

Abstract

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Effect of omega-3 and policosanol supplementation on attention and reactivity in athletes.

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OBJECTIVE: The purpose of this study was to determine the effect of omega-3 fatty acids and policosanol supplementation on the cognitive processes involved in the control of reactivity in karateka engaged in attention tests.

METHODS: Eighteen karateka were randomly assigned to 2 groups. One group (10 subjects) took the supplement of omega-3 fatty acids (2.25 g) plus policosanol (10 mg) (O3 + P) for 21 days, and the other group was supplemented with placebo (oleic sunflower oil). Subjects were tested at the beginning of the experiment (Test 1), after 21 days (Test 2), and after 42 days (Test 3). The experimental procedure consisted of an Alert and a Sustained Attention (SA) reaction time test: the subject had to react by pressing a key of a computer keyboard in Alert and a sequence of 3 keys in SA in response to stimuli, activating a complex go/no-go paradigm. For each test, we recorded the reaction time and the event-related potentials by electroencephalogram and electromyography (EMG) of the forefinger flexor muscle. The Profile of Mood States (POMS) test was also administered.

RESULTS: After 21 days of supplementation, subjects who received O3 + P showed a reduced reaction time and increased vigor sensation associated with a reduction of the negative states measured with the POMS test. Analysis of the event-related brain potentials showed a reduced latency of the movement-related brain macropotentials. In particular, the potentials recorded in the premotor period and motor period occurred earlier and the latency of EMG activation was reduced. In the third test, 21 days after the last O3 + P supplementation, the positive effects on the mood state persisted, while the reaction time, EMG, and brain potential latencies increased, although their values remained lower than in the first test. The placebo group did not show any significant differences in Tests 2 and 3 compared to Test 1 for either POMS or reactivity and brain potentials.

CONCLUSIONS: Supplementation with O3 + P may be effective in improving mood state and reactivity. The reaction time reduction appears to be due to a central nervous system effect, as shown by the reduced latency of movement-related brain macropotentials and EMG activation. These results are in line with previous experiments.

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