



The Effects of *Cordyceps sinensis* on Maximal Aerobic Capacity

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Introduction

Cordyceps sinensis (Cs) is a Chinese herb extracted from a nontoxic mushroom. Research has shown that this herb increases in ventilation and exercise capacity. Maximal oxygen consumption (VO_{2max}) is the maximum capacity of transportation and utilization of oxygen during incremental exercise. VO_{2max} is expressed in both absolute rate in liters of oxygen per minute (L/min) and relative rate in milliliters of oxygen per kilogram of body weight per minute (ml/kg/min). Research with Cs has shown to increase vasodilation, which increases the efficiency and rate of delivery of oxygen to the working tissues.

Purpose

The purpose of this study was to evaluate the effect of Cs on oxygen consumption values during maximal exercise.

Methods

Five female students (age 22 ± 1) of the Kinesiology department volunteered to participate in this study. For the study, Shroom TECH Sport, a supplement containing organic and pure Cs (S), was used as the supplement and sugar pills were used as a placebo/control (C).

Methods (cont'd)

Each subject performed a graded incremental to maximum exercise test on the treadmill until exhaustion twice, 45 minutes after taking either the Cs or the placebo. The order of which was randomized. During each test heart rate (HR) and rate of perceived exertion (RPE) were recorded as well as maximal values, such as absolute and relative VO_{2max} and minute ventilation (V_E), were measured by the metabolic cart. Each session was performed at least 48 hours apart to ensure recovery.

Results

The average maximal values for HR (S: 184.2 ± 4.1 bpm; C: 183.2 ± 3.9 bpm) and RPE (S: 14.8 ± 2.3 ; C: 15.4 ± 0.9) were not significantly different when exercising using the supplement or the control ($p > 0.05$). However, there was a statistically significant difference for relative VO_{2max} (S: 40 ± 10.3 ml/kg/min; C: 38.96 ± 10.5 ml/kg/min; $p = 0.015$) and absolute VO_{2max} (S: 2.46 ± 0.4 L/min; C: 2.39 ± 0.4 L/min; $p = 0.023$), as well as V_E (S: 72.23 ± 10.2 L/min; C: 65.95 ± 10.9 L/min; $p = 0.023$).

Results (cont'd)

Max Values	Age	Heart Rate (bpm)		Rate of Perceived Exertion		Relative VO_2 (ml/kg/min)		Absolute VO_2 (L/min)		Minute Ventilation (L/min)	
		Supplement	Control	Supplement	Control	Supplement	Control	Supplement	Control	Supplement	Control
1	21	188	186	15	15	31.2	30.3	2.06	2	67.79	55.22
2	23	179	178	15	15	33.9	32.4	2.16	2.06	60.42	57.45
3	21	185	186	17	15	50.1	50	2.98	2.98	84.16	80.36
4	23	188	186	16	17	32.6	31.3	2.37	2.27	81.57	74.04
5	22	181	180	11	15	52.2	50.8	2.73	2.66	67.23	62.68
p-value			0.142		0.573		0.015		0.023		0.023
Average	22	184.2	183.2	14.8	15.4	40	38.96	2.46	2.39	72.234	65.95
SD	1	4.1	3.9	2.3	0.9	10.3	10.5	0.4	0.4	10.2	10.9

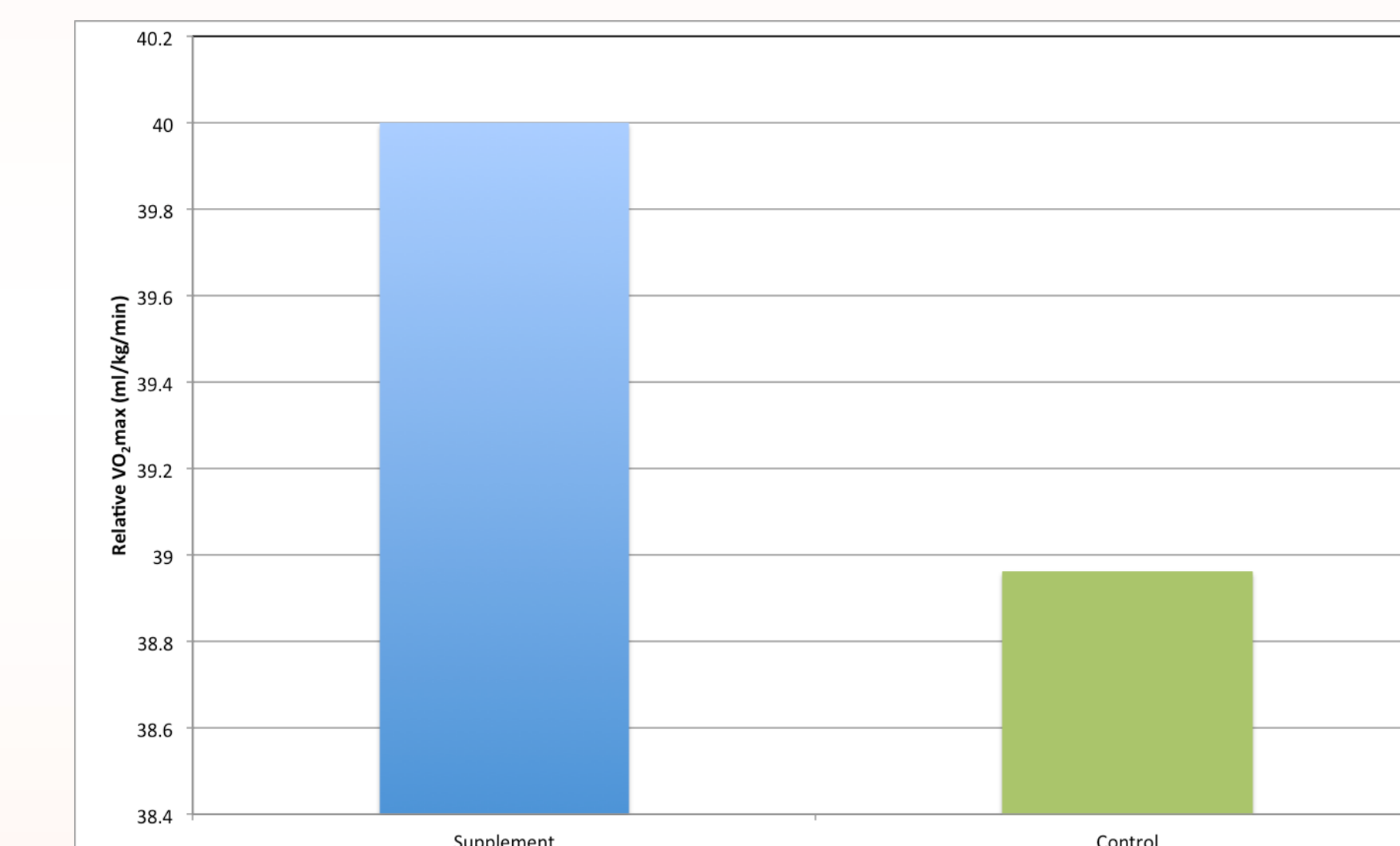


Figure 1: Difference Between Relative VO_{2max} Values During Exercise with Supplement or Placebo

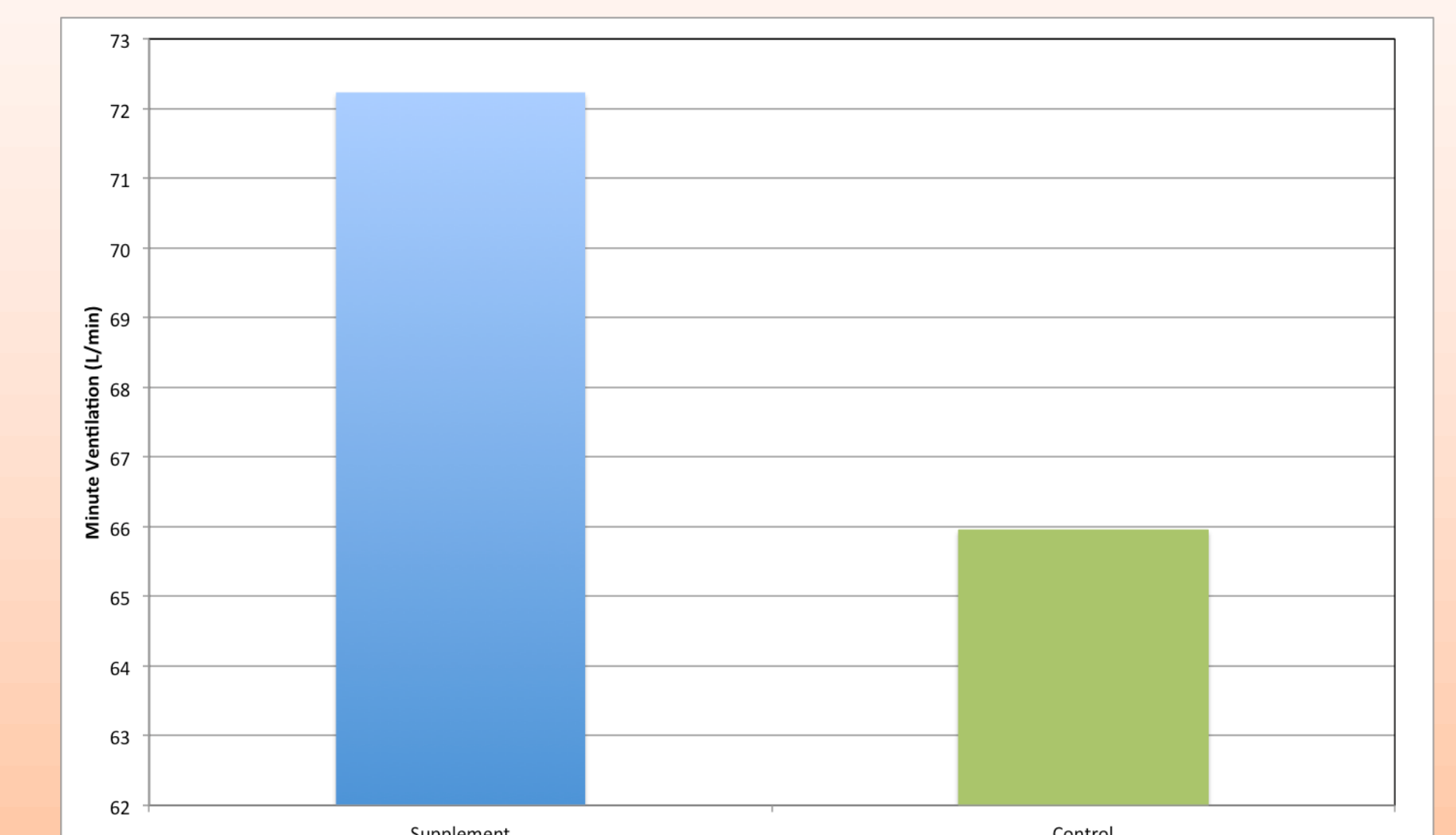


Figure 2: Difference Between Minute Ventilation Values During Exercise with Supplement or Placebo

Conclusions

The results of this study support the previous findings that Cs has a significant effect on VO_{2max} .