Embryo Donation
INTERNATIONAL
Building Families

Embryo Donation and Assisted Reproductive Technologies General Consent

Embryo Donation International, P.L.

Introduction:

This document will outline the risks and benefits of Embryo Donation and Assisted Reproductive Technology (ART) procedures.

Preimplantation Genetic Testing for Aneuploidy (PGT-A):

Some donated embryos have undergone a process called PGT-A. In this procedure, five or more cells are removed from the outer layer of the early embryo and sent for genetic analysis. Biopsies are commonly done on Day 5 or 6 of growth. The biopsied embryos are then frozen (vitrified).

The DNA in biopsy specimens is tested to check if the embryo has the normal number of chromosomes—either 46,XX (female) or 46,XY (male). Embryos that are genetically tested as normal generally implant slightly more often and have a somewhat lower chance of miscarriage. However, PGT-A testing is not perfect. The results can be wrong about 1–2% of the time, and even embryos with normal PGT-A results still fail to implant and are miscarried.

There are a few extra points regarding PGT-A for us that should be understood:

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- False-positive rates, in which the test results suggest that the embryo is abnormal but, when transferred, result in a normal live birth, can be as high as 18%.
- False-negative rates, where the results suggest the embryo is normal, but when transferred, result in an abnormal gestation, will occur around 1-2% of the time.
- With rare exceptions, only elective single-embryo transfer (eSET) procedures are performed using genetically tested normal embryos.
- This test is not sufficiently accurate to detect additional chromosome sets, translocations, or some deletions.
- This test also does not screen for specific genetic disease states (e.g., cystic fibrosis).
- This test does not detect multifactorial conditions involving the merging of genetics and the environment (e.g., autism, bipolar disorder, diabetes).
- This test cannot detect physical birth defects (e.g., cleft lip or heart malformations).
- This test is not intended to replace other testing options, such as cell-free DNA testing, chorionic villus sampling (CVS), or a genetic amniocentesis.
- PGT-A results should be viewed as a guide to help reduce the risk of an abnormal pregnancy.
- Remember, genetically screened normal embryos can certainly fail to implant or miscarry.
- If the embryo's sex is available, it will be shared with us.

We must understand this and avoid placing too much importance on whether PGT-A testing was performed.

Pregnancy Loss:

An overall minority of embryo donation pregnancies will be lost. These losses generally occur very early in the pregnancy. Due to medical and uterine causes, spontaneous loss rates increase for donor embryo recipients from 15% for women < 35 years old to 30% for women 45 and older.

Pregnancies of Unknown Location/Biochemical Pregnancy Losses-

This type of loss occurs when the blood pregnancy hormone (hCG) is present, then increases, and then falls before an ultrasound can be performed. Early losses like these are common and likely caused by genetically abnormal embryos.

Ectopic Pregnancies-

Infertility patients are more likely to have ectopic pregnancies. When a pregnancy implants elsewhere than the uterine lining (e.g., Fallopian tube, cervix, old C/S scar, ovary, and the abdominal cavity), it is considered an ectopic pregnancy. These are commonly handled with medications or surgery.

Spontaneous Pregnancy Loss-

Once the pregnancy is identified, additional losses occur, generally before 8 weeks of gestational age. Once again, the majority of these embryos are likely genetically abnormal. Losses during the 12-20 weeks of gestation are very frequent.

Intrauterine Fetal Demise/Stillbirth-

Pregnancies that are lost from 20 to 40 weeks of gestational age fall into this category. Fortunately, these occur in a very small minority of pregnancies.

Neonatal Deaths-

Deaths within the first 4 weeks of life are considered neonatal deaths. Prematurity and anomalies are common causes of neonatal deaths. These types of losses are rare with embryo donation pregnancies.

Maternal Pregnancy Complications:

Many pregnancy complications are influenced by the pregnant patient's age and health conditions (such as hypertension, diabetes, thyroid disease, obesity, autoimmune disease, uterine surgery history, or clotting risks). These baseline factors can increase the chance of placenta problems, preeclampsia, cesarean delivery, prematurity, and NICU admission—regardless of whether conception occurred with IVF.

In general, infertility patients have more pregnancy complications compared to natural conceptions because of the underlying medical and genetic issues they bring to the pregnancy.

One pregnancy complication that is seen more often in donor embryo recipients is hypertensive disorders of pregnancy. This includes pregnancy-induced hypertension, preeclampsia, and HELLP syndrome. In general, they occur twice as frequently (25% vs. 12%) in donor embryo recipients compared to other IVF pregnancies. When they do occur, they may be more severe compared to other IVF pregnancies. This is likely caused by the fact that the donated embryo is entirely foreign to our body.

The list below estimates the risks of complications but is not inclusive of all of the problems that can occur in pregnancy. The most common concerns and the expected frequency of the diagnoses are listed below:

(Assuming singleton gestation.)	Embryo Donation & FET Cycles	IVF Cycles & Infertile Women	General Fertile Population
Hypertensive Disorders	25%	12%	8%
Gestational Diabetes	10-20%	10-20%	5-10%
C/S Rates	40-60%	40-60%	32%
Post-Partum Hemorrhage	5-10%	4-7%	3-5%
Placental Problems	5%	3%	1%

Donor embryo recipients are also commonly older, which further increases the complication rates. Below are the risks of maternal complications based on the age of the woman at delivery:

(Assuming singleton gestation.)	Maternal Age at Delivery (Years)				
	< 35	35-39	40-44	45-49	50-54
Hypertensive Disorders	8-15%	10-18%	12-22%	15-30%	20-35%
Gestational Diabetes	5-10%	8-15%	10-20%	15-25%	15-30%
C/S Rates	35-50%	40-55%	45-65%	55-75%	60-85%
Post-Partum Hemorrhage	5-10%	6-12%	7-14%	8-16%	10-17%
Placental Problems	1%	1.5%	2%	3%	4%

It is clear to us that certain pregnancy complications will be seen more often with embryo donation procedures. As women age, complications occur more frequently and may be more severe. The incidence of complications increases further with twins, although precise figures are difficult to obtain.

Embryonic, Fetal, and Neonatal Outcomes:

There have been some studies that indicate the average ART pregnancy will deliver somewhat earlier with a smaller-for-gestational-age baby (i.e., lower birth weight) compared to those conceived through natural means. These problems may be due to the patients being at higher risk because of the very issues that made them subfertile in the first place. We do not see the same complications when the embryos are placed in a surrogate uterus, so it seems unlikely that the issues are with the embryos or the way in which they were created, but rather, are likely caused by underlying medical issues present in the women seeking therapy. Regardless of the reason, pregnancies conceived with IVF are associated with *some* higher risks during pregnancy and around birth.

Frozen embryo transfers can be performed in a natural/ovulatory cycle or in a programmed cycle using estrogen and progesterone. Some studies show higher rates of pregnancy-related high blood pressure (including preeclampsia) and certain delivery complications with programmed cycles

compared with natural/ovulatory cycles. It is unclear whether these risks are significant, given that they already occur at higher rates in the average embryo recipient at advanced reproductive age.

Pregnancy Complications That Affect the Fetus-

Babies born early are more likely to need NICU care. They can have breathing problems, feeding problems, temperature instability, infections, jaundice, and (when very early) bleeding in the brain or intestinal inflammation. Most late-preterm infants do well long-term, but the risk of complications increases the earlier a baby is born. Preterm birth complications can include:

- Respiratory Distress Syndrome (RDS) due to underdeveloped lungs.
- Intraventricular Hemorrhage (IVH) with bleeding in the brain.
- Necrotizing Enterocolitis (NEC) is a severe intestinal infection.
- Sepsis is caused by an overwhelming infection.
- Retinopathy of Prematurity (ROP) with the potential for vision loss.

Embryo donation does not introduce additional risks compared with IVF and FET procedures. Many of the comments below apply to all IVF procedures, and not just embryo donation.

Preterm birth is seen in around 9% of spontaneous conceptions, whereas IVF/ICSI pregnancies may see a 15% rate. Once again, this is likely due, in part, to maternal issues and not the IVF process itself.

Stillbirths occur in 1/1000 spontaneous pregnancies and may be seen in 3/1000, or 1/333 IVF pregnancies.

The risk of monozygotic twinning is about 3%, compared to 0.3% in spontaneous pregnancies, a 10-fold increase. This is likely due to laboratory culture conditions or procedures.

Congenital Anomalies-

In all pregnancies, regardless of maternal age, it is thought there is a 3-4% risk of having a fetal malformation. The rate with IVF/ICSI may be closer to 4-5%, with emphasis on urogenital (e.g., hypospadias, musculoskeletal defects, and cardiac malformations). As a result, we recommend a detailed fetal anatomy survey via ultrasound during pregnancy. Some experts even suggest fetal echocardiography if ICSI was used.

Neonatal Outcomes-

IVF singleton pregnancies have a higher risk of preterm birth and lower birth weight (< 2,500 g.) compared to spontaneous conceptions. Small-for-gestational age (SGA) risks are slightly higher in

fresh transfer cycles. In frozen embryo transfers, such as embryo donation, larger-for-gestational-age (LGA) fetuses are more likely to be observed than low-birth-weight babies.

Long-Term Childhood Outcomes-
Long-term neurodevelopmental data are still evolving, but the available evidence is reassuring. Cognitive/psychological health appears to show no significant differences compared with naturally conceived children.

Remember that multiple pregnancies essentially increase nearly all of the risks outlined above.

Imprinting Disorders:

These are very rare disorders caused by specific genes from the mother or the father not being expressed. An example is Beckwith-Wiedemann Syndrome, which is more common in children conceived with IVF. These disorders are extremely rare (1 out of 15,000 deliveries). Children from IVF treatment have a small increased risk of 3/15,000 deliveries; this is mentioned in this consent for completeness rather than actual risk.

Multifetal Pregnancies (Triplets or More)

Multifetal pregnancies account for 1% or less of embryo donation pregnancies, so triplets or more are very rare. Twins are far more common, with nearly all of the pregnancy complications previously listed above occurring at higher rates. On average, twins deliver four weeks early and triplets eight weeks premature. Every pregnancy complication that can occur is more likely to occur with a multiple pregnancy, so EDI endeavors to create only singleton gestations and will never purposefully try to create a multiple pregnancy.

Fetal Reduction:

Fetal reduction would be considered if there is a multifetal pregnancy (triplets or more) or one of a pair of twins is found to be significantly abnormal. If there is a gestation that is abnormal and fetal reduction is being considered, we will have to travel for that care.

Reporting:

The confidentiality of the medical records will be maintained in accordance with Florida law.

Federal statutes mandate EDI to obtain confirmation of all delivery data on the embryo donation pregnancies. We agree to forward any needed information to fulfill the Federal laws, including, but not necessarily limited to, a copy of the birth certificate & a copy of the birth

announcement, the newborn's sex, weight, and any information regarding pregnancy, delivery, and newborn complications. We agree that our records may be reviewed by outside agencies, including, but not necessarily limited to, the Federal Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC), or the Society of Assisted Reproductive Technologies (SART). On rare occasions, we understand that these same agencies may contact us to confirm a pregnancy outcome.

Indemnification:

If there is ever a legal conflict, this consent will take precedence over other related consent forms. EDI will always follow local, state, and federal laws, which may change over time. The laws of Florida and the United States govern this consent, and the venue for all legal actions is Lee County, Florida.

If EDI is sued or found liable for any amounts owed to another party (including any child or children born through ART procedures) arising from a claim, we will reimburse EDI for all related costs. This reimbursement includes, but is not limited to, damages, settlements or judgments, court costs, attorney's fees, and any other financial losses that are claimed or ordered against EDI related to medical procedures performed by EDI or for EDI, as described in this Consent.

In Summary:

We have read the above information and understand the information provided. Our questions have been answered to our satisfaction.

_____	_____	___/___/___
Recipient's Signature	Recipient's Name (print)	Date
_____	_____	___/___/___
Partner's Signature (if applicable)	Partner's Name (print, if applicable)	Date
_____	_____	___/___/___
EDI Representative Signature	EDI Representative Name (print)	Date

If you have any concerns regarding this process,
please contact EDI at Recipient@EmbryoDonation.com.