Investigating the effect of caffeine on metabolic and cardiovascular responses to submaximal activities in men athlete performing aerobic practices

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Введение

Caffeine is obtained from alkali plants and belongs to methylxanthines class. Methylxanthines include theophylline and theobromine. In liver, caffeine is metabolized through cytochrome enzyme system of p430. Caffeine is rapidly absorbed from the digestion path and within 20 minutes. About 40 to 60 minutes later, the climax of caffeine's plasma concentration is obtained and its half-life is about 3 to 5 hours. Caffeine passes through blood-brain barrier (BBB) as well as placenta. Antagonism of adenosine receptors, preventing the activity of phosphodiesterase (is an enzyme that breaks a phosphodiester bond in cAMP), increasing calcium and antagonism of benzodiazepines receptors are considered as the proposed mechanism of physiological efffects.

Цель исследования

The purpose of the study is to examine the effect of caffeine on metabolic and cardiovascular responses to submaximal activity in men athlete performing aerobic practices.

Материалы и методы

The statistical population included 20 men athletes performing aerobic divided into two 10-people groups. Both groups were evaluated in the first session and their height, weight, fat percentage, BMI, and oxygen consumed during the practices were measured with 75% of their maximal. Then, after passing a night before the treatment in fasting status for 10 hours, in the first group, caffeine capsule (5 mg for 1 kg of body weight) and in the second group, a placebo was used with 200 ml water. They passed one hour in sitting position and until reaching to the heart rate of 75% of the maximal, they ran on the treadmill based on continuous incremental protocol. . The present work was a quasi-experimental double-blind study. The statistical population included men students of Karaj Azad University performing aerobic exercises. The statistical sample involved 20 people who were divided into an experimental group (10 people) and a control group (10 people). Methods of stat and sign level is p less 0,05.

Результаты

Athletes continued to this trend for 15 minutes and finally, the mount oxygen consumed during the activity, heart rate, systolic and diastolic blood pressure, and blood lactate level after the activity in the two stages (the stage with placebo and the stage without placebo) were measured and recorded According to the research findings, it can be stated that: • Under the experimental conditions, consuming caffeine has increased heart rate; • consuming caffeine has not had any effect on systolic and diastolic blood pressure in men aerobic athletes; • Under the experimental conditions, consuming caffeine has increased consumed oxygen; • Consuming caffeine has not had any effect on blood lactate in men aerobic athletes

Выводы

Given to the present research findings, consuming caffeine has no significant effect on performing exercises; accordingly, it is not recommended for improving athletes' performance