

EFFECTS OF FASTING ON ENDURANCE EXERCISE IN ADULT
MALES: PRELIMINARY EVIDENCE FOR A "NOCEBO" EFFECT

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The literature has repeatedly reported a negative effect of fasting on endurance exercise in humans. The goal of this study was to test the hypothesis that endurance performance is susceptible to a "negative placebo" or "nocebo" effect of early (24-h) fasting. Twelve physically-fit, young adult males performed an endurance performance test under each of three conditions: after a 24-hour fast (A), after a 24-hour fast ingesting non-caloric liquid meals (B), and in the postabsorptive state (C). The tests consisted of pedalling the maximum distance in 60 minutes on a cycle ergometer at 2 kpm, and were separated by a minimum of one week. Subjects were allocated randomly to the different treatment condition orders. Plasma glucose and triglycerides were measured before and after each performance test. Performance was significantly lower ($p<0.05$) in A (29.19 ± 5.2 km) than C (32.19 ± 6.2 km). There was no significant difference between A or C, and B (30.57 ± 5.5 km). Subjects were euglycemic both before and after the tests under all three conditions. Triglyceride levels were higher before the test in condition C ($p<0.05$). Individual performances showed two distinct subgroups in this sample. For "susceptible" subjects, $C>A$ and $A<B$ ($p<0.05$); "non-susceptibles" showed $A=B=C$.

	Condition A	Condition B	Condition C
Susceptible (n=7)	28.04 ± 5.64	31.77 ± 5.87	32.46 ± 7.29
Non-susceptible (n=5)	30.80 ± 4.75	28.89 ± 5.20	31.83 ± 5.21

These data suggest that although fasting has a negative effect on endurance performance, this can be neutralized by making the subjects believe they are not fasting. Furthermore, some individuals are susceptible to the "nocebo" effect of fasting while others are not.

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