



Anti-Radiation Pills

For Prelims: Potassium Iodide, Thyroid Gland, WHO.

For mains: Anti-Radiation Pills.

Why in News?

With fears of a nuclear disaster at Ukraine's Zaporizhzhia power plant growing, the [European Union](#) has decided to **pre-emptively supply 5.5 million Anti-Radiation Pills** to be distributed among residents in the vicinity.

What is a Radiation Emergency?

- These are **unplanned or accidental events** that create **radio-nuclear hazard to humans** and the environment.
- Such situations involve **radiation exposure from a radioactive source** and require prompt intervention to mitigate the threat.
- Dealing with such an emergency also involves the **use of anti-radiation tablets**.

What are Anti-Radiation Pills?

- Potassium Iodide (KI) tablets, or anti-radiation pills, are known to **provide some protection in cases of radiation exposure**.
- They contain **non-radioactive iodine and can help block absorption**, and subsequent concentration, of radioactive iodine in the thyroid gland.

How do these Pills Work?

- After a radiation leak, **radioactive iodine floats through the air and then contaminates food**, water and soil.
- Internal exposure, or irradiation, occurs **when radioactive iodine enters the body** and accumulates in the [thyroid](#) gland.
 - The thyroid gland, which uses iodine to produce hormones to regulate the body's metabolism, has **no way of telling radioactive from non-radioactive iodine**.
- Potassium iodide (KI) tablets rely on this to **achieve 'thyroid blocking'**.
- KI pills taken a few hours **before or soon after radiation exposure** ensure that non-radioactive iodine in the **medicine is absorbed quickly to make the thyroid "full"**.
- The thyroid becomes full and cannot absorb any more iodine – either stable or radioactive – for the next 24 hours.
- But KI pills are preventive **only and cannot reverse any damage** done by radiation to the thyroid gland.
- Once thyroid gland absorbs radioactive iodine, those exposed are at a high risk of developing thyroid cancer.

Is the method Fool-Proof?

- Anti-radiation pills do **not provide 100% protection**.
- The effectiveness of KI depends on **how much radioactive iodine gets into the body** and how quickly it is absorbed in the body.
- Also, the pills are not meant for everybody. They are **recommended for people under 40 years of age**.

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