

Supplement:

Ginseng is a slow-growing, perennial herb belonging to the Araliaceae family and genus *Panax* (1). Native to both North America and Asia but cultivated throughout the world, ginseng includes many variations. Of the thirteen species known, American (*Panax quinquefolius* L.) ginseng and Asian (*Panax ginseng*) are the most common. The active components of ginseng are triterpene saponins found in the plant roots called ginsenosides. Ginsenosides contain pharmacological properties such as anti-inflammatory, immunomodulatory, and anti-tumor activity. However, ginseng varies in ginsenoside content showing a wide range of effects. Ginsenoside differences within a plant, according to age, and between wild type and non-native plants contribute to high variability in the properties of ginseng. Currently, there are more than 150 ginsenosides known.

Research Evidence:

Research suggests that ginseng administered orally may be beneficial for use as an anti-stress, antioxidant, chemopreventive agent, or in regulating the immune response and blood glucose parameters in individuals with type 2 diabetes (1). In a randomized study designed to evaluate the effects of supplementation with Korean red ginseng on glucose control in individuals with type 2 diabetes and impaired glucose parameters, test groups showed significant improvements in serum and whole-blood glucose levels relative to placebo groups (2). Sixty participants were randomly administered either placebo or ginseng capsules and were required to record physical activity and daily intake by a 24-hour recall method. Glucose-related biomarkers were measured after two hour time intervals using oral glucose tolerance tests to compare baseline, midpoint, and endpoint data. In individuals taking the ginseng supplement, data indicated significant

decreases in serum and whole-blood glucose levels. This study concluded that Korean red ginseng is potentially beneficial for controlling glucose, but more research is needed. According to a similar study analyzing the effectiveness of ginseng on the regulation of glucose levels in individuals with type 2 diabetes, test groups administered ginseng extract showed significant reductions in fasting blood glucose, hemoglobin A1C, and blood pressure relative to control groups administered a placebo (3). A review article analyzing the efficacy of ginseng in modulating glucose control suggests four mechanisms that may allow ginseng to manage glucose levels: the regulation of glucose absorption by influencing the rate of digestion, glucose transport by increasing the amount of transport protein synthesis, glucose disposal by increasing degradative enzyme synthesis, and insulin binding by stimulating insulin synthesis (4). Although ginseng supplementation has not shown any toxic effects so far, the potential for adverse side effects remains unknown due to insufficient research.

Conclusion/Reflection:

Based on my research, I believe there is strong evidence supporting the effectiveness and potential benefits of using ginseng supplementation to control glucose parameters in individuals with type 2 diabetes. I would discuss my research findings with friends, close family members, and potentially consume herbal teas containing ginseng myself. However, due to insufficient research, I would not recommend its use to clients. Further studies on the safety, potential toxicity, and efficacy of ginseng supplementation must occur before I can make recommendations to patients.

References:

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