

Ferring Fertility Delivers...

An Infertility Education Resource

The Treatment of Infertility



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Once the specific cause of infertility has been found and a diagnosis made, an appropriate treatment plan can be recommended. Not everyone receiving an infertility diagnosis chooses to pursue treatment. Some choose an alternate route to parenthood, such as adoption. Others may choose to live child-free. Those who do decide to pursue medical treatment to increase their chances of pregnancy have a range of options available to them.

Here you will find information about the various medical options available for infertility treatment. The decision to choose a particular treatment is a personal one. It is important for patients and health care professionals to discuss all appropriate treatments. By being fully informed, patients will be able to make treatment decisions that are right for them.

Bravelle[®]
(urofollitropin
for injection, purified)

Menopur[®]
(menotropins for injection, USP)

Repronex[®]
(menotropins for injection, USP)

Novarel[®]
(Chorionic Gonadotropin
for Injection, USP)

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Ovulation-Induction Medications

Ovulation-induction medications stimulate the development and release of eggs from your ovaries.

These medications, commonly called fertility drugs, may be used to stimulate the follicles in your ovaries to produce multiple eggs in one cycle. Sexual intercourse may then be scheduled around the time of ovulation to achieve a pregnancy. These medications may also be used to control *when* you ovulate (release eggs) so that procedures such as artificial insemination and in vitro fertilization (IVF) can be performed. Several kinds of fertility drugs are available, and it may take a few cycles to determine the treatment that works best for you.

- **Clomiphene citrate** — in tablet form, this medication may be used if you have infrequent periods or long menstrual cycles. The most common side effects are headaches, blurred vision, and hot flashes. Contact your doctor if you experience pelvic pain
- **hMG (human menopausal gonadotropin)** — may be used if treatment with clomiphene has not been effective. hMG is given in an injection. It stimulates eggs to mature in women whose ovaries are basically healthy, but are unable to develop eggs. It is not used for women who suffer from ovarian failure. hMG is also used to stimulate the production of follicles as part of IVF. hMG contains equal amounts of follicle-stimulating hormone (FSH) and luteinizing hormone (LH). Injection site reactions and discomfort are not likely to occur when you use hMG. The most common side effect is enlarged ovaries, which can cause abdominal pain. A rare but serious side effect is called ovarian hyperstimulation syndrome (OHSS). This occurs when too many follicles develop in response to the medication
- **FSH (follicle-stimulating hormone)** — this medication, given in an injection, stimulates the natural hormone FSH. It is prescribed if treatment with clomiphene was not effective, especially for women with polycystic ovarian syndrome (PCOS). FSH stimulates eggs to mature in women whose ovaries are basically healthy, but are unable to develop eggs. It is not used for women with ovarian failure. FSH is also used to stimulate the production of multiple eggs for IVF. The most common side effect is enlarged ovaries, which can cause abdominal pain. OHSS is a rare but serious side effect

Other medications

- **hCG (human chorionic gonadotropin)** — is used to stimulate egg release (ovulation) in women who do not ovulate and who do not have ovarian failure. It is injected once your follicles are developed and your eggs have matured during your cycle. Before receiving hCG, you must have also been treated with gonadotropins, such as hMG or FSH
- **GnRH analogs** — these medications are usually used with FSH, hMG, or hCG. This allows for every step of your follicle growth and ovulation to be controlled. They can be given by subcutaneous injection (under the skin). Some are also available in a nasal spray. Common side effects include hot flashes, vaginal dryness, headache, sleeplessness, mood swings, and reduced sex drive. However, these side effects usually go away once you begin treatment with FSH or hMG

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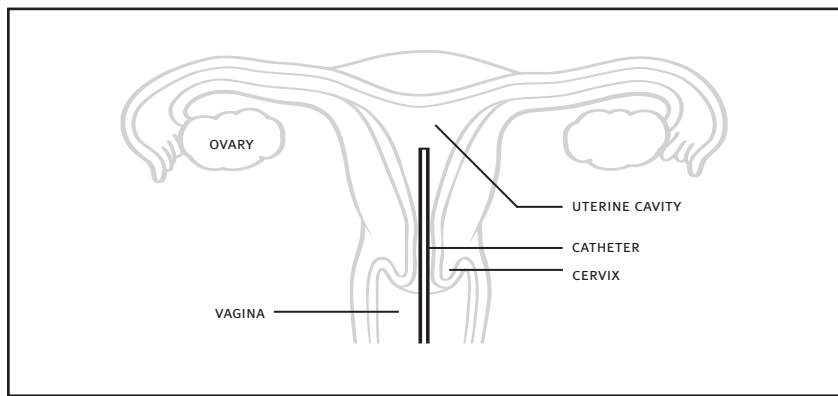
Questions & Answers

- Q:** Why do I have to see my doctor so often?
- A:** Your doctor must monitor you closely to make sure that your follicles are developing properly and evaluate when you will be ready to ovulate. Your doctor will also be checking for possible side effects.
-
- Q:** What are the risks of ovulatory-induction medications?
- A:** These medications may increase your chance for multiple births — which may increase the risks of miscarriage and premature delivery. Another risk is the development of ovarian cysts. A rare but serious side effect from treatment with menotropins and FSH is OHSS. Symptoms may include severe pain in the pelvis, abdomen, and chest, nausea, vomiting, bloating, weight gain, and difficulty breathing. Call your doctor right away if you have any of these symptoms. Dehydration may also occur, increasing the risk of a blood clot.

Intrauterine Insemination

Intrauterine insemination (in-trah-U-ter-in in-sem-i-NAY-shun) (IUI) is an infertility treatment in which sperm are placed into your uterine cavity through a catheter.

Intrauterine insemination (IUI) is a type of artificial insemination in which sperm are injected directly into your uterine cavity near the time you ovulate. Your doctor may recommend IUI to treat many causes of infertility, especially when there is a problem with the sperm such as low sperm count or low motility (the sperm do not move well). IUI bypasses the cervix, so it is a useful treatment if there is an incompatibility between the sperm and the cervical mucus. IUI is also an option when the man is unable to ejaculate inside the woman's vagina (because of impotence, premature ejaculation, or other medical conditions). This procedure can be performed either with your partner's sperm or with sperm from a donor.



How intrauterine insemination is performed

Your partner will be asked to provide a semen sample about an hour or two before you are scheduled for insemination. This is done by masturbating into a sterile container at the doctor's office. The semen is "washed" to separate the sperm from the seminal fluid. This must be done before the sperm can be injected into your uterus because the seminal fluid contains substances that can irritate your uterus. Sperm "washing" may also improve the ability of the sperm to fertilize the egg.

The insemination takes only a few minutes. Your doctor or nurse will place a speculum inside your vagina, insert a small catheter through your cervix into your uterine cavity, and inject the sperm through the catheter into your uterus. You most likely will not feel discomfort during the procedure.

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Questions & Answers

Q: How can IUI help to improve my chances for pregnancy?

A: The sperm are placed inside your uterus, so they are closer to the site of fertilization. IUI bypasses many problems that take place in the vagina or cervix, such as an incompatibility between the sperm and the cervical mucus. IUI also improves delivery of the sperm to the egg, especially when the sperm count is low or the sperm do not move well.

Q: I heard that we may need to go through this procedure more than once. Is that true?

A: If you do not become pregnant, you may have to repeat the procedure over your next few cycles. Further evaluation may be needed if you do not become pregnant after several cycles.

Q: Is there anything we need to do to prepare for this procedure?

A: You should abstain from sex for 2 or 3 days before the procedure. If you are not ovulating regularly, your doctor may prescribe medication to induce ovulation. Check with your doctor to see if there are any other recommendations specific to you.

Q: How soon will we know if this treatment has been successful?

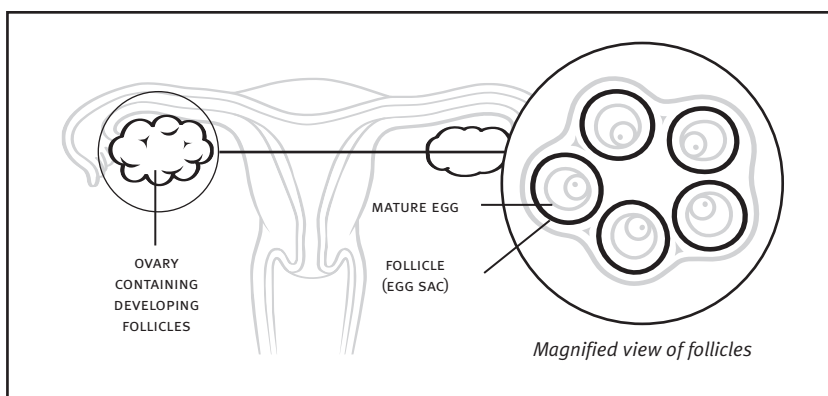
A: You will probably know in about 2 weeks — if you become pregnant, you will most likely miss your next period. A blood test will confirm whether or not you are pregnant.

Ovulation Induction

The purpose of ovulation induction is to produce multiple eggs for the in vitro fertilization (IVF) procedure.

Ovulation induction with medications is the first step in the in vitro fertilization (IVF) process. Normal ovulation usually produces only one egg. Ovulation induction with medications stimulates many follicles in your ovaries to develop so that several eggs can be retrieved for the IVF procedure.

Your doctor will evaluate you frequently during this time to make sure your follicles (egg sacs) are developing properly and to evaluate the right time for egg retrieval. Once your follicles are developed, your doctor will retrieve the mature eggs.



What to expect during ovulation induction

Ovulation induction involves treatment with medications to stimulate follicle growth. A GnRH analog may be used to control follicle growth. Your treatment will depend on your specific needs.

- A few days after your period begins, you may start treatment with follicle-stimulating hormones (FSH) and/or human menopausal gonadotropins (hMG).
- For the next week or so, your doctor will evaluate your hormone levels and examine your follicles by ultrasound frequently, to evaluate their development. Your doctor will also be monitoring you for potential medication side effects.
- When your follicles are almost mature, your doctor will tell you when to take your human chorionic gonadotropin (hCG) injection. hCG causes the final maturation of the eggs. The hCG injection is usually given about 35 hours before egg retrieval is scheduled.

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Questions & Answers

Q: What tests are used to examine my follicles and evaluate when the eggs are mature?

A: Before you start your medication, you will likely have an ultrasound and a blood test. These tests will probably be repeated every few days, and they may become more frequent as your follicles reach maturity.

Q: A friend told me that she couldn't get her hCG injection during her first IVF attempt. What happened?

A: There are a few reasons why an hCG injection may be withheld:

- There are not enough mature eggs for the IVF procedure — the follicles may not have developed properly, or only 1 or 2 follicles developed
- The woman ovulates prematurely (and the eggs cannot be retrieved)
- The woman develops too many follicles, and the doctor feels that it would be unsafe to give the hCG injection

Q: I heard that ovulation induction is a very time-consuming process. Is that true?

A: Yes. A lot of your time will be devoted to attending appointments with your doctor, going for lab work, and taking your medications at exactly the right times. Ovulation induction will become a priority in your life (during that cycle), and everything else will have to be scheduled around your appointments and dosing schedule. It is a good idea to limit your social engagements during that time — you and your partner will need as much free time as you can get.

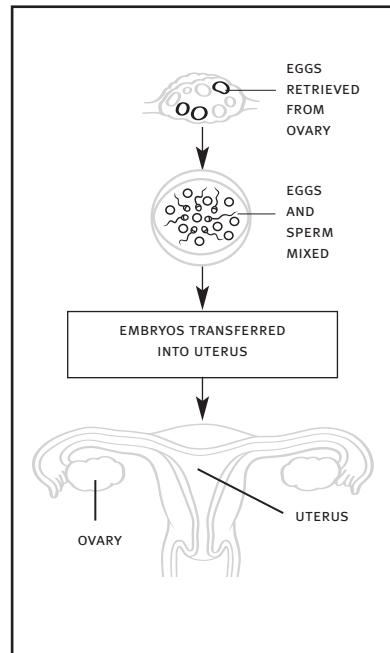
Egg Retrieval, Fertilization, and Transfer

In vitro fertilization (IVF) is an infertility treatment in which a woman's eggs are retrieved from her ovaries, fertilized with sperm, then transferred into her uterine cavity.

Before your egg retrieval, you will go through ovulation induction, which stimulates your ovaries to produce multiple eggs for the in vitro fertilization (IVF) procedure.

Egg retrieval

Just prior to the time you would ovulate, your eggs will be removed from the follicles in your ovaries by a team consisting of a doctor, a nurse, and an embryologist. You may receive general anesthesia or intravenous sedation and a mild pain reliever during this procedure. An ultrasound probe will be inserted into your vagina so that your doctor will be able to see your follicles. Attached to the probe is a thin needle, which goes through the vaginal wall and into the ovary to draw the fluid and egg from each follicle. The fluid is given to the embryologist, who will examine it for eggs. This procedure usually takes about an hour. Afterward, as you recover from the anesthesia or sedation, you will rest for about 60 minutes before going home.



Fertilization

Your partner will need to provide a semen sample around the time your egg retrieval is performed. This is done by masturbating into a sterile container at the doctor's office. The semen is "washed" to separate the sperm from the seminal fluid. The sperm are then incubated with the eggs for fertilization. The next day the eggs are checked to see if they are fertilized. The embryologist will then examine the fertilized eggs over the next 2 or 3 days to make sure they are developing properly.

Embryo transfer

Your doctor will discuss the number of embryos to be transferred — usually several embryos are transferred to your uterine cavity to improve your chances for pregnancy. This procedure is relatively simple, does not require anesthesia, and takes only a few minutes. Your doctor will place a speculum inside your vagina, insert a small catheter through your cervix into your uterine cavity, and transfer the embryos through the catheter. Any discomfort from the transfer is minimal.

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Questions & Answers

Q: Can I drive home or go back to work after the egg retrieval?

A: No. You should plan to have someone stay with you during the procedure and for the first 24 hours after you return home. You are likely to have some cramping and vaginal spotting for a day or so after the egg retrieval, so you should plan to take off the next day from work to rest.

Q: Can I drive home or go back to work after the embryo transfer?

A: You will probably feel well enough to drive yourself home after the transfer. However, you may want to relax for the rest of the day instead of going back to work.

Q: My doctor started me on daily progesterone injections. What is this medication for?

A: The hormone progesterone helps to support the lining of your uterus to help maintain a pregnancy.

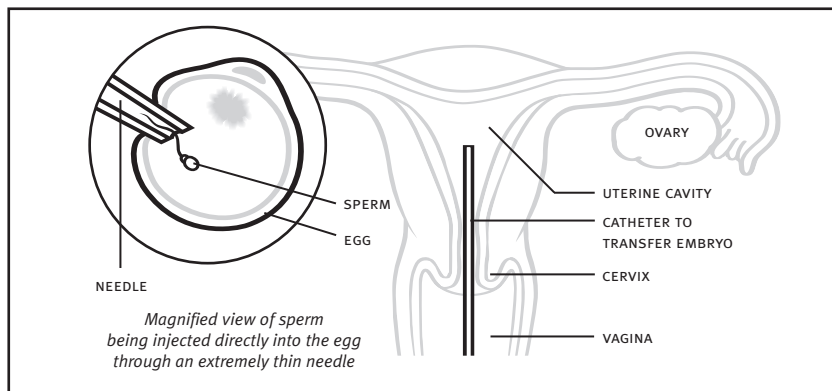
Q: How soon will we know if this treatment has been successful?

A: In general, a pregnancy blood test will be performed about 2 weeks after your embryo transfer. Do not do a home pregnancy test before that time — some of the fertility medications may cause false results if the test is performed too early.

Intracytoplasmic Sperm Injection

Intracytoplasmic (in-trah-sy-toh-PLAZ-mik) sperm injection (ICSI) is an infertility treatment in which one sperm is injected directly into an egg.

Intracytoplasmic sperm injection (ICSI) is performed as part of your in vitro fertilization (IVF) procedure. It is a process in which a single sperm is injected into the cytoplasm (center) of each egg by an embryologist (a specialist in egg fertilization). After the egg has been injected with the sperm, the embryologist will observe the egg over the next day or so. If fertilization occurs and the embryo matures properly, it will be transferred into your uterine cavity.



Your doctor may recommend ICSI as part of your IVF procedure to treat many causes of infertility, especially when there is a problem with the sperm such as low motility (movement) or a low sperm count. ICSI is especially useful in cases where the sperm cannot penetrate the egg or if the sperm are abnormally shaped.

How intracytoplasmic sperm injection is performed

Many eggs are needed for the ICSI process, so you will have to take fertility medications to induce ovulation during your cycle before the ICSI. Once your follicles (egg sacs) are mature, your eggs will be removed from your ovaries by a doctor. You may receive general anesthesia or intravenous sedation during this procedure. Meanwhile, your partner will be asked to provide a semen sample, which he will collect by masturbation at the doctor's office. The sperm are evaluated and the healthiest sperm are selected for the ICSI procedure.

After the eggs and sperm are collected, the ICSI process takes place in the lab. If the procedure is a success, your doctor will then discuss the number of embryos to be transferred to your uterine cavity. Usually several embryos are transferred to improve your chances for pregnancy. This procedure is relatively simple and takes only a few minutes. Your doctor will place a speculum inside your vagina, insert a small catheter through your cervix into your uterine cavity, and transfer the embryos through the catheter. Any discomfort from the transfer is minimal.

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Questions & Answers

Q: How can ICSI help to improve my chances for pregnancy?

A: A single sperm is selected to be injected into the egg, and the embryo is transferred directly to your uterus. ICSI is a good option for patients in whom fertilization of the eggs is otherwise unlikely.

Q: Is there anything we need to do to prepare for this procedure?

A: You will need to take fertility medications during the treatment cycle procedure so that your ovaries will produce multiple eggs. Also, you should abstain from sex for 2 or 3 days before the egg retrieval to maximize semen quality. Check with your doctor to see if there are any other recommendations specific to you.

Q: How soon will we know if this treatment has been successful?

A: In general, a pregnancy blood test will be performed about 2 weeks after your embryo transfer. Do not do a home pregnancy test before that time — some of the fertility medications may cause false results if the test is performed too early.

Patient's Name

Medical Record Number

Date

Medication Instruction

Discussed the following:

- Usage of medication
- Storage of medication
- Proper disposal of used needles
- Side effects of medication
- Risk of multiple gestation
- Fetal reduction
- OHSS (ovarian hyperstimulation syndrome)
- Monitoring process
- Reconstitution and injection techniques
- Cost expenditure/insurance coverage
- Possible link to ovarian cancer
- Medication prescription given
- Consent obtained

Clinician's Signature

Date

Injection Technique

Correctly demonstrated:

Preparation

- Proper hand-washing technique
- Gather all supplies (medication, syringe, needle[s], alcohol prep)
- Check medication name, dose, expiration date
- Attach needle to syringe
- Open medication and diluent vials/ampoules
- Withdraw appropriate amount of diluent from vial/ampoule and mix with medication
- Withdraw medication into syringe, removing air bubbles
- Change needles, if appropriate

Administration

- Select injection site
- Swab injection site with alcohol
- Remove cap from needle and position non-dominant hand at injection site
- Insert needle into the injection site (to the hub), then stabilize needle at the hub
- Pull back on plunger to check for blood return (intramuscular [IM] injection only)
- Push on plunger to inject entire dose of medication
- Move non-dominant hand, then quickly withdraw needle
- Apply gentle pressure at the injection site
- Apply bandage, if desired
- Properly dispose of needle(s) and syringe(s)

Clinician's Signature

Date

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Personal Cycle Log

This chart enables you to record any details that may be important to you during your cycle, such as medications and testing. You may also wish to record highlights such as egg retrieval, embryo transfer, and so on.

Treatment cycle

Cycle Day	Date	Medication/ Dose	Injection Site/Time	Blood Work	Ultrasound	Notes
1						
2						
3						
4						
5						
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IVF Cycle Calendar

Your *in vitro* fertilization (IVF) team will give you instructions for completing the information in this calendar. Use this calendar to track your medications, tests, and procedures throughout all 3 phases of your IVF cycle. Your IVF team may make adjustments to the calendar as you progress through the cycle.

Suppression

This table helps you track the medication that allows the IVF team to control your cycle. Call on day 1 of your menstrual period to schedule blood testing.

Cycle Day	3	21	Blood-Drawing Hours: _____
Date			
Medication			Ultrasound Hours: _____
Blood Test			

Stimulation

This table tracks medications and monitoring during the follicle-stimulation portion of your cycle. Your partner may begin antibiotics on cycle day 3 if part of protocol.

Cycle Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Date																				
MEDICATIONS																				
TESTS																				
Blood Work																				
Estradiol																				
Progesterone																				
Ultrasound																				

Retrieval/Transfer

The last portion of your cycle begins on the day you take your hCG injection. Count this as day 0.

Luteal Day	0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+13	+14	+15	+16	+17	+18	+19
Date																				
Retrieval																				
Transfer																				
MEDICATIONS																				
TESTS																				
Blood Work																				
Estradiol																				
Progesterone																				
Ultrasound																				

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