

Newfound Hope: Advancements in Reproductive Medicine

Couples and individuals struggling to conceive have more options than in the past, and medical practices in Central Florida are helping pave the way to successful pregnancies.

By Karen Nimetz

FOR THOSE WHO DREAM OF BECOMING PARENTS, there is no obstacle too big to overcome in the quest to bring forth their very own bundle of joy. As writer Eda LeShan once said, "A new baby is like the beginning of all things—wonder, hope, a dream of possibilities." However, for many individuals and couples, infertility issues can add major physical, emotional and financial roadblocks on the path to parenthood.

Infertility is typically defined as the inability to conceive after a year of trying without the use of birth control. Statistics have shown that the infertility rates in men and women are nearly equal. According to the World Health Organization, "One in four couples in developing countries are affected by infertility and about 48.5 million couples experience infertility worldwide." There are numerous factors that may cause infertility and at times, it may not be possible to definitively explain the exact reason. However, over the years, advancements in reproductive medicine have helped millions to successfully conceive a child.

Assisted reproductive treatments have been around for a long time. In fact, the first documented

case of a successful artificial insemination in humans took place in the late 1700s. The first baby conceived through in vitro fertilization (IVF) was born in 1978. Since that time, more than eight million babies have been born via IVF. Modern technology has greatly aided in the enhancement of many of these procedures.

Dr. George Patounakis, medical director of Reproductive Medicine Associates of Florida, says there have been major advancements when it comes to in vitro fertilization. "IVF is when we give the patient medications to stimulate ovaries in order to produce as many eggs as they can, but before they ovulate, we perform a minor surgical procedure and take out the eggs that have grown," he says. "Those eggs are put into the embryos and joined with sperm, which can be done a few ways. One advanced way is to take a single sperm and put it directly into an egg. If a partner only produces 200,000 sperm through ejaculation instead of 20 million, with this, we just need as many sperm moving that we have eggs."

"It has really revolutionized the area of male factoring fertility because we just need a few sperm. It also allows us to use sperm that's directly from the testicle so the male can have a surgical procedure to extract sperm, just like as extra eggs, in case there is a problem with ejaculation or the sperm doesn't develop."

Another key advancement has involved the freezing of a woman's eggs. Egg freezing, or oocyte cryopreservation, first began in the 1980s. Originally, the technique was conducted through a slow-cooling method. However, around 2006, vitrification, the process of rapid freezing, was introduced and the results were astounding. Corey Burke, tissue bank director and executive vice president of operations at Cryos International in Orlando, explains, "With vitrification, eggs go from room temperature to minus 196 degrees in a fraction of a second. Using the old technique of slow freezing, there was only about a 30% chance of the eggs surviving. With this newer technique, the survival rate is closer to 90%."

While the freezing of eggs is still a relatively new procedure, their long-term success rate is incredibly promising as the freezing of sperm for artificial insemination has already been proven to stand the test of time. Burke says, "As far as we know, frozen sperm can last almost indefinitely. There have been cases where 30-year old properly frozen sperm has been used in successful pregnancies. It appears that eggs will have similar success because once in the freezer, they are basically in a suspended animation, so theoretically, they should be good 100 years from now."

Not everyone seeking reproductive assistance has infertility issues. Sperm banks are widely utilized by lesbian couples and single women. Burke notes that, "many of the people purchasing donor eggs are women over the age of 35." As women



age, the number and quality of their eggs significantly lessens. By age 35, women are more likely to have a baby with chromosomal abnormalities and the chance for miscarriage increases. However, most healthy, older women can still safely carry a pregnancy because the uterus does not age as quickly as the eggs. Using egg donation for these women greatly increases the chance of a safe and successful pregnancy.

The fees associated with assisted reproduction can be staggering. The average cost of IVF treatments is around \$10,000-\$12,000. Using donor eggs can more than double that. While some states mandate coverage for infertility treatment, others do not. Certain insurance companies cover some or all of the cost but many do not provide any coverage for assisted reproduction methods. Though certain high-tech reproductive advancements come with steep price tags, there are some newer, more affordable methods for patients looking to get pregnant.

The betterment of home insemination kits has greatly helped in reducing costs for those who simply cannot afford the in-office procedure. While in-office intrauterine insemination has a higher success rate, some women or couples prefer the at-home option for the price, privacy and comfort. "Home insemination is certainly a viable option," Burke says. "We provide the patient with a kit that includes a syringe and instructions. Over the years, this method has become increasingly popular."

No matter how healthy a couple is or how much money is spent on assisted reproduction, there are unfortunately no guarantees when trying to conceive a child. "Even people who don't have infertility issues do not get pregnant every month. It may take a few months before they conceive," says Tiffany Baker, a registered nurse with Brown Fertility. "Routinely, natural intercourse is successful about 15-20% of the time. Timing is key." Baker notes that there are certain things that people can do to increase their chances of becoming pregnant. "Smoking is quite detrimental to both sperm and eggs. Infertility rates are nearly doubled for men and women who smoke, so kicking the cigarette habit is helpful in trying to conceive. In addition, having a high BMI can hamper fertility and lessen the chance for IVF to be successful. Therefore, being at a healthy weight is important."

Advancements in reproductive medicine have offered those without a partner or who are affected by infertility the opportunity of a lifetime. Ultimately, individuals and couples looking to build or grow their family should weigh all their options thoroughly. These options may even include surrogacy or adoption. As research and technology continue to progress there will no doubt be new procedures as well as continued refinements to current treatments in the future, providing even more resources and more hope for those looking to conceive through assisted reproduction. 🌱

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