EVOLUTION OF ENERGY COST OF RUNNING DURING CYCLE-RUN SUCCESSION IN ELITE YOUNG TRIATHLETES

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INTRODUCTION
Cycling-run transition is a key moment in triathlon competition. The oxygen cost of running (OC) has been studied previously in senior triathletes (1-3). The aim of this study was to compare OC during cycle-run succession with OC during isolated run in Spanish young triathletes.

MATERIAL AND METHODS
Six elite triathletes (15.2±0.8 years; 60.8±6.2 kg; 173.7±6.4 cm; 78.2±4.0 ml/min/kg), classified between 1st and 8th in the Spanish National Championships, participated in the study.

Experimental protocol consisted of two trials performed in random order. In trial 1 (C-R) subjects completed 30 min cycling at 3.5 W/kg on a cyclergometer. Immediately after, subjects run 3000m as fast as possible on a 400m court. Trial 2 (R) consisted of running 3000m as fast as possible. All cardiorespiratory variables were measured with a portable metabolic system (Jaeger Oxycon Mobile) and OC was calculated each 400m using the formula of di Prampero (4).

A two way ANOVA (exercise x lap) with repeated measures was performed in order to assess the difference between C-R and R. The level of significance was fixed at p<0.05.

RESULTS
Global effect of exercise: No significant differences were observed for OC comparing C-R and R, with higher values for R. In the same way, VO2 and VE showed no differences. The relationship between VE/VO2 and HR were significantly lower during R, and faster results in the 3000m run were found during R.

Interaction between factors: Significantly lower results during R were found for VO2, VE, OC and HR in the first lap. Between 4th and 7th laps, speed was lower during C-R.

DISCUSSION
Absence of differences between C-R and R for OC are not consistent with those presented by others authors (1-3). This could be due to differences in subject's performance level or protocol used. Also, we can not exclude the possibility that prefatigue during cycling was not high enough to generate alterations in running economy.

Thus, we conclude that elite young triathletes does not experience an impairment of running economy during cycling-run succession, although more research is needed to know if this response is consequence or not of performance level.

REFERENCES

Keywords: Running, Triathlon

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