

Scientists link frailty and neurocognitive decline in childhood cancer survivors

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Scientists at St. Jude Children's Research Hospital have found a link between post-cancer treatment frailty and neurocognitive decline in young adult childhood cancer survivors. A paper on this work was published today in the *Journal of Clinical Oncology*.

Though [frailty](#) is often associated with the elderly, 8% of young adult

childhood cancer survivors meet the criteria for frailty. This study confirms that those who undergo childhood cancer treatment can experience frailty, which can create an early onset of neurocognitive decline in [young adults](#). This study will help with further research to prevent such neurocognitive decline.

"We think this is going to put more attention on this accelerated aging phenotype in young adult survivors," said first author AnnaLynn Williams, Ph.D., St. Jude Epidemiology and Cancer Control. "It's going to make it a bit easier for us to identify the survivors most at risk for neurocognitive decline.

"We can use this information, and the rest of our frailty research, to design a broad intervention that might simultaneously help us improve frailty in survivors as well as neurocognitive functioning," Williams said.

More important than previously recognized

Cancer-related neurocognitive impairment is present in up to 35% of childhood cancer survivors. It can influence all aspects of their lives, including their physical functioning and daily activities.

Over the span of five years, researchers found that survivors who experienced treatment-related frailty had significantly greater declines in memory, attention, processing speed and other functions as compared to survivors who did not experience frailty.

The intensive chemotherapies that young adult survivors experience during their childhood years are known to contribute to [health](#) problems later in life. Frailty is just one such late effect of care.

This study and many others relied on data from the St. Jude Lifetime Cohort study (St. Jude LIFE). This study brings long-term childhood

cancer survivors back to St. Jude for regular health screenings throughout their adult lives. To date, more than 4,300 participants and 580 controls have undergone comprehensive health evaluations tracking a wide range of health outcomes, such as cardiac, reproductive, neuromuscular, neurocognitive and psychosocial function, among others.

"Our work has shown that [childhood](#) cancer survivors are at an increased risk of frailty," said corresponding author Kirsten Ness, Ph.D., of St. Jude Epidemiology and Cancer Control. "Since frailty has now been shown to contribute to neurocognitive deficits among other [health problems](#), it is increasingly apparent that addressing frailty may aid this patient population.

"This is why St. Jude LIFE studies are so important," Ness continued. "It allows us to identify [risk factors](#) for poor health outcomes in the the next generation of children with [cancer](#) so we can provide interventions to help them."

More information: AnnaLynn M. Williams et al, Physiologic Frailty and Neurocognitive Decline Among Young-Adult Childhood Cancer Survivors: A Prospective Study From the St Jude Lifetime Cohort, *Journal of Clinical Oncology* (2021). [DOI: 10.1200/JCO.21.00194](https://doi.org/10.1200/JCO.21.00194)

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