

ANALYSIS OF HEART RATE RESPONSE TO THREE DIFFERENT WEIGHT TRAINING PROTOCOLS

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INTRODUCTION

Several studies have examined the role of gender and how it influences physiological responses to aerobic exercise and nowadays circuit weight training is the new issue being studied (1-3). Heart rate in circuit training has been used to find a relationship with the oxygen uptake (4) and to predict energy expenditure (5).

The aim of this project was to observe if significant differences existed in the cardiodynamic response among three weight training protocols.

MATERIAL AND METHODS

15 men and 14 women participated voluntarily in the study performing three different circuit training protocols at 70% of 15 repetition maximum (RM): free weight training (FW), machines circuit (M) and a mix circuit (MC) combining aerobic and free weight training. These circuits included eight exercises with 15 repetitions each and ten seconds between exercises and a cadence of 1:2. All the subjects completed three laps to the circuit. Heart rate (HR) data were collected with a Polar® heart rate monitor (Polar Electro, Kempele, Finland). To adjust the intensity a 15RM test was performed before the study as well as a maximal test to standardize the intensity in the MC.

RESULTS

Significant differences existed in the HR response between men and women in M and FW. When compared the three different circuits we also found differences among them as in men as in women. Focused on one gender, in women it was not observed a cumulative effect of the effort, without differences in HR among circuits or laps. On the other hand we could observe this effect in men. In this case, there exists significant differences between lap 1 and 3 in FW and CM, but also there are differences in the first lap between M and MC. All significant differences were set at $p < 0.05$.

DISCUSSION

Although the intensity of the exercise (65% of 1RM) was similar as in Ortego et al. we found differences between men and women in M. It is important to note that they performed the exercise at different rhythm (1). However the cumulative effect of the effort is similar in both studies. To our knowledge, the present study is the first to compare the acute effects of gender and type of circuit on HR response.

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