

Proton Therapy

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Why in news?

Progress on photon therapy in India was reported in Rajya Sabha.

What is this?

- A proton is a **positively charged particle**.
- At high energy, **protons can destroy cancer cells**.
- Doctors may use proton therapy alone or may also combine it with x-ray radiation therapy, surgery, chemotherapy, and/or immunotherapy.
- Like x-ray radiation, proton therapy is a type of **external-beam radiation therapy**.
- It painlessly delivers radiation through the skin from a machine outside the body.
- A machine called a **synchrotron or cyclotron** speeds up protons.
- The high speed of the protons creates high energy.
- This energy makes the protons travel to the desired depth in the body.
- The protons then give the targeted radiation dose in the tumor.



- **With proton therapy, there is less radiation dose outside of the tumor.**
- In regular radiation therapy, x-rays continue to give radiation doses as they leave the person's body thus damages nearby healthy tissues, possibly causing side effects.