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EXPLORING THE LINK BETWEEN SUBJECTIVE EXERCISE INTENSITY AND MYOKINE LEVELS

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Aim of the study. To examine the relationship between individuals' self-perception of their physical activity and the concentration of myokines (BDNF and Irisin) in the blood serum.

Materials and methods. Fifteen healthy young participants (7 female and 8 male) took part in the study. Blood samples were collected before the exercise to measure serum concentrations of the myokines BDNF and Irisin, using ELISA method. For both low- and high-intensity exercises, additional samples were obtained at two post-exercise time points: 1 hour and 24 hours post-exercise. Subjective exercise perception was assessed using the Modified Borg Dyspnoea Scale, which ranges from 0 ('nothing at all') to 10 ('maximal'). All data were analyzed using RStudio, with statistical significance defined as $p < 0.05$.

Results. During low-intensity physical activity, participants reported an average score of 3 out of 10 on the Modified Borg Dyspnea Scale, while high-intensity activity was perceived with an average score of 8 out of 10. A two-sample Wilcoxon test revealed that the median differences in myokine concentrations were statistically significant between the two exercise intensities. For perceived low-intensity exercise, the *p*-value for BDNF was 0.00012 and for Irisin 0.00006 ($p < 0.05$). In the high-intensity condition, the *p*-value for BDNF was 0.00085 and for irisin also 0.00006 ($p < 0.05$). Spearman's correlation analysis indicated a strong positive correlation between BDNF concentration and subjective high-intensity physical activity ($r = 0.9035$), and a moderate correlation between Irisin concentration and subjective high-intensity activity ($r = 0.607$).

Conclusions. Regardless of exercise intensity, myokine concentrations increased significantly, indicating that both low- and high-intensity physical activity can stimulate myokine release. Notably, perceived exertion during high-intensity exercise showed a strong positive correlation with BDNF levels, suggesting that subjective effort may be closely linked to neurotrophic signaling. In contrast, irisin concentrations exhibited a weaker correlation with perceived intensity, indicating a less pronounced relationship.