

Could a vaccine permanently protect us from heart disease? CRISPR gene editing poised to provide healthcare solutions for most everyone

We know the basics of healthy living by now. A balanced diet, regular exercise, and stress reduction can help us avoid heart disease—the world’s biggest killer. But what if you could take a vaccine, too? And not a typical vaccine—one shot that would alter your DNA to provide lifelong protection?

That vision is not far off, researchers say. Advances in gene editing, and CRISPR technology in particular, may soon make it possible. In the early days, CRISPR was used to simply make cuts in DNA. Today, it’s being tested as a way to change existing genetic code, even by inserting all-new chunks of DNA or possibly entire genes into someone’s genome.

These new techniques mean CRISPR could potentially help treat many more conditions—not all of them genetic. In July 2022, for example, Verve Therapeutics launched a trial of a CRISPR-based therapy that [alters genetic code to permanently lower cholesterol levels](#).

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While newer innovations are still being explored in lab dishes and research animals, CRISPR treatments have already entered human trials. It’s a staggering accomplishment when you consider that the technology was first used to edit the genomes of cells about 10 years ago. “It’s been a pretty quick journey to the clinic,” says Alexis Komor at the University of California, San Diego.

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