MICHAL STRUŠKA

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RESEARCH FOCUS

- Human thermoregulation and environmental adaptation
- Endurance locomotion and exercise physiology
- Skeletal adaptation and aging

EDUCATION

2018–2026	PhD in Anthropology and Human Genetics; Charles University
2016–2018	MSc in Anthropology and Human Genetics (*graduated with honors*); Charles University
2013–2016	BSc in Ecological and Evolutionary Biology; Charles University

ACADEMIC EMPLOYMENT

2019–present	Research Technician; Charles University

SELECTED RESEARCH EXPERIENCE

Environmental effects on endurance performance

- Analyzed a large international dataset of over 1.3 million ultramarathon performances, integrating environmental, demographic, and performance data.
- Applied mixed-effects regression models in R to examine nonlinear relationships and interactions between environmental factors and sex.

Human thermoregulation and morphological variation

- Conducted experimental research on human thermoregulation during endurance running.
- Integrated physiological, anthropometric, and environmental measurements to investigate individual variation in heat balance.

Skeletal aging and biological variation

- Developed and implemented statistical analyses in R to investigate age-related changes in skeletal structural properties in European Holocene populations, in collaboration with the lead author.

RESEARCH AND TECHNICAL SKILLS

- **Statistical analysis and programming:** Python, R; linear and nonlinear regression, mixed-effects models, analysis of repeated-measures data, analysis of large datasets
- **Data management:** Data cleaning, processing, and integration; relational databases (PostgreSQL, SQL)
- **Experimental techniques:** Indirect calorimetry, infrared thermography, core and skin temperature measurements, electromyography
- **Biological anthropology:** Human anatomy, skeletal morphology, evolutionary biomechanics

Languages: English, Czech

GRANTS

2026–present Charles University Research Centre (UNCE/24/SCI/006): Centre for Study of Biodiversity Dynamics III. **Collaborator**; principal investigator: Adam Petrusek.

2022–2025 Charles University Grant Agency (324522): Influence of proportions, skin temperature, and movement velocity of body segments on heat dissipation during endurance hunting. **Principal investigator**.

PUBLICATIONS

Peer-reviewed journal publications

Struška, M., Hora, M., Wall-Scheffler, C., Sládek, V. (2026). The impact of air temperature, relative humidity, and solar irradiance on ultramarathon running speed in women and men. *Medicine & Science in Sports & Exercise*, published ahead of print, 10.1249/MSS.0000000000004148.

Sládek, V., Mitro, E., Hora, M., **Struška, M.** (2026). Stature estimation from long bone lengths in archaeological skeletal samples: Sensitivity of regression fit to variation in the correlation coefficient. *International Journal of Osteoarchaeology*, 36, 812–826.

Jarešová, P. A., Hora, M., **Struška, M.**, Kordsmeyer, T. L., Stern, J., Penke, L., Sládek, V. (2026). Multisegment model for body surface area and body volume estimation. *American Journal of Biological Anthropology*, e70256.

Hora, M., Dattatreya, R., **Struška, M.**, Pontzer, H., Sládek, V. (2025). Human energy expenditure and thermoregulation during persistence hunting in the Namib. *Journal of Human Evolution*, 209, 103773.

Sládek, V., Hora, M., Wall-Scheffler, C., **Struška, M.**, Berner, M. (2025). Bone health: Age-related changes in diaphyseal structural properties among European Holocene humans during the last 9000 years. *Science Advances*, 11, eadx7981.

Hora, M., Mařík, V., Dundr, M., **Struška, M.**, Sládek, V. (2025). Energy expenditure during grain grinding using reciprocal quern and rotary quern. *Journal of Archaeological Science*, 180, 106292.

Struška, M., Jarešová, P. A., Hora, M., Wall-Scheffler, C., Michálek, T., Sládek, V. (2024). Impact of relative lower-limb length on heat loss and body temperature during running. *American Journal of Biological Anthropology*, 185, e25036.

Hora, M., **Struška, M.**, Matějovská, Z., Kubový, P., Sládek, V. (2023). Muscle activity during crouched walking. *American Journal of Biological Anthropology*, 183, 79–91.

Hora, M., Pontzer, H., **Struška, M.**, Entin, P., Sládek, V. (2022). Comparing walking and running in persistence hunting. *Journal of Human Evolution*, 172, 103247.

Struška, M., Hora, M., Rocek, T. R., Sládek, V. (2021). Influence of upper limb training and analyzed muscles on estimate of physical activity during cereal grinding using saddle quern and rotary quern. *PLOS ONE*, 16, e0243669.

Conference abstracts

Cordey, C., Sonego, J., Bravo Morante, G., Hora, **M., Struška**, M., Sládek, V., Spengler, C., Scherr, J., Wieloch, N., Webb, N., Haeusler, M. (2026). Evolutionary selective pressures shaping the human pelvis: Locomotion energetics and the obstetrical dilemma. American Journal of Biological Anthropology, 189(S81), 33. (Abstract).

Hora, M., **Struška, M.**, Jarešová, P. A., Wall-Scheffler, C., Sládek, V. (2024). Role of body proportions on thermoregulation during endurance locomotion in the heat. American Journal of Biological Anthropology, 183(S77), 74–75. (Abstract).

Struška, M., Hora, M., Wall-Scheffler, C., Sládek, V. (2024). The effect of ambient temperature on ultra-marathon performance in males and females. American Journal of Biological Anthropology, 183(S77), 176. (Abstract).

Struška, M., Jarešová, P. A., Hora, M., Michálek, T., Wall-Scheffler, C., Sládek, V. (2023). Impact of lower limb length on human core temperature during endurance running. PaleoAnthropology, 2023(2), 394. (Abstract).

Hora, M., **Struška, M.**, Matějovská, Z., Kubový, P., Sládek, V. (2023). Muscle activity during walking at three degrees of crouch: Implications for approach hunting. American Journal of Biological Anthropology, 180(S75), 78. (Abstract).

Struška, M., Hora, M., Sládek, V. (2019). Comparison of eight- and four-muscle model for assessment of upper limb muscle activity during cereal grinding. *American Journal of Physical Anthropology*, 168(S68), 241. (Abstract).

Conference presentations

Struška, M., Hora, M., Wall-Scheffler, C., Sládek, V. (2024). The effect of ambient temperature on ultra-marathon performance in males and females. The 93rd Annual Meeting of the American Association of Biological Anthropologists, Los Angeles, California, March 20–23, 2024. Poster symposium presentation.

Struška, M., Jarešová, P. A., Hora, M., Michálek, T., Wall-Scheffler, C., Sládek, V. (2023). Impact of lower limb length on human core temperature during endurance running. The 13th Annual Meeting of the European Society for the Study of Human Evolution, Aarhus, Denmark, September 21–22, 2023. Podium presentation (Pecha Kucha).

Struška, M., Hora, M., Sládek, V. (2019). Comparison of eight- and four-muscle model for assessment of upper limb muscle activity during cereal grinding. The 88th Annual Meeting of the American Association of Physical Anthropologists, Cleveland, Ohio, USA, March 27–30, 2019. Poster presentation.

HONORS AND AWARDS

MSc: Merit-based Scholarship (2017/2018)

BSc: Merit-based Scholarship (2015/2016)

TEACHING

2020–present	Anthropology (undergraduate course at Charles University; 10 %)
2019–present	Anthropology for teachers (undergraduate course at Charles University; 10 %)

THESIS SUPERVISION AND EXAMINATION

Bachelor's theses supervised: Two successfully defended, two ongoing

Bachelor's theses examined: Eight

ACADEMIC AND ORGANIZATIONAL ACTIVITIES

2023–present	Departmental seminars (co-organizer; Department of Anthropology and Human Genetics, Charles University)
2018–present	Laboratory seminars (organizer; Bone Tissue Lab, Department of Anthropology and Human Genetics, Charles University)
2024	Poster symposium "Endurance Locomotion in Humans: Diverse Perspectives on Long-Distance Advantages" (co-chair; 93rd Annual Meeting of the American Association of Biological Anthropologists, Los Angeles, CA, USA)