

Nuclear Radiation and the Thyroid **FAQ**

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WHAT IS THE THYROID GLAND?

The thyroid gland located in the neck produces thyroid hormones which help the body use energy, stay warm and keep the brain, heart, muscles, and other organs working normally.

Why does the thyroid gland need protection after a nuclear accident?

The thyroid hormones contain iodine and the thyroid gland actively concentrates iodine from the bloodstream. Most nuclear accidents release radioactive iodine, which can damage thyroid cells and cause thyroid cancer. Babies and young children are at highest risk of developing thyroid cancer after being exposed to a nuclear accident.

What is KI?

Potassium iodide (KI) is the same form of iodine used to iodize table salt. KI floods the thyroid with iodine, thus preventing radioactive iodine from being absorbed. If taken at the proper time, KI protects the thyroid from radioactive iodine from all sources – air, food, milk, and water. KI is a non-prescription drug. Available brands are IOSAT®, Thyro-Block® and ThyroSafe® and are good for at least 5 years. Very old pills may not work fully but they won't hurt you.

What is the proof that KI works?

After the 1986 Chornobyl (formerly called "Chernobyl") nuclear accident, shifting winds blew a radioactive cloud all over Europe. As many as 3,000 people living in Ukraine, Belarus, or Russia and exposed to that radiation have already developed thyroid cancer. Poland distributed KI to its people and does not appear to have had an increase in thyroid cancer.

When should KI be taken?

KI should be used only under instruction from local health authorities, who can determine which radioactive isotopes are released during a nuclear event, and, if radioactive iodine is released, when to take KI and how long to keep taking it. Taken 6-12 hours before exposure to radioactive iodine, KI prevents the gland from absorbing radioactive iodine. KI is also protective if taken within the first few hours after exposure to radioactive iodine. People should take one dose a day while they are being exposed to radioactive iodine and one day afterward.

Not every radioactive release includes the radioactive iodine. For example, a "dirty bomb" is not likely to contain radioactive iodine because it has a short half-life.

What are the recommended KI doses?

The FDA-approved minimum KI doses are 130-mg for adults, 65 mg for children 3 to 18 years old, 32 mg for babies 1 month to 3 years, and 16 mg for newborns up to 1 month.

THE FDA RECOMMENDS THE FOLLOWING DOSES:

AGE _____ DOSE

0 – 1 months 15 mg

1 months – 3 years .. 30 - 35 mg

3 – 12 years 65 mg

>12 years 130 mg

The easiest way to prepare a 16-mg dose for a newborn 0-1 month is to dissolve a 130-mg pill in 8 oz of a clear liquid and feed the newborn 1 oz of the liquid.

FURTHER READING

Further details on this and other thyroid-related topics are available in the patient information section on the American Thyroid Association® website at www.thyroid.org.

Is there anyone who should not take KI?

The only people who should not take KI are those who have had a major allergic reaction to iodine. Adults over age 40 do not need KI at all unless they are exposed to extremely high levels of radioactive iodine.

