Is there a cure for HIV and AIDS?

FAST FACTS

- There is no cure for HIV, although antiretroviral treatment can control the virus, meaning that people with HIV can live long and healthy lives.

- Most research is looking for a functional cure where HIV is permanently reduced to undetectable and harmless levels in the body, but some residual virus may remain.

- Other research is looking for a sterilising cure where HIV is removed from the body completely, but this is more complicated and risky.

- Trials of HIV vaccines are encouraging, but so far only offer partial protection.

There is no cure for HIV yet. However, antiretroviral treatment (ART) can control HIV and allow people to live a long and healthy life.

For some people, treatment can reduce the level of HIV in their body to such a low amount that they are unable to pass it on (known as having an undetectable viral load). Having an undetectable viral load can keep you healthy, but it’s not a cure for HIV. To maintain an undetectable viral load a person must keep adhering to their antiretroviral treatment.
Will there ever be a cure for HIV?

Researchers and scientists believe we can find a cure for HIV. We know a lot about HIV, as much as certain cancers. Scientists are researching two types of cure: a functional cure and a sterilising cure.

There is no 'natural cure' or 'herbal cure' for HIV. Antiretroviral treatment is the only medication that is proven to effectively control HIV.

A functional cure

A functional cure would reduce the amount of HIV in the body to such low levels that it can’t be detected or make you ill – but it wouldn’t completely get rid of the virus.

Some people think that ART is effectively a functional cure. However, most agree that a true functional cure would suppress the virus without the need for people to take treatment for the rest of their lives.

There are a few examples of people considered to have been functionally cured, such as the Mississipi Baby, but in all these cases the virus has re-emerged. Most of these people received antiretroviral treatment very quickly after infection or birth.

A sterilising cure

A sterilising cure works to eradicate HIV from the body completely, including from hidden reservoirs – cells that are infected with HIV during the early stages of infection, but are not actively producing HIV.

There are only two known people who have been cured in this way: Timothy Brown, also known as the 'Berlin patient', and Adam Castillejo, known as the ‘London patient’.

In 2007-08, Brown had chemotherapy and a bone marrow transplant to treat leukaemia. His transplant came from someone with a natural genetic resistance to HIV. Following the transplant, Brown appeared to be cured of HIV. Doctors later replicated the results on Castillejo and in 2020 confirmed that, 30 months after stopping treatment, he was still HIV-free.

Despite the promising results from both cases, this type of procedure would not be suitable for most people living with HIV, as bone marrow transplants are very invasive and risky.

Researching an HIV cure: the main approaches

1. ‘Activate and eradicate’ (sometimes known as ‘Shock and kill’) – aims to flush the virus out of its reservoirs and then kill any cells it infects.
2. Gene editing – changing immune cells so they can’t be infected by HIV.
3. ‘Immune modulation’ – permanently changing the immune system to better fight HIV.
4. Stem cell transplants – replacing a person’s infected immune system with a donor immune system.

Although the stem cell approach has had some success in the past, it’s very dangerous for the patient. It would only be considered a viable option, if the person needed a stem cell transplant to treat another more deadly condition, such as very advanced leukaemia – which, unlike HIV, doesn’t
have as many other safe and effective treatment options available.

While there is promising research being carried out in these areas, there is no viable cure on the horizon.

**An HIV vaccine**

A number of HIV vaccine trials show encouraging results, but we are still a long way from having an effective vaccine. So far, a vaccine would only offer partial protection and would need to be used in combination with other prevention options.

**What should I do until there’s a cure for HIV?**

For now, the best thing to do for your health is to test regularly for HIV. Testing is the only way to know for sure if you have the virus.

If you’ve already tested and your result is positive, you’ll be advised to **start antiretroviral treatment** as soon as possible. Treatment is the only way to manage HIV and prevent it from damaging your immune system. It also reduces the risk of passing HIV on to your sexual partners. With treatment, people living with HIV can have long and healthy lives.


HIV.gov (2021) 'HIV/AIDS Glossary'

Gupta, K et al. (2020) 'Evidence for HIV-1 cure after CCR5Δ32/Δ32' The Lancet HIV, Volume 7, Issue 5, e340-e347