Artigo: Desempenho cognitivo e exercício

Alguns estudos tem demonstrado que o desempenho cognitivo diminui após o exercício fatigante, porem tem sido sugerido que os aminoácidos de cadeia ramificada ajudam a aliviar estes efeitos. Pesquisadores realizaram um estudo medindo 12 atletas de tae-kwon-do que executaram exercício fatigante e, em seguida, forneceram dois suplementos diferentes para eles, sendo um deles aminoácidos e o outro, um placebo. Um sistema MP150 BIOPAC foi utilizado para medir EMG dos atletas durante o exercício.

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Branched-chain amino acids, arginine, citrulline alleviate central fatigue after 3 simulated matches in taekwondo athletes: a randomized controlled trial

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Abstract

Background: The decline in cognitive performance has been shown after fatiguing exercise. Branched-chain amino acids (BCAA) have been suggested to alleviate exercise-induced central fatigue. Arginine and citrulline could remove the excess NH_3 accumulation accompanied with BCAA supplementation by increasing nitric oxide biosynthesis and/or urea cycle. The purpose of this study is to investigate the effect of the combined supplementation of BCAA, arginine, and citrulline on central fatigue after three simulated matches in well-trained taekwondo athletes.

Methods: In a double-blind randomized cross-over design, 12 male taekwondo athletes performed two trials containing three simulated matches each. Each match contained three 2-min rounds of high-intensity intermittent exercise. At the end of the second match, two different supplementations were consumed. In the AA trial, the subjects ingested 0.17 g/kg BCAA, 0.05 g/kg arginine and 0.05 g/kg citrulline, while placebo was consumed in the PL trial. A validated taekwondo-specific reaction test battery was used to measure the cognitive performance after each match.

Results: The premotor reaction time in the three single-task tests and the reaction time in the secondary task in the dual-task test were maintained in the AA trial after three matches, while they were impaired in the PL trial, resulting in significantly better performance in the AA trial. These improvements in the AA trial coincided with significantly lower plasma free tryptophan/BCAA ratio, increased NO_x concentrations, and similar NH_3 concentrations.

Conclusions: This study suggested that the combined supplementation could alleviate the exercise-induced central fatigue in elite athletes.

Keywords: Premotor reaction time, Dual task, Tryptophan, Taekwondo

Abbreviations: BCAA, branched-chain amino acids; CI, confidence interval; EMG, Electromyography; NEFA, non-esterified fatty acids; NO, nitric oxide; PRT, premotor reaction time

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