VACCINE DISCOVERIES • FACT SHEET

How Vaccines Train Immunity

A plain-language guide to what happens after a vaccine enters the body

1 A Safe Introduction

A vaccine presents the immune system with a safe, non-infectious piece of a pathogen. Sometimes that piece is weakened, sometimes it's just a single protein, sometimes it's genetic instructions for building one. None of it can cause the disease itself.

2 Cells That Remember

Immune cells called B-cells and T-cells learn to recognize that piece. This is the same kind of cellular memory the body builds after any encounter with a pathogen, except a vaccine creates that memory without the risk of getting sick first.

3 A Faster Response, Later

Scientists have observed that this memory can last years, sometimes decades. If the body ever encounters the real pathogen afterward, that memory lets the immune system respond faster than it would meeting the threat for the first time.

DID YOU KNOW?

Immune memory doesn't work the same way for every disease. That's part of why some vaccines need only one dose, while others need a booster to keep that memory strong.

This fact sheet is provided for educational purposes to accompany the Vaccine Discoveries coloring book series. It is not medical advice. For guidance on vaccines and your health, consult a licensed healthcare provider. Learn more from the CDC, the World Health Organization, and the American Academy of Pediatrics.