THE INTAKE OF MENTHOL SUBSTANCE DOES NOT INDUCE IMPROVEMENTS IN FUNCTIONAL FITNESS PERFORMANCE. A RANDOMIZED AND CONTROLLED STUDY

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Introduction

Non-Olympic sports modalities like Crossfit® are growing in numbers of practitioners, and although not all participants seek competitive athleticism, everyone aims to improve performance at elevated recreational levels [1]. Therefore, ergogenic resources in general are targeted by recreational and competitive practitioners of functional fitness, as well as in other modalities.

It is then articulated that athletic performance can be lawfully influenced by the effects of the application or ingestion of menthol-flavored refreshing substances (Menthol) directly in the oral cavity, through rinsing or gargling, or by proper ingestion [2-4]. This technique had already been applied in previous studies with carbohydrates and caffeine, showing significant results [5]. So, when we analyze performance from the specific perspective of functional fitness, along with different manifestations of strength, the available data on the use of menthol as a performance-enhancing substance is still scarce, warranting further investigation.

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Objective

Determine the influence of the ingestion of a menthol substance or control on performance time, number of repetitions, perceived exertion (PE), and heart rate in a circuit protocol of functional fitness.

Methods

18 adults of both sexes, physically active, were recruited in a Functional Fitness box in the city of Anápolis. The research was conducted over a total of four visits. On the first visit, the sample was characterized, as well as a VO2max test (3,200-meter field protocol). On the second visit, maximum strength tests (1RM) were conducted for the movements performed in the experimental procedure. The last two visits dealt with the experimental procedure. These were randomized by drawing between two distinct procedures: a) ingestion of water with a menthol mixture (0.1 mL); b) ingestion of pure water. The participants only knew what they were ingesting at the beginning of the procedure, where they were asked to drink the total content (500mL), a 200 mL cup before the start of the experiment. Shortly after the start, water intake was allowed "ad libitum." For the workout, the outcomes measured were total time, number of repetitions, perceived exertion, and continuous heart rate.

The "DT" Workout, characterized as a Benchmark (predetermined protocol) established by the Crossfit® method, was used during both interventions, experimental and control. The work performed was: 5 rounds of 12 repetitions of deadlift, 9 repetitions of hang power clean, and 6 repetitions of the push jerk movement. The load for performing the workout was set at 60% of 1RM. The maximum time for completion was 15 minutes.

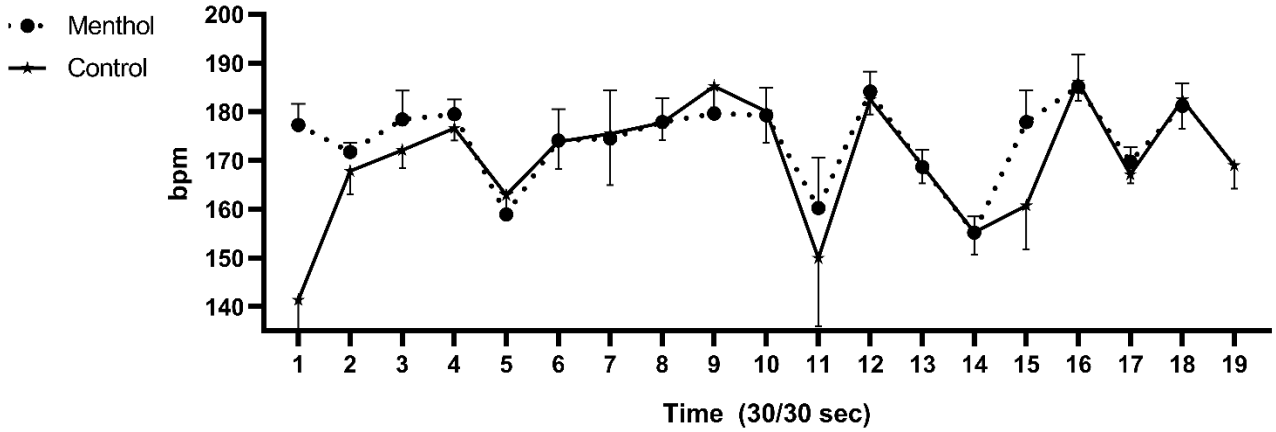
A paired T-test was used for the general analysis of performance between groups. The non-parametric Wilcoxon rank test was used for comparison between the dependent variables. A statistical significance of p = 0.05 was adopted.

Results

The experimental group showed an average of 7.10 ± 1.6 min with the additional use of menthol, versus 7.24 ± 2.4 min for the control group. This scenario shows us that there were no significant differences when comparing performance with or without the influence of menthol substance and control in the general group ($p = 0.5422$). The Wilcoxon test did not show significant differences when we individually analyzed male versus female performance ($p < 0.05$).

There were no significant differences when comparing the overall behavior of HR and RPE between conditions ($p > 0.05$; $p = 0.7318$, respectively). Figure 1 presents the results of FC behavior in response to the DT protocol.

Figure 1. Behavior of HR in response to the experimental and control procedures



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Conclusion

It is concluded that performance was not influenced by the use of the administered mental substance. Furthermore, this substance did not show any modification in the behavior of HR and RPE throughout the DT Workout.

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