

# INFERTILITY: EXPLAINED AND UNEXPLAINED

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## ***Infertility Is Common***

Infertility is defined as the inability to conceive a child after one year of trying. Experiencing difficulty conceiving a baby is more common than you might think. The number of couples who have fertility problems is estimated at 1 in 10, and, while infertility is not actually on the rise, more women are seeking infertility services. There are a couple of reasons for this. First, the current generation of reproductive age women and men are less intimidated by technology as well as more sophisticated and curious regarding health issues leading to a greater number of couples seeking infertility treatment. Second, and perhaps more significant, is the fact that modern lifestyles have changed the "timing" of childbirth. Today it is not uncommon for people to delay marriage and to postpone having children until they are in their thirties; even though this may not be, biologically, the most fertile time. This has resulted in a large number of couples attempting to begin families at an age when they are naturally at higher risk of encountering fertility problems.

About 85% of all diagnosed infertility cases can be traced to specific causes that can be treated. What's more, about three quarters of the infertile couples who seek treatment are able to have children. Often this does not require complicated or expensive treatments as only 40% of all couples that seek an infertility evaluation take part in assisted reproductive technologies.

## ***Explained Infertility***

Infertility is as likely to be caused by a male factor as by a female factor. Female-related problems account for 40% of infertility and male-related problems for another 35%. Combined female and male problems account for 10% and unexplained causes for the remaining 15% of infertility.

Some of the causes of female infertility include problems related to the monthly release of eggs from the ovaries, the proper preparation of the lining of the uterus, tubal blockage and scarring, as well as general health problems and other factors. The basic infertility evaluation in the female includes:

- A thorough medical history and physical examination,
- tests of blood hormone levels to assess ovulatory function,
- an assessment of the female reproductive tract. The simplest way to do this is to perform a hysterosalpingogram (HSG) (an x-ray of uterus and fallopian tubes). Another method, albeit more

invasive, is laparoscopy, which involves the insertion of a thin, lighted telescope-like instrument into the abdomen to look at the uterus, ovaries, and fallopian tubes. It can diagnose conditions such as endometriosis and adhesions (scar tissue) which may not be apparent by HSG.

Some of the causes of male infertility include low sperm count, sperm that are not active enough, blockage in the passageway that carries the sperm, or general health problems and other factors. A basic and essential infertility test is the semen analysis (sperm count to some). A proper semen analysis should have the specimen analysed in a timely manner using standardized criteria for evaluating the sperm. These include:

- The volume of a man's ejaculate. Normally this is between 2-5 cc or about ½ to 1 teaspoon.
- The concentration of sperm in the ejaculate. It should be greater than 20 million per cc.
- The motility or the percentage of sperm that are vigorously moving should be greater than 50%.
- The morphology or the percentage of sperm that demonstrate a normal shape should be greater than 30%<sup>a</sup>.

There are a variety of options available to treat both male and female infertility. But before treatment should be considered, the basic infertility evaluation should be completely performed. Many couples have more than one reason contributing to their infertility and an incomplete evaluation may cause the wrong treatment to be applied.

### ***Unexplained Infertility***

Unexplained infertility is a diagnosis of exclusion, when the standard investigation of both the female and male partner has ruled out other infertility diagnoses. It doesn't mean that there is no reason for the infertility, but that the reason is unable to be identified at that time, even after exhaustive testing. Approximately 15% of all infertile couples will receive the diagnosis of unexplained infertility.

### ***Other Fertility Factors***

Critical factors to be considered in evaluating and managing unexplained infertility are the duration of infertility and age of the female partner. Younger fertile couples have approximately a 20% chance of spontaneous conception per month. In contrast, couples with unexplained infertility, who are infertile for more than three years, have spontaneous conception rates of 1 to 2 percent per month. It is clear that the aging process is associated with a reduction in reproductive capacity and increased miscarriage, particularly after age 35 in the female. Tests of reproductive capacity (ovarian reserve), which may include cycle day 3 levels of follicle stimulating hormone (FSH) and estradiol and/or the clomiphene citrate challenge test, may be helpful in evaluating ovarian function. Infertile couples in which the female is greater than age 35 should be encouraged to actively pursue treatment after six months of trying to conceive, or if a known infertility related problem (e.g., endometriosis, history of irregular periods) is present.

***Therapy For Infertility***

Optimal treatment for explained fertility addresses the specific causes identified. There is no consensus as to the optimal therapy for the treatment of unexplained infertility, since some couples with one to three years of unexplained infertility will conceive spontaneously. In the female, empiric treatment (infertility treatments when no known cause of infertility has been diagnosed) with ovulation induction drugs for three to six cycles combined with intrauterine insemination (IUI) (inserting prepared sperm directly into the uterus), followed by in vitro fertilization (IVF) or gamete intrafallopian fertilization (GIFT), is a frequently utilized approach. IVF is a method of assisted reproduction that involves combining an egg with sperm in a laboratory dish. If the egg fertilizes and begins cell division, the resulting embryo is then transferred into the woman's uterus. GIFT is an assisted reproductive technique that involves injecting a mixture of eggs and sperm directly into the fallopian tube. Recent research indicates that pregnancy rates with these therapies are equal to or higher than pregnancy rates of couples with other infertility diagnoses. In the future, increased understanding of human reproductive physiology will allow more effective therapies for patients with unexplained infertility.