**Panax Ginseng**

*Antioxidant effects of Panax ginseng C.A. Meyer in healthy subjects: a randomized, placebo-controlled clinical trial.*

Food Chem Toxicol 2011 Sep;49(9):2229-35 (ISSN: 1873-6351)

Kim HG; Yoo SR; Park HJ; Lee NH; Shin JW; Sathyanath R; Cho JH; Son CG

We investigated the antioxidant effects of Panax ginseng C.A. Meyer on healthy volunteers. In a double-blind randomized controlled design, 82 participants (21 men and 61 women) who were considered healthy by both objective and subjective health standard were divided into three groups, the control group and the groups received P. ginseng extract (1 or 2g/day) for 4 weeks. Serum level of reactive oxygen species (ROS), malondialdehyde (MDA), total antioxidant capacity (TAC), the activities of catalase, superoxide dismutase (SOD), glutathione reductase (GSH-Rd), and peroxidase (GSH-Px), and total glutathione content were determined before and after the trial. Administration of P. ginseng led to significant decreases in the levels of serum ROS and MDA. Notably, the total glutathione content and GSH-Rd activity considerably improved in the groups that received 2g of P. ginseng. No significant alterations were observed in TAC, catalase, SOD, and GSH-Px activities. In conclusion, our findings indicate that P. ginseng was shown to have antioxidant property. It enhanced the antioxidant defense mechanism in healthy populations and the results may reinforce the use of P. ginseng as a potential antioxidant supplement. [Copyright 2011 Elsevier Ltd. All rights reserved.].

*Electrocardiographic and hemodynamic effects of Panax ginseng.*

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Caron MF; Hotsko AL; Robertson S; Mandybur L; Kluger J; White CM

OBJECTIVE: To determine whether Panax ginseng ingestion can acutely or chronically alter electrocardiographic parameters: PR, QRS, QT, QTc, and RR intervals, and QT and QTc interval dispersion. Effects of P. ginseng on blood pressure and heart rate also were evaluated. METHODS: This is a prospective, randomized, double-blind, placebo-controlled study of healthy adults at the University of Connecticut. Thirty subjects were randomly allocated to receive 28 days of therapy with either P. ginseng extract 200 mg or placebo. Baseline 12-lead electrocardiograms (ECGs) were obtained. Subsequent ECGs were performed following study drug ingestion at 50 minutes, 2 hours, and 5 hours on days 1 and 28. Blood pressure readings were taken with each ECG. RESULTS: P. ginseng ingestion increased the QTc interval by 0.015 seconds on day 1 at 2 hours compared with the placebo group (p = 0.03). It also reduced diastolic blood pressure from 75 +/- 5 mm Hg at baseline to 70 +/- 6 mm Hg at the same time point (p = 0.02). The observed effects are not believed to be clinically significant. No other statistically significant changes were found in electrocardiographic or hemodynamic variables on days 1 or 28. CONCLUSIONS: P. ginseng, at doses of 200 mg of the extract daily, increases the QTc interval and decreases diastolic blood pressure 2 hours after ingestion in healthy adults on the first day of therapy.
**Effects of Panax ginseng on quality of life.**

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Ellis JM; Reddy P.

OBJECTIVE: To assess the time-dependent effects of Panax ginseng on health-related quality of life (HRQOL) by use of a general health status questionnaire. METHODS: Subjects were randomized in a double-blind manner to P. ginseng 200 mg/d (n = 15) or placebo (n = 15) for 8 weeks. The Short Form-36 Health Survey version 2 (SF-36v2), a validated general health status questionnaire, was used to assess HRQOL at baseline and at 4 and 8 weeks. HRQOL between the groups was compared by use of repeated-measures analysis of covariance. A p value <0.05 was considered statistically significant. RESULTS: There were no significant differences in baseline demographics and SF-36v2 scores between the groups. After 4 weeks of therapy, higher scores in social functioning (P. ginseng 54.9+/4.6 vs. placebo 49.2+/6.5; p = 0.014), mental health (P. ginseng 52.2+/7.7 vs. placebo 47.2+/7.3; p = 0.075), and the mental component summary (P. ginseng 51.3+/7.4 vs. placebo 44.3+/8.3; p = 0.019) scales were observed in patients randomized to P. ginseng; these differences did not persist to the 8-week time point. The incidence of adverse effects was 33% in the P. ginseng group compared with 17% in the placebo group (p = 0.40). Subjects given P. ginseng (58%) were more likely to state that they received active therapy than subjects given placebo (17%; p < 0.05). CONCLUSIONS: P. ginseng improves aspects of mental health and social functioning after 4 weeks of therapy, although these differences attenuate with continued use.

**Effects of a standardized ginseng extract on quality of life and physiological parameters in symptomatic postmenopausal women: a double-blind, placebo-controlled trial. Swedish Alternative Medicine Group.**

Wiklund IK, Mattsson LA, Lindgren R, Limoni C.


A randomized, multicenter, double-blind, parallel group study was performed to assess the effects of a standardized ginseng extract compared with those of a placebo on quality of life (QoL) and on physiological parameters in symptomatic postmenopausal women. Validated questionnaires [Psychological General Well-Being (PGWB) index, Women's Health Questionnaire (WHQ)] and Visual Analogue (VA) scales were used to assess the effects of the extract on QoL at baseline and after 16 weeks' treatment with either the ginseng extract or placebo. To assess the efficacy of ginseng on postmenopausal symptoms, physiological parameters [follicle-stimulating hormone (FSH) and estradiol levels, endometrial thickness, maturity index and vaginal pH] were recorded at the same
time points. Of the 384 randomized patients (mean age 53.5 +/- 4.0 years), the questionnaires were completed by 193 women treated with ginseng and 191 treated with placebo. With regard to the primary endpoint (total score of the PGWB index) the extract showed only a tendency for a slightly better overall symptomatic relief (p < 0.1). Exploratory analysis of PGWB subsets, however, reported p-values < 0.05 for depression, well-being and health subscales in favor of ginseng compared with placebo. No statistically significant effects were seen for the WHQ and the VA scales or the physiological parameters, including vasomotor symptoms (hot flushes). The positive effects of ginseng on health-related QoL in menopausal women should be further investigated. This study shows, however, that the beneficial effects of ginseng are most likely not mediated by hormone replacement-like effects, as physiological parameters such as FSH and estradiol levels, endometrial thickness, maturity index and vaginal pH were not affected by the treatment.

**Effects of Korean red ginseng on sexual arousal in menopausal women: placebo-controlled, double-blind crossover clinical study.**

J Sex Med 2010 Apr;7(4 Pt 1):1469-77 (ISSN: 1743-6109)

Oh KJ; Chae MJ; Lee HS; Hong HD; Park K

INTRODUCTION: Many menopausal women experience climacteric symptoms including impairment of sexual function. Recent reports have suggested that Korean red ginseng (KRG) has a relaxing effect on the clitoral cavernosal muscle and vaginal smooth muscle in rats. AIM: We assessed whether KRG extracts would improve sexual function in menopausal women. METHODS: Thirty-two menopausal women participated in a placebo-controlled, double-blind, crossover clinical study with administration of either three capsules of ginseng (1 g per capsule) or placebo daily. After completing the KRG or placebo arm, the participants were crossed over to the other arm after a 2-week washout period. The efficacy and safety of the KRG extracts were measured by using questionnaires. MAIN OUTCOME MEASURES: Female Sexual Function Index (FSFI) and Global Assessment Questionnaire (GAQ). RESULTS: Twenty-eight women completed the study. They were, on average, 51.2 +/- 4.1 years old, and their mean menopausal state was for a duration of 37.4 +/- 2.9 months. Few carryover effects were noted in either study arm. The ginseng extract significantly improved scores on the FSFI from 3.10 +/- 0.87 to 3.50 +/- 0.72 in the sexual arousal domain (P = 0.006). The GAQ was more significantly affected by ginseng extracts than by placebo (P = 0.046). There were no severe adverse events in the KRG group, although two cases of vaginal bleeding occurred during KRG treatment. CONCLUSIONS: Oral administration of KRG extracts improved sexual arousal in menopausal women. Red ginseng extracts might be used as an alternative medicine in menopausal women to improve their sexual life.

**Clinical efficacy of Korean red ginseng for erectile dysfunction.**

Int J Impot Res 1995 Sep;7(3):181-6 (ISSN: 0955-9930)

Choi HK; Seong DH; Rha KH
To investigate the efficacy in treating erectile dysfunction and to develop a natural drug without complications, the results of ginseng treatments are compared to placebo and other drug. A total of 90 patients with 30 patients in each group were closely followed. Changes in symptoms such as frequency of intercourse, premature ejaculation, and morning erections after treatment were not changed in all three groups (p > 0.05). However in the group receiving ginseng, changes in early detumescence and erectile parameters such as penile rigidity and girth, libido and patient satisfactions were significantly higher than that of other groups (p < 0.05). The overall therapeutic efficacies on erectile dysfunction were 60% for ginseng group and 30% for placebo and trazodone treated groups, statistically confirming the effect of ginseng (p < 0.05). No complete remission of erectile dysfunction was noted, but partial responses were reported. No cases of aggravation of symptoms were reported. AVS-penogram, which is a recording of penile hemodynamic changes during the natural erection after audiovisual erotic stimulation, is not changed after administration of ginseng. However if administered for a prolonged period of time, the cumulative effect on vascular flow might be seen. The administration of Korean red ginseng has shown to have superior effects compared to the placebo or trazodone. Definitely more researches are required to elucidate the mechanism of ginseng. The effects of saponin, extracted from ginseng, on smooth muscle of erectile tissues, can be evaluated using organ chamber or nitric oxide titration, thereby pinpointing the exact action mechanism of saponin. As more informations are available, possible breakthrough in treatment of erectile dysfunction could be arisen from active saponin extracted from red ginseng, bringing hopes to many sufferers of erectile dysfunction.

**Ginseng, sex behavior, and nitric oxide.**

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Murphy LL; Lee TJ

In Asia, ginseng is commonly included in herbals used for the treatment of sexual dysfunction. Recent studies in laboratory animals have shown that both Asian and American forms of ginseng enhance libido and copulatory performance. These effects of ginseng may not be due to changes in hormone secretion, but to direct effects of ginseng, or its ginsenoside components, on the central nervous system and gonadal tissues. Indeed, there is good evidence that ginsenosides can facilitate penile erection by directly inducing the vasodilatation and relaxation of penile corpus cavernosum. Moreover, the effects of ginseng on the corpus cavernosum appear to be mediated by the release and/or modification of release of nitric oxide from endothelial cells and perivascular nerves. Treatment with American ginseng also affects the central nervous system and has been shown to significantly alter the activity of hypothalamic catecholamines involved in the facilitation of copulatory behavior and hormone secretion. Recent findings that ginseng treatment decreased prolactin secretion also suggested a direct nitric oxide-mediated effect of ginseng at the level of the anterior pituitary. Thus, animal studies lend growing support for the use of ginseng in the treatment of sexual dysfunction and provide increasing evidence for a role of nitric oxide in the mechanism of ginsenoside action.
Ginseng: a promising neuroprotective strategy in stroke.

Front Cell Neurosci. 2015 Jan 20;8:457.
Rastogi V, Santiago-Moreno J, Doré S.

Ginseng is one of the most widely used herbal medicines in the world. It has been used in the treatment of various ailments and to boost immunity for centuries; especially in Asian countries. The most common ginseng variant in traditional herbal medicine is ginseng, which is made from the peeled and dried root of Panax Ginseng. Ginseng has been suggested as an effective treatment for a vast array of neurological disorders, including stroke and other acute and chronic neurodegenerative disorders. Ginseng's neuroprotective effects are focused on the maintenance of homeostasis. This review involves a comprehensive literature search that highlights aspects of ginseng's putative neuroprotective effectiveness, focusing on stroke. Attenuation of inflammation through inhibition of various proinflammatory mediators, along with suppression of oxidative stress by various mechanisms, including activation of the cytoprotective transcriptional factor Nrf2, which results in decrease in reactive oxygen species, could account for its neuroprotective efficacy. It can also prevent neuronal death as a result of stroke, thus decreasing anatomical and functional stroke damage. Although there are diverse studies that have investigated the mechanisms involved in the efficacy of ginseng in treating disorders, there is still much that needs to be clarified. Both in vitro and in vivo studies including randomized controlled clinical trials are necessary to develop in-depth knowledge of ginseng and its practical applications.

Panax red ginseng extract regulates energy expenditures by modulating PKA dependent lipid mobilization in adipose tissue.

Cho HM1, Kang YH1, Yoo H1, Yoon SY2, Kang SW3, Chang EJ3, Song Y4.

Regulation of balance between lipid accumulation and energy consumption is a critical step for the maintenance of energy homeostasis. Here, we show that Panax red ginseng extract treatments increased energy expenditures and prevented mice from diet induced obesity. Panax red ginseng extracts strongly activated Hormone Specific Lipase (HSL) via Protein Kinase A (PKA). Since activation of HSL induces lipolysis in WAT and fatty acid oxidation in brown adipose tissue (BAT), these results suggest that Panax red ginseng extracts reduce HFD induced obesity by regulating lipid mobilization.