



Cure: Sex Differences

The HIV viral reservoir in males and females differs in ways that may enable women to control the virus better than men.

November 10, 2025 By [Liz Highleyman](#)

The HIV viral reservoir in males and females differs in ways that may enable women to control the virus better than men. Antiretrovirals can keep HIV replication suppressed, but the virus inserts its genetic blueprints, or provirus, into the DNA of cells, establishing a long-lasting reservoir that makes a cure nearly impossible. Building on evidence that women are more likely to be natural elite controllers or maintain posttreatment control after stopping antiretrovirals, researchers compared viral reservoir characteristics and immune responses in 35 men and 30 postmenopausal women on antiretroviral therapy. Analyzing more than 4,000 HIV genomes, they saw sex-specific differences in viral reservoir cell structure and composition. While the overall frequency of proviral genomes did not differ, women were more likely to have intact proviruses inserted in transcriptionally silent parts of their chromosomes where they could not reactivate. What's more, women had more effective innate immune responses, specifically natural killer cells with enhanced functionality.

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