

Extended Abstract

## Effect of endometrial thickness on live birth rates in fresh and frozen embryo transfers in women under 38 years of age

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**Keywords:** Endometrial thickness, fresh blastocyst transfer, frozen blastocyst transfer, single embryo transfer, live birth

### Objective

Many IVF clinics use endometrial thickness as a predictive factor for IVF outcomes, as research has shown a positive association between endometrial thickness and favorable IVF outcomes. A thickness of 6-8 mm is often used as a cut-off in for the decision of whether or not to transfer an embryo in both fresh and frozen cycles. However, prior studies investigating the relationship between a thin endometrium and IVF outcomes have overwhelmingly been performed in fresh cleavage stage embryo transfers. Given the recent trend toward the transfer of frozen blastocyst transfers, we aimed to determine whether endometrial

thickness predicts live birth in both fresh and frozen blastocyst stage single embryo transfers.

### Design

Retrospective cohort study with IRB exempt approval.

### Results

In fresh blastocyst transfers (n=765), endometrial thickness as a continuous variable was significantly correlated with the odds of live birth in a generalized linear mixed statistical model. For every 1mm increase in endometrial thickness, the odds of live birth increased by 9.3% (95%CI 2.8-16.2; p=0.0044). The

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Please cite this abstract as: Place TL, Mejia RB, Sparks AET, Summers KM, Duran EH, Ten Eyck P, Van Voorhis BJ. Effect of endometrial thickness on live birth rates in fresh and frozen embryo transfers in women under 38 years of age. Proc Obstet Gynecol. 2018;8(3):Article 29 [ 2 p.]. Available from: <http://ir.uiowa.edu/pog/>. Free full text article.

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percentage of total oocytes fertilized was positively correlated with the odds of live birth. A lower embryo stage and lower trophoctoderm grade were both negatively associated with the odds of live birth.

*Presented at "Complicated Maternal Fetal Medicine Cases," the University of Iowa Carver College of Medicine Ob/Gyn Postgraduate Conference, 2 November 2018, Hilton Garden Inn, Iowa City, Iowa.*

In frozen blast transfers (n=292), endometrial thickness as a continuous variable was significantly associated with the odds of live birth. For every 1mm in endometrial thickness, the odds of live birth increased by 13.1% (95%CI 1.6-26.0; p=.0255). In this model, ICM grade B&C compared to grade A was also positively associated with the odds of live birth. BMI was negatively associated with odds of live birth.

## **Conclusions**

Our research suggests that a thicker endometrium is linearly associated with improved odds of live birth after both fresh and frozen single blastocyst transfer in women 37 years and younger. These data confirm previous studies using fresh cycle data on cleavage stage embryos. Furthermore, we are the first to demonstrate that endometrial thickness is also an independent predictor of live birth in frozen blastocyst transfers. Although our findings were significant, we still observed favorable live birth rates at thicknesses as low as 6-8mm.

Therefore, the use of cut-offs above 6mm for embryo transfer do not appear to be clinically useful in these populations.