



Anthrax Vaccine

Indian scientists have developed a **new vaccine against anthrax**. It is claimed to be **superior** over existing vaccines as it can generate an **immune response to anthrax toxin as well as its spores** rather than the toxin alone.

Anthrax

- It is a disease **caused by a bacterium** called **Bacillus anthracis**.
- It occurs naturally in both animals and humans in many parts of the world, including **Asia, southern Europe, sub-Saharan Africa and parts of Australia**.
- Anthrax bacteria **survive** in the environment **by forming spores**.
- **People get infected** with anthrax **when spores get into the body**. When spores get inside the body, they can get activated. When they become active, the bacteria can multiply, spread out in the body, produce toxins (poisons), and cause severe illness.
- **Symptoms** include black sore, headaches, fever, breathing difficulties, vomiting of blood, diarrhea.
- Anthrax **responds well to antibiotic** treatment but **vaccines are necessary** as the infection can cause death within two-three days leaving no scope for diagnosis and treatment.
- The anti-anthrax vaccines available in market generate **immune response against a Bacillus protein-protective antigen** — a protein that helps in transport of bacillus toxins inside the cells.
 - This means that immune response is triggered only when spores germinate in body and start producing bacterial proteins. Anyone vaccinated with such a vaccine would show **no immune response to bacillus spores** and only perform once spores germinate and release toxins.

PDF Reference URL: <https://www.drishtias.com/printpdf/anthrax-vaccine>