

# Children born after frozen-thawed embryo transfer may face higher cancer risk

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Nordic researchers find that children born after frozen-thawed embryo transfer had a higher cancer risk. Credit: Victoria\_Borodina, Pixabay (CC0, [creativecommons.org/publicdomain/zero/1.0/](https://creativecommons.org/publicdomain/zero/1.0/))

A new study of more than 8 million children in Nordic countries suggests the possibility that children born after use of a fertility

procedure known as frozen-thawed embryo transfer may have a higher risk of cancer than children born through other means. Nona Sargisian of the University of Gothenburg, Sweden, and colleagues present these findings on September 1 in the open-access journal *PLOS Medicine*.

Assisted reproductive technology (ART) allows an embryo to be created from a human egg and sperm in a laboratory. A doctor may immediately transfer the embryo to the uterus, or, in a practice that is increasing worldwide, the embryo might be frozen and later thawed before implantation. Prior research suggests that [children](#) born after frozen-thawed transfer may have higher short-term risk of certain medical issues than children born after fresh embryo transfer. However, potential long-term medical risks have been less clear.

To boost understanding, Sargisian and colleagues analyzed [medical data](#) from 7,944,248 children in Denmark, Finland, Norway, and Sweden. 171,744 were born after the use of ART, and 7,772,474 were conceived spontaneously without the use of assisted reproductive technology. Among those born after the use of ART, 22,630 were born after frozen-thawed transfer.

Statistical analysis of the data from national health registries showed that children born after frozen-thawed embryo transfer were at higher risk of cancer than children born after fresh embryo transfer and those without ART. When analyzed as a single group (i.e., those born after frozen-thawed transfer and fresh embryo transfer), however, the use of any type of ART did not have an increased risk of cancer. The most common types of cancer seen in this study were leukemia and tumors of the central nervous system.

The researchers emphasize that their findings should be interpreted with caution, since although the study was large, the number of children born after frozen-thawed embryo transfer who later developed cancer was low

(48 cases), which could limit the statistical strength of the analysis.

Nonetheless, the findings may raise concerns about frozen-thawed embryo transfer. Future research will be needed to confirm a possible link between the procedure and increased risk of cancer, as well as any biological mechanisms that may underlie such risk.

Coauthor Ulla-Britt Wennerholm adds, "A higher risk of cancer in children born after frozen-thawed embryo transfer in assisted reproduction, a large study from the Nordic countries found. The individual risk was low, while at a [population level](#) it may have an impact due to the huge increase in frozen cycles after assisted reproduction. No increase in [cancer](#) was found among children born after assisted reproduction techniques overall."

**More information:** Cancer in children born after frozen-thawed embryo transfer: A cohort study, *PLoS Medicine* (2022). [DOI: 10.1371/journal.pmed.1004078](#)

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