

# The transfer of chromosomally 'abnormal' embryos can still result in pregnancy in IVF

July 4 2017

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IVF embryos whose cells have mixed chromosomal profiles - one normal, another abnormal - still have the potential to implant in the uterus and become a healthy pregnancy, according to a study presented today at the 33rd Annual Meeting of ESHRE.

This pattern of embryonic mosaicism, which is characterised by the presence of two or more genetically distinct cell lineages, typically one with a chromosome abnormality and the other with a normal chromosome composition, has become a controversial topic in recent months, with debate over their potential viability. In the light of this latest study, which was performed by the GENOMA group and European Hospital IVF Center in Rome, Dr Francesco Fiorentino from the Molecular Genetics Laboratory of GENOMA, who will present today's study, said that its results "confirm that [mosaic embryos](#) can develop into healthy euploid [chromosomally healthy] newborns".

This possibility was first raised by Dr Fiorentino's group and the European Hospital in a letter to the *New England Journal of Medicine* in November 2015, which described six healthy deliveries in a small series of 18 women for whom embryo screening had found no chromosomally normal (euploid) embryos.(1) Up to this point mosaic embryos were not usually transferred in IVF because they (like all other aneuploid embryos) were considered abnormal. Even in their NEJM letter, the Rome investigators noted that "it is reasonable to assume that mosaicism reduces the likelihood of success of IVF".

The bottom line of this latest study reported at ESHRE is that success or failure following the transfer of a mosaic embryo in IVF depends on the extent of the mosaicism and chromosomal abnormality (aneuploidy) in the embryo.

The study included 73 women for whom embryo screening following IVF had found no chromosomally normal embryos for transfer. Screening had, however, identified mosaic embryos in each of these patients, which were then offered for transfer. For the purpose of the study and assessment of development potential, these mosaic embryos were classified as having low (50%) degrees of aneuploidy.

Results of the study showed that pregnancy and delivery were indeed possible following the transfer of mosaic embryos. However, the transfers of mosaic embryos with a high percentage of chromosomally abnormal cells (>50%) resulted in a live birth rate of 16.7%, with a miscarriage rate of 10%. In contrast, mosaic embryos with a lower aneuploidy percentage (

Citation: The transfer of chromosomally 'abnormal' embryos can still result in pregnancy in IVF (2017, July 4) retrieved 18 April 2024 from <https://medicalxpress.com/news/2017-07-chromosomally-abnormal-embryos-result-pregnancy.html>

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