The Truth About Lead in Dietary Supplements & Proposition 65

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"Gov. Jerry Brown has directed the state's Environmental Protection Agency to work towards reforming Proposition 65, a law passed a quarter-century ago that aims to protect Californians from harmful chemicals.

California EPA Secretary Matt Rodriquez says the reforms will combat "shakedown" lawsuits. Proposition 65 enables private lawyers to bring claims against businesses that knowingly expose the public to toxic chemicals identified under state law. Lawyers have filed such claims more than 2000 times since 2008; critics say in some cases the suits are motivated by a desire to make a quick buck, rather than address a public health threat."

Proposition 65 appears to protect consumers from toxins, but the basic limit set for toxins, such as lead in dietary supplements, 0.5 mcg per daily serving, is so low that it is unrealistic.

Any dietary supplement that has a significant amount of herbs or other botanicals will contain more lead than 0.5 mcg per daily serving, even if the product is all-organic, because all botanicals draw some lead up from the soil they feed on.

A four ounce cup of fresh, boiled Brussels sprouts contains 7.9 mcg of lead. Four ounces of fresh baked sweet potato contains 7.2 mcg of lead, according to an FDA report (see chart on page 2).

The human body can handle much higher amounts of lead with no problems, because it has adapted to lead being found basically everywhere, in food, water and even air.

When you read the document that follows this, please note how small servings of common foods have many, many times more lead than 0.5 mcg.

Also note that FDA's standard for lead safety includes FDA having allowed a medium-sized pharmaceutical drug tablet to contain as much as 10 mcg of lead because FDA finds no safety concern with that much lead.

For these reasons Proposition 65 should be amended to account for what is realistic regarding the amount of toxins, such as lead, that are allowed.

As the standard is written now, with 0.5 mcg of lead per daily serving being the limit, Proposition 65 has caused tremendous harm to ethical dietary supplement manufacturers and cost millions of dollars in legal fees as well as great amounts of wasted time.

There is consideration to change the limits on toxins to a more reasonable standard, which would increase the basic limit on lead in dietary supplements to 5.0 mcg/daily serving. I seek support for that change.

Sincerely,

Michael Mooney
Director of Research and Education
SuperNutrition
www.supernutritionusa.com
michaelm@supernutritionusa.com
800-262-2116

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

By Michael Mooney, SuperNutrition, March 28, 2010 (Revised June 29, 2013)

In August, 2008, the U.S. Food and Drug Administration (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 USA. 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. Consumers should be informed that if foods or herbs are included in a vitamin formula, there will always be some naturally-occurring lead coming from the Earth, even if they are organic. Also worth noting is that taking certain vitamins and minerals decrease the possibility of lead toxicity considerably, as detailed at the end of this document.

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 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 SuperNutrition products.

For Whom	FDA safe tolerable lead intake per day (PTTI)	Highest amount found in FDA's report	Amount Of Lead In A Daily Serving of SuperNutrition Multivitamins With Herbs	Number of Tablets Per Day	Percentage of FDA's PTTI Tolerable Daily Lead Amounts
Child 10 - 12	15 mcg	2.9 mcg	0.52 mcg - Perfect Kids	4	3.46 percent
Pregnant Women	25 mcg	8.9 mcg	0.64 mcg - Simply One Prenatal	1	3 percent
			1.34 mcg – Prenatal Blend	6	5 percent
Adults	75 mcg	8.97 mcg	.344 mcg - Simply One Women	1	0.45 percent
			4.58 mcg - Women's Blend	6	6 percent

MCG's Are Tiny Amounts

To be clear, FDA found very small amounts of lead in the multivitamins they tested. 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 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 PTWI. The World Health Organization's safe levels are more in harmony with some other scientists, considering that the publication *"Inorganic Lead Exposure, Metabolism and Intoxication"* referenced data that said, *"…the total lead intake (TLI), including that in food, beverages and inhaled air, is on the order of 300 - 400 mcg per day."* They also highlighted other data that asserted that the TLI ranged from 106 to 206 mcg per day. [4]

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 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 over extended periods of time, [3] or, to be more conservative, that it doesn't exceed FDA's PTTI.

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),[5] 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 to 10 times more lead than the multivitamins in FDA's report.

SOURCES OF LEAD IN THE ENVIRONMENT [6]

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
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

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 (1,000 mg). SuperNutrition's Women's Blend was tested as having 4.58 mcg in one daily serving of 6 tablets. But that amounts to only 0.76 mcg of lead in each tablet.

How Much Lead Is In Your Body?

Interestingly, a study published in the Journal of Clinical Investigation confirmed that a typical adult human's body contains approximately 200 mg of lead.[7] Realize that a milligram (mg) is a thousand micrograms (mcg) and we have been discussing the safety of micrograms of lead. 200 mg is 200,000 mcg.

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

What You Can Do To Reduce The Potential For Lead Toxicity

Calcium Decreases Lead Absorption

A deficiency of calcium can increase lead absorption by as much as 20-fold.[8] Conversely, studies of children, [9,10] pregnant women [11] and adults [12] confirm that having higher daily calcium intake decreases lead absorption significantly. For pregnant women the suggested calcium dose for better bone mineral content for the newborn is 1,200 mg or more of supplemental calcium per day. [13] This is also a good dose to reduce lead absorption.

Iron Decreases Lead Absorption

Optimal iron intake also decreases lead absorption.[14] The National Academy of Sciences Institute of Medicine states that iron supplementation is safe for adults up to the No Observed Adverse Effect Level, which is 65 mg per day. Unless you have a documented problem with iron storage, it is 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.[15] 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 smokers took 1,000 mg of vitamin C per day. [16] I take 3,000 mg twice a day. (Read how low my blood lead level tested below.)

Vitamin B1 (Thiamine) Increases Lead Excretion
Two studies show that vitamin B1 can increase the excretion of lead from the body.[17] [18] I suggest at least 40 mg per day. I take a multivitamin that contains 150 mg per day.

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.

On a personal note, I take over 60 dietary supplement tablets per day, including herbal supplements and remember, things that grow from the Earth, even organic herbs, will contain lead. Yet my blood lead level on March 11, 2010 measured 2 ug/dL, where the normal scale is 1 to 19 ug/dL. So I tested at the very bottom of the normal scale. Could this be because I take supplements that decrease lead absorption and increase the excretion of lead as well as eating foods rich in these nutrients?

Yours in health,
Michael Mooney
SuperNutrition – Formulas You Feel
www.supernutritionusa.com
michaelm@supernutritionusa.com

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