

# Abstract

## Title:

Effects of single beta-alanine dose on performance at submaximal load

## Objectives:

The aim of this study was to investigate the effects of single beta-alanine dose on blood-lactate level in capillary blood and whether it will affect the speed of passing the test.

## Methods:

A double-blinded cross-over study conducted on 16 male students of Military Department at the Faculty of Physical Education and Sports of Charles University (mean  $\pm$  SD: weight 79,31  $\pm$  6,97 kg; height 181,56  $\pm$  6,36 cm; age 21,63  $\pm$  1,45 yrs). The study was performed in Military Sport Centre Pilotů 217/12, 161 00, Prague. Each volunteer underwent two performance tests after consuming either placebo (maltodextrine) or beta-alanine (50 mg/kg). Time needed to complete the test and blood-lactate concentration before and during 5th and 10th minute after completion was measured. Volunteers also filled a short questionnaire regarding subjectively perceived load and side effects, and whether they were administered beta-alanine (BA) or placebo (PLA). For verification of normal distribution were used Q-Q Plots and statistical significance of BA use was determined using student's t-test.

## Results:

Measured lactate concentrations were (mean  $\pm$  SD; mmol/l) for BA in min 0 = 1,29  $\pm$  0,37; min 5 = 11,48  $\pm$  1,45; min 10 = 10,64  $\pm$  1,76; PLA in min 0 = 1,17  $\pm$  0,14; min 5 = 11,14  $\pm$  1,58; min 10 = 9,99  $\pm$  1,83. Time BA (in s) = 73,56  $\pm$  4,04; PLA = 72,74  $\pm$  3,22. Statistical significance ( $p < 0,05$ ) **was not** found for any tested variants (group  $\times$  LA min 0, 5, 10; group  $\times$  time to completion), or for subjectively perceived load. However, 4 participants specifically reported better feelings post-run. 9 volunteers experienced paresthesia symptoms after using BA, while 5 of them reported them as strongly unpleasant.

## Keywords:

beta-alanine, lactate, submaximal performance, supplementation, metabolic acidosis