



AMERICAN SOCIETY FOR  
REPRODUCTIVE MEDICINE



**American Society for Reproductive Medicine 2015 Annual Meeting**  
**October 17 to 21, 2015 • Baltimore, Maryland**

**Title:**

MALE PARTNER AGE IS NOT ASSOCIATED WITH INCREASED RATE OF EMBRYONIC ANEUPLOIDY

**Authors:**

Julian A. Gingold, MD, PhD<sup>1,2</sup>, Michael C. Whitehouse BA<sup>1</sup>, Joseph A. Lee BA<sup>1</sup>, Samantha Parsons, BA<sup>1</sup>, Natan Bar-Chama, MD<sup>1,2</sup>, 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, 1176 Fifth Avenue, 9th Floor, New York, New York, United States, 10029.

**Objective:**

Increased maternal age is known to be the primary etiology of embryonic aneuploidy. Increased male age has also been theorized to influence the genetic competence of embryos. This study aims to determine whether embryo aneuploidy rates can be correlated with male age in couples that pursue in vitro fertilization (IVF) cycles when controlling for oocyte age.

**Design:**

Retrospective cohort study

**Materials and Methods:**

Couples who presented for an IVF cycle and utilized aneuploidy screening (pre-implantation genetic screening (PGS)) from June 2010 - March 2015 were included. Female and male partner ages were binned (A:  $\leq 35$ ; B: (35-38]; C: (38-41]; D: (41-43]; and E:  $> 43$ ). The aneuploidy rate for the each male-female age group interaction was computed, with 95% confidence intervals calculated by Clopper-Pearson method. The aneuploidy rate was modeled by logistic regression. The youngest age groups were considered reference factors. The model was assessed by chi-square of ANOVA with significance at  $p < 0.05$ .

**Results:**

Couples (n=819) consisted of females (23.3-47.0 yo) and male partners (22.6-64.2 yo) who underwent 1108 autologous IVF cycles. Aneuploidy screening was performed on 4658 embryos, of which 2194 were found to be aneuploid. Increased female age was significantly associated with aneuploidy rates, with greater effect strength with increasing age ( $p < 0.05$  for



**AMERICAN SOCIETY FOR  
REPRODUCTIVE MEDICINE**



age group B relative to age group A,  $p < 0.001$  for groups C-E relative to age group A). Male partner age was not significantly associated with aneuploidy rate at any age.

**Table:**

Female Age	Male Age	Total Embryos	Aneuploid Embryos	% Aneuploid	95% CI
A	(22,35]	1046	352	0.34	[0.31-0.37]
A	(35,38]	334	119	0.36	[0.30-0.41]
A	(38,41]	189	70	0.37	[0.30-0.44]
A	(41,43]	45	10	0.22	[0.11-0.37]
A	(43,65]	54	14	0.26	[0.15-0.40]
B	(22,35]	172	58	0.34	[0.27-0.41]
B	(35,38]	380	156	0.41	[0.36-0.46]
B	(38,41]	318	140	0.44	[0.38-0.50]
B	(41,43]	145	56	0.39	[0.31-0.47]
B	(43,65]	161	67	0.42	[0.34-0.50]
C	(22,35]	27	15	0.56	[0.35-0.75]
C	(35,38]	105	52	0.50	[0.40-0.59]
C	(38,41]	470	272	0.58	[0.53-0.62]
C	(41,43]	131	68	0.52	[0.43-0.61]
C	(43,65]	353	220	0.62	[0.57-0.67]
D	(22,35]	12	7	0.58	[0.28-0.85]
D	(35,38]	32	24	0.75	[0.57-0.89]
D	(38,41]	54	40	0.74	[0.60-0.85]
D	(41,43]	57	47	0.82	[0.70-0.91]
D	(43,65]	201	155	0.77	[0.71-0.83]
E	(22,35]	2	2	1.00	[0.16-1.00]
E	(35,38]	1	1	1.00	[0.03-1.00]
E	(38,41]	4	4	1.00	[0.40-1.00]
E	(41,43]	19	16	0.84	[0.60-0.97]
E	(43,65]	90	76	0.84	[0.75-0.91]

**Conclusions:**

When controlled for oocyte age, increased paternal age is not associated with aneuploidy in embryos. Older men who pursue IVF treatment with their partners may face additional social, ethical and health challenges, but they can be reassured that their sperm do not appear to have an increased risk of producing chromosomally abnormal embryos. As increased



AMERICAN SOCIETY FOR  
REPRODUCTIVE MEDICINE



Icahn  
School of  
Medicine at  
Mount  
Sinai

numbers of older men attempt parenthood, additional data will be available for analysis and the power of our conclusion can be increased. In addition, ongoing research into potential non-genomic contributors to embryonic and neonatal pathophysiology will help further clarify the effect of paternal aging on progeny.

**Support:**

None

The Effect of Male and Female Age  
On Aneuploidy

