Influence of the previous cycling experience on psychophysiological parameters obtained from perceived exertion scales during aerobic and anaerobic tests

Emanuel E.C. Polisel*, Leonardo H.D. Messias, Fúlvia B. Manchado-Gobatto.

Abstract

This study investigated the effect of previous cycling experience on psychophysiological parameters from aerobic and anaerobic tests. In this sense, while no difference in such parameters were visualized in both tests, significant differences were obtained in terms of physiological parameters (aerobic capacity and anaerobic power). In summary, it seems that only physiological parameters are dependent on the previous cycling experience.

Key words:

Cycling experience, psychophysiological parameters, physiological evaluation

Introduction

The use of rate of perceived exertion scales (RPE) like proposed by Borg (1982), Foster et al (2001) and the Estimated Time Limit (ETL) Garcin et al.,(2012) are considered valid tools for measurement of psychophysiological parameters during exercise. However, despite the previous exercise experience has been considered relevant for determination of physiological and biochemical variables (Marsh et al., 1999), a few informations are available regarding its influence on the RPE_{Borg} , RPE_{Foster} and RPE_{ETL} in aerobic and anaerobic evaluations. Therefore, the aim of this study was to investigate the effect of the previous cycling experience on psychophysiological parameters obtained from aerobic and anaerobic evaluation.

Results and Discussion

- **Sample** – Ten healthy men subjects were divided in two groups according to the previous experience in cycling exercise.
- Group 1 – $n=5$ – 20 ± 2 years $69,0 \pm 7,7$ kg $1,7 \pm 0,1$ m
- Group 2 – $n=5$ – 22 ± 8 years $82,6 \pm 15,2$ kg $1,8 \pm 0,0$ m
- **Ergometer** – Monark ergomedic 894e
- **Aerobic evaluation (Incremental test)** – Initial workload 50 W; increments 25 W; stages 3 min; cadence 80 rpm;
- **Anaerobic evaluation (Wingate Anaerobic Test)** – maximal effort 30-s; workload 7,5% of body mass;
- RPE_{Borg} , RPE_{Foster} and RPE_{ETL} - Applied at each stage of incremental test;
- RPE_{Borg} - Applied after the Wingate Anaerobic Test at each minute until the 12°.

Table 2. Peak power (P_{Power}), mean power (M_{Power}) and fatigue index (FI) obtained from the Wingate Anaerobic Test

	P _{Power} (W)	M _{Power} (W)	FI (%)
G1 – Non-Experienced (n=5)	693,4 ± 170,7	429,4 ± 64,0	55,9 ± 13,3
G2 – Experienced (n=5)	1012,6 ± 214,6	561,9 ± 74,9	61,7 ± 10,4
P	0,015	0,014	0,445

Figure 1. Rate of perceived exertion scales during the aerobic and anaerobic evaluation.

Conclusions

In conclusion, while the psychophysiological parameters were not affected by the previous cycling experience, higher levels of aerobic capacity and anaerobic power were observed for the experienced individuals.

Acknowledgement

We would like to the Programa Institucional de Bolsas de Iniciação Científica – PIBIC - CNPq (process nº 136048/2016-1).

Marsh, A. P.; Martin, P. E.; e Foley K.O. *Med. Sci. Sports. Exerc.* **2000**, 32, 1630-1634.