



Supplements may contain toxic elements

Have you taken your arsenic today? Sound crazy! You're right. But people are selling and taking supplements with no more rationale than that for taking arsenic.

Arsenic's toxicity is well known. However, some animal research indicates that a small amount of arsenic is required for normal function and health. Thus, arsenic qualifies as a nutrient for some animal species.

Do humans need arsenic? To date, no studies have determined whether humans require arsenic. It is estimated that most adults consume one to three milligrams of arsenic per day. If humans do require arsenic, then there is probably enough already in the diet. However, it is also unclear exactly how much is too much.

There are several other trace minerals that may prove to be essential nutrients. These include boron, nickel, silicon and vanadium. Despite the limited knowledge about these minerals, they are showing up in nutritional supplements on the market.

The Food and Nutrition Board of the Institute of Medicine states that there is not enough scientific information to establish recommended levels of intake. However, their publication sets Toler-

able Upper Intake Levels or ULs for boron, nickel and vanadium.

Remember, the UL for a nutrient is considered by the FNB to be "... the highest level of daily nutrient intake that is likely to pose no risk of adverse health effects for almost all individuals in the general population." UL values are often lower for children and pregnant and lactating women.

Although arsenic has known toxicity, the FNB reported that there was inadequate data to establish a UL value. Also, no UL was set for silicon because it has very low toxicity.

Chronic intake of a nutrient at the UL may cause adverse effects in a small percentage of individuals, possibly 2 percent of the population. However, chronic intake above the UL is expected to be harmful to nearly everyone.

Will an individual consuming above the UL for nutrients become toxic immediately? No. For this reason, someone consuming a nutrient above the UL is unlikely to experience any problems for some time. And when damage finally causes negative health symptoms, it is unlikely that an individual will associate intake of a particular nutrient with getting

sick.

The adult UL for boron intake has been set at 20 mg per day. It doesn't appear that supplements containing boron commonly exceed this level. Food sources include fruits, nuts, beans, potatoes and coffee.

The adult UL for nickel is 1 mg per day. It is not commonly found in supplements and is found in foods such as nuts, beans, grains, and chocolate.

Vanadium is heavily marketed to bodybuilders because high doses have been associated with enhanced insulin function and glucose utilization. The most common supplement form is vanadyl sulfate, which is about 31 percent vanadium by weight.

The adult UL for vanadium is 1.8 mg per day. Looking on the Internet, we found information about several brands of supplements containing vanadium. All contained amounts greater than the UL for this trace mineral. A supplement called Multi-Blend that is produced by the EAS Company contains 33 mg of vanadium per serving.

Quick math will show that this supplement actually contains more than 18 times the UL recommendation.

Alan Titchenal, Ph.D, CNS and Joannie Dobbs, Ph.D, CNS
are nutritionists in the Department of Human Nutrition, Food and Animal Sciences,
College of Tropical Agriculture and Human Resources, UH-Manoa.
Dr. Dobbs also works with the University Health Service.
