Ginseng

En Español (Spanish Version)


Panax ginseng, Panax quinquefolius

**Principal Proposed Uses**
- Colds and Flu; Diabetes; Enhancing Mental Function; Immune Support; Improving General Well-being; Stress

**Other Proposed Uses**
- Cancer Prevention; Male Sexual Function; Sports Performance

**Probably Ineffective Uses**
- Menopause

There are three different herbs commonly called ginseng: Asian or Korean ginseng (*Panax ginseng*), American ginseng (*Panax quinquefolius*), and Siberian “ginseng” ( *Eleutherococcus senticosus* ). The latter herb is actually not ginseng at all and is discussed in a separate article.

Asian ginseng is a perennial herb with a taproot resembling the shape of the human body. It grows in northern China, Korea, and Russia; its close relative, *Panax quinquefolius*, is cultivated in the United States. Because ginseng must be grown for 5 years before it is harvested, it commands a high price, with top-quality roots easily selling for more than $10,000. Dried, unprocessed ginseng root is called white ginseng, and steamed, heat-dried root is red ginseng. Chinese herbalists believe that each form has its own particular benefits.

Ginseng is widely regarded by the public as a stimulant. According to everyone who uses it seriously, though, that isn't the right description. In traditional Chinese herbology, *Panax ginseng* was used to strengthen the digestion and the lungs, calm the spirit, and increase overall energy. When the Russian scientist Israel I. Brekhman became interested in the herb prior to World War II, he came up with a new idea about ginseng: He decided that it was an adaptogen.

The term adaptogen refers to a hypothetical treatment described as follows: An adaptogen should help the body adapt to stresses of various kinds, whether heat, cold, exertion, trauma, sleep deprivation, toxic exposure, radiation, infection, or psychological stress. Furthermore, an adaptogen should cause no side effects, be effective in treating a wide variety of illnesses, and help return an organism toward balance no matter what may have gone wrong.

Perhaps the only indisputable example of an adaptogen is a healthful lifestyle. By eating right, exercising regularly, and generally living a life of balance and moderation, you will increase your physical fitness and ability to resist illnesses of all types. Whether there are any substances that can do as much remains unclear. However, Brekhman felt certain that ginseng produced similarly universal benefits.

Interestingly, traditional Chinese medicine (where ginseng comes from) does not entirely agree. There is no one-size-fits-all in Chinese medical theory. Like any other herb, ginseng is said to be helpful for those people who need its particular effects, and neutral or harmful for others. But in Europe, Brekhman's concept has taken hold, and ginseng is widely believed to be a universal adaptogen.
What Is Ginseng Used for Today?

If Brekhman is right, ginseng should be the right treatment for most of us. Modern life is tremendously stressful, and if an herb could help us withstand it, it would be a useful herb indeed. Ginseng is widely used for this purpose in Russia and Eastern Europe. However, the scientific basis for this use is largely limited to animal studies and human trials of unacceptably low quality.

There have been a few better-quality studies of various forms of ginseng for certain more specific purposes—strengthening immunity against colds and flus and other infections (including herpes), helping to control diabetes, stimulating the mind, increasing a general sense of well-being, and improving physical performance capacity—and some of these have found positive results. (See What is the Scientific Evidence for Ginseng?)

The active ingredients in ginseng are believed to be substances known as ginsenosides. Ginseng low in ginsenosides may not be effective. However, different ginsenosides appear to have differing actions, and the exact mixture of the ginsenosides in a given ginseng product may play a large role in its efficacy.

Two preliminary studies suggest that Korean red ginseng may have some benefits for impotence (erectile dysfunction).23,73

A poorly designed study using an untreated control group found indications that Panax ginseng might improve sperm count and motility, thereby enhancing male fertility.65

Highly preliminary evidence suggests that Panax quinquefolius might help breast cancer chemotherapy drugs work better.4 Panax ginseng is also said to help prevent cancer and fight chemical dependency,3 but the scientific evidence for these uses is minimal at best.

One study failed to find Panax ginseng helpful for menopausal symptoms.5

What Is the Scientific Evidence for Ginseng?

Adaptogenic Effects

Numerous studies have evaluated the effects of oral Panax ginseng on animals under conditions of extreme stress. The results suggest that ginseng increases physical endurance and causes physiological changes that may help the body adapt to adverse conditions.6,7,9-12 In addition, studies in mice found that consuming Panax ginseng before exposure to a virus significantly increased the survival rate and the number of antibodies produced.13,14 However, most of these studies fall far beneath modern scientific standards.

Cold and Flus

A double-blind, placebo-controlled study of 323 people found meaningful evidence that an extract of American ginseng taken at 400 mg daily may help prevent the common cold.25 Participants who used the extract over 4 months experienced a reduced number of colds as compared to those taking the placebo. Comparative benefits were also seen regarding the percentage of participants who developed two or more colds, and the severity and duration of cold symptoms that did develop. Similar benefits were also seen in a study of 43 people.96

In addition, two double-blind, placebo-controlled studies indicate that Panax quinquefolius may be able to prevent flu-like illness in seniors.85

A double-blind, placebo-controlled study suggests that Panax ginseng can also help prevent flu-like illnesses.15 This trial enrolled 227 participants at three medical offices in Milan, Italy. Half were given ginseng at a dosage of
100 mg daily, the other half placebo. Four weeks into the study, all participants received influenza vaccine. The results showed a significant decline in the frequency of colds and flus in the treated group compared to the placebo group (15 versus 42 cases). Also, antibody measurements in response to the vaccination rose higher in the treated group than in the placebo group.

On a much more theoretical level, two other studies found evidence that *Panax ginseng* increases the number of immune cells in the blood, while a third study did not find this effect. (In any case, measuring changes in the number of immune cells is not a reliable method of demonstrating immune-enhancement.)

A nonblinded pilot study provides weak evidence that *Panax ginseng* might be helpful in chronic bronchitis.

### Diabetes

In preliminary double-blind studies performed by a single research group, use of American ginseng (*Panax quinquefolius*) appeared to improve blood sugar control.

In some but not all studies, the same researchers reported potential benefit with Korean red ginseng as well.

A different research group tested ordinary *Panax ginseng* and claimed to find it effective. However, this study was somewhat substandard in both its design and reporting. In other studies (conducted by the research group mentioned in the previous paragraph), ordinary *Panax ginseng* seemed to worsen blood sugar control rather than improve it, while yet another group found benefits. It appears possible that certain ginsenosides (found in high concentrations in some American ginseng products) may lower blood sugar, while others (found in high concentration in some *Panax ginseng* products) may raise it. It has been suggested that since the actions of these various constituents are not well defined at this time, ginseng should not be used to treat diabetes until more is known.

### Mental Function

*Panax ginseng*

Several studies have found indications that *Panax ginseng* might enhance mental function. However, the specific benefits seen have varied considerably from trial to trial, tending to make the actual cognitive effects of ginseng (if there are any) difficult to discern.

A double-blind, placebo-controlled study found that *Panax ginseng* can improve some aspects of mental function. Over a period of 2 months, 112 healthy, middle-aged adults were given either ginseng or placebo. The results showed that ginseng improved abstract thinking ability. However, there was no significant change in reaction time, memory, concentration, or overall subjective experience between the two groups. Another double-blind, placebo-controlled study of 50 men found that 8-week treatment with a *Panax ginseng* extract improved ability in completion of a detail-oriented editing task. Also, a double-blind trial of 16 healthy males found favorable changes in ability to perform mental arithmetic in those given *Panax ginseng* for 12 weeks.

More comprehensive benefits were seen in a double-blind, placebo-controlled trial involving 60 elderly people. Researchers found that 50 or 100 days of treatment with *Panax ginseng* produced improvements in numerous measures of mental function, including memory, attention, concentration, and ability to cope. Benefits were still evident at the 50-day follow-up. However, virtually no improvement was seen in the placebo group, a result that is highly unusual and raises doubts about the accuracy of the study.

Not all of the studies are positive, though. A systematic review of 8 randomized, placebo-controlled trials found that ginseng did not improve cognitive function in healthy adults.

The combination of ginseng with *ginkgo* has also been investigated. Four double-blind, placebo-controlled trials found inconsistent evidence of improved mental function for this herbal mixture.

*Panax quinquefolius*
American ginseng (Panax quinquefolius) has also been studied for its potential ability to improve cognitive function. In a randomized, preliminary study involving 32 healthy young adults, researchers found that those who took Cereboost, a standardized extract of P. quinquefolius, showed improvement in their working memory. This improvement was seen at all dosing levels (100 mg, 200 mg, and 400 mg) and at all testing times, which were done at 1 hour, 3 hours, and 6 hours after giving the Cereboost. This offers a hint of some benefit, but it is far from conclusive.

**Sports Performance**

The evidence for Panax ginseng as a sports supplement is mixed at best. An 8-week, double-blind, placebo-controlled trial evaluated the effects of Panax ginseng with and without exercise in 41 individuals. The participants were given either ginseng or placebo, and then underwent exercise training or remained untrained throughout the study. The results showed that ginseng improved aerobic capacity in individuals who did not exercise, but offered no benefit to those who did exercise. In a 9-week, double-blind, placebo-controlled trial of 30 highly trained athletes, treatment with Panax ginseng alone or in combination with vitamin E produced significant improvements in aerobic capacity. Another double-blind, placebo-controlled trial of 37 individuals also found some benefit.

A double-blind, placebo-controlled study of 120 people found that Panax ginseng gradually improved reaction time and lung function over a 12-week treatment period among those 40 to 60 years old. No benefits were seen in younger individuals.

However, numerous studies have failed to find Panax ginseng effective. For example, an 8-week, double-blind trial that followed 60 healthy men in their 20s found no evidence of ergogenic benefit. Many other small trials of Panax ginseng also failed to find evidence of benefit.

**General Well-being**

A double-blind study compared the effects of a nutritional supplement with and without Panax ginseng extract on the feeling of well-being in 625 people whose average age was just under 40 years old. Quality of life was measured by a set of 11 questions. People taking the ginseng-containing supplement reported significant improvement compared to those taking the non-ginseng supplement (the control group). Similar findings were reported in a double-blind, placebo-controlled study of 36 people newly diagnosed with diabetes. After 8 weeks, participants who had been taking 200 mg of ginseng daily reported improvements in mood, well-being, vigor, and psychophysical performance that were significant compared to the reports of control participants.

A 12-week, double-blind, placebo-controlled study of 120 people found improvement in general well-being among women aged 30 to 60 years and men aged 40 to 60 years, but not among men aged 30 to 39 years.

However, a double-blind, placebo-controlled trial of 30 young people found marginal benefits at 4 weeks, and no significant benefits at 8 weeks. Similarly, a 60-day, double-blind, placebo-controlled trial of 83 adults in their mid-20s found no effect on mood or psychological well-being.

**Impotence (Erectile Dysfunction)**

Two double-blind, placebo-controlled trials, involving a total of about 135 people, have found evidence that Korean red ginseng may improve erectile function. In the better of the two trials, 45 participants received either placebo or Korean red ginseng at a dose of 900 mg 3 times daily for 8 weeks. The results indicate that while using Korean red ginseng men experienced significantly better sexual function than while they were taking placebo.

In an analysis combining the results of 6 controlled trials, researchers found some evidence for the benefits of Korean red ginseng. However, the small size and generally low quality of the studies left some doubts about this conclusion.
Cancer

Treatment

A double-blind study of 53 people undergoing cancer treatment found equivocal evidence of benefit with a special form of ginseng modified to contain higher levels of certain constituents.

Prevention

An observational study on ginseng and cancer prevention has been widely publicized, but a close look at the data arouses serious suspicions. This study was performed in South Korea and followed a total of 4,587 men and women aged 39 years and older from 1987 to 1991. People who regularly consumed Panax ginseng were compared with otherwise similar individuals (matched in sex, age, alcohol use, smoking, and education and economic status) who did not.

The reported results were impressive. Those who used ginseng showed a 60% decrease in risk of death from cancer. Lung cancer and gastric cancer were particularly reduced. The more ginseng consumed, the greater the effect. However, there is something a bit fishy about this study. Use of ginseng fewer than 3 times per year caused a 54% reduction in risk. It is difficult to believe that so occasional a use of ginseng could reduce cancer mortality by more than half!

A study involving 643 people with chronic atrophic gastritis (inflammation of the stomach lining) also focused on the possible cancer-preventing effects of ginseng. The subjects were randomized to receive red ginseng extract powder (1 gram/week) or a placebo for 3 years and then followed for another 8 years. While ginseng was not associated with an overall reduction of cancer rates, the herb did seem to lower the risk in a subgroup consisting of only men.

Menopause

A double-blind, placebo-controlled study of 384 women experiencing menopausal symptoms found no significant benefit with Panax ginseng and no evidence of hormonal effects. However, a small double-blind, placebo-controlled crossover trial found that Korean red ginseng (3 g daily) improved sexual arousal in 28 menopausal women (average age 51 years old).

Dosage

The typical recommended daily dosage of Panax ginseng is 1 g to 2 g of raw herb, or 200 mg daily of an extract standardized to contain 4% to 7% ginsenosides. In one study of American ginseng (Panax quinquefolius) for diabetes, the dose used was 3 g daily.

Note: There are dozens of ginsenosides in ginseng. Because different ginsenosides have different effects, two different ginseng products with similar total ginsenoside content will not necessarily have similar efficacy. Unfortunately, current scientific knowledge does not allow us at present to make informed recommendations on which specific ginsenosides are useful for which conditions.

Ordinarily, a 2- to 3-week period of using ginseng is recommended, followed by a 1- to 2-week “rest” period. Russian tradition suggests that ginseng should not be used by those under 40. However, there is no scientific evidence to support these recommendations.

Safety Issues
Ginseng appears to be nontoxic, both in the short- and long-term, according to the results of studies in mice, rats, chickens, and dwarf pigs.\(^{52-55}\)

Reported side effects are rare. There are a few case reports of breast tenderness, postmenopausal vaginal bleeding, and menstrual abnormalities associated with \textit{Panax ginseng} use.\(^{67-71,110}\) Such side effects suggest that it has estrogenic properties. However, a large double-blind trial of \textit{Panax ginseng} found no estrogen-like effects.\(^56\) Another double-blind trial found no effects on estrogen or testosterone,\(^{57}\) and a carefully designed test-tube study showed that ginseng is not estrogenic.\(^{53}\) Therefore, it is possible that these apparent side effects were coincidental; another possibility is that adulterants in the ginseng product used caused the problem. Ginseng and other Asian herbal products have often been found to contain unlisted herbs and pharmaceuticals.\(^{50,51,84}\)

Estrogen itself stimulates the growth of breast cancer cells. Interestingly, in a test-tube study, \textit{Panax ginseng} was again found to be non-estrogenic, and yet it nonetheless stimulated the growth of breast cancer cells.\(^{28}\) Although the mechanism of this effect is not known, the results suggest that women who have had breast cancer should avoid using ginseng.

Unconfirmed reports suggest that highly excessive doses of \textit{Panax ginseng} can cause insomnia, raise blood pressure, increase heart rate, and possibly cause other significant effects. Whether some of these cases were actually caused by caffeine mixed in with ginseng remains unclear. One double-blind study failed to find any effect on blood pressure.\(^{101}\)

One case report and one double-blind trial suggest that \textit{Panax ginseng} can reduce the anti-coagulant effects of warfarin (Coumadin),\(^{64,68}\) but other trials failed to find such an interaction.\(^{89,111}\) The reason for this discrepancy is not clear, but prudence would suggest not combining ginseng and warfarin.

It is also thought that some herbs can affect platelet function, leading to excessive bleeding. This is an especially important concern if a patient is about to undergo surgery. In a very small trial involving 10 adults, researchers found that several herbs, including \textit{Panax ginseng}, did not affect platelet function.\(^{112}\)

Two reports indicate that combination treatment with \textit{Panax ginseng} and antidepressant drugs may result in a manic episode.\(^{62,82}\)

There are also theoretical concerns regarding use of ginseng by people with diabetes. If it is true, as the preliminary studies discussed above suggest, that ginseng can in fact reduce blood sugar levels, people with diabetes who take ginseng might need to reduce their dose of medication. On the other hand, if certain types of ginseng have the opposite effect (as researchers hypothesize), this could necessitate an increase in medication. The bottom line: people with diabetes should only use ginseng under physician supervision.

In 1979, an article was published in the \textit{Journal of the American Medical Association} claiming that people can become addicted to \textit{Panax ginseng} and develop blood pressure elevations, nervousness, sleeplessness, diarrhea, and hypersexuality.\(^{58}\) However, this report has since been thoroughly discredited and should no longer be taken seriously.\(^{59,60}\)

Chinese tradition suggests that \textit{Panax ginseng} should not be used by pregnant or nursing mothers, and one animal study hints that ginseng use by a pregnant mother could cause birth defects.\(^{90}\) Safety in young children or people with severe liver or kidney disease has not been established.

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**Interactions You Should Know About**

If you are taking:

- Antidepressants: \textit{Panax ginseng} might cause manic episodes.
- Insulin or oral hypoglycemics: Various forms of ginseng may unpredictably alter your dosage need.
Coumadin (warfarin): Panax ginseng might possibly decrease its effect.
Influenza vaccine: Panax ginseng might help it work better.

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