



Highlighting IVF treatment

In vitro fertilization (IVF) is a complex series of procedures used to help with fertility or prevent genetic problems and assist with the conception of a child. Here's throwing light on this

SHAMEEM KHAN

IVF is the most effective form of assisted reproductive technology. The procedure can be done using a couple's own eggs and sperm. Or IVF may involve eggs, sperm or embryos from a known or anonymous donor. In some cases, a gestational carrier — someone who has an embryo implanted in the uterus — might be used.

Most couples these days choose IVF treatment. IVF is a type of fertility treatment in which eggs are removed from a woman's ovaries, the eggs are fertilized with sperm in the lab and then a resulting embryo is later placed back into a woman's uterus to attempt pregnancy.

Infertility treatment is decided by the doctor based on many factors.

1. Blocked Fallopian Tubes
2. Crossed the age of 38
3. When you have decided to use the eggs from an egg donor
4. If you do not have enough ovarian reserve
5. When you are faced with severe male infertility that can be treated using technologies like IVF with ICSI
6. If you require genetic screening
7. When you are suffering from advanced endometriosis

Benefits of IVF

- One of the top benefits of IVF

is that there are higher success rates due to the fact that there is direct placement of the sperm and egg together. The embryos can also be tested ahead of time for health such as chromosomes as well as genetic disorders.

- The concept of banking embryos for future children is another upside.

Preparation for IVF Treatment

Before starting IVF treatment, a thorough medical exam and fertility tests will be done. Your partner will be examined and tested as well. Some of the preparation you'll go through includes:

- IVF consultation (meet with healthcare providers to discuss the details of the IVF process).
- A uterine exam, up-to-date Pap test and mammogram
- A semen analysis.
- Screening for sexually transmitted infections (STIs) and other infectious diseases.
- Ovarian reserve testing, and blood and urine tests.
- Instructions on how to administer fertility medications.
- Genetic carrier screening.
- Sign consent forms.
- Uterine cavity evaluation (hysteroscopy or saline-infused sonography (SIS)).

The IVF specialist will prescribe supplements with folic acid at least three months before embryo transfer.



STEPS OF IVF TREATMENT

Estrogen

Before the IVF treatments begin, you may be prescribed birth control pills or estrogen by your doctor. This is used to stop the development of ovarian cysts and control the timing of your menstrual cycle. This will help to control the treatment and maximize the number of mature eggs during the egg retrieval procedure.

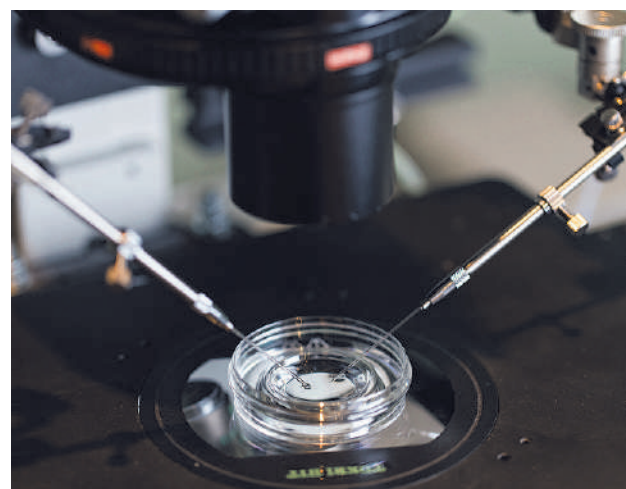
Ovarian stimulation

During each natural cycle in a healthy person of reproductive age, a group of eggs begins to mature each month. Typically, only one egg becomes mature enough to ovulate. The remaining immature eggs in that group disintegrate.

At this stage, hormone medications are prescribed to encourage groups of that cycle's eggs to mature simultaneously and fully. The type, dosage and frequency of medications prescribed will be tailored to you as an individual based on your medical history, age, AMH (anti-mullerian hormone) level and your response to ovarian stimulation during previous IVF cycles.

During this process, there are two main steps taken care of:

A. Monitoring: The ovaries' response to the medications is monitored by ultrasounds and blood hormone levels. Monitoring can occur daily or every few days over two weeks. Most stimulations last between eight and 14 days. During these mon-



itoring sessions, doctors use ultrasound to look at the uterus and ovaries. Since the eggs are too small to be visible with ultrasound, the doctor will measure the size and number of growing ovarian follicles which are little sacks within the ovaries that should each contain a single egg. The size of each follicle indicates the maturity of the egg it contains. Most follicles greater than 14 millimeters (mm) contain a mature egg. The eggs contained within follicles less than 14 mm are more likely to be immature and won't fertilize.

B. Trigger shot: Once the ultrasound and hormone levels determine that the eggs are ready for final maturation, a "trigger shot" is given to finalize the maturation of your eggs in preparation for egg retrieval. You'll be instructed to administer the trigger shot exactly 36 hours before your scheduled egg retrieval time

Egg Retrieval

The IVF specialist at this stage uses an ultrasound to guide a thin needle into each of the ovaries through the vagina. The needle is connected to a suction device used to pull the eggs out of each follicle. The eggs are placed in a dish containing a special solution. The dish is then put in an incubator (controlled environment). Medication and mild sedation are used to reduce discomfort during this procedure. Egg retrieval is done 36 hours after the last hormone injection, the "trigger shot."

Fertilization

Now, sperm will be injected into each mature egg. The immature eggs will be placed in a dish with sperm and nutrients. Immature eggs rarely finish their maturation process in the dish. If an immature egg does mature, the

sperm in the dish can then attempt to fertilize the egg.

On average, 70% of mature eggs will fertilize. If successful, the fertilized egg will become an embryo. If there are an exceedingly large number of eggs or you don't want all eggs fertilized, some eggs may be frozen before fertilization for future use.

Embryo development

Over the next five to six days, the development of the embryos will be carefully monitored.

On an average, 50% of fertilized embryos progress to the blastocyst stage. This is the stage most suitable for transfer to the uterus. For example, if seven eggs were fertilized, three or four of them might develop to the blastocyst stage. The remaining 50% typically fail to progress and are discarded. All embryos suitable for transfer will be frozen on day five or six of fertilization to be used for future embryo transfers.

Embryo transfer

Basically, there are two kinds of embryo transfers: fresh embryo transfer and frozen embryo transfer. According to the patient's health situation, the specialist will recommend what's best for her. Both frozen and fresh embryo transfers follow the same transfer process. The main difference is implied by the name. A fresh embryo transfer means an embryo is inserted into the uterus between three and seven days after the egg retrieval procedure.

A frozen embryo transfer means that frozen embryos (from a previous IVF cycle or donor eggs) are thawed and inserted into the uterus. This is a more common practice for logistical reasons and because this method is more likely to result in a live birth. Frozen embryo transfers can occur years after egg retrieval and fertilization.

The embryo transfer is a simple procedure that doesn't require anesthesia and feels similar to a pelvic exam or Pap smear.

Pregnancy

Pregnancy occurs when the embryo implants itself into the lining of your uterus. The doctor will use a blood test to determine if pregnancy has taken place approximately nine to 14 days after embryo transfer.

If donor eggs are being used, the same steps are taken. The egg donor will complete ovarian stimulation and egg retrieval. After fertilization takes place, the embryo is transferred to the person who intends to carry the pregnancy (either with or without various fertility medications).



Four things you must know about Egg Freezing

More and more women in India are choosing to have children later in life. Apart from medical reasons like cancer, there are many reasons why women wish to delay motherhood. They may be waiting for their Mr Right to come along or perhaps wanting to settle down in their career.

Goral Gandhi, a Clinical Embryologist with over 25 years of experience states that even though the society has changed greatly, the biological facts of human body have not changed. She explains that all women are born with a fixed number of eggs, and this number only goes down drastically over the years, and more so after the age of 37. This decline in number of eggs is also associated with a decline in the quality of eggs. This leads to difficulties in getting pregnant and increases chances of genetic anomalies in the baby.

Considering these two aspects of woman anatomy and changing societal landscape towards a more goal and career-oriented woman, the option of egg freezing is becoming increasingly popular.

Considering Goral Gandhi's experience and expertise in the field, we asked her some questions.



4 most common questions asked about Egg Freezing:

1. What is Egg Freezing?

During the process, the woman is given fertility injections to make multiple eggs in her ovaries. These eggs are then retrieved and frozen using the newest techniques of vitrification. It is the role of the embryologist to carefully freeze these eggs using the latest and most advanced method of freezing called Vitrification or Flash freezing. The embryologist then carefully preserves these frozen eggs under liquid nitro-

gen till the time that the woman is ready to have a baby.

2. What is the best age to freeze eggs?

Female fertility starts to decline after thirty and the decline is very sharp after 37. It is advised to freeze eggs in your early thirties.

It is of course possible to freeze eggs after age 37 and over, however the egg quality and quantity is going to be greatly reduced. It is therefore highly recommended to freeze eggs before the age of 35.

3. What is the success rate of

egg freezing?

Success rates of egg freezing varies a lot from patient to patient and is difficult to predict. Many factors are involved, most important being the age of the woman's eggs and the number of eggs frozen.

We can give a more personalised success expectation after initial assessment of individual patient's ovarian reserve using a blood test for Anti-Mullerian Hormone (AMH) and an ultrasound scan of the ovaries and uterus. However, this would give us an insight only into the number of eggs, and not the quality of eggs.

4. Will egg freezing guarantee a baby in future?

Just as there cannot ever be any guarantees in IVF, no one can ever guarantee that egg freezing will lead to a pregnancy and live birth in future.

If you or anyone you know is considering or going through egg freezing, Goral Gandhi would be happy to help and guide.

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Why IVF is a popular choice?



The prominence of IVF among childless couples is gaining prominence by the day. Here's understanding the need, importance and growing technological advancement in the field

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IVF treatment has helped thousands of couples have a baby since the treatment was invented in the late 1970s. It is probably the most effective form of assisted reproductive technology and the reason for bringing a smile on the faces of childless couples. The procedure can be done using your own eggs and your partner's sperm. Or IVF may involve eggs, sperm or embryos from a known

or anonymous donor. In some cases, a gestational carrier — a woman who has an embryo implanted in her uterus — might be used. The chances of having a healthy baby using IVF depend on many factors like age and the cause of infertility.

IVF is an option if you or your partner has:

- Blocked or damaged fallopian tubes.
- Endometriosis.
- Low sperm count or other

sperm impairments.

- Polycystic ovary syndrome (PCOS) or other ovarian conditions.
- Uterine fibroids.
- Problems with your uterus.
- Risk of passing on a genetic disease or disorder.
- Unexplained infertility.
- Are using an egg donor or a gestational surrogate

IVF explained in brief

In Vitro Fertilization (IVF) is the most commonly implemented assisted reproductive technology (ART) that has helped thousands to realize their dreams of parenthood. No wonder, it is gaining popularity among those who have been having trouble trying to conceive and would like to find a safe and effective treatment that can help to achieve

their goal,

Technological advancement

In recent times, technological advancement and techniques refinement has created a safer and successful treatment environment which is evident from IVF

success rates which have been showing a consistent rise since its conception.

During IVF, mature eggs are collected (retrieved) from ovaries and fertilized by sperm in a lab. Then the fertilized egg (embryo) or eggs (embryos) are transferred to a uterus. One full cycle of IVF

takes about three weeks. Sometimes these steps are split into different parts and the process can take longer. One cycle of IVF with one embryo transferred and one additional cycle of one frozen embryo transfer has the added effect of having the highest success rate with the lowest multiple birth rate of any ART treatment.

IVF Specialist

IVF centers are known for having specialized experienced infertility specialists who can give successful results for infertility treatments. They explain the complete procedure of IVF treatment and make the patient aware of the basic facts and potential risk of the infertility treatment. The IVF treatment is carried out under the supervision of the IVF specialist.

Success Rate of IVF

IVF success rate is gradually increasing with the latest technology used during the treatment. Approximately 5% of couples with infertility are said to try IVF. More than 8 million babies have been born from IVF since its conception and is one of the most effective assisted reproductive technologies (ARTs) available.

The IVF success rate depends both on the procedure that is carried out in the laboratory and the health condition of the female partner expected to carry the pregnancy.





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