

PubMed

Display Settings:  Abstract

[Am J Chin Med.](#) 2009;37(3):557-72.

## Chronic *Rhodiola rosea* extract supplementation enforces exhaustive swimming tolerance.

[Lee FT](#), [Kuo TY](#), [Liou SY](#), [Chien CT](#).

Department of Orthopaedic Surgery, Kuang-Tien General Hospital, Taichung, Taiwan.

### Abstract

We explored the effects and mechanisms of ***Rhodiola rosea*** extract supplementation on swimming-induced fatigue in rats. The concentrations of active components in ***Rhodiola rosea*** have been determined by high performance liquid chromatography-mass spectrometer. The ***Rhodiola rosea*** extract supplementation in water for 2-4 weeks was evaluated in male Wistar rats with 90-min unloaded swimming exercise and 5% body weight loaded swimming up to fatigue. We measured the fatigue biomarkers, including blood urea nitrogen (BUN), glutamic oxaloacetic transaminase (GOT) and glutamic pyruvic transaminase (GPT), lactate dehydrogenase (LDH), hepatic glycogen content, the activity of fat metabolism enzymes, sterol regulatory element-binding protein-1 (SREBP-1) and fatty acid synthase (FAS), the tissue oxygen content and ratio of red and white skeletal muscle fibers in rats. ***Rhodiola rosea*** significantly increased liver glycogen, SREBP-1, FAS, heat shock protein 70 expression, Bcl-2/Bax ratio and oxygen content before swimming. ***Rhodiola rosea*** supplementation significantly increased the swimming time in a dose-dependent manner and reduced swimming-enhanced serum BUN, GOT and GPT levels. The ratio of red and white muscle fibers was not altered after chronic ***Rhodiola rosea*** extract supplementation. Chronic ***Rhodiola rosea*** supplementation significantly improved exhaustive swimming-induced fatigue by the increased glycogen content, energy supply of lipogenic enzyme expressions and protective defense mechanisms.

PMID: 19606515 [PubMed - indexed for MEDLINE]

**MeSH Terms, Substances**

**LinkOut - more resources**