

What is potassium iodide?

Potassium iodide (KI) is a salt available as an over-the-counter medicine to help protect the thyroid gland if a person is exposed to radioactive iodine. It can be used as a supplement to evacuation and sheltering in the event radioactive iodine is released in a nuclear power plant accident. During a radiological emergency, potassium iodide should only be taken when directed by public health officials.

What is the role of potassium iodide in a nuclear power plant accident?

Potassium iodide, if taken in an appropriate dosage and in a timely manner, can block uptake of radioactive iodine by the thyroid gland and reduce the risk of thyroid cancer. Radioactive iodine is one of the major contaminants that could be released in a nuclear power plant accident. Exposure to radioactive iodine through ingestion or inhalation can increase the risk of developing thyroid cancer in humans, especially in children, who are more likely to develop thyroid cancer following exposure to radioactive iodine.

What is the thyroid?

The thyroid is a gland located in the neck, below the Adam's apple. It makes and stores hormones that help regulate heart rate, blood pressure, body temperature, and metabolism (the rate at which food is converted to energy). Thyroid hormones also help children grow and develop. The thyroid uses iodine to make its hormones.

How does potassium iodide protect against thyroid cancer?

The thyroid gland requires certain levels and forms of iodine to function properly and can store certain amounts. When potassium iodide is taken in proper doses, it floods the thyroid gland with non-radioactive iodine so that inhaled or ingested radioactive iodine is not able to accumulate in the thyroid. Therefore, the risk of short term and long term harmful effects on the thyroid gland is reduced.

Does potassium iodide protect against all forms of radiation exposures in a nuclear power plant accident?

No. Potassium iodide protects only the thyroid gland by preventing absorption of radioactive iodine. It does not provide protection against other radioactive chemicals that may be emitted during a nuclear power plant accident. Potassium iodide also is not effective against direct gamma radiation that could result during a nuclear power plant accident.

What is the most effective protection against radiation?

The most effective protective measure against exposure to radiation and radioactive chemicals released during a nuclear power plant accident is evacuation or sheltering. **Taking potassium iodide is not a substitute for evacuation or sheltering.** Evacuation protects the whole body, including the thyroid gland, from all types of radiation and all possible exposure pathways. In the event of a radiological emergency, monitor TV or radio broadcasts for updates from emergency management and public health officials. They may advise you to evacuate, stay inside, and/or take potassium iodide (KI) pills in order to protect you and your family.

When should potassium iodide be taken?

Potassium iodide is most effective if taken within a few hours before, during, or immediately after inhalation or ingestion exposure to radioactive iodine. If taken about 4 hours after exposure, its effectiveness is diminished to about 50 percent. About 6 hours after exposure to radioactive iodine, the protective action of potassium iodide is substantially reduced.

Taking potassium iodide is supplemental to evacuation or sheltering, not a substitute.

How often should potassium iodide be taken?

One recommended dose of potassium iodide, if taken in a timely manner, is effective for 24 hours. If radioactive iodine persists in your surroundings for more than 24 hours, you may be advised to take repeat doses until the risk of significant exposure to radioactive iodine no longer exists. Only take repeat doses when advised by public health officials or your doctor. Pregnant and breastfeeding women and newborn infants should avoid repeat dosing with potassium iodide and should evacuate the area until levels of radioactive iodine in the environment fall.

Is it safe to take potassium iodide?

The U.S. Food and Drug Administration (FDA) supports potassium iodide as a safe and effective method to block exposure to radioactive iodine. Treatment guidance from FDA suggests that the benefits of taking potassium iodide far outweigh the rare risk of serious side effects in a small number of people.

(Over)

RECOMMENDED DOSAGE FOR POTASSIUM IODIDE

Age Group	KI Dosage	Number of 130 mg Tablets	Number of 65 mg Tablets	Liquid Amount (65 mg/ml)
Adults and Adolescents (Over 150 lbs.)	130 mg	1 tablet 	2 tablets 	2 ml
Children 3-18 yrs (Under 150 lbs.)	65 mg	½ tablet 	1 tablet 	1 ml
Infants 1 month – 3 yrs	32 mg	¼ tablet  (Liquid form preferred)	½ tablet  (Liquid form preferred)	.5 ml
Infants Birth – 1 month	16 mg	tablet  (Liquid form preferred)	¼ tablet  (Liquid form preferred)	.25 ml

* Adolescents approaching adult size (150 pounds) should receive the adult dose (130 mg).

** KI tablets may be crushed to form a powder. Powdered KI or liquid KI may be mixed in milk, water, formula or soft foods.

What are the side effects of taking potassium iodide?

The occurrence of serious side effects from a single, proper dose of potassium iodide is very low. Adults, especially those with known iodine allergy, are more likely than children to have serious side effects. The side effects include gastrointestinal disturbances, minor skin rash, and allergic reactions. In infants and children, a short-term change in thyroid hormones may occur, which only need to be monitored by a physician in case there is a need for thyroid hormone therapy. Other than the allergic reactions, other side effects would only occur after repeated or prolonged doses of potassium iodide.

Who should be prioritized to take potassium iodide after a radiation release?

Infants, children, and pregnant or nursing women are at the highest risk of developing thyroid cancer after exposure to radioactive iodine and should be given first priority for treatment with potassium iodide. Remember, pregnant and breastfeeding women and newborn infants should avoid repeat dosing with potassium iodide and should evacuate the area until levels of radioactive iodine in the environment fall.

Who should not take potassium iodide?

Individuals who are allergic to iodine **should not** take potassium iodide. Individuals who have dermatitis herpetiformis or hypocomplementemic vasculitis (rare skin disorders) also **should not** take potassium iodide. Persons with known thyroid diseases, such as Grave’s disease, thyroiditis, and goiter may be treated with potassium iodide, but should consult their physician, especially if repeat doses of potassium iodide are taken. Remember, potassium iodide must be taken within the first few hours of a radioactive iodine exposure to be effective, and you may be unable to reach your physician quickly during a nuclear emergency. If you are unsure if you can safely take potassium iodide, consult your physician before an emergency.

In case of an allergic reaction to potassium iodide (difficulty breathing, speaking or swallowing; swelling of the mouth or throat), call 911 or get medical care right away. Taking extra potassium iodide beyond the recommended dosing will not add extra protection and can cause severe illness or death. In case of overdose, get medical help or call a Poison Control Center immediately at 1-800-222-1222.

When should I take potassium iodide?

In the event of a nuclear power plant accident, the Virginia Department of Health and the Department of Emergency Management will advise people living within ten miles of a nuclear power plant on when and where they should receive their dose of potassium iodide. As with any medication, it is advisable to check with your physician or pharmacist before taking potassium iodide or before a nuclear power plant accident occurs. Potassium iodide will only be recommended when there are significant amounts of radioactive iodine released into the air. If radioactive iodine is not present, taking potassium iodide will not protect you.

How can I obtain potassium iodide?

The Virginia Department of Health will provide potassium iodide at designated evacuation assembly centers for the North Anna and Surry Nuclear Power Stations in the event of an emergency when the State Health Commissioner has advised the use of KI by the public and emergency workers. Potassium iodide also is available to the public for purchase without a prescription through your pharmacist or directly through manufacturers: Anbex (www.anbex.com, 1-866-463-6754), Recip (www.thyrosafe.com/recip.html, 1-866-849-7672), and Fleming & Company (www.thyroshield.com, 1-636-343-8200). For more information about potassium iodide, call your local health department. Information is also available at www.vdh.virginia.gov

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