017	**MSc Exercise and Sports Science** (distinction), University of Birmingham *Thesis title: An optimised* immunofluorescent staining technique to assess fibre type specific glycogen content can be successfully modified to co-stain for glycogen and AMP-activated protein kinase.
2013-2016	**BSc Sports and Exercise Science** (1st class with honors), University of Exeter *Thesis title:* "Montmorency cherry juice delays fatigue during repeated sprints following intermittent exercise simulating the physiological demands of a football match".

Teaching and supervision:

2023-present	**Co-supervision of visiting PhD students,** Karolinska Insitutet, Department of Molecular Medicine and Surgery
2023-present	**Teaching assistant,** Karolinska Institutet, Department of Physiology and Pharmacology *Modules taught on:* Multi-Omic Approaches in Physiology and Data Handling; Physical Activity in the Management and Prevention of Metabolic Diseases.
2017-2020	**Teaching assistant,** University of Stirling, Faculty of Health and Sport Sciences *Modules taught on:* Advanced Methods in Human Physiology Research, Issues and Concepts in Sports Studies, Applied Exercise Physiology, Readings in Sports and Exercise Science.

Publications:

9 published manuscripts, including 5 first author articles (H index: 4; Citations: 101)

Selected experimental articles:

1. Ehrlich AM, **MacGregor KA**, … Zierath JR. *(2025).* HIF1α Mediates Circadian Regulation of Skeletal Muscle Metabolism and Substrate Preference in Response to Time-of-Day Exercise. *PNAS.* https://doi.org/10.1073/pnas.2504080122
2. Keller MJ, Brady AJ, Smith J, Savikj M, **MacGregor KA**, ... Wallberg-Henriksson H. (2025). Afternoon Exercise and Meal Consistency Improves Glycemic Control in People with Type 2 Diabetes: A Randomized Crossover Trial. *Diabetol*. https://doi.org/10.1007/s00125-025-06477-5

3. Stocks B, Quesada JP, Mozzicato AM, Jacob C, Jensen, S, **MacGregor KA,** ... Deshmukh AS. (2025). Temporal dynamics of the interstitial fluid proteome in human skeletal muscle following exhaustive exercise. *Sci Adv.* https://doi.org/10.1126/sciadv.adp8608
4. **MacGregor KA,** Ho FK, Celis-Morales CA, Pell JP, Gallagher IJ, & Moran CN. (2023). Association between menstrual cycle phase and metabolites in healthy, regularly menstruating women in UK Biobank, and effect modification by inflammatory markers and risk factors for metabolic disease. *BMC Med.* https://doi.org/10.1186/s12916-023-03195-w.
5. **MacGregor KA,** Rodriguez-Sanchez N, Barwell ND, Gallagher IJ, Moran CN, Di Virgilio TG (2021). Changes in adipose tissue microRNA expression across the menstrual cycle in regularly menstruating women: a pilot study. *Physiol genomics*. https://doi.org/10.1152/physiolgenomics.00088.2021.
6. **MacGregor KA,** Gallagher IJ, & Moran CN. (2021). Relationship between insulin sensitivity and menstrual cycle is modified by BMI, fitness and physical activity in NHANES. *JCEM.* https://doi.org/10.1210/clinem/dgab415.
7. **MacGregor KA**, Rodriguez-Sanchez N, Barwell ND, Gallagher IJ, Moran CN, Di Virgilio TG. (2021). Human Subcutaneous Adipose Tissue Sampling using a Mini-liposuction Technique. *JoVE*. https://doi.org/10.3791/62635.

Review articles:

1. **MacGregor KA,** Ellefsen S, Pillon NJ, Hammarström D, Krook A. (2024). Sex differences in skeletal muscle metabolism in health and Type 2 diabetes. *Nat Rev Endocrinol.* https://doi.org//10.1038/s41574-024-01058-9.
2. Zierath JR, Brady AJ, **Macgregor KA**, De Zevallos JO, Stocks B. (2024). Unlocking the secrets of exercise: A pathway to enhanced insulin sensitivity and skeletal muscle health in type 2 diabetes. *JSHS.* https://doi.org/10.1038/s41574-024-01058-9.

Selected Conferences and Symposia

Invited talk

2025 **University of Aberdeen**, United Kingdom.

Oral presentations

2024 **European Association for the Study of Diabetes Annual Meeting**, Madrid, Spain
2024 **Cell Symposia: Exercise Metabolism**, Lisbon, Portugal
2023 **European Association for the Study of Diabetes Annual Meeting**, Hamburg Germany
2021 **Physical Activity and the Endocrine System Conference**, Online
2021 **Physiological Society Annual conference** 2021, Online

Organisation of Scientific events:

2020 **Menstruation, Sport and Physical Activity workshop**, University of Stirling, Scotland
Assisted in the running of the workshop and seminar sessions.

Awards:

2021 Best Oral Presentation at the Physiological Society Annual conference, Online

Grants and funding:

2025 Strategic Research Program for Diabetes Travel Grant (SEK 2000)
2024 Wu Tsai Performance Alliance (As co-applicant, main applicant: Prof. Krook) ($100,000)
2024 Strategic Research Program for Diabetes Travel Grant (SEK 10,000)
2023 EASD Travel Grant (€300)
2023 Novo Nordisk Post Doctoral Fellowship Program Additional Funding (SEK 525,000)
2020 Physiological Society Grant (£1500)
2019 Physiological Society Travel Award (£500)