Adèle Mornas

Postdoctoral researcher at Montreal Heart Institute

My research aims to deepen our understanding on the effects of heat exposure on neuromuscular and thermoregulatory responses in different adult populations (e.g., young, older, healthy or with cardiovascular disease).

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Montréal, QC, Canada

Native language

Academic level

RESEARCH EXPERIENCE

- **April 2023 - …:** Postdoctoral researcher at Centre EPIC of the Montreal Heart Institute (QC, Canada), under the supervision of Prof. Daniel Gagnon. **Involved in several ongoing projects**: **(1)** Identifying optimal cooling strategies for coronary artery disease patients during heatwaves; **(2)** Identifying the predictors of physiological heat strain; **(3)** Identifying an indoor temperature threshold at which behavioral and bodily responses are affected during hot weather; **(4)** Assessment of cardiac ischemic threshold during heat exposure.
- **July – September 2022:** Research stay at Aspetar (Doha, Qatar): **"Heat therapy to accelerate muscle recovery".**
- **January 2020 – December 2022:** Scientific support for athletes' preparation (e.g., Tokyo Olympics and Paralympics; canoeing, rugby, cycling, triathlon, athletics, and basketball): isokinetic strengthening and heat acclimation sessions.
- **February – August 2019:** End scholarity internship, Laboratory Sport, Expertise and Performance, French Institute of Sport (INSEP, Paris, France): **"Impact of heat exposure on the contractile and elastic components of electromechanical delay".**

EDUCATION

- **October 2019 – March 2023:** PhD Thesis, ministerial scholarship, Laboratory Sport, Expertise and Performance, INSEP (Paris, France), supervised by Drs Gaël Guilhem, Franck Brocherie (INSEP), and Prof Sébastien Racinais (Aspetar, Doha, Qatar): **"Impact of thermal stress on muscle properties and performance".**
- **2014 – 2019:** Bachelor's and Master's degree with honors in Sport Science, University Savoie Mont-Blanc (Le Bourget du Lac, France).

SCHOLARSHIP, PRIZES AND DISTINCTIONS

Research grants

- **July 2025:** Co-Applicant – Heart & Stroke Foundation of Canada – 290,244$ CAD accorded (3 years term). **"Cardiac rehabilitation to reduce heat-induced cardiac strain of adults living with heart disease".**
- **January 2025:** Co-Applicant – Canadian Institutes of Health Research – 1,204,875$ CAD accorded (5 years term). **"Personal characteristics associated with physiological heat strain in older adults".**

Training grants

- **2025-2027:** Postdoctoral scholarship from the Quebec Health Research Fund (ranked 3/15; 90000$ CAD).
- **2019 – 2023:** Doctoral scholarship from Paris Cité University, ministerial scholarship (ranked 1/18; 68000€).

Prizes and distinctions

- **April 2025:** Gatorade Sport Science Institute Postdoctoral Research Award (750$ US), for abstract presented at the American Physiology Summit, Baltimore, United States of America.
- **June 2024:** Jean-Louis Lévesque prize, Montreal Heart Institute Foundation (500$ CAD), for best poster during the Montreal Heart Institute Research Day.
- **April 2024:** CANTROL Environmental Systems New Investigator Research Award (1000$ US), and Henry Pickering Bowditch abstract of distinction, for abstract presented at the American Physiology Summit, Long Beach, United States of America.
- **July 2022 – September 2022:** International mobility grant (1500€), Paris Cité University, France.

PUBLICATIONS – first author only, direct access to PubMed here

1. **Mornas A**, et al. Vastus lateralis muscle force and architecture were unchanged after an eccentric training cycle in elite athletes. *J Biomech*. 2025 Accepted on Sept 24.
2. **Mornas A**, et al. A Scoping Review of Recommendations for Adults with Cardiovascular Disease to Remain Physically Active during Hot Weather. *Eur J Prev Cardiol*. 2025 Aug 19 Online ahead of print. PMID: 40827078.
3. **Mornas A**, et al. Test-retest reliability of gastrocnemius medialis fascicle force-length relationship. *J Biomech*. 2024 Jun;171:112170. PMID: 38870569.
4. **Mornas A**, et al. Running 40 minutes under temperate or hot environment does not affect operating fascicle length. *Med Sci Sports Exerc.* 2024 Jun 1;56(6):1140-1150. PMID: 38233977.
5. **Mornas A,** et al. Active heat acclimation does not alter muscle-tendon unit properties. *Med Sci Sports Exerc.* 2023 Jun 1;55(6):1076-1086. PMID: 36719653.
6. **Mornas A,** et al. Faster early rate of force development in a warmer muscle: an *in vivo* exploration of fascicle dynamics and muscle-tendon mechanical properties. *Am J Physiol Regul Integr Comp Physiol.* 2022 Jul 1;323(1):R123-R132. PMID: 35579335.
7. **Mornas A,** et al. Hyperthermia reduces electromechanical delay via accelerated electrochemical processes. *J Appl Physiol.* 2021 Feb 1;130(2):290-297. PMID: 33180642.

CONFERENCES

- **Guest speaker:** Thermal Physiology in Health and Disease: Mechanisms and Therapeutic Applications, The Physiological Society, United Kingdom, June 2025.
- **Oral presentations** at international conferences (American Physiological Summit 2025; European College of Sport Science 2021-2023), and at national conferences (Société Québécoise d'Hypertension Artérielle 2025; congress of the Association des Chercheurs en Activités Physiques et Sportives 2021);
- **Poster presentations** at international conferences (American Physiological Summit 2024; Congrès International Francophone sur l'Activité Physique 2024; Congress of the International Society of Biomechanics 2021).

POPULAR SCIENCE & MEDIAS

1. « J'ai testé en labo les effets de la chaleur extrême sur mon corps », by Denis Wong, Radio Canada. Sept 2025.
2. « Toujours à l'air climatisé, le corps ne peut pas s'adapter » - Adèle Mornas, interview Radio FM 98.5. Aug 2025.
3. Deshayes T, **Mornas A**, et al. En canicule, comment la chaleur affecte-t-elle notre santé? (2023). Le Devoir.

SPECIFIC SKILLS DEVELOPPED

- **Developing a research project:** submission of human ethics protocols, designing a research protocol, conducting data collection, data, oral communication, preparation of manuscript for publication;
- **Student supervision:** co-supervision of 2 research assistants, 1 bachelor, 6 masters, and 1 PhD student;
- **Using laboratory tools:** neuromuscular testing, surface electromyography, ultrasound and shear wave elastography, heat exposure and associated thermoregulatory measurements (core/skin temperature, heart rate, sweat rate, skin blood flow, artery vasodilation…), accelerometry to record sedentary and physical activity levels;
- **Analysing data:** programming (Origin and MATLAB), processing mechanicals signals and ultrasound videos, analysing data, performing statistical analysis;
- **Teaching:** Principles of strength training and conditioning (bachelor level, Université Paris Cité), thermoregulation (preparatory year for medicine, Université de Montréal);
- **Organization of scientific events:** Volunteer for the organization of the 28th edition of the European College of Sport Science congress (July 2023, Paris, France); co-organization of conferences "Seeking for Performance": a French and an International edition (respectively, 2.2k and 2.9k views on Youtube; October 2020 and March 2021); co-organization of a seminar on the relationship between PhD students and their(s) supervisor(s) – 30 participants.

SCIENTIFIC REVIEWING ACTIVITY

Journal (number of revisions): *Journal of Sport Sciences* (2), *Scandinavian Journal of Medicine & Science in Sports* (1).