Concerns about effects of fertility treatment on children's development are unwarranted, large study suggests

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Differences in the growth, weight, and body fat levels of children conceived through fertility treatment are small, and no longer apparent

by late adolescence, finds new research. The University of Bristol-led study, published in *JAMA Network Open* today, sought to address concerns around whether fertility treatment is associated with growth, weight, and body fat from infancy to early adulthood.

Since the first birth of a child by in vitro fertilization (IVF), questions have been raised about the risks to children conceived this way. While previous studies have shown an increased risk of low birthweight and preterm birth in offspring conceived by assisted reproductive technology (ART), relatively little is known about long-term growth and weight gain.

The study, led by an international research group from the Assisted Reproductive Technology and Future Health (ART-Health) Cohort Collaboration, assessed whether conception by ART, which mostly involves IVF, was associated with growth, weight, and body fat from infancy to early adulthood.

Using data on 158,000 European, Asian-Pacific, and Canadian children conceived by ART, the data sample included* 8,600 children from Bristol's Children of the 90s study, a world-leading health study based in Bristol which has followed 14,000 pregnant women and their offspring since 1991.

The team's findings show those conceived using ART were on average shorter, lighter, and thinner from infancy up to early adolescence compared with their naturally conceived peers. However, the differences were small across all ages and reduced with older age.

Dr. Ahmed Elhakeem, Senior Research Associate in Epidemiology in Bristol Medical School: Population Health Sciences (PHS) at the University of Bristol, and lead study author, said: "This is important work. Over the last three decades conception by ART has increased. In

the UK just over one in 30 children have been conceived by ART, so we would expect on average one child in each primary school class to have been conceived this way. Since the first birth of a child by IVF, concerns have been raised about the risks to the children conceived.

"Parents and their children conceived by ART can be reassured that this might mean they are a little bit smaller and lighter from infancy to adolescence, but these differences are unlikely to have any health implications. We acknowledge it is important that as more people conceived by ART become adults, we continue to explore any potential health risks at older age."

Deborah Lawlor, Professor of Epidemiology, MRC Investigator and British Heart Foundation Chair and senior author from Bristol Medical School PHS, added: "This important research is only possible through large scale international collaboration and longitudinal health studies, where participants contribute health data throughout their entire lives. We are particularly grateful to the European Research Council and Horizon 2020 for making this possible and to all of the study participants and researchers."

Peter Thompson, Chief Executive, The Human Fertilization and Embryology Authority (HFEA), said: "Around 1 in 7 couples have difficulty conceiving in the UK which leads to around 53,000 patients a year having fertility treatment (IVF or Donor Insemination). The findings from this study will come as a welcome relief to these patients who begin treatment in the hope of one day having healthy children of their own.

"Health outcomes in children conceived using Assisted Reproductive Technology is a high priority for the HFEA and we monitor the latest research and provide information for patients and professionals. Anyone considering fertility treatment can access this, and other high-quality

impartial information on fertility treatments and UK licensed clinics at www.hfea.gov.uk."

Studies with larger samples at older ages are now needed. Other outcomes such as cardiometabolic risk factors following ART also require investigation. The collaboration network, developed as part of the study, will facilitate future research into health outcomes following ART.

More information: Association of assisted reproductive technology with offspring growth and adiposity from infancy to early adulthood, *Journal of the American Medical Association* (2022). DOI: 10.1001/Jamanetworkopen.2022.22106

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