

THAWED EUPLOID DAY 6 BLASTOCYSTS THAT ARE FULLY HATCHED BEFORE EMBRYO TRANSFER HAVE LOWER IMPLANTATION RATES THAN THOSE THAT REMAIN IN THE ZONA PELLUCIDA

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Abstract Body

Objective: Blastocysts are usually biopsied for preimplantation genetic testing (PGT) at the time of blastocyst formation on day 5 or day 6 of culture after in vitro fertilization. Thawed day 6 blastocysts that have been biopsied can sometimes be completely hatched out of the zona pellucida before they are transferred to the uterus. The objective of this study was to determine if thawed euploid day 6 blastocysts that are fully hatched at the time of embryo transfer have lower implantation rates compared to thawed euploid day 6 blastocysts that remain in the zona pellucida.

Design: Retrospective study of 97 frozen embryo transfer (FET) cycles in which a single hatched or unhatched euploid day 6 blastocyst was transferred.

Materials and Methods: Laser-assisted trophoctoderm biopsy was performed for PGT at the time of blastocyst formation then vitrified. After thawing, a single euploid day 6 blastocyst was transferred. Implantation rate was calculated as the ratio of the number of heartbeats to the number of transferred euploid embryos. A two-sample t-test was used to determine if thawed euploid day 6 blastocysts that were fully hatched at the time of embryo transfer had lower implantation rates compared to those that were unhatched. A $p < 0.05$ was deemed statistically significant.

Results: The mean maternal age for both the euploid day 6 hatched and unhatched blastocyst groups was 35. After FET, the mean implantation rate of hatched euploid day 6 blastocysts was 22.0% (N= 41), which was significantly lower (P-value=0.02) than the implantation rate of 42.8% for those that were unhatched (N=56).

Conclusions: Thawed euploid day 6 blastocysts that were fully hatched at the time of the embryo transfer procedure had a lower implantation rate compared to thawed euploid day 6 blastocysts that remained in the zona pellucida. Thawed and fully hatched day 6 blastocysts may be more fragile during the embryo transfer procedure.