

The Immune System

Body & health

Innate and adaptive immunity, and how a vaccine uses the second one.

Innate — immediate

- Present from birth
- Responds within minutes to hours
- Same response to every threat
- Skin, mucus, stomach acid
- Neutrophils, macrophages, inflammation

Adaptive — learned

- Develops through exposure
- Takes days on first encounter
- Specific to each pathogen
- T cells attack; B cells make antibodies
- Memory cells make the second exposure fast

THE DIFFERENCE THAT MATTERS

A vaccine trains the adaptive system without the disease, so the memory response is ready before the real exposure.

Fever, swelling and fatigue are the immune response, not the infection. They are the cost of the defence.