

Chronotype influences the perception of effort in relation to an aerobic physical test in different times of day

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Aim: The purpose of this study is to evaluate if the chronotype could influence the physical performance, the response of the heart rate and the perception of effort before and after physical activity performed in different times of the day.

Be Morning-type or Evening-type is indicative of a strong trend in being active in the first third of the day or morning (Morning-types), in the second third of the day (Neither-types) or the last third of the day or night (Evening-types) (Vitale JA., et al., 2015).

Methods: 502 subjects compiled the Horne-Ostberg Morningness-Eveningness Questionnaire for the assessment of chronotype obtained by comparing the scores of the questionnaire with the scale of Morningness-Eveningness of Horne & Ostberg (Horne J. A. & Ostberg O., 1976).

From this sample we recruited 27 subjects (mean age = 21.3; SD = 2.37) that performed twice the Cooper Test, in the morning (08.30 a.m.) and in the afternoon (04.00 p.m.).

They wore a heart rate monitor (Polar S810) to detect the heart rate during the test. To evaluate the perception of effort we used the CR-10 Borg's scale.

Results: There were no statistically significant differences between M-types and E-types in the heart rate response and in the results of the physical test in both sessions. Referring to the perception of effort there is a statistical difference between subjects M-type and E-type for the values reported both in the morning ($p < 0.05$) and in the afternoon session ($p < 0.05$) following the taking of the Cooper's Test.

Conclusions: The results suggest that the chronotype can influence the perception of effort before and after the execution of an aerobic test performed at different times of day.

References:

1. Vitale JA., et al., (2015). Chronotype influences activity circadian rhythm and sleep: differences in sleep quality between weekdays and weekend. *Chronobiol Int. Apr* 32 (3): 405-15

2. Horne JA. & Ostberg O., (1976). A self-assessment questionnaire to determine morningness-eveningness in human circadian rhythms. *International Journal of Chronobiology* 4 (2): 97-110.