

Multiple Pregnancy and Birth: Considering Fertility Treatments



To help you achieve the best outcomes from fertility therapy, we review two of the most significant risks to your future baby: multiple pregnancy and premature birth. As you consider your options, you and your physician should discuss the fertility program's experience in minimizing multiple births.

Fertility treatment is a highly technical field of medicine and should be undertaken only under the care of highly qualified experts. In addition to residencies in obstetrics and gynecology, fertility experts (i.e., reproductive endocrinologists) have additional training in reproductive medicine and infertility. To obtain the best outcomes for you and your family, the decision to use advanced therapies and the choices of timing, technologies and other key issues should be discussed by you and your doctors. Your decisions should be based upon your own beliefs, goals, needs and circumstances.

The two commonly used advanced fertility treatments are ART (Assisted Reproductive Technology) and COH (Controlled Ovarian Hyperstimulation). ART is defined as fertility procedures in which both eggs and sperm are handled in the laboratory (*in vitro*) to establish a pregnancy. In COH, injectable medications ("fertility drugs") are used to stimulate a woman's ovaries to accelerate eggs to grow and mature. COH can be used alone but is frequently used in conjunction with intrauterine insemination (IUI, sometimes known as "artificial insemination"), in which a concentrated sample of sperm is placed through the vagina and cervix directly into the uterus.

Risks of ART and COH

ART babies account for about 1% of all children born in the U.S. each year. One of the major risks of these fertility treatments is the increased likelihood of multiple pregnancy. In association with the increased use and success of ART and COH in helping couples achieve pregnancy, there has been an increase in twins and higher order multiple pregnancies (triplets or more). Although there has been a decrease in higher order multiple pregnancies in the past 4 years, in 2002, 3.3% of all babies born in the U.S. were multiples with twins accounting for 3.1% of all live births, and triplets or higher representing 0.2% (a decrease of about 5% since 1998). More than one out of three (35%) of all ART births and an unknown proportion of COH births are multiple. A large portion of the higher order multiples result from COH alone. Higher order multiples rarely occur spontaneously.

Because of the risks associated with higher order multiple pregnancies, a major goal of fertility treatment is to try to avoid this situation. The risk of multiples with ART can be reduced by limiting the number of embryos transferred into the uterus. Deciding how many embryos to transfer should be discussed carefully with your fertility specialist. However, no existing strategies completely eliminate the risk of higher order multiple pregnancy with COH.

Risks of Multiple Pregnancy

Mothers carrying multiple pregnancies have increased risks of significant pregnancy-related complications. These complications include maternal anemia, excessive blood loss at delivery, gestational diabetes, and high blood pressure and preeclampsia, a disorder affecting both the mother and the fetus that can restrict blood flow to the placenta.

Prematurity and Low Birthweight

One of the most serious complications of multiple pregnancy is premature labor and delivery, resulting in a premature infant, most often with low birthweight. The duration of a pregnancy usually decreases with each fetus in a multiple pregnancy. While the full-term pregnancy of a singleton is 37 to 42 completed weeks, the average twin pregnancy delivers at about 35 weeks, triplets at 33 weeks, and quadruplets at 29 weeks. In multiple pregnancies, the rate of prematurity (delivery before 37 completed weeks) rises steeply—to 50% in twins, 90% in triplets, and virtually 100% in quadruplets or higher.

Prematurity carries many risks for the baby, with the highest being for the earliest and smallest babies (usually less than 28-30 weeks). These risks include respiratory distress syndrome—a disease of immature lungs that causes difficulty in breathing. Other possible complications include infections and damage to other organ systems, such as the brain and gut. Preterm infants also have a higher death rate in the first month of life. Later in life, these babies are at greater risk for developmental problems and cerebral palsy.

Other Risks to Children Born as Multiples

The overall risk of birth defects in children is generally low, at 3-4 affected babies per 100 births. All multiple births, even those that occur spontaneously, are associated with a modest increase in the risk of birth defects. This increase is generally less than two-fold.

Carrying and Delivering Multiples

To ensure the best possible outcome of the pregnancy, it is important that you be evaluated throughout your pregnancy and that you have a thorough understanding of the risks and alternatives for management. Because of the greater risks of multiple compared to singleton pregnancy, your obstetrician will monitor you closely and may recommend consulting a maternal-fetal medicine specialist—an obstetrician specializing in high-risk pregnancies—for testing and fetal therapy. In addition to a residency in obstetrics and gynecology, such a specialist has additional training in maternal-fetal medicine and high-risk obstetrics.

While vaginal delivery of twins may be possible, the delivery of triplets or higher order births usually requires cesarean section,

with some risk to the mother from the anesthesia and surgery. The most common risks are anemia from blood loss during surgery and infection, which rarely can be life threatening.

Parenting Multiples

While some families adapt easily to the dramatic changes that occur when raising multiples, many may find themselves overwhelmed and somewhat unprepared for these challenges.

Coping with such circumstances as long-term hospitalization of premature infants and the added expenses that are associated with feeding, clothing, and caring for multiples can often lead to feelings of depression and sadness, as well as stress on your relationship with your family. You may want to consider counselors or support groups.

Choosing Your Fertility Program

The fertility treatment program you choose is of central importance in achieving the best outcome for you and your family. The program should follow the professional and ethical guidelines of the American Society for Reproductive Medicine (ASRM) and the Society for Assisted Reproductive Technology (SART), including their guidelines for limiting the number of embryos transferred. All member programs of SART report their success rates regularly to the Centers for Disease Control and Prevention (CDC). The CDC makes this information available to the public (www.cdc.gov/reproductivehealth/art.htm). Inquire particularly about the program's multiple birth rate and ask about its recent success in treating women of your age and couples with your specific fertility problem. And remember: the choices and decisions shared by you and your doctors should be governed by your own beliefs, goals, needs and circumstances.

DEFINITIONS

What is ART?

Assisted reproductive technology (ART) encompasses all treatments or procedures that include the laboratory (*in vitro*) handling of both human eggs and sperm to establish a pregnancy. Egg and/or sperm may be the couple's own or provided by donors. ART includes, but is not limited to, *in vitro* fertilization (IVF), in which your eggs are retrieved from your ovaries, mixed with sperm, and fertilized in the laboratory, and the resulting embryo transferred to your uterus. Other ART procedures are: transcervical embryo transfer, gamete intrafallopian transfer (GIFT), zygote intrafallopian transfer (ZIFT), tubal embryo transfer, gamete and embryo cryopreservation, oocyte and embryo donation and gestational surrogacy, and intracytoplasmic sperm injection (ICSI), in which a single sperm is injected directly into the egg. ART does not include assisted insemination (better known as artificial insemination) using sperm from either a woman's partner or sperm donor or controlled ovarian hyperstimulation (COH). ART also accommodates special needs, such as the ability to test an embryo for genetic diseases before it is transferred to the uterus (i.e., preimplantation genetic diagnosis, PGD).

A major advantage of IVF is the ability to limit the number of embryos that implant in the uterus. The American Society for Reproductive Medicine (ASRM) and the Society for Assisted Reproductive Technology (SART) have developed and published guidelines regarding the maximum number of embryos that should be transferred in order to limit multiple pregnancies. These guidelines continue to change as treatments improve. Based on your specific circumstances, you and your doctor should discuss the number of resulting embryos that will be transferred to your uterus several days after fertilization.

What is COH?

COH (controlled ovarian hyperstimulation) is a means to stimulate eggs to grow and mature in response to injectable fertility drugs. Once thus stimulated, conception occurs in the body, not in the laboratory. The number of eggs stimulated in a cycle can be approximated by various laboratory and visualization methods. To reduce—though not eliminate—the risk of higher order multiples, the fertility specialist may advise canceling (i.e., not inducing ovulation) a stimulated cycle if there appear to be too many eggs that have matured or may recommend converting the treatment to IVF or another form of ART. COH is often utilized in conjunction with intrauterine insemination (IUI), in which a concentrated sample of sperm is placed through the vagina and cervix directly into the uterus.

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