Smoking

Cigarette smoking can harm a woman's ovaries and contribute to a decrease in eggs. Studies show that women who smoke are more likely to reach menopause earlier than women who do not smoke.

Alcohol, Caffeine and Marijuana Use

Alcohol and caffeine use may contribute to infertility.

Environmental Factors

Exposure to environmental hazards (such as herbicides, pesticides, and industrial solvents) may affect fertility. Estrogen-like hormone-disrupting chemicals are of particular concern for infertility in men and for effects on offspring of women. Phthalates, chemicals used to soften plastics, are under particular scrutiny because they may disrupt hormones.

Stress and Fertility

Neurotransmitters (chemical messengers) act in the hypothalamus gland, which controls both reproductive and stress hormones. Severely elevated levels of stress hormone can, in fact, shut down menstruation. For couples who undergo IVF treatments, research indicates that up to 55% have stress as a significant co-factor in their cause of 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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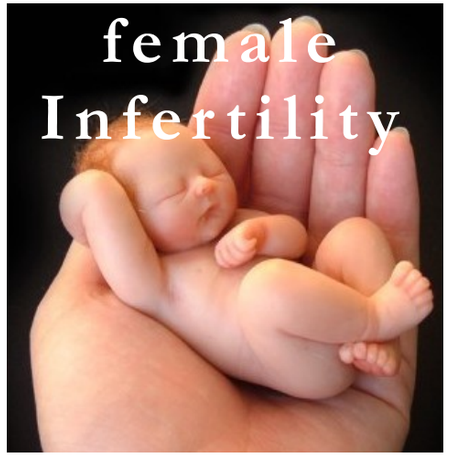
MANSOOR MEDICAL

Causes of female Infertility



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Many medical conditions can contribute to infertility. In fact, most cases of infertility are due to underlying medical problems. These disorders can damage the fallopian tubes, interfere with ovulation, or cause hormonal complications.

Pelvic Inflammatory Disease

Pelvic inflammatory disease (PID) is a major cause of female infertility worldwide. PID comprises a variety of infections caused by different bacteria that affect the reproductive organs, appendix, and parts of the intestine that lie in the pelvic area. The sites of infection most often implicated in infertility are in the fallopian tubes, a specific condition referred to as *salpingitis*.

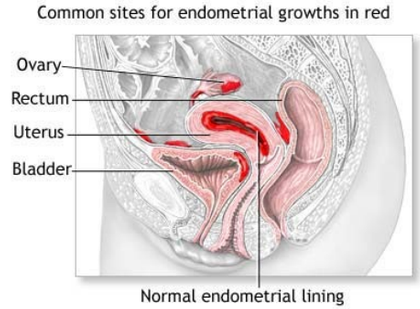
Causes of PID. PID may result from many different conditions that cause infections. Among them are:

- Sexually transmitted diseases (cause of most PID). Chlamydia trachomatis is an infectious organism that causes 75% of infertility in the fallopian tubes. Gonorrhea is responsible for most of the remaining cases.
- Pelvic tuberculosis
- Nonsterile abortions
- Ruptured appendix

Effects of PID. Severe or frequent attacks of PID can eventually cause scarring, abscess formation, and tubal damage that result in infertility. About 20% of women who develop symptomatic PID become infertile. PID also significantly increases the risk of ectopic pregnancy (implantation of the embryo in the fallopian tubes). The severity of the infection, not the number of the infections, appears to pose the greatest risk for infertility.

Endometriosis

Endometriosis is a condition in which cells that line the uterus grow in areas outside of the uterus, such as the ovaries. The condition can interfere with a woman's ability to become pregnant. Endometriosis may account for as many as 30% of infertility cases. Endometriosis rarely causes an absolute inability to conceive, but, nevertheless, it can contribute to it both directly and indirectly.



Endometrial cysts may cause infertility in several ways:

- If implants occur in the fallopian tubes, they may block the egg's passage.
- Implants that occur in the ovaries prevent the release of the egg.
- Severe endometriosis can eventually form rigid webs of scar tissue (adhesions) between the uterus, ovaries, and fallopian tubes, thereby preventing the transfer of the egg to the tube.

Polycystic Ovarian Syndrome (PCOS)

Polycystic ovarian syndrome (PCOS) is a condition in which the ovaries produce high amounts of androgens (male hormones), particularly testosterone. PCOS occurs in about 6% of women, and amenorrhea or oligomenorrhea (infrequent menses) is quite common.

Infertility .... The Causes

In PCOS, increased androgen production results in high levels of luteinizing hormone (LH) and low levels of follicle-stimulating hormone (FSH), so that follicles are prevented from producing a mature egg. Without egg production, the follicles swell with fluid and form into cysts. Every time an egg is trapped within the follicle, another cyst forms and the ovary swells, sometimes reaching the size of a grapefruit. Without ovulation, progesterone is no longer produced, whereas estrogen levels remain normal.

The elevated levels of androgens (hyperandrogenism) can cause obesity, facial hair, and acne, although not all women with PCOS have such symptoms. PCOS also poses a high risk for insulin resistance, which is associated with type 2 diabetes. About half of PCOS patients also have diabetes.

Premature Ovarian Failure (Early Menopause)

Premature ovarian failure is the early depletion of follicles before age 40, which, in most cases, leads to premature menopause. It affects about 1% of women and is typically preceded by irregular periods, which might continue for years. In this condition, follicle-stimulating hormone (FSH) levels are elevated, as they are during perimenopause. Premature ovarian failure is a significant cause of infertility, and women who have this condition have only a 5 - 10% chance to conceive without fertility treatments.

Causes of premature ovarian failure include:

- Adrenal, pituitary, or thyroid gland deficiencies
- Genetic disorders, such as Turner syndrome and fragile X syndrome
- Cancer treatments (radiation, chemotherapy, or both)
- Autoimmune disorders (such as type 1 diabetes, systemic lupus erythematosus (SLE), autoimmune hypothyroidism, Addison's disease) are associated with a higher risk for early menopause

Uterine Fibroids

Benign fibroid tumors in the uterus are extremely common in women in their 30s. Large fibroids may cause infertility impairing the uterine lining, by blocking the fallopian tube, or by distorting the shape of the uterine cavity or altering the position of the cervix.

Elevated Prolactin Levels (Hyperprolactinemia)

Prolactin is a hormone produced in the pituitary gland that stimulates breast development and milk production in association with pregnancy. High levels of prolactin (hyperprolactinemia) reduce gonadotropin hormones and inhibit ovulation. Hyperprolactinemia in women who are not pregnant or nursing can be caused by an underactive thyroid gland or pituitary adenoma. (Pituitary adenomas are benign tumors that secrete prolactin.) Some drugs, including oral contraceptives and some antipsychotic drugs, can also elevate levels of prolactin.

Secretions from the breast not related to pregnancy or nursing (called *galactorrhea*) are a telltale symptom of high prolactin levels and should be investigated.

Structural Problems Causing Obstruction

Inborn Abnormalities. Inborn genital tract abnormalities may cause infertility. Mullerian agenesis is a specific malformation in which no vagina or uterus develops. Even in these cases, some women can become mothers by undergoing in vitro fertilization and having the fertilized egg implanted in another woman who is willing and able to carry the pregnancy (a surrogate mother).

Uterine or Abdominal Scarring. Bands of scar tissue that bind together after abdominal or pelvic surgery or infection (called adhesions) can restrict the movement of ovaries and fallopian tubes and may cause infertility. Asherman syndrome, for example, is scarring in the uterus that can cause obstructions and secondary amenorrhea. It may be caused by surgery, repeated injury, or unknown factors.

Risk Factors

In the U.S., about 10% of women ages 15 - 44, or about 6.1 million women, have problems getting pregnant or carrying a baby to term.

Age

Fertility declines as a woman ages. Fertility begins to decline when a woman reaches her mid-30s, and rapidly declines after her late 30s. As a woman ages, her ovaries produce fewer eggs. In addition, the quality of the eggs is poorer than those of younger women. Older women have a higher risk for eggs with chromosomal abnormalities, which increase the risk for miscarriage and birth defects. Older women are also more likely to have health problems that may interfere with fertility.

Weight

Although most of a woman's estrogen is manufactured in her ovaries, 30% is produced by fat cells, which transform male hormones produced by the adrenal glands into estrogen. Because a normal hormonal balance is essential for the process of conception, extreme weight levels (either high or low) can contribute to infertility.

Being Overweight. Being overweight or obese (fat levels that are 10 - 15% above normal) can contribute to infertility in various ways. Obesity is also associated with polycystic ovarian syndrome (PCOS), an endocrinologic disorder that can cause infertility.

Being Underweight. Body fat levels 10 - 15% below normal can completely shut down the reproductive process. Women at risk include:

- Women with eating disorders, such as anorexia or bulimia.
- Women on very low-calorie or restrictive diets are at risk, especially if their periods are irregular.
- Strict vegetarians might have difficulties if they lack important nutrients, such as vitamin B12, zinc, iron, and folic acid.
- Marathon runners, dancers, and others who exercise very intensely.