

IX. GINSENG (*PANAX SPECIES*)

Ginseng is thought of by many as a virtual panacea. Asian ginseng (*Panax ginseng*) has been used for centuries as a general tonic, stimulant, and stress reliever. In Chinese medicine, American ginseng (*Panax quinquefolius*) has been used, but is thought to possess less stimulant activity. Siberian ginseng (*Eleutherococcus senticosus*) has also gained recent popularity but belongs to a different plant species, which is often the cause of confusion. Most studies to date concentrate on the use of *Panax ginseng*. The mechanism of action for ginseng is unknown but thought to revolve around the concentration of ginsenosides that are thought to be responsible for a number of its pharmacological properties, including stimulation of the central nervous system, stimulation of the immune system, anxiolytic effects, antioxidant effects, and vasodilatory effects (81). Additionally, ginseng may accelerate hepatic lipogenesis and increase glycogen storage (82).

Numerous studies of varying quality have been published on the use of ginseng for a multitude of different indications. A systematic review of 16 double-blind, placebo-controlled clinical trials failed to provide compelling evidence for advocating ginseng use for improving physical performance, psychomotor performance, cognitive function, or immunomodulation, treating diabetes, or treating herpetic infections (83).

A recent study on American ginseng did, however, suggest a role in diabetes. In this study, diabetic and nondiabetic participants were randomized to ingesting 3 g of American ginseng or placebo before or during the administration of a 25-g oral glucose challenge. Significant reductions in capillary glucose levels were seen in both diabetic and nondiabetic subjects after ingestion of ginseng (84). The potential treatment ramifications of this finding for patients with type II diabetes has yet to be clarified.

Animal data have suggested a possible role for ginseng in cancer prevention (85). In a large prospective epidemiological study done in Korea, consumers of *Panax ginseng* had significantly lower risk of cancer compared with those not consuming ginseng (86). A dose-response relationship between ginseng and cancer was reported. Although exciting, these findings have yet to be confirmed through clinical trials.

In general, ginseng is considered safe. Reports of hypertension, insomnia, vomiting, headache, vaginal bleeding, Stevens-Johnson syndrome, and mastalgia have been cited (87). The possibility of an interaction with warfarin (reduced INR) has also been raised (88). Care should be taken in patients on anticoagulants.