Institute of Evolutionary Medicine

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Master thesis topic: Does locomotor efficiency during walking and running correlate with pelvic shape?

Relevance: Traditionally, sexual dimorphism in pelvic shape has been explained as an evolutionary trade-off to difficult birth. The human pelvis needs to be biomechanically efficient in both sexes, but a large birth canal is favorable in females only. However, recent studies suggested that there is no difference in locomotor performance between a wide and a narrow pelvis. Our goal is now to analyze this question with a different approach.

Potential research questions: Does sex-specific pelvic shape lead to differences in locomotor efficiency? Are there other factors within pelvic shape that lead to differences in locomotor efficiency regardless of sex? Do females and males differ in thermoregulatory adaptations?

We are open for you to come up with your own research question(s).

Methods: At Balgrist Campus, Zürich, we will acquire MRI scans of female and male runners and investigate their energy expenditure during locomotion.

What we provide: You will learn how to collect and analyze 3D-shape and locomotor energetics data. In addition, we will provide mentoring and guidance on how to improve your scientific writing and oral communication skills.
We are part of a global scientific community interested in the evolution of the human body, which can offer you international recognition and potential future employment within academia. If you wish, you will also have the opportunity to present your results at scientific conferences.
Requirements: Interest in human anatomy, physiology, evolution, pregnancy, childbirth, sports medicine (not all have to apply).

Project Leader / official supervisor: PD Dr. sc. nat., Dr. med. Martin Häusler

Direct supervisor: M.Sc. Cédric Cordey (PhD student)

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