

Male factor Infertility

About one-third of cases of infertility are caused by male factors alone. A combination of male and female factors causes about one-third of cases.

What causes male infertility?

The most common cause of male infertility is a varicocele (say: "var-ee-koh-seal"). This is when the veins in the scrotum (the skin "sack" that hangs beneath the penis) are dilated (enlarged) on 1 or both sides. This heats the inside of the scrotum and may affect sperm production. A blockage in a man's reproductive system may cause male infertility. Some medicines can also cause infertility.

Other causes of male infertility may include:

- low sperm count
- sperm that are abnormally shaped or that don't move correctly
- Undescended testes
- an underlying medical problem

Sometimes the cause of male infertility cannot be identified. In these cases, there may be an underlying genetic problem.

When should I see a doctor?

Usually, a couple should wait to see a doctor until after they've tried to get pregnant for a year. However, it's OK to see a doctor sooner, especially if the woman's age may be a factor.

Should men be checked for infertility?

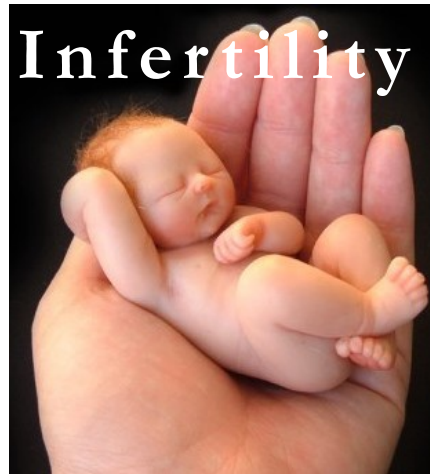
Yes. It's important to identify and treat any correctable problems. In some men, a doctor's exam may find an underlying medical problem that is causing the infertility.

Information contained in this booklet is meant for informational purposes only and should not substitute the visit to your doctor nor his/her advice for your health care.

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Introduction to female Infertility



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Introduction

Infertility is the failure of a couple to become pregnant after one year of regular, unprotected intercourse. In both men and women the fertility process is complex.

Infertility affects about 10% of all couples. Even under ideal circumstances, the probability that a woman will get pregnant during a single menstrual cycle is only about 30%. And, when conception does occur, only 50 - 60% of pregnancies advance beyond the 20th week. (The inability of a woman to produce a live birth because of abnormalities that cause miscarriages is called infecundity and is not discussed in detail in this brochure.)

About a third of infertility problems are due to female infertility, and another third are due to male infertility. In the remaining cases, infertility affects both partners or the cause is unclear. Although this brochure specifically addresses infertility in women, it is equally important for the male partner to be tested at the same time.

The Female Reproductive System

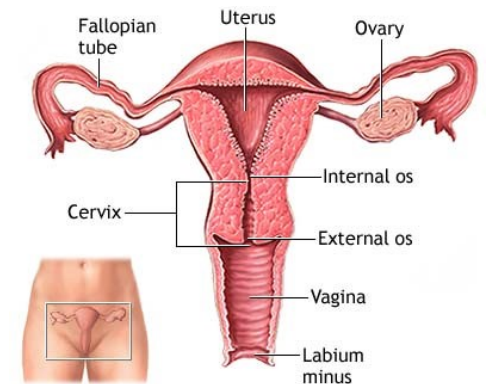
The primary organs and structures in the reproductive system are:

- The *uterus* is a pear-shaped organ located between the bladder and lower intestine. It consists of two parts, the body and the cervix.
- When a woman is not pregnant the body of the uterus is about the size of a fist, with its walls collapsed and flattened against each other. During pregnancy the walls of the uterus are pushed apart as the fetus grows.
- The *cervix* is the lower portion of the uterus. It has a canal opening into the vagina with an opening called the *os*, which allows menstrual blood to flow out of the uterus into the vagina.
- Leading off each side of the body of the uterus

are two tubes known as the *fallopian tubes*. Near the end of each tube is an ovary.

- Ovaries are egg-producing organs that hold 200,000 - 400,000 *follicles* (from folliculus, meaning "sack" in Latin). These cellular sacks contain the materials needed to produce ripened eggs, or ova.

The inner lining of the uterus is called the *endometrium*. During pregnancy, it thickens and becomes enriched with blood vessels to house and support the growing fetus. If pregnancy does not occur, the endometrium is shed as part of the menstrual flow. Menstrual flow also consists of blood and mucus from the cervix and vagina. The pituitary gland is often referred to as the master gland because of its important role in many vital functions, many of which require hormones.



In women, six key hormones serve as chemical messengers that regulate the reproductive system:

- The hypothalamus first releases the *gonadotropin-releasing hormone (GnRH)*.
- This chemical, in turn, stimulates the pituitary gland to produce *follicle-stimulating hormone (FSH)* and *luteinizing hormone (LH)*.
- *Estrogen*, *progesterone*, and the male hormone *testosterone* are secreted by the ovaries at the command of FSH and LH and complete

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the hormonal group necessary for reproductive health.

Ovulation. The process leading to fertility is very intricate. It depends on the healthy interaction of the reproductive organs and hormone systems in both the male and female. In addition, reproduction is limited by the phases of female fertility. Nevertheless, this process results in conception within a year for about 80% of couples. Only 15% conceive within a month of their first attempts, however, and about 60% succeed after 6 months.

A woman's ability to produce children occurs after she enters puberty and begins to menstruate. The process of conception is complex:

- With the start of each menstrual cycle, follicle-stimulating hormone (FSH) stimulates several follicles to mature over a 2-week period until their eggs nearly triple in size. Only one follicle becomes dominant, however, during a cycle.
- FSH signals this dominant follicle to produce estrogen, which enters the bloodstream and reaches the uterus. There, estrogen stimulates the cells in the uterine lining to reproduce, therefore thickening the walls.
- Estrogen levels reach their peak around the 14th day of the cycle (counting days beginning with the first day of a period). At that time, they trigger a surge of luteinizing hormone (LH).

LH serves two important roles:

- First, the LH surge around the 14th cycle day stimulates *ovulation*. It does this by causing the dominant follicle to burst and release its egg into one of the two fallopian tubes. Once in the fallopian tube, the egg is in place for fertilization.
- Next, LH causes the ruptured follicle to develop into the *corpus luteum*. The corpus luteum provides a source of estrogen and progesterone during pregnancy.

Fertilization. The so-called "fertile window" is 6 days long and starts 2 days before ovulation and ends the 2 days after ovulation. Fertilization occurs as follows:

- The sperm can survive for up to 2 days once it enters the fallopian tube. The egg survives 12 - 24 hours unless it is fertilized by a sperm.
- If the egg is fertilized, about 2 - 4 days later it moves from the fallopian tube into the uterus where it is implanted in the uterine lining and begins its 9-month incubation.
- The *placenta* forms at the site of the implantation. The placenta is a thick blanket of blood vessels that nourishes the fertilized egg as it develops.
- The corpus luteum (the yellow tissue formed from the ruptured follicle) continues to produce estrogen and progesterone during pregnancy.

Typical Menstrual Cycle

| Menstrual Phases | Typical No. of Days | Hormonal Actions |
|--|---|---|
| Follicular (Proliferative) Phase | Cycle Days 1 - 6: Beginning of menstruation to end of blood flow. | Estrogen and progesterone start out at their lowest levels. FSH levels rise to stimulate maturity of follicles. Ovaries start producing estrogen and levels rise, while progesterone remains low. |
| | Cycle Days 7 - 13: The endometrium (the inner lining of the uterus) thickens to prepare for the egg implantation. | |
| Ovulation | Cycle Day 14: | Surge in LH. Largest follicle bursts and releases egg into fallopian tube. |
| Luteal (Secretory) Phase, also known as the Premenstrual Phase | Cycle Days 15 - 28: | Ruptured follicle develops into corpus luteum, which produces progesterone. Progesterone and estrogen stimulate blanket of blood vessels to prepare for egg implantation. |
| | If fertilization occurs: | Fertilized egg attaches to blanket of blood vessels that supplies nutrients for the developing placenta. Corpus luteum continues to produce estrogen and progesterone. |
| | If fertilization does not occur: | Corpus luteum deteriorates. Estrogen and progesterone levels drop. The blood vessel lining sloughs off and menstruation begins. |