



Given the intricate nature of the human reproductive system, it's not surprising that approximately one in every six couples will be unable to conceive a child after trying for one year. Cleveland Clinic fertility experts provide the full range of state-of-the-art services for the diagnosis and treatment of infertility, including in vitro fertilization. Patients are seen in a caring environment, where the major emphasis is not only technological excellence, but also accessibility, personal attention and emotional support. We have locations throughout Northeast Ohio. (See page 7 for a complete list.)

Cleveland Clinic's gynecology program is top-ranked in Ohio and #3 in the nation according to *U.S. News and World Report*. The urology program is top-ranked in Ohio and #1 in the nation.

Please use this guide as a resource as you explore your options for achieving pregnancy.



JOIN CLEVELAND CLINIC  
FERTILITY CENTER ON FACEBOOK

- Log on to [clevelandclinic.org/FertilityFacebook](https://clevelandclinic.org/FertilityFacebook)
- Click on "Ask to Join Group"\*

Visit our Group Page often to interact with our physicians, nurses and embryologists as they share the latest information on infertility diagnoses, treatments and procedures. Engage with other patients facing the same challenges. Feel free to invite your family and friends to join our discussion too.

\* To participate, you will be required to accept the terms and conditions presented.



## WHAT CAUSES INFERTILITY?

Infertility can be caused by a number of different factors. In the female, they may include ovulation dysfunction, tubal blockage, endometriosis or structural abnormalities of the uterus such as fibroids. The male partner may have anatomic or hormonal problems that reduce the number and quality of sperm. In many cases, even with the most comprehensive evaluation, no single factor can be identified as the cause. Fortunately, when the cause of infertility cannot be determined, effective treatments are still available.



## WHEN SHOULD A COUPLE SEEK HELP?

Generally, if a couple has not conceived within one year of trying, it's time to consider seeing a fertility specialist. Some couples should seek help sooner, including:

- Women who have irregular or absent menstrual cycles
- Women age 35 and older who have been trying for 6 months.
- Women with a history of endometriosis, pelvic adhesions or pelvic infections
- Women who need to reverse a tubal ligation or have known tubal diseases
- Men with abnormal semen analysis, or erectile or ejaculatory problems
- Men who need surgery to remove blocked tubes (vas deferens or epididymis)
- Men who need microsurgery to reverse a vasectomy or obtain sperm
- Lesbian or single women requiring donor sperm.

## HOW CAN PROBLEMS BE DIAGNOSED?

Standard testing includes a semen analysis to assess the number and quality of the sperm. A hysterosalpingogram (HSG) X-ray dye test is performed to evaluate the uterine cavity and the fallopian tubes. The HSG is performed in the X-ray department by injecting dye through the cervix while observing on a monitor to confirm that the cavity of the uterus is normal and both tubes are open.

After thorough consideration of the patient history, physical exam and previous testing, additional tests may be recommended by the fertility specialist. The additional evaluation may include hormone levels, ultrasound of the uterus and ovaries, hysteroscopy and/or laparoscopy.

Laparoscopy is an outpatient procedure that involves placing a thin scope through the navel to diagnose and treat conditions such as endometriosis, pelvic adhesions (scar tissue), ovarian cysts, fibroid tumors and tubal disease.



## WHAT TREATMENTS ARE AVAILABLE FOR INFERTILITY?

Treatment options include medical therapy, reproductive surgery, intrauterine insemination and assisted reproductive technologies including in vitro fertilization.

### Medical therapy

Medical therapy is used to correct ovulation dysfunction (irregular or infrequent periods). If there are no underlying causes of ovulation problems (such as a thyroid disease), the first line of treatment is an oral medication. These drugs may be used to induce regular menstrual cycles.

If oral medication fails to correct the problem, or conception does not occur within six ovulatory cycles, the couple should consider other treatment options.

Gonadotropin therapy is the next line of medical therapy. This is very effective for inducing ovulation when oral agents do not work. This therapy may also be offered for unexplained infertility or when other factors have been corrected but pregnancy has not occurred. It can enhance fertility by stimulating more than one egg to ovulate during the cycle. It is given as a daily injection, like an insulin shot, for approximately one week. During this time, the patient is monitored with blood tests and ultrasound to optimize timing, reduce the risk of a multiple pregnancy and to prevent over-stimulating the ovaries.

### Reproductive surgery

Surgery is sometimes required to treat conditions associated with infertility. The vast majority of surgical procedures used to address infertility can now be performed on an outpatient basis using a laparoscope (a type of endoscope) inserted through the naval. The surgeon can remove scar tissue, treat endometriosis, remove cysts from the ovaries, remove fibroids and unblock the fallopian tubes. For some patients, an instrument called a hysteroscope may be placed into the uterus through the cervix to remove polyps and fibroid tumors, divide scar tissue and open blocked tubes

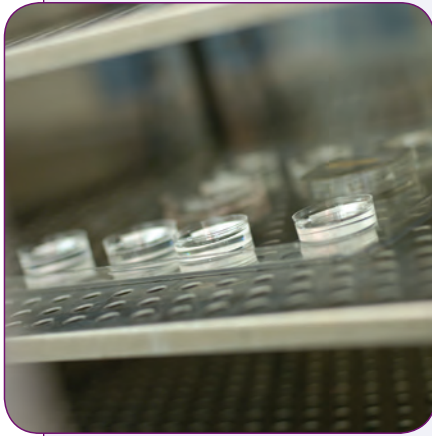
The advantages of these endoscopic procedures include reduced cost, quicker recovery, fewer complications, less pain, better cosmetic results and success rates as good as those performed by laparotomy (open surgery). Cleveland Clinic infertility physicians are internationally recognized for their expertise in laparoscopic treatment and performed the world's first totally robotic surgery. Laparotomy may still be required for reversing tubal ligations and removing large fibroid tumors, but even these procedures can usually be performed through a small incision as an outpatient.

### Intrauterine insemination

Intrauterine insemination refers to an office procedure in which semen undergoes a "washing" process and the sperm are then placed into the uterus using a slender plastic catheter inserted through the cervix. Intrauterine insemination may be performed in patients with mildly abnormal semen analyses, as well as those with unexplained infertility in combination with fertility drugs. Intrauterine insemination using anonymous donor sperm is an option in cases when the male partner has severely low or no sperm at all, as well as for single women and lesbian couples.



Patients are seen in a caring environment, where the major emphasis is not only technological excellence, but also accessibility, personal attention and emotional support.



### **In vitro fertilization**

In vitro fertilization (IVF) is a highly successful option for all causes of infertility, when conventional treatment has been unsuccessful. It is the primary treatment of choice for couples with irreparable tubal disease or severe male factor infertility.

During the IVF process, the ovaries are stimulated with injectable fertility medications to mature multiple eggs. Once monitoring with ultrasound and blood tests indicate that the eggs are ready, they are collected nonsurgically with an ultrasound-guided needle under deep sedation. The egg collection procedure takes about 15 to 20 minutes.

Fertilization is accomplished by exposing the eggs to sperm in a culture dish, or by directly injecting a single sperm into each mature egg (intracytoplasmic sperm injection – ICSI). After fertilization, embryo development is monitored over the next three to five days, at which time one to four embryos are placed into the uterus with a small catheter through the cervix. Any additional embryos that are developing normally may be frozen for future use.

Cleveland Clinic’s IVF laboratory offers cutting-edge technology and is actively involved in research on embryo growth factors. These novel culture systems improve in vitro embryo development and sperm, egg and embryo freezing.

### **Egg donation and surrogacy**

Cleveland Clinic offers both egg donation and gestational carrier services. Egg donation may be considered by those who are unlikely to have success with IVF because the woman does not produce enough healthy eggs. Cleveland Clinic specialists work closely with patients, utilizing all options for obtaining donor eggs including known donors, anonymous donors and donor egg agencies. For women who produce an adequate number of healthy eggs but have no uterus, a damaged uterus or a medical condition that precludes carrying a pregnancy safely, a gestational carrier may be considered. While the technology for both of these programs is readily available, it is essential that couples be comfortable with the use of “third party reproduction” before proceeding with these programs.



### **Egg and ovarian tissue freezing**

Cleveland Clinic’s IVF laboratory is involved in leading-edge research on ovarian tissue and oocyte (egg) freezing. These innovative options are now offered to cancer patients who wish to preserve fertility before undergoing treatments such as radiation and chemotherapy that may cause early menopause. Frozen ovarian tissue can be reimplanted, resulting in the production of new eggs. Eggs can be frozen in much the same way that men bank sperm for later use. While ovarian tissue freezing is still highly experimental, egg freezing has undergone significant improvement and is no longer classified as experimental. Cleveland Clinic infertility specialists have reported many successful pregnancies using frozen eggs.

### **Preimplantation diagnosis and screening available**

Cleveland Clinic fertility specialists performing IVF are able to use Preimplantation Diagnosis (PGD) and Preimplantation Screening (PGS) to determine that an embryo is genetically normal before pregnancy begins.



Using PGD, individuals/couples who are known to be carriers of abnormal genes can reduce their risk of having a baby with the disease. PGS can be used to screen for chromosomal abnormalities in embryos, helping women who are at increased risk for acquired chromosomal errors. Embryos with normal numbers of chromosomes can be selectively transferred, thus increasing the chance of a healthy baby.

The PGD or PGS process requires removal of one cell from each embryo very early in embryo development, when the embryo is at the six to eight cell stage. This is called an embryo biopsy. The cell is analyzed and two days later normal embryos are either transferred to the mother or frozen for future use.



Our Beachwood Fertility Center's IVF and research laboratories help improve clinical care and develop cutting edge technology. They feature state-of-the-art equipment for embryo culture, cryopreservation (freezing) and micromanipulation. The IVF lab has 16 incubators, Ohio's only Embryoscope™ (newly FDA-approved incubator, featuring a built-in camera for continually observing embryos using time-lapse imaging) eight microscope stations, five laminar flow hoods for gamete handling, a laser for assisted hatching and two micromanipulation stations for ICSI or PGD. The culture environment of the embryo is carefully regulated through a specially designed air system.

## WHAT ARE THE OPTIONS FOR MALE INFERTILITY?

A male factor plays a role in at least 40 percent of infertile couples. For this reason, both the male and female partners should be assessed during a fertility evaluation. Rapid research advances in the area of male reproduction have brought about dramatic changes in the ability to both diagnose and treat male infertility. Cleveland Clinic male fertility specialists, dedicated to understanding and treating men who are unable to initiate pregnancy, are key members of the infertility team.

We offer a full range of services, including evaluation, medical treatment and surgical procedures. The surgical procedures most commonly performed include:

- Microsurgical vasectomy reversal (reversal of sterilization)
- Microsurgical correction of obstruction in the epididymis
- Microsurgical varicocele ligation
- Testicular and epididymal sperm extraction for in vitro fertilization. This procedure allows some men who have no sperm in the ejaculate, and paralyzed men who don't ejaculate to be able to father a child.

The specialists in the Cleveland Clinic Center for Male Fertility understand your concerns from an emotional perspective as well as the medical one. We offer a unique, comprehensive, team approach to diagnosing and treating male infertility to help you achieve your personal goals and dreams for the future.

## NEXTGEN HOME SPERM BANKING

Our NextGen® Home Sperm Banking program allows patients to collect semen samples in the privacy of their home, rather than coming to a fertility lab. Through this novel approach, specimens are shipped in a specially designed chamber to the Cleveland Clinic Main Campus Andrology Laboratory and Reproductive Tissue Bank. The NextGen® Home Sperm Banking kit provides patients a safe and reliable process to store semen samples and preserve their fertility for future.

For more information, please call 866-9BANKIN or 866.922.6546 or visit [clevelandclinic.org/nextgen](http://clevelandclinic.org/nextgen).



For the past 30 years, our state-of-the-art Andrology Laboratory and Reproductive Tissue Bank has been providing the highest quality services to couples being evaluated for infertility. The laboratory features innovative testing using the latest, most effective diagnostic tools and analyses. The laboratory is certified by CLIA in the state of Ohio and accredited since 1994 by the College of American Pathologists (CAP) Reproductive Laboratory Program. The laboratory offers comprehensive semen analysis with a computerized system that allows for the quality of the semen to be thoroughly studied. Other tests include testing to detect anti-sperm antibodies, oxidative stress and sperm DNA damage. Special stains can be utilized for the presence of sperm in azoospermic specimen. A post-vasectomy screen is available for those patients who have recently had a vasectomy.

Services also include the processing of sperm for intrauterine insemination; providing frozen donor semen for artificial insemination; and sperm freezing for patients prior to cancer treatment or vasectomy. Services to freeze ovarian and testicular tissue are available as well.

#### WHERE CAN I GO FOR TREATMENT?

Infertility services are available at Cleveland Clinic's Beachwood, main campus, Avon, Solon, Strongsville and Twinsburg fertility centers. In addition, we can facilitate monitoring for infertility treatment at other locations in Ohio or out-of-state. Cleveland Clinic staff will help you find a center near your home. All IVF procedures are performed in Beachwood.

#### WHERE CAN A COUPLE FACING INFERTILITY TURN FOR EMOTIONAL SUPPORT?

The emotional stress of infertility can be overwhelming. The physicians and infertility nurses at Cleveland Clinic are all very experienced in providing ongoing emotional and educational support and guidance for couples going through infertility evaluation and treatment. Our Integrative Medicine Department offers stress reduction therapies including acupuncture, guided imagery and Reiki. We work closely with psychiatrists and mental health professionals for patients requiring their support.





## Contacting Cleveland Clinic

### READY TO SCHEDULE AN APPOINTMENT WITH A SPECIALIST?

If you would like to set up a consultation with a Cleveland Clinic specialist, please call 216.444.6601 for a female factor evaluation, or 216.445.4473 for a male factor evaluation.

### STILL HAVE QUESTIONS?

A Cleveland Clinic infertility nurse will be happy to help. Please call 216.444.8360.

## INFERTILITY SPECIALISTS\*



**Ashok Agarwal, PhD, HCLD**  
*Director, Andrology Laboratory, Glickman Urological & Kidney Institute*



**Rebecca Flyckt, MD**



**Marjan Attaran, MD**



**Jeffrey M. Goldberg, MD**  
*Head, Section of Reproductive Endocrinology & Infertility*



**Cynthia Austin, MD**  
*Director, In Vitro Fertilization Program*



**Hanna Lisbona, MD**



**Nina Desai, PhD, HCLD**  
*Director, In Vitro Fertilization Laboratory*



**Edmund Sabanegh, MD**  
*Chairman, Urology, Director, Center for Male Fertility, Glickman Urological & Kidney Institute*



**Tommaso Falcone, MD**  
*Chairman, Ob/Gyn & Women's Health Institute*



**Julierut Tantibhedyangkul (Julie Tan), MD**

## MAIN LOCATIONS

### **Beachwood Fertility Center** **Beachwood Family Health and Surgery Center**

26900 Cedar Road, Suite 220 South Beachwood, OH 44122  
216.839.3150

### **Main Campus Fertility Center**

9500 Euclid Ave., A81  
Cleveland, OH 44195

Ob/Gyn & Women's Health Institute:  
216.444.6601

Glickman Urological & Kidney Institute  
216.445.4473

## COMMUNITY LOCATIONS

### **Avon – Richard E. Jacobs Health Center** **Fertility Center**

33100 Cleveland Clinic Boulevard  
Avon, Ohio 44011  
440.695.4000

### **Solon Family Health Center** **Fertility Center**

29800 Bainbridge Road, 2nd Floor  
Solon, OH 44139  
440.519.6960

### **Strongsville Family Health and Surgery Center** **Fertility Center**

16761 SouthPark Center, 1st Floor  
Strongsville, OH 44136  
440.878.2500

### **Twinsburg Family Health and Surgery Center**

8701 Darrow Road  
Twinsburg, OH 44087  
330.888.4000

**For more information about our staff including complete profiles, visit [clevelandclinic.org/infertility](http://clevelandclinic.org/infertility)**

\* Our team of fertility specialists are nationally renowned, and many serve as leaders in national physician organizations.



**Every life deserves world class care.**

9500 Euclid Ave., Cleveland, OH 44195

The Ob/Gyn & Women's Health Institute provides a full spectrum of care for women from adolescence through mature adulthood. Institute members provide collaborative care for gynecological cancers, infertility, incontinence, pelvic floor disorders and other women's health issues in a supportive environment enhanced by innovative research. The Ob/Gyn & Women's Health Institute is one of 27 institutes at Cleveland Clinic, a nonprofit academic medical center ranked among the nation's top hospitals by *U.S. News & World Report*. More than 3,000 physicians and researchers in 120 specialties at Cleveland Clinic collaborate to give every patient the best outcome and experience.  
[clevelandclinic.org](http://clevelandclinic.org)

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