HEALTH TIP TOPIC - Radiation Exposure and Iodine (potassium iodide)

By Oakway Health Center, LLC

Recently, concerns surrounding the compromised nuclear plants, and the levels of radiation in the air in Japan, have set off a frenzied rush of potassium iodide supplement purchases in the United States.

PLEASE NOTE…

You can easily overdose on too much iodine and put you AND your children's health at serious risk!

First, let's start with an update…

Most Americans are not overly confident in the U.S. government's "word" that we have "nothing to worry about." Be that as it may, additional radiation monitors HAVE been deployed in Hawaii and other U.S. islands. If radiation levels exceed legal limits, or even appear close, these will be the first places for detection.

It doesn't hurt to have a stash of potassium iodide on hand; however, as mentioned above, the "cure" can be just as dangerous as any radiation exposure if you don't know what you are doing.

How does radiation affect our thyroids?

The fall out from direct exposure to dangerous levels of radiation, as a result of nuclear reactor accidents, is an accumulation of radioactive iodine in the thyroid. The more iodine deficient you are, the more "room" there is for radioactive iodine to accumulate in your thyroids. In other words…

The amount of radiation poisoning in the thyroid, from radioactive iodine, is generally DIRECTLY PROPORTIONAL to the amount of iodine deficiency currently in place when exposed.

Taking potassium iodide pills temporarily stops the thyroid from taking on more iodine by temporarily filling the iodine receptors. This prevents the uptake of any radioactive iodine for up to 24 hours. Potassium iodide cannot protect against any other causes of radiation poisoning.

In emergency circumstances, high doses of potassium iodide may reduce radioactive iodine uptake by the thyroid gland. However, it should be noted that continual intake of an effective dose presents serious health hazards associated with iodine toxicity. The use of potassium iodide as a radioprotectant is warranted only upon official declaration of radiologic emergency, in which high-dose FDA-approved "drug" preparations may be indicated.[1]

What is the optimum intake of iodine for health?

Let us start with the Recommended Daily Allowance (RDA), currently referred to Daily value (DV), which generally implies the MINIMUM dosage amount required of any nutrient.

The RDA for iodine was reevaluated by the Food and Nutrition Board (FNB) of the Institute of Medicine in 2001. The recommended amounts were calculated using several methods, including the measurement of iodine accumulation in the thyroid glands of individuals with normal thyroid function [2].

(AI) = Adequate Intake

Recommended Dietary Allowance (RDA) for Iodine			
Life Stage	**Age**	**Males (mcg/day)**	**Females (mcg/day)**
Infants	0-6 months	110 (AI)	110 (AI)
Infants	7-12 months	130 (AI)	130 (AI)
Children	1-3 years	90	90
Children	4-8 years	90	90
Children	9-13 years	120	120
Adolescents	14-18 years	150	150
Adults	19 years and older	150	150
Pregnancy	all ages	-	220
Breast-feeding	all ages	-	290

Source: Linus Pauling Institute http://lpi.oregonstate.edu/infocenter/minerals/iodine/

What is the DOSING recommendation for anticipated or actual exposure to radioactive iodine?

According to the Linus Pauling Institute, "Potassium iodide administered in pharmacologic doses* (50-100 mg for adults) within 48 hours before or eight hours after radiation exposure from a nuclear reactor accident can significantly reduce thyroid uptake of ^{131}I and decrease the risk of radiation-induced thyroid cancer[4]." [3]

***__For children__, the World Health Organization offers the following recommendations [5]:

- Over 12 years old *130 mg per day*
- 3-12 years old *65 mg per day*
- 1-36 months old *32 mg per day*
- LESS THAN 1 month old *16 mg per day*

****DO NOT CONSUME, or administer to children, the above dosages of potassium iodide WITHOUT first seeking your doctor's approval.*

Natural Food Sources of Iodine?

Below is a chart featuring the richest food sources of iodine.

Selected Food Sources of Iodine

Food	Approximate Micrograms (mcg) per serving	Percent RDA*
Seaweed, whole or sheet, 1 g	16 to 2,984	11% to 1,989%
Cod, baked, 3 ounces	99	66%
Yogurt, plain, low-fat, 1 cup	75	50%
Iodized salt, 1.5 g (approx. 1/4 teaspoon)	71	47%
Milk, reduced fat, 1 cup	56	37%
Fish sticks, 3 ounces	54	36%
Bread, white, enriched, 2 slices	45	30%
Fruit cocktail in heavy syrup, canned, 1/2 cup	42	28%
Shrimp, 3 ounces	35	23%
Ice cream, chocolate, 1/2 cup	30	20%
Macaroni, enriched, boiled, 1 cup	27	18%
Egg, 1 large	24	16%
Tuna, canned in oil, drained, 3 ounces	17	11%
Corn, cream style, canned, 1/2 cup	14	9%
Prunes, dried, 5 prunes	13	9%
Cheese, cheddar, 1 ounce	12	8%
Raisin bran cereal, 1 cup	11	7%
Lima beans, mature, boiled, 1/2 cup	8	5%
Apple juice, 1 cup	7	5%
Green peas, frozen, boiled, 1/2 cup	3	2%
Banana, 1 medium	3	2%

Source: NIH http://ods.od.nih.gov/factsheets/Iodine-HealthProfessional

References

[1] Pure Encapsulations, PureCaps.com

[2] Food and Nutrition Board, Institute of Medicine. Iodine. Dietary reference intakes for vitamin A, vitamin K, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium, and zinc. Washington, D.C.: National Academy Press; 2001:258-289. (National Academy Press)

[3] Oregon State University (OSU), Linus Pauling Institute, http://lpi.oregonstate.edu/infocenter/minerals/iodine/

[4] Zanzonico PB, Becker DV. Effects of time of administration and dietary iodine levels on potassium iodide (KI) blockade of thyroid irradiation by 131I from radioactive fallout. Health Phys. 2000;78(6):660-667. (PubMed)

[5] Guidelines for Iodine Prophylaxis following Nuclear Accidents" (pdf). World Health Organization. 1999. http://www.who.int/ionizing_radiation/pub_meet/Iodine_Prophylaxis_guide.pdf.

*Please note that in the following HEALTH TIPs below, we refer to "potassium iodide" as our preferred form of iodine supplementation for the subject at hand.

Potassium iodide breaks down and is absorbed by the body much faster and more thoroughly compared to the iodate form. This was pointed out by the US National Council on Radiation Protection and in the December 15, 1978 Federal Register monograph from the US FDA which noted, *"a number of factors were considered in choosing iodide (and specifically potassium iodide) over other agents such as iodate. These factors included the degree of blocking achieved, the rapidity on onset of the blocking effect, the duration of the blocking effect, and the safety of the blocking agent."* The blocking effectiveness of potassium iodide was called "almost complete." It was for these reasons that the FDA called iodide the "most suitable" product for radiation protection.