

# GINSENG



## Ginseng preparations

Fresh ginseng: plants less than 4 years old

White ginseng: plants that are 4-6 years old

Red ginseng: plants are more than 6 years old

Other herbs that are not true ginseng but are used in similar manner:

Dong Quai (*Angelica sinensis*)

Indian Ginseng (*Withania somnifera*)

Brazilian Ginseng (*Pfaffia paniculata*)

White Ginseng (*Adenophora polymorpha*)

Red Ginseng (*Salvia miltiorrhiza*)

Purple Ginseng (*Polynopsis pilosula*)

California Ginseng (*Aralia Californica*)

False Ginseng (*Codonopsis pilosula*)

Prince ginseng (*Pseudostellaria heterophylla*)

Ginseng has been used for centuries in Chinese medicine as an adaptogen, with gentle, non-specific and broad effects. Its influence is slow and cumulative. It is a general body tonic and a herb that promotes longevity.

## Types of Ginseng:

- American ginseng (*Panax quinquefolius*)
- Asian ginseng (*Panax ginseng*)
- Siberian ginseng (*Eleutherococcus senticosus*)

American and Siberian ginseng have a cooling effect compared to Asian ginseng which has a warming effect.

Ginseng is grown in northern U.S. and is one of the most valuable herbal medicine crops in North America.

Siberian ginseng is not a true ginseng and does not contain ginsenosides, the active ingredients in ginseng. Asian ginseng is also known as Korean ginseng, Red ginseng, or Wild Manchurian ginseng.

## Active components of Ginseng

The active components of ginseng are the **ginsenosides**, of which there are more than 30 known molecular structures. The most common ginsenosides are : Rb1, Rb2, Rc, Rd, Re, Rf, Rg1, Rg3, and Rh1.

## Fatigue and stress:

The different ginsenosides have varying effects on the body. Rb1 ginsenosides are anti-stress, anti-psychotic, anti-inflammatory, and fever reducing.

In Chinese medicine, ginseng is considered as an adaptogenic. That is, it helps the body to adapt to stressful conditions, whether the stress is physical stress or psychological stress. The stress reducing effect of ginsenosides is in part thought to be due to the fact that ginsenosides seem to relax blood vessels and this leads to blood pressure lowering effect.

Ginseng seems to improve the quality of life and improves alertness, ability to relax, appetite, and sleep. Ginseng's effects are subtle and slow. It improves physical stamina and ability to do work. Ginseng can also improve recovery from illness.



### Ginseng's action

Ginseng acts slowly and broadly. An intake of ginseng may not result in significant changes until 30 days to 3 months.



## Central Nervous system effects:

Ginsenosides have varied effects on the central nervous system. Some are stimulatory while others have analgesic effect. It is the opposing actions of the ginsenosides on the central nervous system that contribute to its adaptogenic actions.

Ginseng has been shown to increase blood flow in the brain, protect nerve cells from damage, and enhance nerve development, thereby improving memory and learning. The specific ginsenosides Rb1 and Rg1 are thought to increase nerve growth and protect nerve cells from damage.

Other ginsenosides act as an analgesic and have a tranquilizing effect. Ginsenosides with depressing effect on the central nervous system are Rb1, Rb2, and Rc. They protect the central nervous system from over excitement.

### Consuming Ginseng

Ginseng can be consumed as teas, as capsules and in herbal blends.

Ginseng can be used as a complimentary treatment to Western medications under various conditions.

Check with your doctor first!

## Anticarcinogenic effects:

Ginseng is a potential anticancer agent. Ginsenosides induce apoptosis or cell death, they inhibit cell growth by preventing cell cycle progression and they have antiangiogenic properties. Ginsenosides have steroid like structures that reduce the action of carcinogenic compounds. Ginsenosides also reduce inflammation, a cause of many cancerous changes, whether it is preserving DNA from oxidation or inactivation of nuclear receptors. A ginsenoside Rb1 inhibits blood vessel formation in cell cultures and reduces lung metastasis from melanoma. Rh2 has been shown to reduce ovarian tumor growth and Rg3 can potentially be used as a synergistic treatment for prostate cancer with its effect on apoptosis.



### Ginseng action

Ginseng has blood thinning properties. Check with your doctor if you are on medications such as coumarin or heparin.

## Cardiovascular actions:



Ginseng has various effects on the cardiovascular system. Ginsenosides reduce platelet aggregation, blood coagulation and enhance fibrinolysis. Administering ginseng results in reduced heart rate and decreased venous pressure. Ginseng intake results in a significant decrease in stroke volume, cardiac output, and central venous pressure. There is an increase in total peripheral pressure. Ginseng causes vasorelaxation and promotes the release of nitric oxide, an antioxidant. Overall, the effect of ginseng is in reducing blood pressure.

## Diabetes:

Ginseng has anti-hyperglycemic tendencies. Administration of ginsenosides to obese diabetic mice resulted in significantly reduced glucose levels after 12 days whether the ginsenosides were injected or administered orally. There was an improvement in blood glucose level, an improvement in glucose tolerance and reduction in body weight. Weight reduction may have been due to increased body temperature and increased carbohydrate metabolism.



## Side effects:

Rb1 may cause birth defects. Rat embryos exposed to ginsenoside Rb1 experienced birth defects. Excess ginseng intake can lead to over stimulation and lack of sleep. It can also lead to nausea, diarrhea, euphoria, headaches and hyper- or hypotension.

### Drug interactions with Ginseng

Ginseng should not be taken together with antipsychotics, antidepressants, nonsteroidal anti-inflammatory drugs, blood thinning medications, blood sugar control drugs, central nervous system stimulating drugs, opioid analgesics, and alcohol.



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Edited : October 2009

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