powered by

dkfz.
GERMAN
CANCER RESEARCH CENTER
IN THE HELMHOLTZ ASSOCIATION

Contribution ID: **99** Type: **3 - Talk**

Immune Responses to Continuous and Interval Exercise Across Individualized Intensity Zones and Durations in Healthy Adults

Thursday 23 July 2026 11:45 (1h 15m)

Introduction: For training therapy in cancer patients, accurately defining exercise intensities and durations capable of inducing substantial immunological responses is essential (1). Moreover, dose–response relationships in patients remain difficult to establish because exercise modalities are often insufficiently prescribed or reported in existing studies (2). To address these gaps, this study examined how different continuous and interval-based cycling exercises across individualized intensity zones and different durations influences acute changes in immune-relevant markers in healthy adults.
Methods: Healthy, physically active participants (n=29) performed an incremental exercise test to determine lactate thresholds (LT1/LT2) and ventilatory thresholds (VT1/VT2). Based on these thresholds, low-, moderate- and high-intensity bouts were prescribed either as continuous exercise (CON; n=15) or interval exercise (INT; n= 14). Participants completed multiple exercise formats of varying durations and intensities. During all training sessions, lactate, glucose, and heart rate were continuously monitored and venous blood samples were collected pre-exercise, immediately post-exercise, and one hour into recovery.
Results: Recruitment and data acquisition are ongoing. The final analyses will characterize intensity–duration relationships and their impact on acute immunological responses across all exercise modalities. Results will be presented at the conference.

1 Sever, Ebru; Yılmaz, Sıla; Koz, Mitat (2025): Acute and Chronic Immunological Responses to Different Exercise Modalities: A Narrative Review. In: Healthcare (Basel, Switzerland) 13 (17). DOI: 10.3390/healthcare13172244.
2 Wang, Jingyu; He, Yuxuan; Kim, A-Ram; Lee, Kyung-Hee; Choi, Seung-Wook (2025): Effects of different types of exercise on inflammatory markers in cancer patients: A systematic review and Bayesian network meta-analysis. In: Journal of Sports Sciences 43 (12), pp. 1121–1138. DOI: 10.1080/02640414.2025.2486886.

Keywords

exercise Immunology, high-intensity interval exercise, acute inflammatory response, priming exercise

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

Authors: SPIELBÜCHLER, Lukas (Universität Graz); Ms DENIZ, Emine Betül (Division of Pulmonology, Otto Loewi Research Center, Lung Research Cluster, Medical University of Graz, Austria)

Co-authors: Prof. HOFMANN, Peter (Department of Human Movement Science, Sports and Health, University of Graz, Austria Physiology Department, Faculty of Education; University of Ostrava, Czech Republic); TAUCHER, Elisabeth (Medizinische Universität Graz)

Presenter: SPIELBÜCHLER, Lukas (Universität Graz)

Session Classification: Poster Session