
The efficacy of ginseng: a systematic review of randomised clinical trials

Vogler B K, Pittler M H, Ernst E

Authors' objectives

To assess the efficacy of ginseng root extract.

Searching

The authors searched the electronic databases of MEDLINE, EMBASE, BIOSIS Previews, CISCOP, and the Cochrane Library from the database's inception to September 1998 using the search terms 'ginseng', 'panax' and 'eleutherococcus'. The authors also searched the bibliographies of retrieved studies and scanned personal files. Manufacturers of commercial ginseng products were contacted for further information and experts of herbal medicine were also contacted to provide published and unpublished material. There were no language restrictions.

Study selection

Study designs of evaluations included in the review

Randomised controlled trials (RCTs) which were double-blind, placebo-controlled.

Specific interventions included in the review

Mono preparations of ginseng root extract: Panax quinquefolium extract (618 mg or 1235 mg once daily), Panax ginseng (100 mg of a 4% or 7% ginsenoside concentration twice daily, 150 mg twice daily, or 200, 300, or 400 mg daily), Elagen (400 mg once daily) or Eleutherococcus senticosus (standard 625 mg daily or ESML 3.4 ml once daily) for the intervention groups. The control groups received vitamins, Ginkgo biloba, neurotrophic amino-acids, placebo, and/or exercise regimens.

Participants included in the review

Adult participants (healthy volunteers, patients with type-II diabetes, and patients of the Herpes Association) ranging in age from 18 to 80 years.

Outcomes assessed in the review

Exercise end points (physical and chemical measurements), psychomotor performance and cognitive function endpoints, leucocyte counts, mood, vigour and fasting blood glucose levels, and frequency, severity and duration of herpes episodes.

How were decisions on the relevance of primary studies made?

The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality

The included studies were assessed for validity using Jadad's 5-point score (see Other Publications of Related Interest no.1). Two authors independently assessed the validity of the included studies. The authors met to agree consensus on the assessed data and discrepancies were resolved through discussions.

Data extraction

Two authors independently extracted the data using a standardised pre-defined form. The authors met to agree consensus on the assessed data and discrepancies were resolved through discussions.

Data were extracted for the categories of: study identification, Jadad score, study design, patient characteristics, specific interventions and controls (with dosages), primary study end points, main results and frequency of adverse effects.

Methods of synthesis

How were the studies combined?

The studies were combined in a narrative review.

How were differences between studies investigated?

Study differences discussed in the narrative review. Studies were grouped according to outcome measure.

Results of the review

Sixteen RCTs were included in the review with 643 participants (7 studies of physical performance with 182 participants; 5 studies of psychomotor performance and cognitive function with 252 participants; 2 studies of immunomodulation with 80 participants; 1 study of type-II diabetes with 36 participants; and 1 study of herpes with 93 participants).

Physical performance (n = 7): four trials found no improvement of physical performance after ingestion of ginseng. Other studies (3) found a decrease in heart rate and an increase in maximal oxygen uptake compared with placebo which persisted for 3 weeks after the treatment. All studies were in young active volunteers.

Psychomotor performance and cognitive function (n = 5: 4 in healthy volunteers (all placebo and controlled), and 1 in elderly people): 3 studies reported improvements ($P < 0.05$) in mental arithmetic and abstraction tests with Panax ginseng and in selective memory tests with Eleutherococcus. Four studies found that ginseng did not alter psychological functions or improve tolerability to exercise-induced stress.

Immunomodulation (n = 2; healthy volunteers): 1 study found an increase of the total number of T lymphocytes and of the activity of leucocytes compared with baseline ($P < 0.05$), but second, more recent study, found no effects.

Miscellaneous: study on patients with newly-diagnosed type II diabetes found that after 8 weeks psychological performance, mood and vigour were improved compared with baseline in both ginseng groups ($P < 0.05$), and there was a reduction of the fasting blood glucose level in both ginseng groups ($P < 0.05$). In a study on herpes patients there was a beneficial effect on frequency, severity and duration of herpes simplex type-II infections in the ginseng group compared with placebo ($P = 0.0002$).

Authors' conclusions

The authors state that based on the results of this review, the efficacy of ginseng root extract is not established beyond reasonable doubt for any of the outcomes of the review.

CRD commentary

The authors have clearly stated their research question and inclusion and exclusion criteria. The literature search was thorough. The quality of the included studies was formally assessed and results presented and discussed. The authors have reported on how the articles were selected and they have reported how many of the reviewers were involved in data extraction and how the data extraction was performed.

The data extraction is reported in tables and text and the narrative review was appropriate. The authors state that poor study quality, small sample sizes, varying doses and unclassified preparations of ginseng were limitations in the analysis of this treatment. The authors conclusions of no benefit from ginseng root extract appear to follow from the results.

Implications of the review for practice and research

Practice: The authors do not state any implications for practice.

Research: The authors state that the widespread use of ginseng as a herbal remedy warrants more rigorous investigations to assess its efficacy and safety.

Bibliographic details

Vogler B K, Pittler M H, Ernst E. The efficacy of ginseng: a systematic review of randomised clinical trials. *European Journal of Clinical Pharmacology* 1999; 55(8): 567-575

PubMedID

10541774

Other publications of related interest

1. Jadad AR, Moore RA, Carroll D, Jenkinson C, Reynolds DJ, Gavaghan DJ, et al. Assessing the quality of reports of randomized clinical trials: is blinding necessary? *Control Clin Trials* 1996;17:1-12.

Indexing Status

Subject indexing assigned by NLM

MeSH

Adjuvants, Immunologic /pharmacology; Adult; Aged; Aged, 80 and over; Cognition /drug effects; Double-Blind Method; Female; Humans; Male; Middle Aged; Panax; Physical Exertion /drug effects; Plant Extracts /pharmacology; Plant Roots /chemistry; Plants, Medicinal; Psychomotor Performance /drug effects; Randomized Controlled Trials as Topic

AccessionNumber

11999002155

Date bibliographic record published

31/10/2000

Date abstract record published

31/10/2000

Record Status

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.