The effect of six weeks supplementation of Oolong tea extracts on body composition and physical performance in wrestling athletes

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Introduction

Partially-fermented/oxidized Oolong tea is widely consumed beverages in the Chinese population. A number of studies [1,2] have shown that oolong tea also exert anti-obesity effect. In this study the possible benefits of dietary supplements--Oolong tea extracts in reduction of body fat and maintenance of physical performance in athletes belong to weight division disciplines were investigated.

Methods

Twenty six male wrestling athletes (19.0 ± 2.5 years old) were assigned in a double-blind placebo controlled study to either an Oolong extract treatment (OTG, n = 13) group or a placebo control (PC, n = 13) group. Subjects were involved in a preseason conditioning program. The OTG group ingested 400 mg of Oolong tea extracts (water extraction) capsule three times a day for 6 weeks. The PC group followed the same supplementation schedule but was given a placebo. Athletes were asked to avoid food and beverages containing caffeine for 6 weeks of supplementation period. The nutritional status was evaluated in the seven separate occasions during the week 0 and during weeks 1 to 6 of the supplementation period, basing on anthropometrical indices: (height, weight) and body composition analysis using BIA technique. The measurements were conducted in morning hours. Energy expenditure was assessed by the non-invasive method of 24h monitoring of heart rate. The evaluation of the nutritive value of the athlete’s diet was conducted by 24-hour dietary recall. Each subject in the week 0 and during weeks 3 and 6 performed maximal incremental exercise tests on a cycle ergometer with a 15W/min increment until volitional fatigue (VO2max). In two days later the athletes performed endurance cycle ergometer test to exhaustion at 70% VO2max, to determine the effect of Oolong tea extract ingestion on endurance performance (time to exhaustion), RER and substrate utilization (%FAT, %CHO, %PRO).

Results

Pre-supplementation data:
The mean (+/- SE) age, height, body weight, percentage fat and free fat mass, VO2max in OTG and PG groups were: 18.0 +/- 0.5 yr vs. 19.5 +/- 1.0 yr; 178.0 +/- 1.0 cm vs. 178.0 +/- 2.0 cm; 83.2 +/- 2.5 kg, vs. 82.4 +/- 5.4 kg; 19.8 +/- 1.9% vs. 20.7 +/- 2.4%; 80.2 +/- 1.9% vs. 79.3 +/- 6.6% and 42.3 +/- 1.4 ml x min^-1 x kg^-1 vs. 43.3 +/- 2.1 ml x min^-1 x kg^-1 respectively. The body mass significantly decreased (p<0.01) in OTG group after 6 wk of the Oolong tea extract treatment in compared with PC group (-1.1 +/- 0.3 kg (-1.3%) vs. 0.6 +/- 0.4 kg (0.8%).

After six weeks treatment period in the OTG group vs. PC group significantly (p<0.05) decreased body fat mass (OTG: -4.2 +/- 0.8 kg (-12.3 %) vs. PC: -0.1 +/- 0.9 kg (-6.3%)). Statistical significant (p<0.05) differences in VO2max (ml x min^-1 x kg^-1) were observed before and post period of treatment in OTG group (week 0: 42.3 +/- 1.4 ml x min^-1 x kg^-1, week 6: 43.6 +/- 1.5 ml x min^-1 x kg^-1).

Fig. 1: Effect of oolong tea extracts vs. Placebo supplementation on weight loss from the start (week 0) to the end of sixth week period (week 6)

Fig. 2: Effect of oolong tea extracts vs. Placebo supplementation on fat loss from the start of treatment (week 0) to the end of sixth week period (week 6)

Discussion/Conclusion

These results suggested that Oolong tea extracts can be recommended as natural dietary supplements useful for maintaining low content of body fat in athletes.

References