Evaluating Infertility

If you are trying to have a child and you have not become pregnant, you may need an infertility evaluation. An infertility evaluation is recommended if you have not become pregnant after 1 year of having regular ***sexual intercourse*** without the use of birth control, or after 6 months if you are older than 35 years.

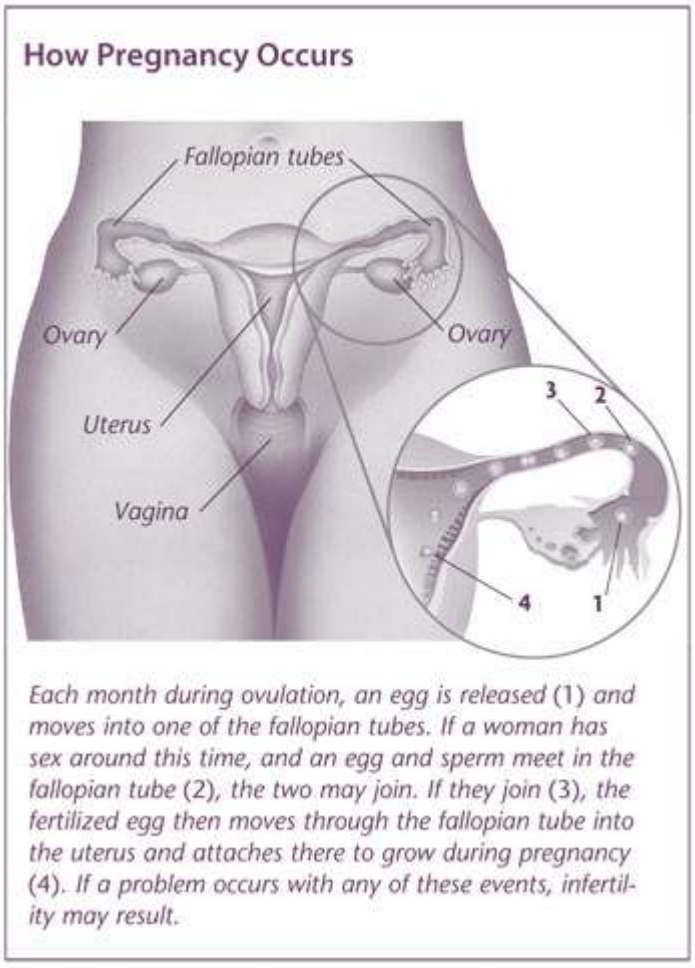
During an infertility evaluation, exams and tests are done to try to find the cause of the problem. If a cause is found, treatment may be possible. In many cases, infertility can be successfully treated even if no cause is found.

This pamphlet explains

- how pregnancy occurs
- causes of infertility
- when to consider an infertility evaluation
- testing for infertility
- next steps

How Pregnancy Occurs

At ***puberty***, the ovaries contain approximately 300,000–500,000 immature eggs. The eggs are contained in ***follicles***. During each menstrual cycle, a few of these eggs start to mature. One of the eggs completes this process and is released from the ovary. This is called ***ovulation***. Ovulation occurs about 14 days before the beginning of the next menstrual cycle. If your menstrual cycle is 28 days, ovulation occurs between days 13–15, counting from the first day of your last menstrual period. Once an egg is released, it enters one of the ***fallopian tubes***.



When a man ejaculates during intercourse, ***semen*** is released into the ***vagina***. Semen is the fluid that carries the sperm. Sperm travel through the woman's ***cervix*** and into the fallopian tubes.

If a sperm and egg meet in a fallopian tube, they may join. This is called fertilization. The egg can be fertilized for up to 24 hours after ovulation. Sperm are able to fertilize an egg for 3 days or more.

The joined egg and sperm form a single ***cell***. This cell divides, forming two cells, then four cells, and so on. The rapidly dividing ball of cells moves through the fallopian tube into the ***uterus***. About 7 days after fertilization, it attaches to the uterine lining to grow during pregnancy.

Ovulation, sperm production, and pregnancy are controlled by ***hormones***. Different hormones have different effects at different times during the menstrual cycle. Other hormones are produced during pregnancy.

All of these events must take place for pregnancy to occur. If there is a problem in this chain of events, infertility may result.

Causes of Infertility

Infertility may be caused by multiple factors. Some are easy to find and treat, and others are not.

Age is a factor in infertility. A woman begins life with a fixed number of eggs. This number decreases as she grows older. For healthy, young couples, the chance that a woman will become pregnant is about 20% in any single menstrual cycle. This percentage starts to decline in a woman's early 30s. It declines more rapidly after age 37 years. A man's fertility also declines with age, but not as predictably.

Both male and female factors can contribute to infertility. Female factors are the cause of infertility about one third of the time, and male factors about one third of the time. In about 15% of cases, both male and female factors play a role, and in 20% of cases, no cause is found. This is called unexplained infertility.

Female factors may involve problems with ovulation, the reproductive organs, or hormones. The ovaries may not release an egg. This problem may occur in up to 40% of women with infertility. Scarring or blockages of the fallopian tubes may be a cause of infertility. This may be the result of past ***sexually transmitted diseases*** or, less commonly, ***endometriosis***. ***Adhesions*** from infection or endometriosis may cause infertility. Problems with the thyroid gland and ***pituitary gland*** can contribute to infertility.

Lifestyle factors also can play a role in infertility. Being underweight, being overweight, or excessive exercise may be associated with infertility. Drinking alcohol at moderate or heavy levels and smoking may make it difficult for a woman to get pregnant.

Male factors most often involve problems with the amount or health of the sperm. Blockage or absence of the tubes that carry sperm from the ***testes*** may be a cause. Smoking, heavy drinking, marijuana use, and anabolic steroid use can reduce sperm count and movement. Smoking also can lead to ***erectile dysfunction***, making pregnancy difficult to achieve.

When to Consider an Infertility Evaluation

You should consider seeing a doctor about infertility if any of the following apply to you:

- You have not become pregnant after trying for 12 months without using birth control.
- You are older than 35 years and have not become pregnant after trying for 6 months without using birth control.
- Your menstrual cycle is not regular.
- You or your partner have a known fertility problem.

It is important to find a doctor with whom you are comfortable and can talk to easily. Your regular health care provider may be able to do the first assessment. You also may choose to see a specialist. Doctors who deal with infertility may be ***obstetrician-gynecologists***. Reproductive endocrinologists are obstetrician-gynecologists with special training in evaluating and treating infertility in men and women. Men also may be evaluated and treated by a urologist, a doctor who specializes in treating problems of the male reproductive system. Some urologists have special training in male infertility.

The Initial Visit

The first visit usually involves a detailed medical history and a physical exam. During the medical history, you will be asked questions about your menstrual period, abnormal vaginal bleeding or discharge, pelvic

pain, and disorders that can affect reproduction, such as thyroid disease. If you have a male partner, both of you will be asked about the following health issues:

- Medications (both prescription and over-the-counter) and herbal remedies
- Illnesses, including sexually transmitted diseases and past surgery
- Birth defects in your family
- Past pregnancies and their outcomes
- Use of tobacco, alcohol, and illegal drugs
- Occupation

You and your partner also will be asked questions about your sexual history:

- Methods of birth control
- How long you have been trying to become pregnant
- How often you have sex and whether or not you have difficulties
- If you use lubricants during sex
- Prior sexual relationships

Your doctor may talk about the stress of infertility and ways to deal with it. Talk with him or her about any concerns you have.

Testing for Infertility

Tests for infertility include laboratory tests, imaging tests, and certain procedures. Imaging tests and procedures involve looking at the reproductive organs and how they work to find problems. Laboratory tests often involve testing blood samples or other samples, such as semen, for problems.

The infertility evaluation can be finished within a few menstrual cycles in most cases. Ask your doctor about the costs involved. Find out whether they are covered by your insurance.

Basic Testing for the Man

The testing for a man often involves a semen analysis (sperm count). If the semen analysis is abnormal or areas of concern are found in the man's history, other tests may be considered.

Semen analysis. A semen analysis is a key part of the basic testing for a man. It is done to assess the amount of sperm, the shape of the sperm, and the way that the sperm move. A semen analysis also can show if there is an infection in the reproductive system.

The semen sample is obtained by ***masturbation*** or by using a special condom during intercourse. It can be collected at home or in a lab. The analysis may need to be done more than once. You and your partner may need to abstain from sex for a few days before giving the sample. Your doctor will give you instructions.

Blood tests. These tests measure levels of male reproductive hormones, such as ***testosterone***. Too much or too little of these hormones can cause problems with making sperm or with having sex.

Other tests. If results of a semen analysis or physical exam show a possible problem, other tests may be done. For example, an ***ultrasound exam*** may be done to find problems in the ducts and tubes that the semen moves through. Ultrasound also may be used to find problems in the ***scrotum*** that may be causing infertility.

Basic Testing for the Woman

You may not have all of the following tests and procedures. Some are done based on results of previous tests or procedures.

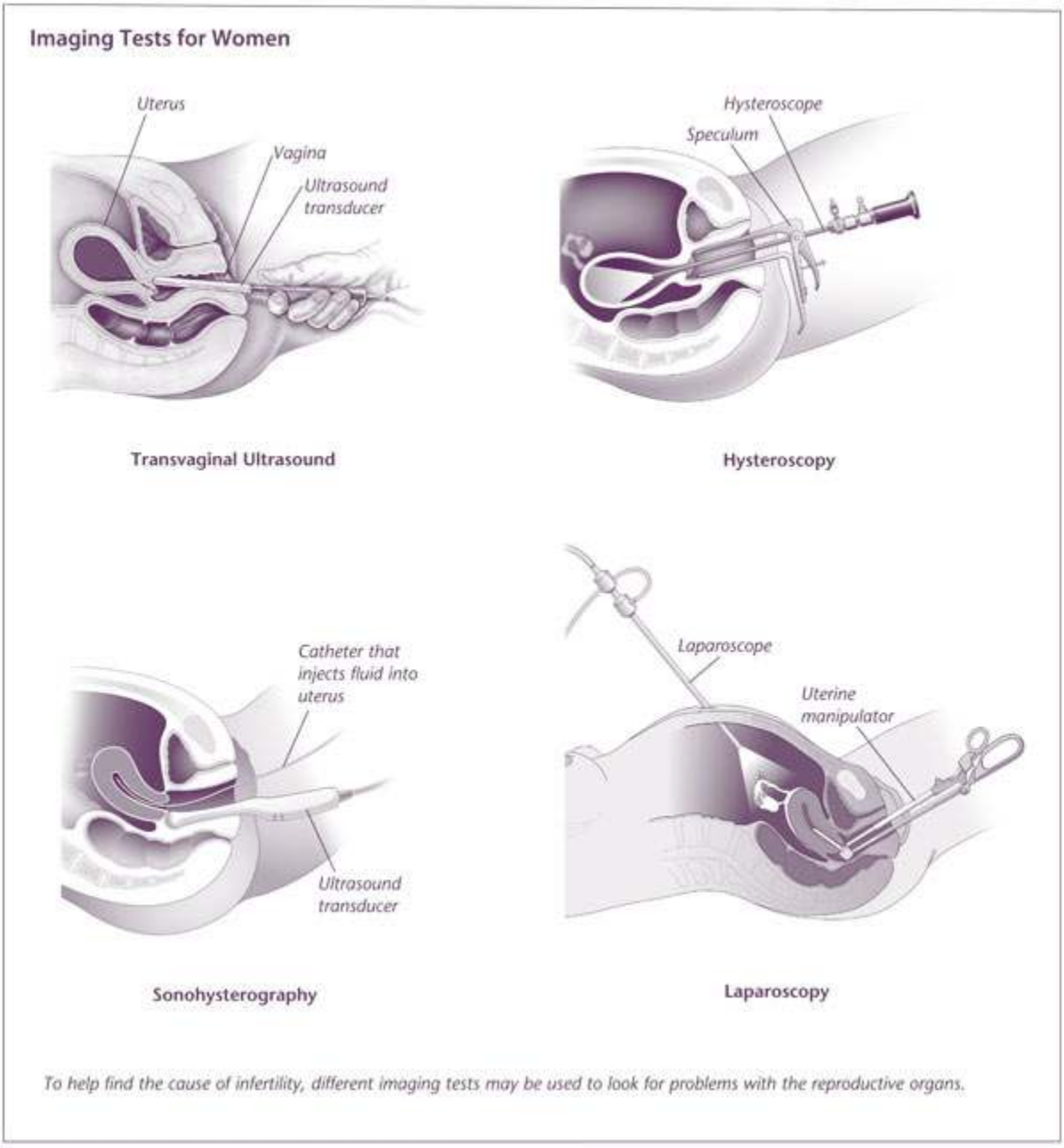
Tests. Some tests check the function of your ovaries. Other tests measure hormone levels.

- Tracking ***basal body temperature***—Tracking your basal body temperature can be done at home. It is a way to tell whether ovulation has occurred. After a woman ovulates, her body temperature increases slightly. To perform this test, you will need to take your temperature by mouth every morning before you get out of bed. You record it on a chart for two or three menstrual cycles.
- Urine test—This test can be done at home with a kit. It is a way to determine when and if you ovulate. The test detects ***luteinizing hormone (LH)*** in the urine. LH triggers the release of an egg. If the test result is positive, it means ovulation is about to occur. Sometimes these kits are used with or instead of basal body temperature charts.
- ***Progesterone*** test—A sample of blood is taken on a given day in the menstrual cycle. The level of a hormone called progesterone is measured. An increased level shows that you have ovulated.
- Thyroid function tests—If a problem is suspected with your thyroid gland, levels of hormones that control the thyroid gland are measured to see if it is working normally.
- Prolactin level test—This blood test measures the level of the hormone prolactin. High prolactin levels can disrupt ovulation.
- Tests of ovarian reserve—If you are older than 35 years or if you have known fertility problems, you may have blood tests that check the function of the ovaries. These tests measure the levels of certain hormones in the blood that are involved in ovulation. Results of these tests can give an idea of the number of eggs the ovaries have and whether they are still healthy.

Imaging tests and procedures. Different imaging tests and procedures are used to look at the reproductive organs. They check whether the fallopian tubes are healthy and whether there are problems in the uterus. The procedures used depend on your symptoms as well as the results of other tests and procedures. You may be given pain relief for some of these procedures:

- Ultrasound exam—Ultrasound can predict when ovulation will occur by tracking changes in the follicles. Ultrasound can be used when results of other ovulation tests do not give enough information.
- ***Hysterosalpingography***—This X-ray procedure shows the inside of the uterus and whether the fallopian tubes are blocked.
- ***Sonohysterography***—This test is used to look for scarring or other problems inside the uterus.
- ***Hysteroscopy***—During this procedure, minor problems in the uterus can be treated or a sample of the uterine lining can be taken to study.

- ***Laparoscopy***—This surgical procedure lets the doctor view the fallopian tubes, ovaries, and the outside of the uterus. It often is done only after other tests show a problem. Some problems can be treated during this procedure. For example, areas of endometriosis can be removed.



The Next Steps

Infertility can be treated in many ways. Treatments include lifestyle changes, surgery, medications, and ***assisted reproductive technology***. The treatment options that are recommended depend on the type of problem found. Some options are used together. After your evaluation, talk with your health care provider about the best options for you and your partner.

Finally…

If you have not been able to become pregnant after 6–12 months of having sex without using birth control, you may want to have an infertility evaluation. Certain tests may help find the cause of infertility. If a problem is found, steps often can be taken to treat it. Even if no cause is found, infertility sometimes can be successfully treated.

Glossary

Adhesions: Scarring that binds together the surfaces of tissues.

Assisted Reproductive Technology: A group of infertility treatments in which an egg is fertilized with a sperm outside of the body; the fertilized egg then is transferred to the uterus.

Basal Body Temperature: The temperature of the body at rest.

Cell: The smallest unit of a structure in the body; a building block for all parts of the body.

Cervix: The opening of the uterus at the top of the vagina.

Endometriosis: A condition in which tissue similar to that normally lining the uterus is found outside of the uterus, usually on the ovaries, fallopian tubes, and other pelvic structures.

Erectile Dysfunction: The inability in a man to achieve an erection or to sustain it until ejaculation or until intercourse takes place.

Fallopian Tubes: Tubes through which an egg travels from the ovary to the uterus.

Follicles: The sac-like structures that form inside an ovary when an egg is produced.

Hormones: Substances produced by the body to control the functions of various organs.

Hysterosalpingography: A special X-ray procedure in which a small amount of fluid is placed into the uterus and fallopian tubes to detect abnormal changes in their size and shape or to determine whether the tubes are blocked.

Hysteroscopy: A procedure in which a slender device, the hysteroscope, is inserted into the uterus through the cervix to view the inside of the uterus or perform surgery.

Laparoscopy: A surgical procedure in which an instrument called a laparoscope is inserted into the pelvic cavity through a small incision. The laparoscope is used to view the pelvic organs. Other instruments can be used with it to perform surgery.

Luteinizing Hormone (LH): A hormone produced by the pituitary gland that helps an egg to mature and be released.

Masturbation: Self-stimulation of the genitals, usually resulting in orgasm.

Obstetrician-Gynecologists: Physicians with special skills, training, and education in women's health.

Ovulation: The release of an egg from one of the ovaries.

Pituitary Gland: A gland located near the brain that controls growth and other changes in the body.

Progesterone: A female hormone that is produced in the ovaries and that prepares the lining of the uterus for pregnancy.

Puberty: The stage of life when the reproductive organs become functional and secondary sex characteristics develop.

Scrotum: The external genital sac in the male that contains the testes.

Semen: The fluid made by male sex glands that contains sperm.

Sexual Intercourse: The act of the penis of the male entering the vagina of the female (also called "having sex" or "making love").

Sexually Transmitted Diseases: Diseases that are spread by sexual contact, including chlamydia infection, gonorrhea, genital warts, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

Sonohysterography: A procedure in which sterile fluid is injected into the uterus through the cervix while ultrasound images are taken of the inside of the uterus.

Testes: Two male organs that produce sperm and the male sex hormone testosterone.

Testosterone: A hormone produced by the testes in men and in smaller amounts by the ovaries and other tissues in women that is responsible for male sex characteristics such as hair growth, muscle development, and a lower voice.

Ultrasound Exam: A test in which sound waves are used to examine internal structures.

Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

Vagina: A tube-like structure surrounded by muscles leading from the uterus to the outside of the body.

This Patient Education Pamphlet was developed by the American College of Obstetricians and Gynecologists. Designed as an aid to patients, it sets forth current information and opinions on subjects related to women's health. The average readability level of the series, based on the Fry formula, is grade 6-8. The Suitability Assessment of Materials (SAM) instrument rates the pamphlets as "superior." To ensure the information is current and accurate, the pamphlets are reviewed every 18 months. The

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ISSN 1074-8601

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