

Changes in Epigenetic Age Over Time in Youth with HIV and Youth Exposed to HIV

- Studies in adults have shown that people with HIV may age faster than individuals without HIV.
- This means that some may develop health conditions at a younger age than expected.
- One way to measure this faster aging is to look epigenetic aging and compare it to their actual age.
- Epigenetic means looking at a person's genes plus the factors that can influence how those genes affect health.

WHO PARTICIPATED

- Individuals enrolled in the PHACS AMP Study with sufficient data available, including blood samples collected at certain time points
- Overall, youth with enough available data included 32 youth living with HIV and 7 youth exposed to HIV at birth, but uninfected

WHAT WE DID

These 39 youth had blood samples collected at 2 time points at least 3 years apart.

We measured epigenetic age using a blood test and:

- Looked at estimated age using epigenetics compared to their actual age at two time points
- Looked to describe differences between youth living with and without HIV
- Looked for any relationships between epigenetic age and viral loads and CD4 counts

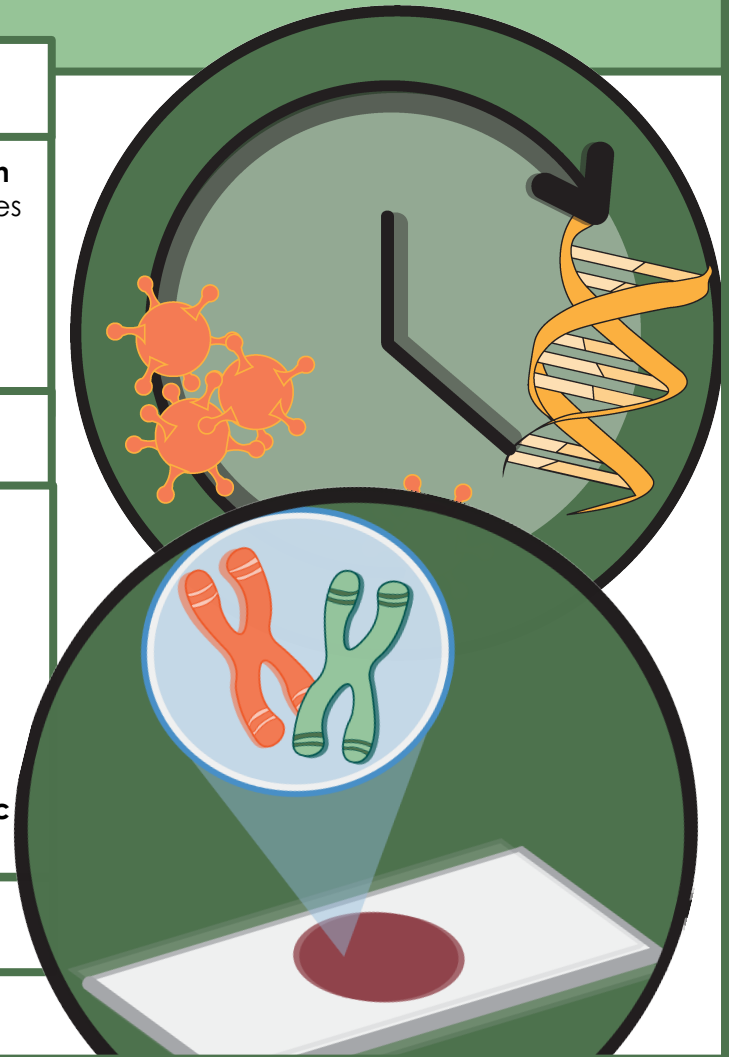
WHAT WE FOUND

ON AVERAGE, PARTICIPANT'S EPIGENETIC AGES WERE:

23% FASTER
than actual age for
Youth Living with
HIV

5% SLOWER
than actual age for
Youth Exposed to
HIV, but Uninfected

- We found faster epigenetic aging over time in youth with HIV.
- We also found that youth who had higher viral loads had a higher epigenetic age over time.
- Higher CD4 count was related to slower aging (lower epigenetic age) over time.



- Future studies should look closely at whether changes in epigenetic age over time are related to anti-viral adherence. Future studies should also include more participants to understand if these results are reliable.
- In addition, studies should evaluate whether faster aging is related to developing certain health conditions for youth living with PHIV.
- We should explore ways to support youth living with PHIV with resources that can help them live the healthiest lives possible.

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Shiau, S., Brummel SS, et al. "Longitudinal changes in epigenetic age in youth with perinatally acquired HIV and youth who are perinatally HIV-exposed uninfected." *AIDS (London, England)* vol. 35,5 (2021): 811-819. PMID: 33587437