FDA's Report: "Lead Found In Vitamins" Is Misleading

By Michael Mooney, September, 2008

Recently the FDA released a report titled, ***"Survey Data on Lead in Women's and Children's Vitamins"*** [1] which looked at 324 multivitamins produced by well-known companies found in natural foods stores in the United States. The report found small amounts of lead in 320 of them. Although the FDA stated in the beginning of its report that none of the amounts of lead found in the multivitamins were high enough to be unsafe, without knowing what the numbers in the report actually mean consumers could easily be concerned about the safety of these products.

Research shows that the amounts of lead found in the 320 supplements in FDA's report, which were between under 1 mcg and 8.97 mcg per day, are far below FDA's own standards for what is known to be tolerable. ("Tolerable" means that the body can metabolize and excrete the lead efficiently enough at that dose that it does not present a health problem, as is known to be true with other toxins.

The amounts of lead in the supplements were also below the amounts of lead found in many common foods. FDA's report could have read:

FDA Finds Traces of Lead in Vitamins, But Finds More Lead in Foods

(See page 2.)

To define what is safe and tolerable FDA created a Provisional Total Tolerable Intake level (PTTI) for lead for specific types of people and age groups. [2] They determined the PTTI numbers by taking amounts of lead that are known to cause health problems and reducing those amounts by a safety factor of 10. [3]

FDA's Conservative Recommendations For Lead Intake

For Whom	Amount That Is Known To Cause Health Problems	FDA's Recommended Safe and Tolerable Daily Diet Lead Intakes (PTTI)
For children under age 6	60 mcg	6 mcg
For children 7 and up	150 mcg	15 mcg
For pregnant women	250 mcg	25 mcg
For other adults	750 mcg	75 mcg

Let's look at the results of the FDA testing for lead in typical products.

For Whom	FDA safe tolerable lead intake per day (PTTI)	Highest amount found in the multi-vitamins	Amount in Typical Product	Number of Tablets Per Day	Percentage of FDA's PTTI Tolerable Daily Lead Amounts
Child Under 6	6 mcg	2.9 mcg	0.7 mcg – children's formula	2	11.6 percent
Pregnant	25 mcg	8.9 mcg	1.5 mcg – prenatal one-daily	1	6 percent
			2 mcg – prenatal high potency formula	6	8 percent
Adults	75 mcg	8.97 mcg	2 mcg – women's one-daily	1	2.6 percent
			5 mcg - women's high potency	6	6.6 percent

MCG's Are Tiny Amounts

To be clear, FDA found very small amounts of lead. A microgram (*abbreviated either as mcg or µg*) is one millionth of a gram. It's as if you cut a sugar cube (which weighs about 1 gram) into one thousand pieces, and then cut one of those tiny pieces into another thousand pieces. That's a microgram.

The World Health Organization Disagrees with FDA on Lead Safety Levels

According to the World Health Organization's safety data on lead, the Provisional Tolerable Weekly Intake (PTWI) for ingestion of lead from all sources is 25 mcg per kilogram (2.2 lbs) of bodyweight.[3] (The PTWI is a dosage that is known to be safe over time, because over time it is well-known by scientists that the body is exposed to and excretes a certain amount of lead easily.)

To simplify this equation into terms we can understand, the PTWI safe weekly intake of lead for a 150-pound person (150 lbs = 68.18 kilograms) times 25 mcg is 1704 mcg of lead per week or 243 mcg of lead per day.

This estimated safe level is 3 ¾ times higher than the FDA's estimated safe level for adults listed above (75 mcg). So the FDA recommendations are extremely cautious, far below the World Health Organization's safe level of 243 mcg per day. The World Health Organization's safe levels are more in keeping with other scientists, considering that the US Government's Center For Disease Control publication *"Inorganic lead Exposure, Metabolism and Intoxication"* states that ***"…typical intakes of lead from food, beverages and inhaled air are in the order of 300 - 400 mcg per day."*** [2]

Safety and Lead in Foods

As much as we are exposed to lead in the air we breathe and as a byproduct in our environment, almost all commonly available foods also contain a small amount of lead. However, it is not well-known that our bodies will metabolize and excrete lead efficiently (so that it doesn't cause any significant health problems) as long as the amount of lead that we are exposed to doesn't exceed the World Health Organization's PTWI of 243 mcg of lead per day over extended periods of time. [3]

To underline how safe multivitamins are, the amounts of lead in the supplements in FDA's report are well below the amounts of lead found in many of the healthy foods that we consume safely every day. Indeed, FDA's publication *Total Diet Study Statistics on Element Results* (December 11, 2007),[4] which analyzes 200 foods found in grocery stores four times per year, showed the following:

Food	**Highest Amount of Lead in a 4 Ounce Serving**
Shrimp, boiled	23.8 mcg
Italian salad dressing	12.2 mcg
Mixed nuts, no peanuts, roasted	10.2 mcg
Liver, beef, fried	9.0 mcg
Brussels sprouts, fresh, boiled	7.9 mcg
Sweet potato, fresh, baked	7.2 mcg
Spinach, boiled	7.0 mcg
Dry table wine	6.8 mcg
Avocado, raw	4.5 mcg
Honey	4.5 mcg
Watermelon, raw	4.5 mcg
Raisin bran cereal	4.1 mcg
Raisins, dried	3.5 mcg
Cottage cheese 4% milk fat	3.4 mcg
Cucumber, Raw	3.4 mcg
Peach, raw	3.4 mcg
Granola cereal	3.0 mcg

Shredded wheat cereal	3.0 mcg
Whole wheat bread	2.8 mcg
Onions, mature, raw	2.7 mcg
Apple, red, raw	2.6 mcg
Green peas, boiled	2.2 mcg
Lima beans, boiled	2.2 mcg
Strawberries, raw	2.0 mcg
Eggs, boiled	1.5 mcg
Whole milk	1.2 mcg

As you can see above, many safe, natural healthy foods contain up to 5-10 times more lead than the multivitamins in FDA's report. When all is considered, multivitamins are once again confirmed to be among the safest things you can put in your mouth.

SOURCES OF LEAD IN THE ENVIRONMENT [5]

Lead is found almost everywhere on earth. It is found in the air, in foods, in lakes, rivers and seawater, and especially soils.

Natural soils	22,700 mcg of lead per pound
Safe drinking water in California	7 mcg of lead per 16 oz
Indoor air	17 mcg in each 3 cubic feet of air
Outdoor air	55 mcg in each 3 cubic feet of air
House dust	5.3 mcg in each 3 cubic feet of air
Food	9 or more mcg
Total	15.3 mcg or more

Lead is everywhere, including in 99% of the multivitamins tested. (320 out of 324). This is not negligence on the vitamin manufacturers' parts. All the vitamins tested had lead levels that were safe, according to the FDA. Based on recommendations from the National Formulary, the FDA allows pharmaceutical drugs to have up to 10 mcg of lead in one medium large tablet or capsule (1000 mg). A typical high potency women's daily vitamin might have 5 mcg in one serving of 6 tablets. But that amounts to only 0.83 mcg of lead in each tablet.

But this doesn't mean that we can ignore any sources of lead. Lead toxicity can happen over time, so it's important to eat the healthy foods and take a dietary supplement that contain nutrients that are known to decrease lead absorption and toxicity from whatever source you may encounter.

What You Can Do To Avoid And Reduce Lead Toxicity

Calcium Decreases Lead Absorption

Another important consideration is that a deficiency of calcium can increase lead absorption by as much as 20-fold.[6] Conversely, studies of children, [7,8] pregnant women [9] and adults [10] confirm that having optimal calcium intake decreases lead absorption significantly. For pregnant women this means 1,000 mg of supplemental calcium or more per day.

Iron Decreases Lead Absorption

Optimal iron intake also decreases lead absorption.[11] The National Academy of Sciences Institute of Medicine states that iron supplementation is safe up to the No Observed Adverse Effect Level, which is 65 mg per day. Unless you have a documented problem with iron storage, it's prudent to take a supplement that contains at least the RDA of this important mineral.

Vitamin C Decreases Blood Lead
Vitamin C also reduces lead in the body, but higher levels of Vitamin C are required.[12] One study showed that while 200 mg of supplemental daily vitamin C had no effect on decreasing blood lead levels, there was an 81% decrease in blood-lead levels after only one week of supplementation when people took 1,000 mg of vitamin C per day. [13]

Vitamin B1 (Thiamine) Increases Lead Excretion
Two studies show that vitamin B1 can also increase the excretion of lead from the body.[14] [15]

Don't Worry, Be Healthy
The message is you don't have to worry about the small amounts of lead in the vitamins in FDA's report. The amounts are almost nothing compared to our normal total daily lead intake from food and from our environment. What you can do is consider eating plenty of the healthy natural foods that are rich in calcium, iron, vitamin C, and vitamin B1 as well as taking optimal doses of supplemental calcium, iron, vitamin C and vitamin B1 to reduce lead absorption, increase lead excretion and reduce the potential for lead toxicity from all sources.

Yours in health,
Michael Mooney
www.michaelmooney.net
www.medibolics.com

---

[1] http://www.cfsan.fda.gov/~dms/pbvitami.html
[2] http://www.cfsan.fda.gov/~dms/fdalead.html
[3] Carrington CD, Bolger PM. An assessment of the hazards of lead in food. Reg Tox Pharma 1992 Dec;16(3):265-72.
[4] http://www.cfsan.fda.gov/~acrobat/tds1byel.pdf
[5] Lead content of Soil, Plants, Foods, Air, and Chinese Herb Formulas, Dhamananda S, Director, Institute for Traditional Medicine, Portland Oregon.
[6] Handbook of Human Toxicology. Edward J. Massaro. CRC Press, 1997
[7] Mahaffey KR, and associates. Blood lead levels and dietary calcium intake in 1- to 11-year-old children: the second National Health and Nutrition Examination Survey, 1976–1980. Pediatrics 1986;78:257–262.
[8] Sargent JD, et al. Childhood lead poisoning in Massachusetts children: its association with sociodemographic and housing characteristics. Am J Pub Health 1994;85:528–534.
[9] Hertz-Picciotto I, et al. Patterns and Determinants of Blood Lead During Pregnancy. Am J Epidemiol Vol. 152, No. 9 : 829-837
[10] Blake KC, Mann M. Effect of calcium and phosphorus on the gastrointestinal absorption of 203Pb in man. Environ Res 1983;30:188-194.
[11] Kwong, WT, et al. Interactions between iron deficiency and lead poisoning: epidemiology and pathogenesis. Sci Total Environ 2004 Sep 1; 330(1-3): 21-37.
[12] Simon, JA, Hudes ES. Relationship of ascorbic acid to blood lead levels. JAMA 1999 Jun 23-30;281(24):2340-2.
[13] Dawson, EB, et al. The effect of ascorbic acid supplementation on the blood lead levels of smokers. J Amer Col Nutri, Vol. 18, No. 2, 166-170 (1999)
[14] Olkowski AA, et al. The effects of thiamine and EDTA on biliary and urinary lead excretion in sheep. Toxic Let 1991 Dec;59(1-3):153-9.
[15] Dhawan M, et al. Influence of thiamine and ascorbic acid supplementation on the antidotal efficacy of thiol chelators in lead intoxication. Arch Toxi 1988;62(4):301-4.

Copyright 2008. Michael Mooney Email: michael@michaelmooney.net www.michaelmooney.net
This document may be reproduced in part or in whole for non-commercial purposes
as long as the author's name, email address and website are referenced.