



HIV Treatment Slows Accelerated Aging

People living with HIV are prone to developing comorbidities, such as cardiovascular disease, earlier than their HIV-negative peers.

June 29, 2026 By [Liz Highleyman](#)

Antiretroviral treatment may slow accelerated biological aging by nearly four years in people with HIV, according to a study presented at the Congress of the European Society of Clinical Microbiology and Infectious Diseases in April.

People living with HIV are prone to developing comorbidities, such as cardiovascular disease, earlier than their HIV-negative peers. Despite antiretroviral treatment, the virus remains in the body and can cause chronic inflammation that leads to a host of health problems.

Based on patterns of hundreds of proteins in the blood, Barry Ryan, PhD, of the Swiss technical university EPFL, and colleagues developed a proteomic aging clock that captures changes in inflammatory biomarkers and drug metabolomic pathways. The model was applied to participants in the Swiss HIV Cohort Study. It was first trained on 941 plasma samples from HIV-positive people on effective antiretroviral therapy (ART) and then evaluated using a separate group of 80 people who contributed nearly 300 samples, spanning from before treatment initiation to viral suppression.

Prior to treatment, the clock estimated that participants' biological age was accelerated by a median of 10 years. But after about two years on antiretrovirals, the researchers saw an average reduction of 3.7 years in proteomic age. The longer treatment continued, the more proteomic age moved closer to chronological age, suggesting ongoing biological recovery. The effect was not due to CD4 T-cell recovery alone, suggesting that HIV-related inflammation and immune activation may not be fully captured by traditional clinical markers, such as CD4 count.

"With this group, we have measured the effect of untreated HIV infection and successful ART on telomere shortening, epigenetic aging and now proteomic aging. In each case we have shown that uncontrolled HIV infection is linked to faster aging and that ART significantly slows this," Ryan says.

