

# Single CT scan in kids low risk for cancers, but 4 or more CTs increases risk

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For children under age 18 years, a single computed tomography (CT) scan is not associated with an increased risk of brain tumours, leukemia or lymphoma, but exposure to 4 or more scans before adulthood more

than doubles the risk, according to [new research](#) in *Canadian Medical Association Journal (CMAJ)*.

Computed tomography in [children](#) has increased worldwide in recent decades, but there is conflicting evidence about the risks of cancer from these scans in this cohort. Computed tomography scans use low-dose radiation that can damage cells.

To understand if there is a link between CT scans and certain types of cancer and tumours, researchers looked at data on 7807 children in Taiwan diagnosed with intracranial tumours, leukemia or lymphoma between 2000 and 2013 matched with 78 057 controls within the Taiwanese national health system. They compared tumour rates for those who had had CT scans versus those who had not.

They found that for 1 CT scan, there was no increased risk of any of the cancers compared with no exposure. Children who received 2 to 3 CT scans had an increased risk of intracranial tumours; those who received 4 or more CT scans had a more than twofold risk of intracranial tumours, leukemia and non-Hodgkin lymphoma.

"Our work reinforces the importance of radiation protection strategies, addressed by the International Atomic Energy Agency," writes Dr. Yu-Hsuan Joni Shao, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan, with co-authors. "Unnecessary CT scans should be avoided, and special attention should be paid to patients who require repeated CT scans."

Younger children appeared to be more at risk of developing cancer from repeated CT scans.

"Parents and [pediatric patients](#) should be well informed on risks and benefits before radiological procedures and encouraged to participate in

decision-making around imaging."

Even though these tumours and cancers are rare, the authors urge careful use of this technology and suggest that [health care providers](#) consider using radiation-reducing techniques.

**More information:** Risks of leukemia, intracranial tumours and lymphomas in childhood and early adulthood after pediatric radiation exposure from computed tomography, *Canadian Medical Association Journal* (2023). [DOI: 10.1503/cmaj.221303](https://doi.org/10.1503/cmaj.221303)

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