



## MODULE 1

# Overall Outlook of Infertility in Men and Women

**Infertility** happens when a couple cannot conceive after having regular unprotected sex. It may be that one partner cannot contribute to conception, or that a woman is unable to carry a pregnancy to full term. It is often defined as not conceiving after 12 months of regular sexual intercourse without the use of birth control.

## Types of Infertility

Infertility can be primary or secondary.

**Primary infertility** is when a couple has not conceived after trying for at least 12 months without using birth control

**Secondary infertility** is when they have previously conceived but are no longer able to. A doctor can give advice and carry out some preliminary assessments. It is better for a couple to see the doctor together. The doctor may ask about the couple's sexual habits and make recommendations regarding these. Tests and trials are available, but testing does not always reveal a specific cause.

## Causes in men

The following are common causes of infertility in men.

**Semen and Sperm:** Sometimes the sperm cannot travel effectively to meet the egg. Semen is the milky fluid that a man's penis releases during orgasm. Semen consists of fluid and Sperm. The fluid comes from the prostate gland, the seminal vesicle, and other sex glands. The Sperm is produced in the testicles.

When a man ejaculates and releases semen through the penis, the seminal fluid, or semen, helps transport the sperm toward the egg. The following problems are possible:

### **Low Sperm Count:**

The man ejaculates a low number of sperm. A sperm count of under 15 million is considered low. Around one third of couples have difficulty conceiving due to a low sperm count.

**Low sperm mobility (motility):** The sperm cannot “swim” as well as they should to reach the egg.

**Abnormal sperm:**

The sperm may have an unusual shape, making it harder to move and fertilize an egg. If the sperm do not have the right shape, or they cannot travel rapidly and accurately towards the egg, conception may be difficult. Up to 2 percent of men are thought to have suboptimal sperm. Abnormal semen may not be able to carry the sperm effectively. This can result from a medical condition: This could be a testicular infection, cancer, or surgery.

**Overheated testicles:** Causes include an undescended testicle, a varicocele, or varicose vein in the scrotum, the use of saunas or hot tubs, wearing tight clothes, and working in hot environments.

**Ejaculation disorders:** If the ejaculatory ducts are blocked, semen may be ejaculated into the bladder.

**Hormonal imbalance:** Hypogonadism for example, can lead to a testosterone deficiency.

**Other causes may include:**

**Genetic factors:** A man should have an X and Y chromosome. If he has two X chromosomes and one Y chromosome, as in Klinefelter’s syndrome, the testicles will develop abnormally and there will be low testosterone and a low sperm count or no sperm.

**Mumps:** If this occurs after puberty, inflammation of the testicles may affect sperm production.

**Hypospadias:** The urethral opening is under the penis, instead of its tip. This abnormality is usually surgically corrected in infancy. If the correction is not done, it may be harder for the sperm to get to the female’s cervix. Hypospadias affects about 1 in every 500 newborn boys.

**Cystic fibrosis:** This is a chronic disease that results in the creation of a sticky mucus. This mucus mainly affects the lungs, but males may also have a missing or obstructed vas deferens. The vas deferens carries sperm from the epididymis to the ejaculatory duct and the urethra.

**Radiation therapy:** This can impair sperm production. The severity usually depends on how near to the testicles the radiation was aimed.

**Some diseases:** Conditions that are sometimes linked to lower fertility in males are anemia, Cushing’s syndrome, diabetes, and thyroid disease.

Some medications also increase the risk of fertility problems in men.

**Sulfasalazine:** This anti-inflammatory drug can significantly lower a man's sperm count. It is often prescribed for Crohn's disease or rheumatoid arthritis. Sperm count often returns to normal after stopping the medication.

**Anabolic Steroids:** Popular with bodybuilders and athletes, long-term use can seriously reduce sperm count and mobility.

**Chemotherapy:** Some types may significantly reduce sperm count.

**Illegal drugs:** Consumption of marijuana and cocaine can lower the sperm count.

**Age:** Male fertility starts to fall after 40 years.

**Exposure to chemicals:** Pesticides, for example, may increase the risk.

**Excess alcohol consumption:** This may lower male fertility. Moderate alcohol consumption has not been shown to lower fertility in most men, but it may affect those who already have a low sperm count.

**Overweight or Obesity:** This may reduce the chance of conceiving.

**Mental Stress:** Stress can be a factor, especially if it leads to reduced sexual activity.

## **Causes in women**

Infertility in women can also have a range of causes. Risk factors that increase the risk include:

**Age:** The ability to conceive starts to fall around the age of 32 years.

**Smoking:** Smoking significantly increases the risk of infertility in both men and women, and it may undermine the effects of fertility treatment. Smoking during pregnancy increases the chance of pregnancy loss. Passive smoking has also been linked to lower fertility.

**Alcohol:** Any amount of alcohol consumption can affect the chances of conceiving.

**Obesity or overweight:** This can increase the risk of infertility in women as well as men.

**Eating disorders:** If an eating disorder leads to serious weight loss, fertility problems may arise.

**Diet:** A lack of folic acid, iron, zinc, and vitamin B-12 can affect fertility. Women who are at risk, including those on a vegan diet, should ask the doctor about supplements.

**Exercise:** Both too much and too little exercise can lead to fertility problems.

**Sexually transmitted infections (STIs):** Chlamydia can damage the fallopian tubes in a woman and cause inflammation in a man's scrotum.

**Exposure to Chemicals:** Some pesticides, herbicides, metals, such as lead, and solvents have been linked to fertility problems in both men and women. A mouse study has suggested that ingredients in some household detergents may reduce fertility.

**Mental Stress:** This may affect female ovulation and male sperm production and can lead to reduced sexual activity.

## **Medical Conditions**

Some medical conditions can affect fertility.

**Ovulation disorders** appear to be the most common cause of infertility in women.

Ovulation is the monthly release of an egg. The eggs may never be released or they may only be released in some cycles. Ovulation disorders can be due to:

**Premature ovarian failure:** The ovaries stop working before the age of 40 years.

**Polycystic ovary syndrome (PCOS):** The ovaries function abnormally and ovulation may not occur.

**Hyperprolactinemia:** If prolactin levels are high, and the woman is not pregnant or breastfeeding, it may affect ovulation and fertility.

**Poor egg quality:** Eggs that are damaged or develop genetic abnormalities cannot sustain a pregnancy. The older a woman is, the higher the risk.

**Thyroid problems:** An overactive or underactive thyroid gland can lead to a hormonal imbalance.

**Chronic conditions:** These include AIDS or cancer.

Problems in the uterus or fallopian tubes can prevent the egg from traveling from the ovary to the uterus, or womb. If the egg does not travel, it can be harder to conceive naturally. Causes include:

**Surgery:** Pelvic surgery can sometimes cause scarring or damage to the fallopian tubes. Cervical surgery can sometimes cause scarring or shortening of the cervix. The cervix is the neck of the uterus.

**Submucosal fibroids:** Benign or non-cancerous tumors occur in the muscular wall of the uterus. They can interfere with implantation or block the fallopian tube, preventing sperm from

fertilizing the egg. Large submucosal uterine fibroids may make the uterus' cavity bigger, increasing the distance the sperm has to travel.

**Endometriosis:** Cells that normally occur within the lining of the uterus start growing elsewhere in the body.

**Previous sterilization treatment:** In women who have chosen to have their fallopian tubes blocked, the process can be reversed, but the chances of becoming fertile again are not high.

## Infertility tests for men

The doctor will ask the man about his medical history, medications, and sexual habits and carry out a physical examination. The testicles will be checked for lumps or deformities, and the shape and structure of the penis will be examined for abnormalities.

**Semen analysis:** A sample may be taken to test for sperm concentration, motility, color, quality, any infections, and whether any blood is present. Sperm counts can fluctuate, so that several samples may be necessary.

**Blood test:** The lab will test for levels of testosterone and other hormones.

**Ultrasound:** This may reveal issues such as ejaculatory duct obstruction or retrograde ejaculation.

**Chlamydia test:** Chlamydia can affect fertility, but antibiotics can treat it.

## Infertility tests for women

A woman will undergo a general physical examination, and the doctor will ask about her medical history, medications, menstruation cycle, and sexual habits.

She will also undergo a **gynecologic examination** and a number of tests:

**Blood test:** This can assess hormone levels and whether a woman is ovulating.

**Hysterosalpingography:** Fluid is injected into the woman's uterus and X-rays are taken to determine whether the fluid travels properly out of the uterus and into the fallopian tubes. If a blockage is present, surgery may be necessary.

**Laparoscopy:** A thin, flexible tube with a camera at the end is inserted into the abdomen and pelvis, allowing a doctor to look at the fallopian tubes, uterus, and ovaries. This can reveal signs of endometriosis, scarring, blockages, and some irregularities of the uterus and fallopian tubes.

**Other tests include:**

**Ovarian Reserve testing,** to find out how effective the eggs are after ovulation.

**Genetic testing,** to see if a genetic abnormality is interfering with fertility  
pelvic ultrasound, to produce an image of the uterus, fallopian tubes, and ovaries.

**Chlamydia test,** which may indicate the need for antibiotic treatment  
thyroid function test, as this may affect the hormonal balance.

## **Treatment**

Treatment will depend on many factors, including the age of the person who wishes to conceive, how long the infertility has lasted, personal preferences, and their general state of health.

### **Frequency of intercourse**

The couple may be advised to have sexual intercourse more often around the time of ovulation. Sperm can survive inside the female for up to 5 days, while an egg can be fertilized for up to 1 day after ovulation. In theory, it is possible to conceive on any of these 6 days that occur before and during ovulation. However, a survey has suggested that the 3 days most likely to offer a fertile window are the 2 days before ovulation plus the 1 day of ovulation. Some suggest that the number of times a couple has intercourse should be reduced to increase sperm supply, but this is unlikely to make a difference.

## **Fertility treatments for men**

Treatment will depend on the underlying cause of the infertility.

**Erectile dysfunction or premature ejaculation:** Medication, behavioral approaches, or both may help improve fertility.

**Varicocele:** Surgically removing a varicose vein in the scrotum may help.

**Blockage of the ejaculatory duct:** Sperm can be extracted directly from the testicles and injected into an egg in the laboratory.

**Retrograde ejaculation:** Sperm can be taken directly from the bladder and injected into an egg in the laboratory.

**Surgery for epididymal blockage:** A blocked epididymis can be surgically repaired. The epididymis is a coil-like structure in the testicles which helps store and transport sperm. If the epididymis is blocked, sperm may not be ejaculated properly.

**Electric or vibratory stimulation to achieve ejaculation:** Ejaculation is achieved with electric or vibratory stimulation. This can help a man who cannot ejaculate normally, for example, because of a spinal cord injury.

**Surgical Sperm aspiration:** The sperm is removed from part of the male reproductive tract, such as the vas deferens, testicle, or epididymis.

## **Fertility treatments for women**

Fertility drugs might be prescribed to regulate or induce ovulation. Careful monitoring during treatment and pregnancy can help reduce the risk of complications. The more fetuses there are, the higher the risk of premature labor.

If a woman needs an HCG injection to activate ovulation and ultrasound scans show that too many follicles have developed, it is possible to withhold the HCG injection. Couples may decide to go ahead regardless if the desire to become pregnant is very strong.

If too many embryos develop, one or more can be removed. Couples will have to consider the ethical and emotional aspects of this procedure.

## **Surgical procedures for women**

If the fallopian tubes are blocked or scarred, surgical repair may make it expand and opened.

**Intracytoplasmic sperm injection (ICSI):** A single sperm is injected into an egg to achieve fertilization during an **IVF procedure**. The likelihood of fertilization improves significantly for men with low sperm concentrations.

**Sperm or Egg donation:** If necessary, sperm or eggs can be received from a donor. Fertility treatment with donor eggs is usually done using IVF.

**Assisted hatching:** The embryologist opens a small hole in the outer membrane of the embryo, known as the zona pellucid. The opening improves the ability of the embryo to implant into the uterine lining. This improves the chances that the embryo will implant at, or attach to, the wall of the uterus. This may be used if IVF has not been effective, if there has been poor embryo growth rate, and if the woman is older. In some women, and especially with age, the membrane becomes harder. This can make it difficult for the embryo to implant.

## Complications

Some complications can result from infertility and its treatment. If conception does not occur after many months or years of trying, it can lead to stress and possibly depression. Some physical effects may also result from treatment such as;

### **Ovarian hyperstimulation syndrome**

The ovaries can swell, leak excess fluid into the body, and produce too many follicles, the small fluid sacs in which an egg develops.

**Ovarian hyperstimulation syndrome (OHSS)** usually results from taking medications to stimulate the ovaries, such as clomifene and gonadotrophins. It can also develop after IVF.

### **Symptoms include:**

- \*Bloating
- \*Constipation
- \*Dark urine
- \*Diarrhea
- \*Nausea
- \*Abdominal pain
- \*Vomiting

They are usually mild and easy to treat.

Rarely, a blood clot may develop in an artery or vein, liver or kidney problems can arise, and respiratory distress may develop. In severe cases, OHSS can be fatal.

## Coping Mentally

It is impossible to know how long treatment will go on for and how successful it will be. Coping and persevering can be stressful. The emotional toll on both partners can affect their relationship, some people find that joining a support group helps, as it offers the chance to talk to others in a similar situation.

It is important to tell a doctor if excessive mental and emotional stress develops, they can often recommend a counselor and others who can offer appropriate support. **Contact Fertility Counselor at FertilityConnect. ...where hope blossoms and miracle happens.**

