



Anthrax Vaccine

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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.