

Cancer treatment during childhood linked to cognitive problems later in life

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Young adults who had chemotherapy as a child have decreased cognitive flexibility and a weaker short-term memory. Their ability to concentrate and long-term memory are largely unaffected.

Researchers from KU Leuven (University of Leuven) and University Hospitals Leuven present these findings in the *Journal of the National Cancer Institute*.

The researchers examined 31 [young adults](#) who underwent chemotherapy as a child - on average around the age of six and a half. They compared these survivors' performance on a number of psychological tests with the results of a control group.

The results show that cognitive functions such as [long-term memory](#) and the ability to concentrate are largely unaffected. These skills had already developed before the treatment. But the cancer treatment has an impact on several skills developed later on.

Slowly developing functions, in particular, are very vulnerable. "Tests that require quick switching between tasks or remembering new information for a short amount of time were clearly more difficult for former cancer patients. The developmental stage of the brain at the start of the cancer treatment probably plays a decisive role," psychiatrist in training Iris Elens and Professor Rudi D'Hooge explain.

The researchers also found a link between cognitive performance and the levels of one particular protein in the brain fluid: phosphorylated Tau (p-Tau), which is part of the internal structure of our nerve cells.

"Our team collected samples of brain fluid during the [cancer treatment](#). We analysed the p-Tau levels to measure the damage to the brain cells," Professor D'Hooge explains. "We found that high concentrations of p-Tau predict cognitive problems

at a later age."

"If we systematically measure these p-Tau levels in the future," Iris Elens continues, "we can offer specific help to children with high values. With early coaching aimed at the most relevant functions we can prevent problems that would otherwise manifest 10 to 15 years after the treatment."

More information: Iris Elens et al, Neurocognitive Sequelae in Adult Childhood Leukemia Survivors Related to Levels of Phosphorylated Tau, *JNCI: Journal of the National Cancer Institute* (2017). [DOI: 10.1093/jnci/djw321](https://doi.org/10.1093/jnci/djw321)

Provided by KU Leuven

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