

CARDIOMETABOLIC RESPONSES TO A BATTLING ROPE HIGH INTENSITY INTERVAL TRAINING PROTOCOL

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Introduction: Battle rope training, consisting on vigorously undulating a rope with the upper body, has become a popular cardiovascular training choice, due the growing popularity of extreme conditioning programs (ECPs; e.g. Crossfit, Insanity, Elements™, and others). Despite widespread use, little is known about the cardiometabolic demands of battle rope training.

Methods: Eight healthy and physically active male (age = 30.4 ± 4.2 years, height = 1.76 ± 0.05 m, body mass = 77.1 ± 9.3 kg, fat mass = 15.53 ± 6.35 %), with no history of upper body or trunk injury in the last 6 months, completed a treadmill test for maximal oxygen uptake. On the second testing session, subjects completed a battle rope interval training protocol, similar to those used by Tanisho et al.: 10 sets of 10-second maximal effort of double arm waves, with 20-second recovery periods. They used a 15 m rope anchored to a post, resulting in the participant holding 7.5 m of rope in each hand. A Wilcoxon Test was used to compare the different measurements assessed in both, treadmill test and battle rope interval training protocol. Values of $p \leq 0.05$ were considered statistically different.

Results: The average heart rate for the workout (175 ± 10 bpm) was significantly lower than the maximum heart rate (189 ± 9 bpm), representing the $93.5 \pm 2.1\%$ of it ($Z = -2.10$; $p = 0.036$). In addition, the average peak $\dot{V}O_2$ for the workout (46.2 ± 4.1 ml·kg⁻¹·min⁻¹), was significantly different from the maximum $\dot{V}O_2$ (53.0 ± 4.6 ml·kg⁻¹·min⁻¹), representing the $87.2 \pm 10.5\%$ of it ($Z = -2.521$; $p = 0.012$).

Discussion: The results of this study suggest that an acute 5-minute interval protocol of battle rope training is a vigorous-intensity workout, resulting in very high heart rates. Our results are similar to those reported by Fontaine & Schmidt, and to other alternative modes of cardiovascular training used in ECPs, like kettlebell training. In a population similar to our study, a high intensity kettlebell workout, consisting of 35 second standard swing intervals followed by 25 seconds rest intervals, resulted in average heart rates of

Despite no significant difference we propose managing the tendinopathy with eccentric exercises during the competitive season to avoid deterioration. **Mail to:** C. Sosa csosa@clubestudiantes.com.