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# The Effects of an Acute Dose of *Rhodiola rosea* on Exercise Performance and Cognitive Function

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# The Effects of an Acute Dose of *Rhodiola rosea* on Exercise Performance and Cognitive Function

## Abstract

**Background:** The purpose of this study was to determine the effects of an acute oral dose of 3 mg/kg of *Rhodiola rosea* (*R. rosea*) on endurance exercise performance, mood, and cognitive function.

**Methods:** A total of 15 recreationally active college women ( $21.3 \pm 0.09$  y,  $56.1 \pm 6.3$  kg; mean  $\pm$  SD) participated in this study. 2–7 d after a familiarization trial subjects ingested in a double blind, random crossover manner, either *R. rosea* or a carbohydrate placebo 1 h prior to testing. Exercise testing consisted of a 10 minute warm-up, standardized to 80% of the average watts produced during the familiarization trial, followed by a 6 mile simulated indoor time trial on a Velotron electronic bicycle ergometer. Every 5 min during the time trial, subjects rated their level of perceived exertion using a BORG 10 pt scale. A blood sample was taken pre warm-up, 2 minutes post warm-up, and 2 minutes following completion of the time trial, and was analyzed for lactate concentration. Subjects also completed a Profile of Mood States (POMS) questionnaire and a Stroop's color test pre-warm up and following the completion of the time trial. Subjects returned to the lab 2–7 d later to repeat the testing with the other condition.

**Results:** A 3 mg/kg acute dose of *R. rosea* resulted in a shorter time to completion of the 6 mile time trial course (*R. rosea*  $1544.7 \pm 155.2$  s, Placebo  $1569.5 \pm 179.4$  s; mean  $\pm$  SD;  $p = 0.06$ ) as well as a lower average heart rate during the standardized warm up (*R. rosea*  $138.6 \pm 13.3$  bpm, Placebo  $143.7 \pm 12.4$  bpm; mean  $\pm$  SD;  $p = 0.001$ ). There were no significant differences between treatment conditions for rating of perceived exertion during the time trial. Both treatments resulted in a significant increase in the POMS fatigue score following exercise ( $p = 0.001$ ), as well as a significant improvement following exercise for the Stroop's test of incongruent words ( $p = 0.001$ ). No other significant differences between treatments were observed.

**Conclusion:** Acute *Rhodiola rosea* ingestion decreases the heart rate response to sub-maximal exercise, and appears to improve endurance exercise performance.

## Keywords

Sports Science, *Rhodiola rosea*, Herbal Supplement

## Disciplines

Other Medicine and Health Sciences | Sports Sciences

## Comments

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Poster presentation

## The effects of an acute dose of *Rhodiola rosea* on exercise performance and cognitive function

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A total of 15 recreationally active college women ( $21.3 \pm 0.09$  y,  $56.1 \pm 6.3$  kg; mean  $\pm$  SD) participated in this study. 2–7 d after a familiarization trial subjects ingested in a double blind, random crossover manner, either *R. rosea* or a carbohydrate placebo 1 h prior to testing. Exercise testing consisted of a 10 minute warm-up, standardized to 80% of the average watts produced during the familiarization trial, followed by a 6 mile simulated indoor time trial on a Velotron electronic bicycle ergometer. Every 5 min during the time trial, subjects rated their level of perceived exertion using a BORG 10 pt scale. A blood sample was taken pre warm-up, 2 minutes post warm-up, and 2 minutes following completion of the time trial, and was analyzed for lactate concentration. Subjects also completed a Profile of Mood States (POMS) questionnaire and a Stroop's color test pre-warm up and following the completion of the time trial. Subjects returned to the lab 2–7 d later to repeat the testing with the other condition.

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### Conclusion

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