

Dietary Supplement Use in the Military: Do Army Health Care Providers Know Enough?

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Introduction

The marketplace is filled with dietary supplements claiming to assist in weight loss or enhance athletic performance. These claims are enticing to Soldiers who are trying to meet or maintain weight standards, improve physical fitness test scores, or be competitive in specialized unit requirements. Many of these products have not been subjected to rigorous scientific examination for the evaluation of safety and efficacy. Regardless of the lack of evidence as to the safety of these types of supplements, Soldiers are using them.

This article provides an overview of the current dietary supplement usage patterns among Soldiers as well as a summary of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Dietary Supplements Health Care Provider Survey. It also introduces the current and future components of the Army's dietary supplements consumer awareness/education campaign.

Current Situation

More than half of the U.S. population uses dietary supplements.^{1,2} According to the Dietary Supplement Health and Education Act of 1994, dietary supplements include vitamins, minerals, amino acids, enzymes, herbs and other botanicals.³ The average consumer assumes that dietary supplements are regulated just as any other over-the-counter medication. However, the Dietary Supplement Health and Education Act of 1994 does not require that dietary supplements be proven to be safe and effective before they are marketed. While the use of most dietary supplements is not associated with any serious health effects, certain dietary supplements, especially ones marketed for physical activity, performance enhancement, and weight loss, do pose a potential medical threat. One such product line is the ephedra-containing supplements.

A survey of 2,212 males ranging in age from 18 to 47 years who entered U.S. Army Special Forces and Ranger training schools in 1999 revealed that 64% were using some type of dietary supplement and 35% reported daily use. The most commonly used supplements included multivitamins and minerals, protein powders, and ephedrine products.⁴ A similar survey in Aug 02 of 874 enlisted Soldiers assigned throughout

the continental United States revealed that 65% used performance-enhancing supplements while 23% used weight loss products.⁵ Ephedrine-containing supplements were among the weight loss products used. Of those enlisted Soldiers reporting dietary supplement consumption, 46% reported experienced palpitations, 30% reported dizziness or confusion, and 25% reported tremors. The Food and Drug Administration (FDA) has received reports from consumers and health care providers of similar adverse events as well as stroke, heart attack, and death related to ephedra and ephedrine alkaloid-containing supplements. As a result, the U.S. Department of Health and Human Services commissioned the RAND study of ephedra to evaluate the safety and efficacy of ephedra and ephedrine for weight loss and athletic performance. The results of the study provide additional evidence that ephedra may be associated with significant health risks.² In addition, the RAND study concluded that the use of ephedra-containing dietary supplements is associated with two to three times the risk of nausea, vomiting, heart palpitations, and psychiatric symptoms such as anxiety and change in mood. These negative symptoms are especially evidenced when the supplement is taken with other stimulants such as caffeine.²

Due to consumer outcry and litigation, manufacturers are responding to adverse publicity by shifting their ephedra product lines to "ephedra-free" products.⁶ However, this shift does not necessarily mean that the ephedra-free products are safer. For example, *citrus aurantium* or bitter orange is an ingredient in many ephedra-free supplements and contains synephrine, which some evidence indicates may cause hypertension or cardiovascular toxicity. Bitter orange may also interfere with the effectiveness of acid-lowering drugs taken for ulcers while increasing the side effects of many other medications like verapamil, lovastatin, and fexofenadine.⁷ Another typical ingredient found in ephedra-free supplements is yohimbe. The bark of yohimbe, an evergreen tree, contains a chemical called yohimbine. In typical doses of 15-30 mg per day, yohimbine may cause insomnia, anxiety, hypertension, tachycardia, dizziness, headache, nausea, and vomiting. Larger doses of yohimbine may result in severe hypotension, cardiac failure, and death.⁷ Yohimbe is contraindicated if a number of conditions exist, and can increase the side effects of many other medications to include those for diabetes. Like the ephedra-containing products, the ephedra-free products also contain ingredients rich in caffeine such as cola nut, guarana, and mate.

There is some evidence to indicate an increased risk for adverse events when herbs and supplements with stimulant properties are combined.^{6,7}

Dietary Supplements Health Care Provider Survey

There is no question that Soldiers and other beneficiaries are using dietary supplements. As a result, education efforts, like a poster awareness campaign in the Army fitness centers and pharmacies, are being targeted at Soldiers. However, what do health care providers really know about dietary supplements? In Nov 02, the Department of Defense Nutrition Committee in partnership with the USACHPPM provided a web-based survey to U.S. Army Medical Department health care providers to identify possible knowledge gaps. The survey received 406 respondents that included physicians, physician assistants, nurse practitioners, pharmacists, dentists, dietitians, physical therapists, and nurses. These health care providers were asked to rate their knowledge of the following dietary supplements: (1) Bitter Orange; (2) Creatine; (3) Ephedra; (4) Garcinia Cambogia; (5) Ginkgo Biloba; (6) Glucosamine/Chondroitin; (7) Kava Kava; and (8) Yohimbe.

Close to half or more of the health care providers considered themselves experts on ephedra, glucosamin/chondroitin, creatine, and ginkgo biloba. However, they had little or no knowledge of bitter orange, garcinia cambogia, and yohimbe. Table 1 provides the complete results.

Supplement	Little or No Knowledge	Read about the supplement	Studied or Expert
Bitter Orange	84.6%	11.3%	4.1%
Creatine	17.5%	29.2%	53.3%
Ephedra	8.1%	22.2%	69.7%
Garcinia Cambogia	83.6%	9.4%	7.0%
Ginkgo Biloba	14.9%	38.8%	46.3%
Glucosamine/Chondroitin	12.6%	25.6%	61.8%
Kava Kava	37%	30.3%	32.7%
Yohimbe	35.8%	29.4%	34.9%

Table 1. Knowledge of Dietary Supplement Ratings

The analysis also indicated that pharmacists and dietitians have more knowledge of dietary supplements than the primary health care providers (doctors, physician assistants, and nurse practitioners). Additionally, dietitians ask questions about the patient's use of supplements more often than primary health care providers (Table 2).

Frequency	Primary HCP	Dietitian	Pharmacist
Never or hardly ever	16.3%	2%	31.2%
Sometimes	24%	15.7%	30.3%
Every or almost every patient visit	59.6%	82.4%	38.5%

Table 2. Frequency of Asking Patients About Dietary Supplement Usage

Of those providers who ask about dietary supplement usage, more than 80% ask additional questions regarding the supplements. Dietitians were more likely to refer patients to information about dietary supplements. However, this raises some concern because it is the primary health care providers who have the most patient contact. Available on the USACHPPM Dietary Supplement web page (<http://chppm-www.apgea.army.mil/dhpw/Wellness/dietary.aspx>) are resources to include fact sheets and a brochure for Soldiers entitled *Facts About Dietary Supplements for the Warfighter*.⁸ However, the results of the Dietary Supplements Health Care Provider Survey indicate that this simply is not enough to bridge the knowledge gap. The USACHPPM is currently developing materials to arm health care providers with more information about dietary supplements.

The survey asked providers to select the most efficient method whereby they could receive updated dietary supplement information. The top responses included an electronic mail message and one main Internet website. Therefore, USACHPPM is currently developing an electronic newsletter that will be distributed quarterly. Health care providers will have the opportunity to subscribe to the newsletter from the USACHPPM dietary supplement web page. The USACHPPM is streamlining the web page to make it easier for providers and other interested consumers to locate needed information quickly. The USACHPPM is also in the process of developing Technical Guide 296, *A Health Care Provider's Guide to Dietary Supplements*, a pocket reference. In the Health Care Provider Survey, providers also requested professional development regarding dietary supplements. To address this need, a distance learning training course is under development, with a projected completion date of Spring 2004.

Why Ask About Dietary Supplement Consumption?

Using the Internet is a popular method to obtain dietary supplement information. A search on the Internet will provide over 500,000 site references for dietary supplements related to athletic performance enhancement and weight loss. A review of 338 retail websites found that all made one or more health

claims, and over half omitted the standard federal disclaimer.⁹ Thirty-two websites were identified and evaluated for deviance from truth-in-advertising standards. Of the 32 sites analyzed, 41% failed to disclose potential adverse effects or contraindications, and 34% contained incorrect or misleading statements.¹⁰ Soldiers indicate that they use the Internet to obtain dietary supplement information; they also read magazines and talk to their peers.⁵ They rarely ask their health care provider for information regarding dietary supplements.⁵ A questionnaire provided to 115 pre-surgery patients revealed that a little over half were either taking or had recently taken a supplement. However, 64% of the patients did not inform their doctors about their herbal use, citing that they did not perceive supplements as medication.¹¹ Dietary supplements often will interact with other supplements, over-the-counter medications as well as prescribed medications. A Soldier presents to the clinic complaining of dizziness and headache. Are these symptoms a result of a medical condition, or are they a result of taking dietary supplements? It is imperative that all health care providers ask patients specific questions about dietary supplement consumption and adhere to the Office of The Surgeon General's Policy on Medical Screening for Dietary Supplement Use regarding documenting the usage in the medication history. A copy of this policy is available on the USACHPPM Dietary Supplement web page.

Reporting Adverse Events

The FDA has the responsibility of showing that a supplement presents a significant or unreasonable risk of illness or injury under the conditions recommended or suggested in the labeling. One method that the FDA uses to collect evidence is adverse event reporting. It is vital that health care providers report all adverse events or illnesses that they believe to be related to the use of a dietary supplement by calling FDA at 1-800-FDA-1088 or using the website <http://www.fda.gov/medwatch/report/hcp.htm>. As the Army considers future guidance regarding dietary supplements, it is key that not only are adverse events reported to the FDA but that all cases of heat stroke and heat exhaustion include a history of all dietary supplements taken by the patient in the 24 hours prior to the injury. These adverse events must also be reported through the Army Reportable Medical Events System. By reporting adverse events into these systems, health care providers are providing the information necessary to reduce this potential medical threat.

Summary

The evidence is clear that Soldiers are consuming dietary supplements to include those that may result in an adverse event. The USACHPPM Dietary Supplements Health Care Provider Survey indicates that providers are not asking enough

questions about dietary supplement consumption. It also indicates that health care providers need more knowledge, especially about the newest ingredients in the "ephedra-free" product lines. USACHPPM recognizes this knowledge gap and is currently developing resources to assist health care providers in staying current on dietary supplements.

The dietary supplement industry is a chameleon-like business determined to make a profit; however, health care providers can impact the industry by reporting adverse events.

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