



BEYOND IVF: LONG-TERM MOTHER AND CHILD HEALTH OUTCOMES FOLLOWING ART

DR. ANJA BISGAARD PINBORG^{1,2}

1: The Fertility Clinic, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

2: Institute of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

More than 10 million children have been born after assisted reproductive technologies (ART). This lecture synthesizes current evidence on long-term outcomes beyond the immediate IVF process, with a focus on maternal cardiometabolic health and cancer risk, as well as child health outcomes extending from infancy into adolescence and early adulthood. Overall, findings are reassuring: most studies demonstrate no substantial increase in long-term morbidity among women undergoing ART compared with women conceiving naturally, although underlying infertility and maternal characteristics contribute significantly to observed differences. For ART-conceived children, long-term outcomes are likewise largely favorable. While small elevations in risks of cardiometabolic traits, growth patterns, and certain rare conditions have been reported, these differences are generally modest and often attenuate when adjusting for parental factors, plurality, and perinatal complications. Emerging evidence suggests that specific ART modalities—including frozen embryo transfer and oocyte donation—may be associated with distinct risk profiles, warranting further investigation. Continued harmonized, longitudinal research is essential to disentangle treatment effects from confounding by indication and to inform evidence-based counselling for families considering ART.

Take Home Messages

- ART now account for an increasing proportion of births worldwide, yet long-term maternal and offspring health outcomes remain incompletely characterized.
- Emerging evidence suggests slightly elevated risks of cardiovascular, metabolic, and obstetric complications in ART mothers, although these associations appear substantially confounded by underlying infertility and parental characteristics.
- Children conceived after ART generally show reassuring long-term health profiles, with small increases in cardiometabolic and perinatal risks primarily linked to parental factors, multiple gestation, and frozen embryo transfer.
- Differences between fresh vs frozen embryo transfer, ICSI, preimplantation genetic testing (PGT), and oocyte donation highlight the need for outcome-specific evaluation rather than treating ART as a single exposure.



OPTIMIZING FROZEN EMBRYO TRANSFER

DR. ANJA BISGAARD PINBORG¹²

1: The Fertility Clinic, Copenhagen University Hospital, Rigshospitalet, Copenhagen, Denmark

2: Institute of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

Frozen embryo transfer (FET) has rapidly evolved from a supplementary technique to a dominant strategy in assisted reproduction, yet the optimal approach to scheduling, endometrial preparation, and luteal support remains debated. Evidence now suggests that natural-cycle FET provides favourable maternal and perinatal outcomes in ovulatory women, whereas programmed cycles offer logistical advantages but may increase the risk of hypertensive disorders of pregnancy. At the same time, improvements in vitrification, hormone monitoring, and personalized luteal-phase support have enhanced implantation efficiency, although high-quality comparative trials remain limited. This lecture will review current evidence, highlight emerging concepts such as minimizing supraphysiological hormone exposure and improving endometrial-embryo synchrony, and discuss how individual patient characteristics can guide protocol selection. Together, these developments illustrate a shift toward more personalized and physiologically aligned FET strategies aimed at maximizing success while safeguarding maternal health.

Take Home Messages

- ☞ Natural-cycle FET appears to offer the most favorable obstetric profile in ovulatory women, with lower rates of hypertensive disorders compared to programmed cycles.
- ☞ Programmed FET cycles provide scheduling flexibility but may involve higher supraphysiological hormone exposure and associated maternal risks.
- ☞ Advances in vitrification, hormone monitoring, and personalized luteal support continue to improve implantation efficiency.
- ☞ Optimizing FET requires aligning the protocol with individual patient characteristics to enhance endometrial-embryo synchrony and overall safety.