

Potassium Iodide (KI): *What it is and what it does*

What is KI? And what does it do?
Potassium iodide – or KI – is a form of salt that contains iodine. It can be used to protect the thyroid gland against radioactive forms of iodine. Radioactive iodine could potentially be released during an event at a nuclear generating plant.

Why is that important?

The thyroid is an important organ. It regulates your metabolism, heart rate, body weight and energy level. The thyroid needs iodine to work properly. In fact, KI is routinely added to common table salt, to make sure we all get enough iodine.

But that need for iodine creates a special problem if there is any *radioactive* iodine in the environment. Because the thyroid needs iodine, it may absorb the released radioactive iodine. That means the thyroid *could* get a *much higher dose* of radiation than the rest of the body.

A higher dose of radiation means a higher risk of thyroid cancer, at some point in the future. That's especially true for people who are exposed as children or young adults – but not so much for people over the age of 40.

How can KI help?

If you take KI before being exposed to radiation, it can help protect the thyroid. Because KI is a form of iodine, the thyroid will tend to absorb it, and become saturated. That means it will be much harder for the thyroid to absorb any radioactive iodine.

Does KI protect any other part of the body?

No, it doesn't.

KI is not an all-purpose "anti-irradiation" pill. It doesn't protect any other part of the body –

just the thyroid. And it doesn't protect against other kinds of radioactive materials, like cesium or strontium. It only protects against radioactive iodine.

It also won't protect against chemical or biological agents, or against "dirty bombs" – which contain radioactive waste, but are unlikely to contain any radioactive iodine.

Who should take KI?

For many years the State of Minnesota has made KI available to law enforcement and other emergency response personnel. That was because during an event at a nuclear generating plant they may have to enter and remain in an evacuated area. It is their job to take care of the ill and the injured, maintain order, and perform other critical tasks. This mission could place them at higher risk of radiation exposure.

In addition to KI, these critical personnel are provided with equipment for monitoring radiation levels, and would be in constant contact with experts on appropriate safety procedures during a response.

KI can also offer an extra measure of protection for the general public. However, it won't help unless you take it properly and only when told to do so by emergency response officials.

When should you take KI?

KI can help you protect yourself – and avoid increasing your risk of thyroid cancer – during an event at a nuclear generating plant. That's especially true if you are not able to evacuate and leave the affected area quickly.

KI is most effective if taken *before* being exposed to radiation, however not before being told to do so by emergency response officials. It will still give you some protection if you take it up to four hours after you are first exposed. It offers little benefit if taken after that timeframe.



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If you take KI, do you still have to evacuate?

Yes – this is the primary means of protection.

If you are asked to leave an affected area during an event at a nuclear generating plant, you should leave as soon as you can.

Evacuation is the first line of defense – the most important thing you can do to protect yourself and your family.

KI provides an extra measure of protection if, for any reason, you can't evacuate right away. An evacuation route might be blocked, for example, and bad weather could also slow an evacuation. Never use KI as a substitute for evacuation.

Where do you get KI?

Couldn't I just use table salt instead?

That wouldn't work. You would need to consume at least five cups of iodized salt, which could be lethal. However, KI is not a prescription item. It can be sold over-the-counter and you can sometimes find it in retail stores or over the Internet. KI is also being distributed free of charge to people living, working or going to school or child care within 10 miles of Minnesota's two nuclear generating plants.

How much should you take?

The correct dose of KI is based on body weight. The State of Minnesota has two forms of the FDA approved KI—65 mg tablets and liquid—that people can take by mouth after an incident at a nuclear generating plant emergency. The tablets are scored so they may be cut into smaller pieces to give lower doses – and possibly mash them up and mix them with food or drink – if you are giving KI to children. Each milliliter (mL) of the oral liquid solution contains 65 mg of KI.

According to the FDA, you should take (or give) the following doses after exposure to radioactive iodine:

- Adults should take 130 mg (two 65 mg tablets OR two mL of solution).
- Women who are breastfeeding should take the adult dose of 130 mg.
- Children between 3 and 18 years of age should take 65 mg (one 65 mg tablet OR 1 mL of solution). Children who are adult size (greater than or equal to 150 pounds) should take the full adult dose, regardless of their age.
- Infants and children between 1 month and 3 years of age should take 32 mg ($\frac{1}{2}$ of a 65 mg tablet OR $\frac{1}{2}$ mL of solution). This dose is for both nursing and non-nursing infants and children.
- Newborns from birth to 1 month of age should be given 16 mg ($\frac{1}{4}$ of a 65 mg tablet or $\frac{1}{4}$ mL of solution). This dose is for both nursing and non-nursing newborn infants.

Is there anyone who shouldn't take KI?

Yes. You shouldn't take KI if you've been told that you are allergic to iodine. People with goiters or autoimmune conditions should ask their doctor before taking KI. Few people are allergic to KI. However, if you are taking KI and you experience symptoms such as fever and joint pains, swelling of parts of the face and body or shortness of breath, stop taking it and seek medical care. For most people, KI will provide valuable protection of the thyroid from radioactive iodine with no discernible effects. If you are taking KI and you have concerns about it, call your doctor, if possible, or your public health department.

Questions about health effects from KI may be directed to the Minnesota Department of Health, 651-201-4545.

Questions about distribution of KI may be directed to Homeland Security and Emergency Management, 651-201-7490.