

Ginseng and Sports, Part I

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Ginseng, known as the king of all tonics, has been used alone or in combination for numerous conditions, including: rheumatism; tuberculosis; coughing; nausea; dysentery; insomnia; smallpox; pediatric fevers; edema; jaundice; vomiting; cholesterol reduction; low blood pressure; high blood pressure; kidney disease; diabetes; diarrhea; constipation; indigestion; gout; enuresis; atherosclerosis; cancer; radiation poisoning; menopausal symptoms; immune enhancement; impotence and fertility.^{1,2,3}

Ginseng was already recognized as a powerful herb in China 3,000 years before the birth of Christ.¹ It is a small, slow-growing plant found on shady forest floors in parts of China, North Korea, Siberia, the United States and Canada.

There are many varieties of ginseng. The most common by utilized forms are panax ginseng, native to parts of China, Korea and Siberia; panax quinquefolium, native to the United States and Canada; and eleutherococcus senticosus, which is found in Siberia. Some herbalists state that eleutherococcus senticosus, known as Siberian ginseng, is not a true ginseng. However, its properties for the athlete appear very similar to the Chinese, Korean and American forms; in fact, some researchers feel it is the best form for athletes.⁴

Ginseng is composed of many substances, including vitamins, minerals, enzymes and flavonoids. Most experts feel that ginseng's benefits are derived from a family of at least 20 structurally similar compounds referred to as glycosides, saponins, and most commonly, ginsenosides.^{5,6}

Ginseng can be consumed in many forms, including whole root, powdered capsules, tablets, teas and oil extracts. Potency and quality of ginseng does vary.^{7,8} Because of product variation, standardized extracts are now available and are among the top selling ginseng supplements in the United States. Ginseng's continuing popularity has resulted in it becoming a common ingredient in sports nutrition bars, protein formulations, soft drinks, teas, juices and smoothies.

One of the most common reasons many people use ginseng is for its ability to enhance energy. For many years, ginseng has been regarded as an herb that will delay fatigue and improve performance. Athletes around the world use ginseng for training and competition. In 1993, it was estimated that five to six million people in the United States alone used ginseng as a sports nutrition supplement.⁹ When one factors in Europe, South America, Asia and Africa, the number of people who use ginseng is staggering.

Ginseng has been shown to improve psychomotor performance and alertness.¹⁰ It has also been shown to favorably affect various measurements of lung function in humans, including maximal breathing capacity.¹¹

If ginseng does improve endurance, researchers are undecided as to how it works. One theory,

supported by a commonly quoted paper, is that it reduces blood levels of lactic acid.¹²

Clearly the best positive study on ginseng was done with a supplement that contained ginseng along with vitamins, minerals, trace elements and dimethylaminoethanol bitartrate (DMAE). In a double-blind, placebo-controlled crossover protocol, 49 males aged 21 to 47 used either six weeks of ginseng or six weeks of placebo, then switched formulas. The supplement groups increased their VO₂ max and time to exhaustion. There was a decrease in serum lactate levels along with numerous other indicators of cardiorespiratory fatigue, including heart rate.¹³ The only negative to this impressive trial is the fact that the supplement used was not ginseng by itself; thus, we are not sure if the positive results were due to the ginseng, the DMAE, the micronutrient profile, or all of the ingredients.

Because of ginseng's increasing popularity, it has attracted closer scrutiny from the scientific community. In the last few years, the amount of research on ginseng and athletics has increased. These papers (which will be reviewed in my next article) have been largely negative. Ginseng supporters' most common criticism of negative studies in the 1980s and early 1990s was the question of whether the supplements used contained adequate amounts of real ginseng and its active components.

Colgan⁷ cites a study from Varro Tyler (in the *New Honest Herbal*, George F. Stickley, publisher, Philadelphia, 1987 - I could not find this paper) which found that 32 of 54 ginseng products he analyzed contained negligible amounts of ginsenosides. Colgan states that top quality, nonstandardized ginseng products contain 1-2% of active ginsenosides.⁷ In a 1994 paper that tested 50 ginseng preparations, 44 of them contained ginsenosides ranging from 1.9% to 9%.⁸ Based on these two studies, it appears that the percentage of quality products on the market has increased significantly.

Next article, we will take a close look at the recent negative literature on ginseng and sports performance.

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