



REPEAT BIOPSY OF CRYOPRESERVED EMBRYOS FOR PREIMPLANTATION GENETIC SCREENING (PGS) REANALYSIS DOES NOT ADVERSELY IMPACT REPRODUCTIVE POTENTIAL

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OBJECTIVE: The safety of rebiopsy for PGS reanalysis of embryos with initially non-diagnostic results (unamplified or nonconcurrent) has been debated. This study seeks to determine the reproductive potential of euploid embryos after they have undergone repeat biopsy.

DESIGN: Retrospective cohort study

MATERIALS AND METHODS: All embryos submitted by one IVF center to a single genetics laboratory between 2009 and 2016 that required a second biopsy and underwent PGS reanalysis with a euploid result prior to being transferred were included in the study group. Embryos were initially biopsied at the blastocyst stage and then cryopreserved. When a non-diagnostic result was obtained, embryos were warmed for repeat biopsy and recryopreserved or, in rare cases, transferred on the same day of rapid PGS reanalysis. The control group consisted of embryos that did not initially undergo PGS prior to cryopreservation, but were later warmed, biopsied, found to be euploid, and subsequently transferred. PGS was performed using real-time PCR or next generation sequencing (NGS), depending upon the platform being utilized in the genetics laboratory at the time of analysis. Sustained implantation rates (SIRs) and clinical loss rates were compared using Pearson's chi square test.

RESULTS: Frozen embryo transfers involving 104 rebiopsied euploid embryos were available for review. The control group contained 570 previously cryopreserved euploid embryos transferred after a single biopsy. There were no differences in sustained implantation rates or clinical loss rates between the two groups.

CONCLUSIONS: Pregnancy rates after transfer of euploid embryos that require repeat biopsy are comparable to those following transfer of euploid embryos that are subjected to warming and biopsy for initial PGS analysis. This finding suggests that repeat biopsy itself does not harm the reproductive potential of the embryo. Patients should be counseled that embryos can be safely rebiopsied in order to obtain a diagnostic result and, if euploid upon reanalysis, can be subsequently transferred with acceptable pregnancy rates.

Outcomes following transfer of euploid embryos after rebiopsy compared to those only biopsied once			
	Study group (n=104)	Control group (n=570)	P-value
SIR	48.1%	49.4%	0.81
Clinical loss rate	18.3%	15.3%	0.44