

Hodgkin lymphoma survivors show signs of dementia in early adulthood

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In a new study, the majority of individuals treated as children for Hodgkin lymphoma who are now in their 30s, showed signs of being an average of 7.7 years older biologically than their peers and placing them

at risk for cognitive problems.

Led by Wilmot Cancer Institute investigator AnnaLynn Williams, Ph.D., the study found that accelerated aging in a group of 215 survivors tended to impact memory most often, and was consistent with very early signs of dementia.

The data are being showcased at the American Society of Hematology (ASH) [annual meeting](#) 2022, at a press event on December 12, featuring Williams as the first author.

Researchers are still studying ways to intervene, Williams said. In the meantime, she suggests that enhanced health screenings and a [healthy lifestyle](#) are the best strategies to ward off faster aging.

"These survivors have already had one hit from treatment, so you want to minimize damage going forward," Williams said. "Try to be active, quit smoking, eat healthy, see your primary care physician to get proper testing, and exercise your brain."

Williams is a [cancer survivor](#) herself—having been treated for leukemia in 2008 at age 22.

She is an assistant professor of Surgery, division of Supportive Care in Cancer at the University of Rochester Medical Center, and conducted the study with a team at St. Jude Children's Research Hospital while completing post-doctoral training there.

This is the first time anyone has asked scientific questions about why long-term survivors of Hodgkin lymphoma (HL) experience cognitive symptoms, she said. Most studies have focused on risks for other premature health conditions, such as [heart disease](#).

Researchers believe the [cognitive decline](#) in the HL cohort is caused by childhood treatment with high doses of anthracycline-based chemotherapy and radiation therapy, rather than the cancer itself.

The study volunteers agreed to give [blood samples](#) and undergo comprehensive and well-validated neurocognitive testing.

The Hodgkin lymphoma survivors' blood samples were analyzed for DNA methylation, a marker of changes in DNA expression over time. That's when the research team discovered that more than 80% of the HL survivors experienced epigenetic age acceleration, compared to only 20% of the control group.

"Specifically, we saw strong and consistent associations with memory impairment, which suggests that biologic aging is likely related to cognitive aging," Williams said.

Scientists believe the phenomenon of epigenetic age acceleration (EAA), may turn out to be a useful biomarker to improve life for survivors. The 7.7 years cited in the study is the average age difference between the HL survivors and the control group.

The degree of cognitive impairment seen in the Hodgkin lymphoma survivors may not be apparent to family and friends, Williams said—but the survivors themselves would notice things like small lapses in memory. The test results were all "clinically meaningful" and would likely prompt a survivor to feel self-conscious. The HL survivors also self-reported problems with executive function, which is the ability to multitask.

While modern treatments for childhood Hodgkin lymphoma are somewhat different from those used in decades past, it is not clear if today's patients will experience similar cognitive decline. The research is

ongoing.

"I hope this study brings attention to the fact that accelerated biological age is not just associated with heart conditions and such, but that it may also include poor cognitive function," Williams said. "We need more awareness that our Hodgkin lymphoma survivors may be struggling with this."

How to stay sharp

It's not just about doing crossword puzzles or word games routinely—it's important to mix things up, said Annalynn Williams, Ph.D., who noted that [clinical trials](#) are being conducted to measure the effectiveness of combining different types of brain exercises.

One way to exercise the brain, she said, is to push yourself to stay social and connect with family and friends.

Also, try to learn a new skill. Knitting and other crafts are good for the brain, as are baking, jigsaw puzzles, card games, dancing, and taking walks.

More information: Epigenetic Age Acceleration and Neurocognitive Function Among Long-Term Survivors of Pediatric Hodgkin Lymphoma: A Report from the St. Jude Lifetime Cohort.
[ash.confex.com/ash/2022/webpro ... ram/Paper159026.html](http://ash.confex.com/ash/2022/webpro...ram/Paper159026.html)

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