

Autism in a test tube? Research suggests link between IVF treatments and autism

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The first "test tube baby" was born in 1978. With advances in reproductive science, an estimated one percent of all American babies are now born each year through in vitro fertilization (IVF). But IVF and other assisted fertility treatments may be solving one problem by creating another, suggests new evidence from Tel Aviv University.

In a recent study, Dr. Ditzza Zachor of Tel Aviv University's Sackler School of Medicine reported a strong link between IVF and mild to moderate cases of [autism](#). Her findings were presented last month at the International Meeting for Autism Research in Philadelphia.

According to her research at the Autism Center at the Assaf Harofeh Medical Center in Israel, which Dr. Zachor directs, 10.5% of 461 children diagnosed with a disorder on the autism spectrum were conceived using IVF, a significantly higher number than the 3.5% autism rate in the general Israeli population.

Other factors in play

While the study doesn't draw any definitive conclusions, it presents some urgent questions, says Dr. Zachor. "It's too early to make a serious deduction based on that evidence alone," she says, citing other birth-related factors in her study, such as low birth rate and prematurity. Dr. Zachor's ongoing research will attempt to separate out these risk factors to come up with more precise numbers for autism and other prenatal conditions in IVF.

The key may be "imprinting," a biochemical procedure during cell division which determines which genes will be selected or "expressed" in the embryo. Research into epigenetics -- changes in gene expression that occur without a change in the DNA sequence -- suggest that the malformations may be caused by imprinting abnormalities introduced into the embryo while it's in a [test tube](#) environment, says Dr. Zachor. One such disorder linked with IVF appears to be Angelman syndrome.

However, Dr. Zachor does not want to discourage infertile couples from undergoing IVF implantation, which most often results in a healthy child.

Age-appropriate fertility treatments

Dr. Zachor notes that mothers in her study who had IVF tended to be older — with a median age of 32.6 years. Also significantly, nearly 4% of the children with autism were born prematurely, and about 5% of those had a low birth weight. In the general population, only about 1% of all newborns are delivered with a low birth weight.

Aware of these risks, however, health practitioners may be able to intervene and find ways to avoid the problems, the researcher says. For example, they might recommend that IVF treatments be delayed for a longer period, despite any psychological stress this might cause to would-be parents. Some researchers believe that unassisted fertilization is a better way to avoid negative health effects.

"Many infertile couples choose this procedure, and they need to know whether there is a risk of autism," concludes Dr. Zachor. She stresses, however, that most women who undergo fertility treatments should not be scared away from IVF procedures: the majority of children born using IVF do not have autism, and most children who have autism were not conceived using IVF.

Provided by Tel Aviv University

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