Drug–Herb Interactions: Are Your Athletes at Risk?

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Herbal products, often referred to as herbal supplements, are natural products sold in the form of teas, tablets, capsules, liquid, tinctures, and extracts. Phytotherapy (herbal therapy) has been practiced by approximately 50% of the U.S. population, and 24% use herbal supplements on a regular basis.1,2 Many of these individuals are physically active and participate in various sports programs at all levels of competition. Unlike therapeutic drugs, which must be approved by the Food and Drug Administration (FDA), there is no regulatory system for herbal supplements. Herbal products are considered dietary supplements and fall under the FDA Dietary Supplement Health and Education Act of 1994. This act regulates the marketing of supplements and indicates that supplements need not go through the rigorous drug-approval process of the FDA. Therefore, when herbal supplements are put on the market, no proof of efficacy or safety or reporting of side effects is required. Herbal supplements can make certain health claims (e.g., assists with memory, enhances immune system) but cannot claim that products treat specific diseases and conditions (e.g., decreases high-density lipids, alternative to insulin in the management of diabetes). All herbal supplements must display the following disclaimer on the container: “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.”3

Consumers in the United States spend as much as $4 billion per year on herbal supplements. In Europe, the amount an even more impressive $6.7 billion.4 In Germany, herbal products are treated just like other therapeutic drugs; they are prescribed by physicians and dispensed by pharmacists for an array of illnesses and diseases.

In the United States, most herbal products are easily accessible and are used to self-medicate. These products are often taken in place of or as a supplement to therapeutic drugs and therefore are often used concurrently with prescription and over-the-counter (OTC) medications. In most instances, drug interactions with herbal supplements are few. When drug interactions do occur, however, the interaction can be beneficial or adverse, and in some cases toxic. It must be noted that our knowledge of drug–herb interactions is based on animal studies and anecdotal cases. Very few interactions have been studied in human experimental designs. It has been estimated that 60–70% of individuals who use herbal products do not disclose this use to their health-care providers, increasing the risk of drug–herb interactions.5 Potential interactions of herbal supplements include reducing or increasing a drug’s effectiveness and...
increasing a drug’s side effects. The sidebar indicates common drug-class interactions with herbal supplements. Because herbal products are natural and have no regulatory requirements, consumers believe that they are safe, with no harmful effects even when taken with traditional therapeutic drugs.

Are athletes and other physically active individuals who mix herbal supplements with prescription and OTC medications in danger? The purposes of this article are to identify and describe common drug–herb interactions for some of the top herbal supplements on today’s market and identify ways that athletic trainers can decrease the risk of drug–herb interactions for athletes and other physically active individuals.

### St. John’s Wort

St. John’s wort (SJW) is one of the most popular herbal preparations in the United States. It is a flowering perennial that has been used since the Middle Ages to treat a variety of disorders involving mood alterations and inflammation. Several clinical studies have confirmed the effectiveness of SJW for treating depression. Recently Barnes, Anderson, and Phillipsons’ implicated antiviral and antibacterial effects of SJW, as well. Side effects associated with SJW include gastrointestinal disturbances, allergic reactions, fatigue, dizziness, confusion, dry mouth, and photosensitivity. As a result of its photosensitivity effects, SJW should be used cautiously by those who are commonly in sunny environmental conditions. The risk of sunburn and other heat-related conditions can increase when using SJW with photosensitive drugs such as tetracycline and other antibiotic drugs. Other drug classifications reported to have potential interactions include oral contraceptives, anticoagulants, antivirals, cardiac glycosides, and immunosuppressants. Specific drugs implicated for interactions with SJW are alprazolam (Xanax®), amitriptyline (Elavil®), cyclosporine (Neoral®), dextromethorphan (Benylin®), digoxin (Lanoxin®), indinavir (Crixivan®), and warfarin (Coumadin®).²

### Gingko

The gingko biloba is a popular ornamental tree that can be traced via fossil remains to prehistoric times. The leaf of the tree has been used extensively for medicinal purposes for centuries throughout the world, particularly in traditional Chinese medicine.³ Gingko is purported to have antioxidant properties and to enhance cognitive functioning and improve blood flow. Individuals use gingko to treat cardiovascular and peripheral vascular disease, impotency, mental-function difficulties associated with cerebral vascular insufficiency, and early Alzheimer’s-type senility.³ Side effects include bleeding, mild gastrointestinal effects, headache, and allergic skin reactions.

Numerous interactions can occur if gingko is used concomitantly with prescription pharmacologic agents. The antiplatelet aggregation might enhance the effect of other agents affecting the clotting cascade, resulting in bleeding. Pharmacologic classes of most concern are anticoagulants, diuretics, antiplatelet agents, and nonsteroidal anti-inflammatory drugs (NSAIDs). Specific drugs that have been identified as interacting adversely with gingko include aspirin, acetaminophen (Tylenol®), thiazide diuretic (Diuril®), trazadone hydrochloride (Desyrel®), warfarin (Coumadin), ticlopidine (Ticlid®), clopidogrel (Plavix®), and dipyridamole (Persantine®).³

### Ginseng

Ginseng is a root-type herb that has been used extensively in Eastern medicine for over 4,000 years. Several different varieties are cultivated throughout the world. Ginseng is reportedly an antioxidant and is commonly used to boost the immune system. It is well tolerated by most people and is used to treat...