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## Anti-fatigue activity of the water-soluble polysaccharides isolated from *Panax ginseng* C. A. Meyer.

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### Abstract

**AIM OF THE STUDY:** *Panax ginseng* C. A. Meyer (**ginseng**) is a well-known Chinese herb often used in Asian countries for physical strength development. **Ginseng** polysaccharides are its active component and have a lot of pharmaceutical activities. However, anti-**fatigue** activity of **ginseng** polysaccharides has not yet been tested. The current study was designed to evaluate the anti-**fatigue** activity of **ginseng** polysaccharides (WGP) in an animal test for **fatigue** and compare the activities between the neutral (WGPN) and acidic (WGPA) portion in an attempt to determine whether the medicinal uses are supported by pharmacological effects.

**MATERIALS AND METHODS:** WGP, WGPN and WGPA were orally administrated to mice once daily for 15 days. Anti-**fatigue** activity was assessed using the forced swim test (FST) and serum biochemical parameters were determined by autoanalyzer and commercially available kits.

**RESULTS:** While all compounds were found to reduce immobility in the FST, the effect of WGPA was demonstrated in lower doses compared with WGP and WGPN. Moreover, the FST-induced reduction in glucose (GLU) and glutathione peroxidase (GPx) and increase in creatine phosphokinase (CK), lactic dehydrogenase (LDH) and malondialdehyde (MDA) levels, all indicators of **fatigue**, were inhibited by the corresponding doses of WGP, WGPN and WGPA.

**CONCLUSIONS:** **Ginseng** polysaccharides have anti-**fatigue** activity, also reflected in the effects on the physiological markers for **fatigue**. The acidic polysaccharide is more potent than the neutral polysaccharide.

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