

Fertility treatment affects children's growth patterns but not for long

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Children born as a result of fertility treatment have different growth patterns to naturally-conceived children but, by the time they reach the age of 17, they are of similar height, weight and body mass index (BMI),

according to research published today (Wednesday) in *Human Reproduction*.

The study of 81,461 [children](#) from the Norwegian Mother, Father and Child Cohort Study (MoBa) and 544,113 teenagers screened for military service and registered in the Armed Forces Health Registry should provide reassurance for parents of children born as a result of assisted reproduction technology (ART) say the researchers.

Although it is known that ART is associated with lower birthweight, the extent to which differences in growth persist during childhood has not been clear. Further research was also needed to see if patterns of growth could be affected by different fertility treatments or underlying subfertility in parents who conceive naturally.

Dr. Maria Magnus, a researcher at the Centre for Fertility and Health at the Norwegian Institute of Public Health (Oslo, Norway) and colleagues looked at data for 79,740 naturally-conceived and 1,721 ART children up to the age of seven in the MoBa study. Among the naturally-conceived children were 5,279 born to subfertile parents who had taken more than 12 months to conceive. Among the ART children, 1,073 were born from fresh embryos and 179 from frozen embryos.

They found that children born after ART had an average birthweight of 3,495 g and an average length of 50.2 cm compared to 3,608 g and 50.5 cm in naturally-conceived children. However, the ART children grew more quickly in their first 18 months and after one year of age they were slightly longer and heavier than naturally-conceived children—a difference that persisted until the age of seven. Children born to subfertile parents were also smaller at birth, although not as small as ART children, and showed a similar growth pattern as ART children. Children born from fresh embryos were smaller than naturally-conceived children, whereas those born from frozen embryos were similar to

naturally-conceived children.

Then the researchers looked at data for 17-year-olds in the Armed Forces Health Registry, which included information on mode of conception from the national birth registry, as well as their self-reported height, weight and BMI at 17. They found little difference between ART and spontaneously-conceived teenagers or between those born as a result of frozen or fresh embryo transfer.

Dr. Magnus said: "The fact that we observed no differences in height, weight or BMI between ART and naturally conceived offspring at age 17 is reassuring. Our study is the first to show clear differences in the growth patterns between children conceived after fresh and frozen embryo transfer up to school age. Further studies are necessary to evaluate what might underlie these differences and longer follow-up is necessary to evaluate whether the accelerated growth observed among ART children during the first years of life might have an impact on later health."

Other research has suggested that rapid growth in childhood might have an adverse effect on the heart, blood vessels and metabolism. One study has shown that rapid weight gain in children born as a result of fertility treatment was linked to higher blood pressure from the ages of 8 to 18, while another showed a higher risk of type 1 diabetes.

"As an increasing number of ART offspring enter adulthood, future studies need to evaluate potential long-term health effects," said Dr. Magnus.

Possible explanations for why ART children are smaller at birth include the effect of hormone treatment to stimulate ovulation in the mothers, or the effect of the medium in which the embryos are stored in the laboratory. Factors involved in the parents' fertility problems might also

play a role and this is supported by the finding that naturally-conceived babies born to subfertile parents were smaller.

Limitations of the study include the fact that there might be some selection bias as participation in the MoBa study was voluntary, and that the researchers relied on self-reported measurements of height and weight for the teenagers in the Armed Forces Health Registry. A strength of the study is the large numbers of children and teenagers included, and also the information on parental subfertility in the MoBa study.

More information: *Human Reproduction* (2021). [DOI: 10.1093/humrep/deab007](https://doi.org/10.1093/humrep/deab007)

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