OP5-2
Rating of perceived exertion in active young people: effect of chronotype

A. Mulè[1], L. Galasso[1], L. Castelli[1], M. Borrelli[1], A. Montaruli[1,2], F. Esposito[1,2], E. Roveda[1,2]

[1]*Department of Biomedical Sciences for Health, University of Milan, Milan, Italy;*
[2]*IRCCS, Istituto Ortopedico Galeazzi, Milan, Italy*

Purpose: The differences existing between individuals are determined by different expression of the circadian rhythmicity. In this way, individuals display preferences to be active at certain time of the day and based on these differences, they can be classified in three different chronotypes: M-, N- and E-types. Although several authors have investigated the relationship between circadian rhythms and sport-related variables, few studies have specifically evaluated the relationship between chronotype and sports performance. The study aimed to evaluate the effect of chronotype on aerobic performance, heart rate (HR) and Rating of Perceived Exertion (RPE).
Methods: 101 students attending the Motor Sciences School, University of Milan, participated to the study. The Morningness-Eveningness Questionnaire (MEQ) was administered to determine their chronotype. To investigate the effect of chronotype on aerobic performance, HR and RPE, 22 participants (11 M-types, 11 E-types) performed the Cooper test at 9 a.m. and at 5 p.m. Before and after the Cooper test, the RPE was detected using the Borg Scale CR0-10.
Results: M-types perceived less effort in the morning compared to the afternoon session ($p < .05$), both before (CR-10: 1.1 ± 0.8 vs 2.5 ± 1.3) and after exercise (CR-10: 7.4 ± 1 vs 8.6 ± 1). E-types felt more fatigued in the morning than in the afternoon session ($p < .05$), both before (CR-10: 2.4 ± 1.4 vs 1.1 ± 1.1) and after exercise (CR-10: 8.4 ± 0.6 vs 7.5 ± 0.7). Moreover, in the morning session, E-types had a greater perception of the effort (CR-10: 2.4 ± 1.4 vs 8.4 ± 0.6) than M-types (CR-10: 1.1 ± 0.8 vs 7.4 ± 1). By contrast, in the afternoon session, M-types showed higher RPE values (CR-10: 2.5 ± 1.3 vs 8.6 ± 1) than E-types (CR-10: 1.1 ± 1.1 vs 7.5 ± 0.7). No differences were found for Cooper Test and HR.
Conclusions: M-types perceived higher effort in the afternoon session, by contrast, E-types showed an opposite trend and were more fatigued in the morning session. Then, the possibility to schedule the experimental sessions based on subject's chronotype to obtain the best performances may be useful to the coach to plane tailored training programs.

References

1. Montaruli A et al. (2017) The circadian typology: the role of physical activity and melatonin. Sport Sciences for Health 13: 469-476
2. Roveda E et al. (2017) Predicting the actigraphy-based acrophase using the Morningness-Eveningness Questionnaire (MEQ) in college students of North Italy. Chronobiology International, 34: 551-562