

# The risk of cerebral palsy linked to IVF has more than halved in the past two decades

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Fifteen years ago a large population study from Denmark found a significantly increased risk of cerebral palsy in infants born as a result of assisted reproduction. Although the absolute risk was small, such studies at this time made cerebral palsy the greatest developmental birth defect risk associated with IVF, and a concern in its overall safety profile.

Now, another large-scale population study, using data from [birth](#) cohorts in Denmark, Finland and Sweden, has found that the risk of cerebral palsy in IVF children has declined by more than 50% over the past two decades, largely, say the researchers, because of the reduction in the rate of twin births in IVF. The results of the study are presented today by Dr. Anne Lærke Spangmose from Rigshospitalet, Copenhagen University Hospital at the online Annual Meeting of ESHRE.

The study included three national IVF birth cohorts, the first born in the years 1990 to 2010 in Denmark, the second from 1990 to 2010 in Finland, and the third from 1990 to 2014 in Sweden, in total 111,844 children. These births were then stratified into six groups: those born 1990-1993, 1994-1998, 1999-2002, 2003-2006, 2007-2010 and 2011-2014. The national health records of these children were followed up until 2014 for Denmark and Finland and until 2018 for Sweden, and compared with the records of almost 5 million naturally conceived children.

The risk of cerebral palsy was still evident in the results of the study, but the overall prevalence was found to decline consistently over the six time-

periods—from 12.5 cases per 1000 live born in 1990-1993 to 3.4 per 1000 in 2011-2014. By contrast, throughout the study period the prevalence dropped only slightly in the children conceived naturally—from 4.3 to 2.1 per 1000. However, among the singletons born from IVF, the prevalence of cerebral palsy decreased from 8.5 per 1000 (1990-1993) to the background population rate of 2.8 (2011-2014), but remained stable for IVF twins at 10.9 per 1000.

The results, says Dr. Spangmose, provide strong evidence that reducing the number of twins born after IVF treatment has lowered the risk of cerebral palsy in the IVF population—indeed to a level comparable with those naturally conceived. "Multiple embryo transfer is still standard care in many countries," she warns. "Our findings emphasize that single embryo transfer and singleton births should be encouraged worldwide."

She notes that over the past two decades there has been considerable reduction in twin birth rates after IVF treatment, particularly in Europe and especially the Nordic countries, where IVF twin rates have declined from almost 25% in the 1990s to less than 5% today, not much different from the 2% twin rate seen in the background population of naturally conceived pregnancies.

This reduction in the rate of multiple deliveries in IVF has also brought about a reduction in rates of preterm birth (the greatest obstetric risk of multiplicity), which is also known to increase the risk of cerebral palsy. Thus, while the precise cause of cerebral palsy is largely unknown, preterm birth, low birth weight and twin births are known to be major risk factors. The prevalence of cerebral palsy increases exponentially with the number of fetuses in a pregnancy, thought primarily as a result of an increased risk of preterm birth and [low birth weight](#).

Large registry studies have now shown that the risk of cerebral palsy has virtually disappeared in IVF children born in the Nordic countries after a

policy of single [embryo transfer](#) was introduced in the early 2000s.

The strength of this study, says Dr. Spangmose, lies in its large sample size—with almost 112,000 IVF [children](#) born over 24 years in Denmark, Finland, and Sweden. "The inclusion of complete IVF and naturally conceived birth cohorts makes our data robust," she adds, "and has allowed assessment of the true risk of [cerebral palsy](#) in IVF and its decline over time."

**More information:** Abstract 0-144, Tuesday 7 July 2020: The risk of cerebral palsy in ART children has more than halved over two decades - a Nordic collaborative study on 55,233 liveborn children

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