The effect of almond consumption on elements of endurance exercise performance in trained athletes.

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Abstract:
Background

Almonds are a healthy tree nut food with high nutrient density. Their consumption has been shown to ameliorate oxidative stress, inflammation, etc. The objective of the study was to examine the effect of almonds on elements of endurance exercise performance in trained athletes.
Methods

A 10-week crossover, placebo controlled study was conducted. Eight trained male cyclists and two triathletes were randomly assigned to consume 75 g/d whole almonds (ALM) or isocaloric cookies (COK) with equal subject number. They consumed the assigned food for 4 wks and then the alternate food for another 4 wks. They underwent 3 performance tests including 125-min steady status exercise (SS) and 20-min time trial (TT) on an indoor stationary trainer at the start of the study (BL) and at the end of each intervention phase. Venous blood was collected in the morning prior to the performance test for biochemical measurements and finger blood during the test for glucose determination. Carbohydrate and fat oxidation, energy expenditure, and oxygen use were calculated using respiratory gas analysis.
Results

ALM increased cycling distance during TT by 1.7 km as compared BL (21.9 vs. 20.2 km, $P = 0.053$) and COK increased 0.6 km (20.8 vs. 20.2 km, $P > 0.05$). ALM, but not COK, led to higher CHO and lower fat oxidation and less oxygen consumption during TT than BL ($P < 0.05$), whereas there was no significant difference in heart rate among BL, ALM and COK. ALM maintained higher blood glucose level after TT than COK ($P < 0.05$). ALM had higher vitamin E and