



**AMERICAN SOCIETY FOR  
REPRODUCTIVE MEDICINE**



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**Title:**

**USING NEW TECHNOLOGY TO ASK AN OLD QUESTION: DOES THE UTERUS AGE?**

**Authors:**

Lucky Sekhon, MD<sup>2</sup>, Joseph A Lee, BA<sup>1</sup>, Michael Whitehouse, BA<sup>1</sup>, Tanmoy Mukherjee, MD<sup>1,2</sup>, Benjamin Sandler, MD<sup>1,2</sup>, Lawrence Grunfeld, MD<sup>1,2</sup>, and Alan B Copperman, MD<sup>1,2</sup>

**Affiliations:**

1. Reproductive Medicine Associates of New York, 635 Madison Ave 10th Floor New York, New York, United States, 10022.
2. Obstetrics, Gynecology and Reproductive Science, Icahn School of Medicine at Mount Sinai, Klingenstein Pavilion 1176 5th Ave, 9th Floor NY, NY, United States, 10029.

**Objective:**

Advanced ovarian age is often implicated in implantation failure and early pregnancy loss in women aged 40 and over. The role of the uterus in reproductive aging has been investigated, but with conflicting conclusions. We seek to investigate the impact of uterine age on reproductive capacity while controlling for oocyte quality by using Comprehensive Chromosomal Screened Embryos.

**Design:**

Retrospective cohort study.

**Materials and Methods:**

Women undergoing in vitro fertilization (IVF) with preimplantation genetic screening (PGS) from September 2010 to March 2015, who used either donor or autologous oocytes, were included. Fresh or thawed euploid blastocysts, confirmed by PGS, were selected for embryo transfer (ET). Student's t-test calculated mean values and a Poisson regression analysis examined the effect of uterine and oocyte age on IVF outcomes.



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### **Results:**

Eight hundred and sixty nine women's (range of 23-54 years (36.75+/-4.3)) cycles were analyzed. Autologous and donor oocytes ranged from 23-39 years (35.88+/-4.46). Per each additional year of embryo recipient age, the endometrial thickness decreased by 0.028mm (p=0.086). Per each additional year of oocyte age, the number of eggs retrieved significantly decreased by a factor of 2.5% (p<0.05). There was a significantly greater number of euploid embryos transferred in patients under age 40 (1.28 vs. 1.14, p<0.05). Fifty-four percent of transfers resulted in implantation, and 50.4% progressed to a clinical pregnancy. An early pregnancy loss was observed in 19.4% of cycles, the majority of which were biochemical. The implantation of euploid blastocysts and the development of successful clinical pregnancy neither correlated with uterine age (r=1.02, p=0.6487, r=1.02, p=0.6837) nor oocyte age (r=0.98, p=0.7408, r=0.99, p=0.8009), respectively.

### **Conclusion:**

While declining oocyte quantity and quality are well known to be the primary drivers of reproductive aging, the majority of supporting data has been retrospective and has been obtained using circumstantial evidence from the ovum donation model. Using newer molecular techniques, we have demonstrated that uterine aging does not contribute to the age-related decline in fertility. Women of advanced reproductive age who use their own or a donors' fresh or frozen embryos can be reassured that implantation rates will not be affected by the chronological age of their uterus.

### **Support:**

None