

HIV Rebounds Quickly in Semen During Treatment Break in Vaccine Trial

This raises concerns that men with HIV participating in cure and therapeutic vaccine studies may transmit the virus.

June 5, 2020 By [Benjamin Ryan](#)

A study of a therapeutic vaccine for people receiving antiretroviral (ARV) treatment for HIV found that soon after the investigators took the participants off ARVs for a period of close monitoring, the virus rapidly rebounded in their semen.

This finding from a French study published in the journal *AIDS* raises concerns that men who participate in HIV cure and therapeutic vaccine trials and are put through what's known as an analytical treatment interruption (ATI), meaning a break in their ARV treatment, are at a risk—albeit temporary—of transmitting the virus through sex.

In 2019, French scientists published a case study in the *Journal of Infectious Diseases* describing the case of a man participating in the same study (called the VRI02/ANRS140-LIGHT trial) who [transmitted the virus to his female](#) partner during his ATI.

“This case highlights the risk of secondary transmission of HIV infection during treatment interruption,” the authors of the case study wrote at the time, “including among participants who have a good understanding of their HIV infection and its effects and whose level of viral rebound is low. This risk is undoubtedly in part enhanced by a lack of protective sexual practices among participants who have become accustomed to no longer needing them while receiving effective treatment and viral suppression.”

The new analysis looked at 10 male participants in the VRI02 trial who were enrolled in a semen substudy between April 2015 and December 2015.

The study randomized its participants to receive a combination of two experimental therapeutic vaccines or a placebo between the study's outset and week 24. All the participants had been on ARVs for at least 18 months before entering the trial. They were put through an ATI from week 36 to week 48. The study was looking primarily at the participants' viral load in their blood plasma at the end of the ATI.

The participants provided semen samples at weeks 36, 40, 42, 44 and 48. They also routinely

provided blood samples.

At the start of the ATI, all 10 participants had a plasma viral load below 20. Eight of the 10 participants' plasma viral load rebounded at week 38 (two weeks into the ATI). The remaining two men saw their plasma viral load rebound by weeks 42 and 44, respectively.

The maximum median plasma viral load during the ATI was 132,000, which was comparable to the participants' median viral load before they started taking ARVs.

HIV becomes more transmissible as viral load rises. Research suggests that a viral load of about 1,500 or above indicates that the virus is transmissible.

At week 36, the viral load in the men's semen, known as seminal viral load, was less than 60 in nine cases. One man had a seminal viral load of 270 at week 36 (that level is not considered to pose a risk of transmission) and then an undetectable viral load at week 38.

Seminal viral load rebound occurred as soon as week 38 for four of the men and at week 40 for four others. The remaining two men had missing samples.

"Our data demonstrate rapid and high HIV rebound in semen after ATI, raising concerns about high risk of HIV sexual transmission during HIV cure trials," the study authors concluded.

To read the study abstract, [click here](#).