

Hope for Infertility

By Julianne Hale

Some of us are old enough to remember the very first baby conceived outside of the body, Louise Joy Brown, born on July 25, 1978. That date stands out as the first day scientists created life in a tube. It seemed like a miracle at the time, but in actuality it was the very first successful instance of in vitro fertilization (IVF). No longer a distant miracle or bizarre science fiction experiment, IVF has since become a mainstream treatment for infertility in America. Most of us have a friend, neighbor, child, or grandchild that was brought into the world via the procedure. To date, there have been nearly five million babies born in the United States using IVF.

What is IVF?

Any fertility treatment that involves handling both the sperm and the egg is considered to be a type of assisted reproductive technology (ART). In vitro fertilization is the most common type of ART used to help women successfully conceive a child. As many as 99% of babies born with ART are conceived using IVF.

Millions of couples and individuals struggle with infertility and many of them eventually find themselves sitting across a desk from a fertility specialist discussing IVF. However, it is certainly not the first step to a successful pregnancy. Most couples try several avenues before pursuing an IVF cycle, including fertility drugs, surgery, and artificial insemination.



Assisted
Reproductive
Technology and
In Vitro Fertilization

Since IVF's inception 35 years ago, researchers and doctors have made tremendous advancements with the procedure, dramatically improving its success rates, safety, and affordability. These advancements include preimplantation genetic diagnosis (PGD), which is used to screen for genetic disorders that may impede a successful pregnancy, and intracytoplasmic sperm injection (ICSI), a technique used when male infertility is a problem. During the ICSI procedure, a sperm is injected directly into an egg to form an embryo, helping to increase the chance of a successful pregnancy.

Conditions that frequently lead individuals and couples to pursue IVF include endometriosis, low sperm counts, uterus or fallopian tube problems, ovulation issues, the presence of harmful antibodies, the inability of sperm to penetrate or survive, or unexplainable infertility. Because an IVF cycle is more expensive and invasive than most other fertility treatments, most doctors will recommend trying other options first.

How does IVF work?

The IVF process begins with ovulation and egg retrieval. In order to prepare for this procedure, women are given hormone treatments (via injectable drugs for five to 10 days) to control their egg production and ovulation.

Once this process is complete, the doctor will check blood estrogen levels and use an ultrasound to make sure the eggs are maturing in the follicles (fluid-filled sacs in the ovaries). Dosage may be increased or decreased based on the results of this test. Once the follicles are ready, women are given a human chorionic gonadotropin (hCG) injection to stimulate egg maturation. The mature eggs are collected 34 to 36 hours after the injection using a needle and suction device guided by ultrasonography.

Once the eggs are collected, they are placed in a culture dish, fertilized with sperm, and placed in a carefully controlled

EXPERT
ADVICE

Egg Freezing

“Egg freezing should be considered by anyone who would like children, but may need to postpone starting a family past the age of 30 to 33. The best pregnancy rates occur in women who have not yet had their 34th birthday, and while this is an average, most women are simply not aware of how rapidly age affects the efficiency of eggs in producing a pregnancy. Women who are younger may still want to consider egg freezing if they are looking at situations where they may lose an ovary from surgery or ovarian function from chemotherapy or radiation.”

Barry W. Donesky, M.D., fertility specialist, Chattanooga's Fertility Center



environment—a process called incubation. Sometimes a doctor will choose to use intracytoplasmic sperm injection (ICSI) for fertilization, in which a single healthy sperm is injected directly into each mature egg. After fertilization, one or a few of the resulting embryos are collected and placed in the uterus via a catheter inserted through the cervix.

After the injections, the retrieval, and the placement of the eggs are complete, patients can relax, right? Unfortunately,

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this is usually not the case. For most couples, waiting to find out if the IVF procedure worked is the hardest part. Once the fertilized eggs have been transferred into the uterus, there is a two-week wait to determine whether or not the patient is pregnant.

IVF Success Rates

IVF is a popular procedure, and every year the number of successful births via IVF grows. This is great news for couples struggling with infertility, but it can also create unrealistic expectations for those that are considering the procedure for the first time. For perspective, young couples with no fertility issues whatsoever have a 15 to 20% chance of conceiving in any one month during the first 12 months of unprotected intercourse. Couples who have not conceived in two years have roughly a 2% chance per month. For many of these couples, IVF actually offers better odds of conception than the old-fashioned way. Couples in which the woman is under the age of 35 and using her own eggs, for example, have a 30 to 35% chance of a successful live birth

with one IVF cycle. The numbers drop as the age increases. Women between the ages of 35 and 37 have a 25% chance of a successful live birth, and women aged 38 to 40 have a 15 to 20% chance. Those over 40 face the lowest odds at 6 to 10%.

Egg Freezing

Age is the single most important factor when it comes to IVF success rates, and science is allowing women more options when it comes to choosing the right time to have a child. For example, a young woman who wants to have children but not before age 34 (the age at which reproductive odds begin to decline) can opt to harvest eggs from her ovaries and freeze them until she is ready to conceive. While this process, called mature oocyte cryopreservation, or egg freezing, is not without controversy, it does work. A landmark research trial conducted at NYU Langone Medical Center in 2006 found that frozen eggs used in IVF could achieve the same pregnancy rates as fresh eggs. With marriage happening later in life and the number of new moms

over 40 on the rise, egg freezing could help a large number of women and couples achieve their dreams of having children successfully.

Risks

Scientific advancements have brought IVF into the mainstream as a relatively safe, effective way to conceive for people struggling with infertility. While the risks have dropped significantly, there are still several things anyone considering IVF should take into consideration. One of the most common risks is that of multiple births. If more than one embryo is implanted into a woman's uterus, then her chance of having multiples increases. Multiple births carry higher risk of early delivery and low birth weight—two factors research suggests are already slightly more common in IVF births versus natural births.

Another risk is ovarian hyperstimulation syndrome. Brought on by the use of injectable fertility drugs, this condition can cause abdominal pain, bloating, vomiting, diarrhea, and nausea. It's also important for those considering IVF to know that miscarriage rates increase with maternal age and are slightly more common with frozen embryos.

In very rare occasions, there can be complications during the egg-retrieval process, including bleeding, infection, and damage to the bowel, bladder or blood vessels. Additionally, 2 to 5% of women using IVF suffer ectopic pregnancies (pregnancies in which the fetus develops outside the uterus, typically in a fallopian tube). The most common, and perhaps most damaging, side effect of IVF is emotional. Women and partners experience a great deal of stress during the process of an IVF cycle. The waiting, the disappointment of a negative pregnancy test, and the general stress of maintaining a positive attitude all go hand in hand with one IVF cycle. People experiencing multiple cycles often find themselves emotionally spent and depressed.

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Clearing Up Misconceptions

False ideas and misconceptions abound when it comes to ART and IVF. Many people believe that all women who go through an IVF cycle will have twins or even triplets. While the possibility of multiples does increase with IVF or any other fertility treatment, the vast majority of IVF births are single babies. Another common misconception is that all IVF cycles lead to a successful birth. As

discussed previously, it is critical that people undergoing IVF have realistic expectations. Based largely on a woman’s age, IVF success rates can vary anywhere between 5 to 35%. Another common and costly misconception is that IVF is always covered by insurance. This is simply not true. Individuals considering IVF should request their benefits in writing prior to the procedure from their health insurance provider.

A Success Story: Vanessa Tripp



Vanessa got married at 30 and wanted to begin growing her family right away. Unfortunately, it wasn’t so easy for her. Unable to conceive naturally, she tried both fertility drugs and intrauterine insemination (IUI)—but neither worked. So she decided to try IVF. On her first cycle, 14 matured eggs were retrieved. Ten froze successfully, and she had a transfer that same year. Nine months later, Lyla Tripp was born six pounds, twelve ounces.

Less than two years later, Vanessa and her husband decided they wanted a second child—so she started IVF again. After two unsuccessful cycles, she finally conceived. And this time, there was a surprise: an ultrasound showed that there was not only one healthy baby, but two. Today, Vanessa’s twins, Olivia and Sean, are two-and-a-half. “When I put my children to bed at night I think, ‘How did this happen?’” Vanessa says. “I thank God for them. We have been truly blessed.”

The March of Dimes’ mission is to improve the health of babies by preventing birth defects, premature birth and infant mortality. The organization raises funds for research to find the causes of prematurity and support local programs that give hope and help to families with a baby in intensive care. Erlanger is a proud partner in the March of Dimes mission and continues to work with the organization to raise awareness.




EXPERT ADVICE
IVF Cycles

“Fortunately, the majority of our patients conceive in their first IVF cycle. But if they don’t, in general, the first three IVF cycles have roughly the same success rates. The number of times any individual patient should do IVF depends on their testing and their prior IVF cycle(s) outcomes, if performed. Each IVF cycle is therapeutic, as well as highly informative to us about how a patient responds to various IVF protocols. Evaluating prior IVF cycles often helps us discover novel changes that may dramatically improve a patient’s chance of success in their next cycle, whether their first cycle was performed with us or elsewhere. Though we don’t always succeed, we have had a lot of success in achieving conception where we, or others, have previously failed.”



Rink Murray, M.D., fertility specialist, Tennessee Reproductive Medicine

The steady advancement of ART and IVF is great news for those who struggle with infertility. With the help of top-notch medical providers, emotional support from family and friends, and reasonable expectations, many individuals and couples previously unable to conceive can experience the wonder of parenthood. 



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