



**Pregnancy**  
**Miracle**  
**Infertility No More**

by: Harry Wheat



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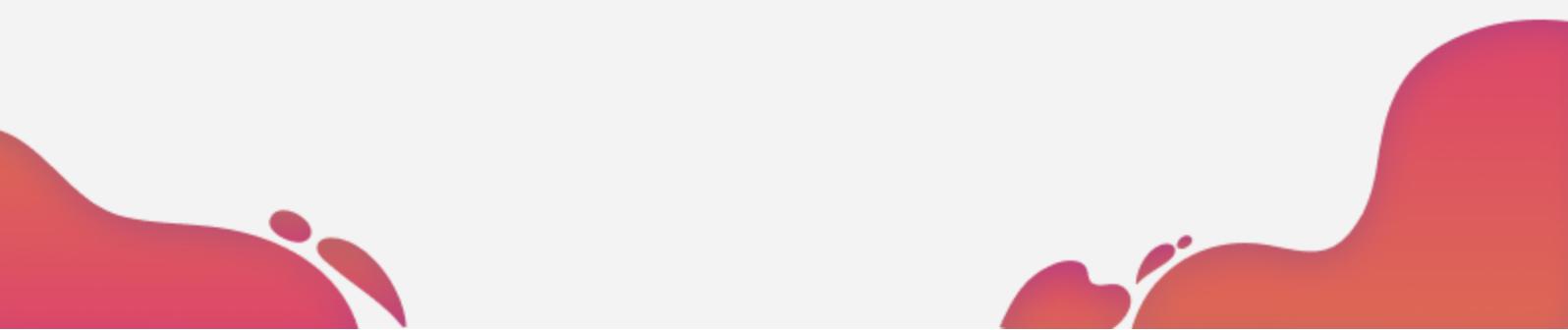
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# Introduction



A dream for many couples is having their children and making a one, big, happy family. But while this is an easy feat for many, it is difficult for some.

While infertility is a common and vague term, most experts agree to the simple definition that it is “the inability to conceive after 12 months of unprotected intercourse.” Words like infecundity, or the inability to give birth to a child, and subfertility, or delay in conceiving a child, are also considered related sub-terms.

According to the study conducted by a team of reproductive health experts in 2002, around 15% of couples around the world are infertile. This data explicitly portrays infertility as a widespread worldwide problem.

This issue puts pressure on infertile couples in the physical, psychological, social, and emotional sense. Couples are distressed about their inability, and society usually treats them with pity and disdain, especially women.

What’s more difficult is that there are confusing, conflicting, and fallacious statements regarding infertility solutions. There is a wide variety of suggestions for a cure, but a lot are also dubious.

## **However, this book will solve that for you!**

From defining infertility to finding its causes and solving them, we will discuss them one by one. As a bonus, we will also talk about the common misconceptions about fertility.

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# Chapter 1

# Infertility



## Definition of Infertility

*The World Health Organization (WHO) accepts two definitions of the term “infertility”.*

According to WHO’s International Committee for Monitoring Assisted Reproductive Technology (ICMART), it is defined as “a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.”

*Meanwhile, their Department of Reproductive Health and Research simplifies this to “the inability of a sexually active, non-contracepting couple to achieve pregnancy in one year.”*

As stated in the introduction, there are also related sub-terms to infertility that are commonly confused with it. It includes infecundity, or the inability to give birth to a child, and subfertility, or delay in conceiving a child.

## Symptoms of Infertility

As the definition states, the most obvious sign of being infertile is the inability to conceive or bear a child. However, there are also other symptoms, both for men and women, that might signal the possibility of infertility.

For females, this might consist of irregular menstruation cycles or the inconsistent recurrence of menstruation. Note that a gap of at least three days in each period is not considered irregular. Instead, it is the case where the arrival of the next menses cannot be estimated anymore due to huge gaps between each occurrence.

***If irregular menstruation is a red flag, then totally not having one is a much worrying sign not just of infertility but other reproductive illnesses as well. Other perceivable symptoms can be heavy pain during menstruation or sex.***

For males, difficulties in ejaculation and erection are alerts that should be monitored. Swelling or small and firm testicles are the potential hints of infertility.

**Meanwhile, hormonal changes for both partners are driving factors, too. This can be observed in loss of sexual drive, hair and skin issues, low sperm count, and breast oddities.**

# Chapter 2

# Causes Of

# Female Infertility



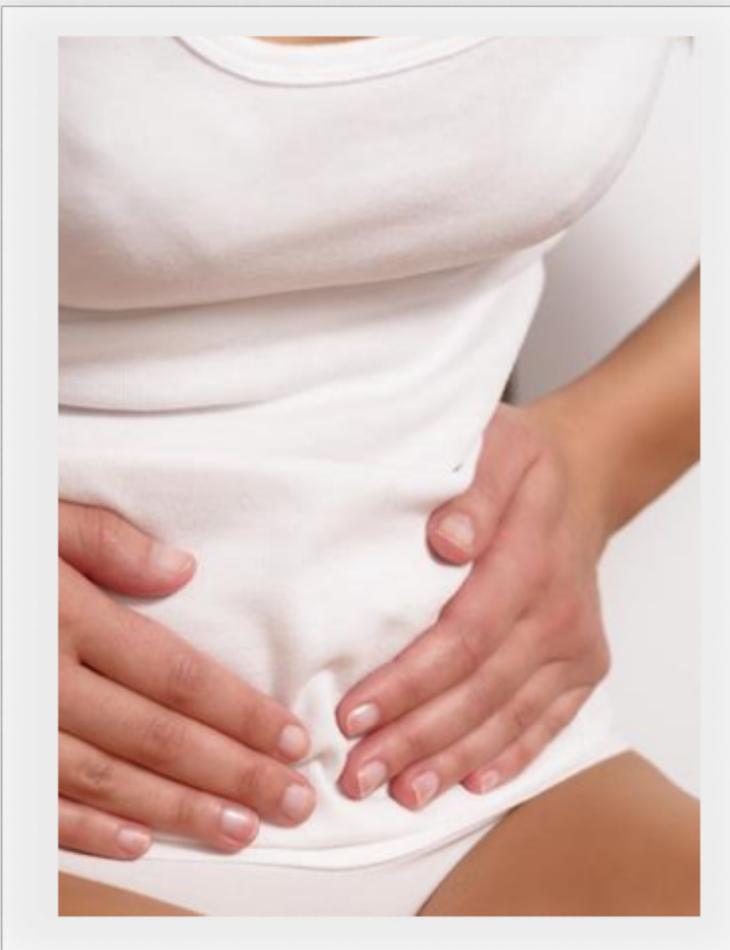
There are various conditions that can be pointed out to be the possible causes that affect fertility in women. In this chapter, we will visit them one by one and discuss their nature, origins, types, and implications for reproducing women.

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## Polycystic Ovary Syndrome (PCOS)

Polycystic Ovary Syndrome (PCOS) is a hormonal disorder that is estimated to affect 1 out of 10 women on reproductive age, making it the most common reproductive illness in girls. This triggers an unusual menstrual cycle described as heavy but infrequent.



There are four types of PCOS: Insulin-resistant PCOS (which is the most common), Pill-induced PCOS, Inflammatory PCOS, and Hidden PCOS.

Mayo Clinic specifies three main deciding factors for diagnosing PCOS. As mentioned before, abnormal menstruation is a sign. The follicle-coated ovary is another, from which the term polycystic ovary is derived from. Additionally, androgen or male hormones is also prominent with PCOS-inflicted women, and its physical manifestations are severe acne, excessive facial and body hair, and male-patterned baldness.

And the last factor is what affects pregnancy the most. High androgen levels disrupt the normal hormonal processes within the ovary. This makes it challenging to release an ovum (mature egg cell), which should be fertilized by the sperm cell to form a zygote.

## Hypothalamic Dysfunction

**Hypothalamic Dysfunction is a chaotic domino-effect disease, to say the least.**

Hypothalamus, is a part of the brain, produces takes part in female reproduction by releasing a compound called gonadotropin-releasing hormone (GnRH). GnRH then signals the production of two other hormones in the pituitary gland, which are follicle-stimulating hormone (FSH) and luteinizing hormone (LH). Consequently, these two signals the production of estrogen, which helps in ovulation and preparation of uterine lining for the possible implantation of a zygote.

In Hypothalamic Dysfunction, the brain stops the production of GnRH, which lessens the levels of FSH and LH, and eventually, estrogen. All of these interconnected processes make pregnancy harder to achieve.



# Unexplained Infertility

There is a considerable number of cases that do not point to any specific cause. This can be caused by a combination of multiple and minor abnormalities, unfavorable conditions during sexual intercourse, problems that are rooted to the other partner (the male one), or caused by several risk factors.



*However, even in these situations, there are therapies and medicines available to address these infertility complications.*

# Chapter 3

## Causes Of Male Infertility



Of course, infertility is not only exclusive to women. In some circumstances, men can be infertile, too. In this chapter, we will also visit these circumstances one by one and discuss their nature, origins, types, and implications to reproducing men.

# Varicocele

Similar to how varicose veins happen in human legs, a varicocele is the expansion of the veins in a man's scrotum (skin that holds the testes), which is usually on the left side. This condition is estimated to afflict around 15% of the world's post-puberty male population.

*The majority of experts theorize that varicoceles form as compensation for constricted blood flow around the testicles. However, this is not yet backed by any internationally-recognized or peer-reviewed study as of the moment.*

There are also no explicit findings of the complications brought by varicoceles and their reason. Still, most hypotheses connect these enlarged veins to shrinkage of the testicle's size and a decrease in fertility rates. This is primarily because of tissue damages around the area and the increased temperature brought by the blood flow around the testes.



# Hyperprolactinemia

*Even though it might sound absurd, Hyperprolactinemia can also affect men.*

Like in females, it is also a hormonal problem that increases the levels of prolactin in the blood is observed, which then reduces luteinizing hormones (LH) and follicle-stimulating hormone (FSH). Finally, it disrupts the normal testosterone levels in the body.

In a 2003 study, it was said that the reduction in amounts of testosterone, the main male reproductive hormones, can lead to spermatogenic arrest, impaired motility and diminished quality of sperms. Benign tumors can also appear in your body in the pituitary gland, and this illness is called macroadenoma.

Common symptoms include galactorrhea, or the presence of breastmilk, even if they are men. This is manifested through breast enlargement. Hypogonadism or the weakening of the male reproductive organs can also be observed, and this manifests through lower sex drive and poor ejaculation.

# Cryptorchidism

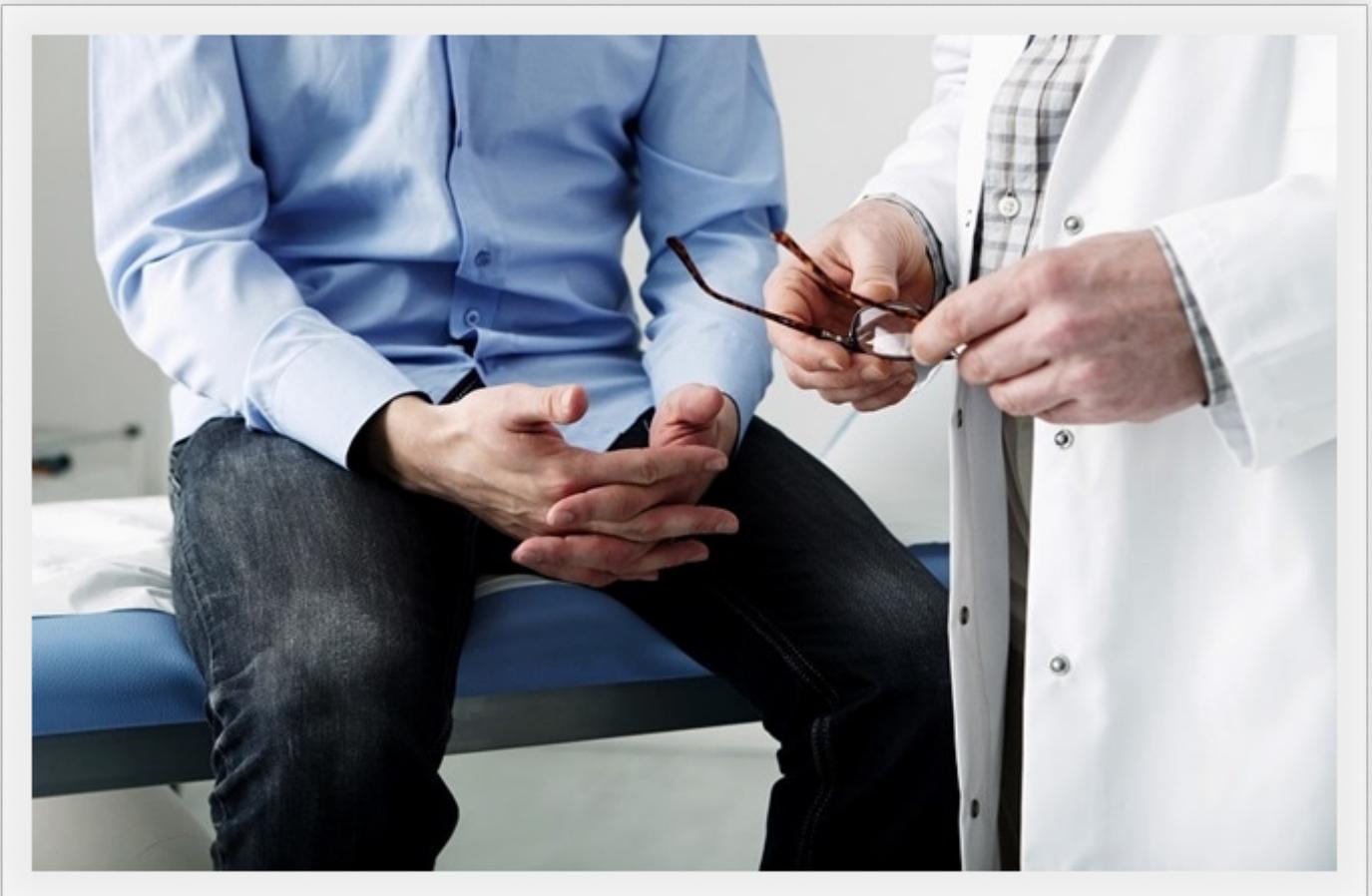
Colloquially called Undescended Testicle, this is the scientific term for a testis that did not move inside the scrotum and remained in the groin. Although this usually involves one testis (unilateral cryptorchidism), some cases might have both of their testes undescended (bilateral cryptorchidism). Cryptorchidism is first diagnosed with infants and estimated to inflict up to 5% of all newborns.

**For adolescent and mature males who have descended testes previously but retracted might indicate either a retractile testicle (temporary ascendance) and ascending testicle (permanent ascendance),**

In a study, a 50% decrease in sperm density was recorded from men diagnosed with bilateral cryptorchidism than those who are not. It can also lead to azoospermia (stop in sperm production). One theory is that because an undescended testis is much exposed to a higher, non-optimal temperature that reduces the quality of sperms.

## Hypospadias

A congenital disability, Hypospadias is an abnormal urethra, with the opening found under the penis instead of on the tip. This makes the shape of the urethra slightly curved and the foreskin underdeveloped to compensate for the angle of excretion changed.



And due to this abnormality in the penis' shape, ejaculation and intercourse can be difficult or painful. Besides that, hypospadias does not have a severe effect on fertility.

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## Male Genitalia Inflammations

*There are various types of inflammation involving the male reproductive system.*

*Orchitis is the inflammation of a testis or both testes either due to bacteria from sexually transmitted diseases (STDs) or viral vectors such as mumps. Orchitis can also lead to Epididymitis or the inflammation of the epididymis.*

*Lastly, there is Prostatitis or the inflammation of the prostate glands, which is generally caused by a bacterial infection, too.*

*Aside from the pain that can be felt during urination or sexual intercourse, these swellings can reduce testosterone levels in a man's body and lead to hypogonadism.*

## Ejaculatory Duct Obstruction (EDO)

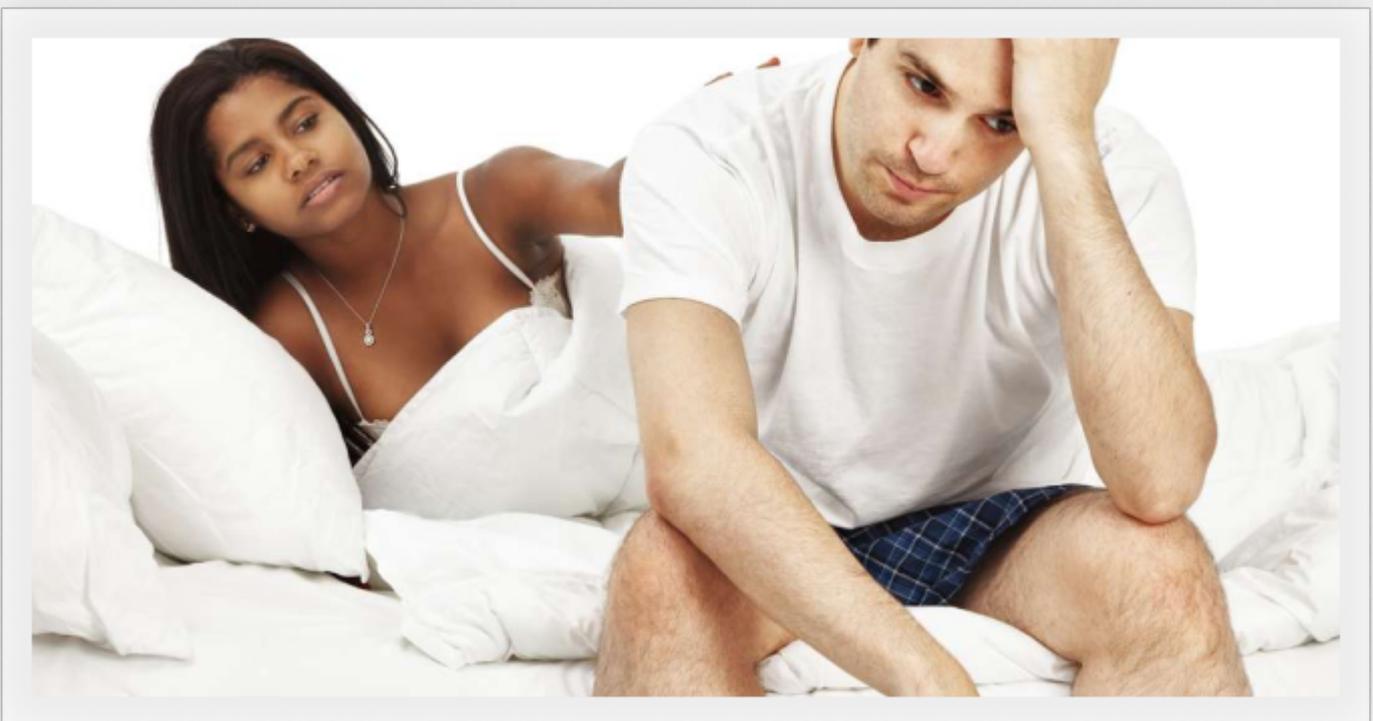
*Ejaculatory Duct Obstruction (EDO) is as simple as its name implies.*

It is the blockage of one of the male's reproductive passageways, primarily the ureter or the vas deferens, stopping the sperms from passing through. An obstructed duct might delay or halt the production of semen, which can alter the number of sperms to be implanted into the female's vagina.

# Erectile Dysfunction (ED)

Also known as Impotence, it is the inability or difficulty to have and maintain an erection for continuous sexual intercourse. In this case, a man's libido and his high-quality sperm cells are reduced. This is a relatively common condition that plagues up to 15% of the reproductive male around the world.

**There is a wide variety of potential causes of erectile dysfunction.**



Usually, impotence is attributed to common chronic diseases like diabetes, cardiovascular ailments, and hypertension. Other debilitating illnesses like multiple sclerosis, prostate cancer, and Parkinson's disease can also come into play. Hormones' interference is also possible, like how fluctuating levels of testosterone disturb body processes.

However, intangible causes are now considered as additional potential reasons for erectile dysfunction, chiefly due to either the loss of sexual satisfaction. Alcoholism, substance addiction, depression, anxiety, insomnia, and stress can all affect the quality of a man's erection and ejaculated semen.

# Retrograde Ejaculation

Retrograde Ejaculation is the condition where semen is ejaculated towards the bladder instead of departing to penis' tip. While orgasmic satisfaction is achieved in these cases, little to no semen comes out, therefore dramatically reducing the chances of impregnation during sexual intercourse.

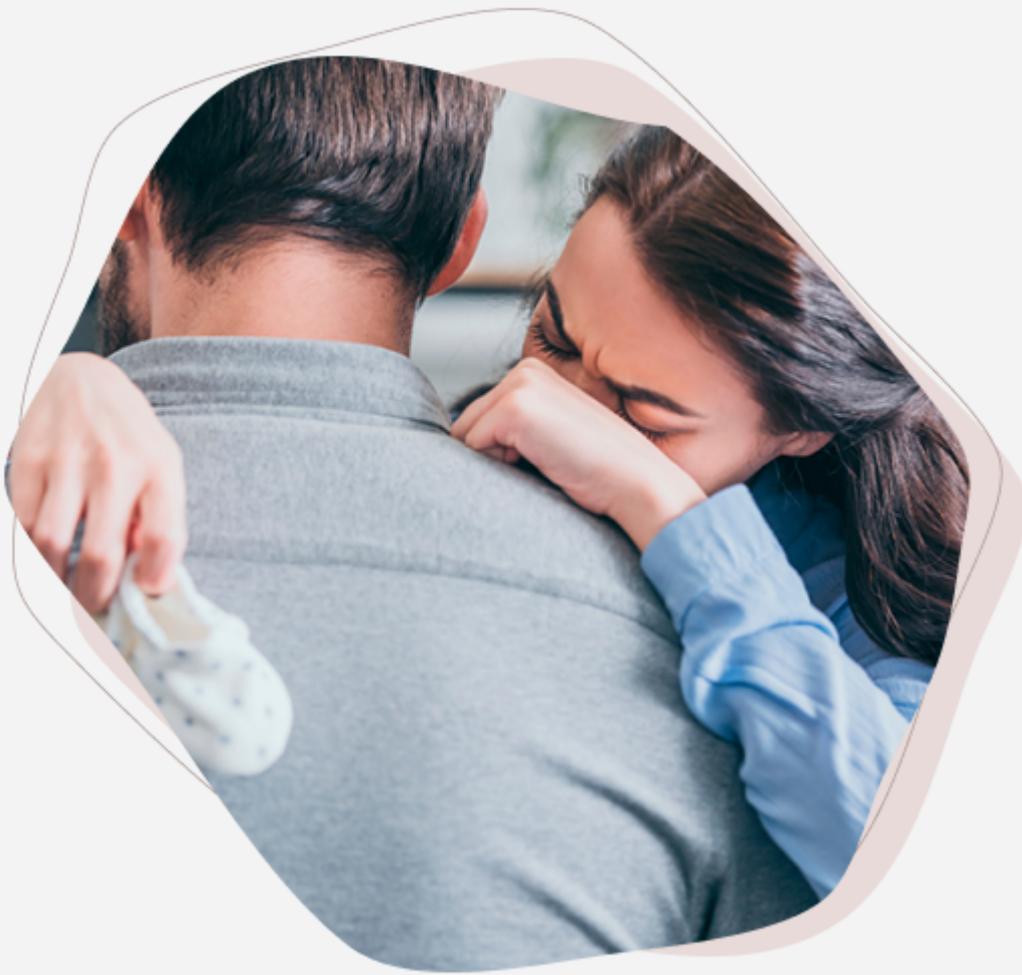


Retrograde ejaculation to be caused a weak closure of bladder neck sphincter, causing the semen from the vas deferens to revert towards the bladder.

**Aside from this, retrograde ejaculation does not pose any other harm.**

# Chapter 4

# Risk Factors For Infertility



Aside from certain conditions, there are also risk factors that can diminish female fertility. In this chapter, we will tackle each of these factors and their potential effect on couples trying to conceive a child.

# Age

Looking at the world records available, the oldest father in the world is the Indian man Ramjit Raghav, who fathered a child at 96. Meanwhile, the oldest mother in the world is considered to be Erramatti Mangamma, who is also of Indian nationality. Through the virtue of in-vitro fertilization (IVF), she gave birth to a twin at the age of 74.



However, you can consider these two as an outlier of human age and fertility. In most illnesses, age is always a deciding factor. And infertility is no exception.

Unlike in males that sperm production continues until his last breath, females are born with a specific number of oocytes (unmatured egg) in their ovaries' follicles. And the quantity and quality of the oocytes that will turn into a mature ovum decreases as time passes.

According to estimates, every woman has around 400,000 oocytes during the start of puberty. This number is reduced by 30–35 immature eggs a day. In a single menstrual cycle, only one ovum is released to the oviduct to be fertilized.

Further studies show that fertility is at its peak during a woman's 20s, then usually declines after turning 32 and even speeds up after the age of 37. By 40, the number of plausible reproductive oocytes is depleted, and menopause happens at around 52 years old.

Using these statistics, it is said to be that the chances of getting pregnant during their 40s are only 5% compared to 20% during their 30s. Of course, the odds are higher for younger women.

***And while it's true that males are continuous in producing sperms, that doesn't mean that its quality does not deteriorate.***

A 2007 Israeli study found out that the peak sperm concentration is forming between the ages of 30 to 35, which drops after reaching 55. This is further supported by the fact that 90% of seminiferous tubules from men aged 20 to 30 have spermatids (immature sperms), as compared to 50% during their 40s and 50s and 10% for men way past 80 years old. Even the motility of sperms decreases as a man ages. The optimal motility of sperms is around 25 years old, and it dramatically falls after turning 55 years old. Similarly, morphology, or the shape of the sperms, worsens by less than 1% every year.



For both male and female, the threats of passing a genetic defect to their offspring are higher as they age. This is because the meiosis of both male and female sex cells is more prone to chromosomal error as age increases.

# Tobacco Use

Tobacco use has been linked to a wide variety of reproductive ailments.

For women, it consists of damage in the fallopian tube, hastening of oocyte count reduction, damage to quality of eggs and the ovaries, and unwanted changes in the uterus and cervix.

***For men, it has an effect on sperm concentration, motility, and morphology. Birth defects on the child are also prevalent.***



A 2017 case study in India that consists of 350 reproductive-aged women found out that smoking six or more cigarette sticks a day significantly shoots up the chances of getting infertile. Moreover, smoking in the morning increases the risk of infertility by more than five times. Nicotine dependence was also prevalent in infertile subjects than in fertile ones. Early menopause can also be traced to smoking.

Meanwhile, the statistics for males state that smoking can reduce sperm concentration by 23% and motility by up to 13%. More oddly-shaped sperms are also found on smokers' semen samples compared to non-smokers.

These are all attributed to toxins and harmful compounds found in tobacco that disrupts the normal functions of the reproductive system.

## Caffeine Use

Consuming coffee can chop the probabilities of impregnation to half as compared to abstaining from it. However, the volume of drinking does not affect the odds, meaning there is no significant difference between low, moderate, and extreme consumption. Caffeinated drinks can also amplify stillbirths and genetic aberrations.

It was also found that drinking tea can slightly increase the odds of being pregnant, while soda can weaken this. However, the reasons behind these are still unclear for specialists.

## Alcohol Use

In a study where 6120 women participated, it was found that drinking alcohol drops their chances of conception by 18% than when they abstained from it. There is also a significant decrement of odds for women trying to become pregnant via in-vitro fertilization (IVF).

Institutions like Centers for Disease Control (CDC), American College of Obstetrics and Gynecology (ACOG), and National Institute on Alcohol Abuse and Alcoholism (NIAAA) also warned against excessive use of alcohol before planning to conceive and even advocates for a complete stop of ingestion.

But the harms are not exclusive to females only. Drinking alcohol has been ascribed to testicle shrinkage, ejaculation difficulties, and unwanted changes in sperm quality. This is because this beverage disturbs the normal hormonal levels in the body, causing irregularities in ovulation and sperm production. A fetus' amniotic sac can also absorb alcohol to the point that it makes the exposure of the child is higher compared to the mother.

***Aside from that, alcohol is also linked to other risk factors of infertility.***



# Illegal Drug Use

Illicit substances are all detrimental for the body, even to the reproduction process.

Marijuana use is attributed to lower libido and a drop in quantity and quality of oocytes. Cocaine damages a woman's oviduct over time. Anabolic steroids interfere with hormonal signals that direct sperm production. Opioids and opiates can interrupt hormones in the body and cause hypogonadism or diminished sexual activity. Methamphetamines also dramatically diminish fetal oxygen and nutrient levels.

Overdose of these drugs is the causative agent for higher risk for acquiring sexually transmitted diseases (STDs) and congenital disabilities. These defects might include withdrawal symptoms, cognitive underdevelopment, and cardiac ailments.



Even legal drug use can produce adverse effects. Prostate medications sacrifice sperm count for improving the prostate glands. Urinary supplements can weaken ejaculation. Anti-fungal pills can reduce testosterone levels. Some tranquilizers, sedatives, and antidepressants can be credited to difficulty in lactation and pregnancy loss. Chemotherapy significantly reduces sexual activity and processes.

***At the same time, mothers might have unstable behavior and other mental health conditions. Additionally, weight anomalies and lingering sickness can also happen.***

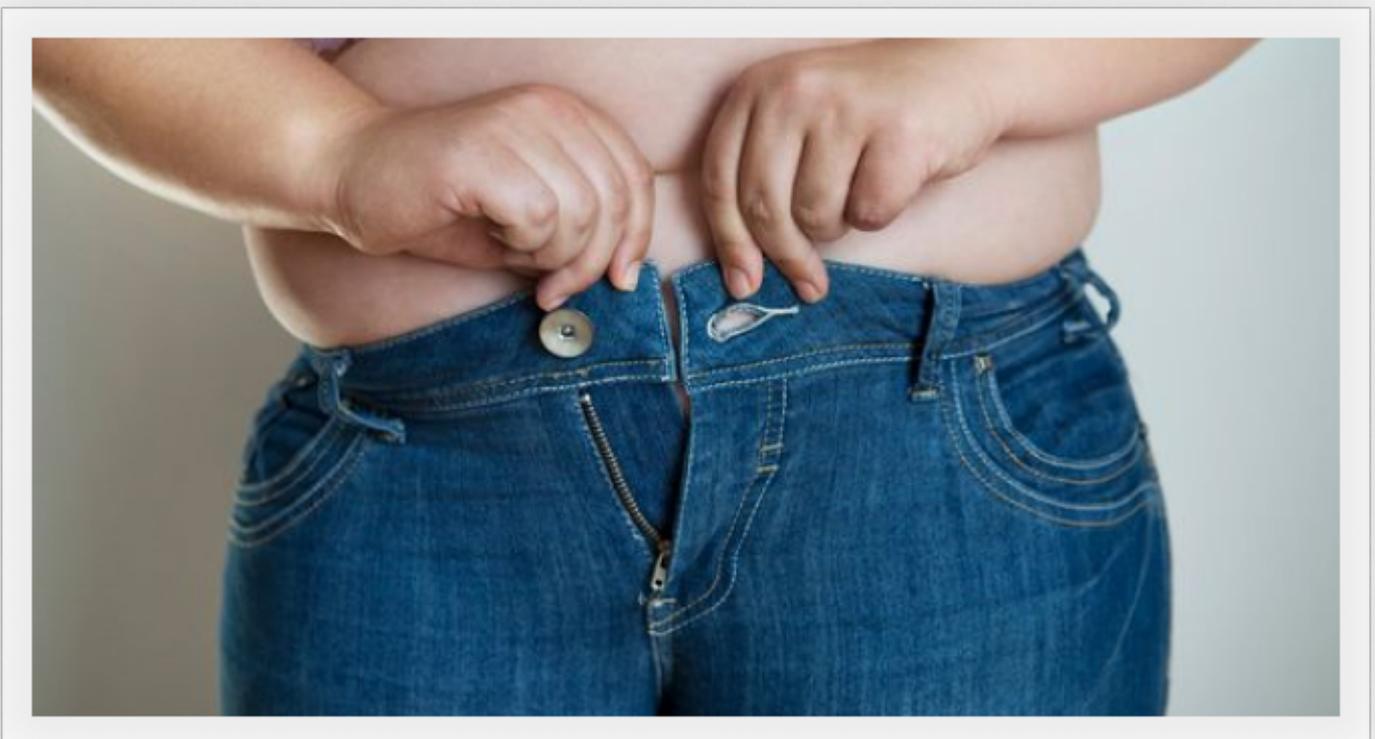
# Weight Abnormalities

For underweight women, menstrual cycles might become irregular, and ovulation can stop. According to estimates, it takes a year more for a woman below the Body Mass Index (BMI) of 18.5 to conceive a child.

*However, it is more severe for overweight ladies or those who have a BMI of above 24.5. Professionals are tying long-lasting ovulatory difficulties to chronic illnesses like diabetes, thyroid and pituitary issues, and heart diseases.*

For males, an Obesity-Fertility Collaborative Group study revealed that overweight men are 11% more likely to have oligozoospermia (low sperm count) and 39% more likely to have azoospermia (stoppage of sperm production). These conditions are much severe for obese men, where the likelihoods increase to 42% and 81%, respectively.

Even those who are trying assisted pregnancy are also at risk of complications if they have abnormal weight.





## Exercise

Exercise is considered beneficial for couples who are trying to become conceive a child.

For overweight females, losing weight through exercise improves fertility, as well as anxiety and mental health problems. It also reduces the risks of labor difficulties and extreme congenital conditions.

Huazhong University of Science and Technology in Wuhan and Harvard T.H. Chan School of Public Health in Boston also collaborated and found that physically-active men have more motile sperms than those who have a somewhat sedentary lifestyle.

However, as the saying goes, everything that is excessive is harmful. Speedy weight loss from too much exercise triggers stress for the body and messes up the body's normal hormonal secretions. An irregular or lost period can be observed if this happens.

***This case is also valid for underweight women who frequently exercise, like athletes. In these cases, moderate workout intensity is advised.***

# History and Presence of Chronic Diseases



If getting pregnant is already tricky for some healthy couples, then what more for those who have a chronic illness?

In Canada, one out of five prospected mothers has a lifelong illness, which is connected chiefly to the rise in obesity. These include cancer, diabetes, lung ailments, STDs, hypertension, and other cardiovascular diseases.

And all of these can weaken the mother's support for pregnancy. They can also pose complications to the mother and child during and after the conception.

Even for fathers, chronic illnesses are risks for infertility. Hypertension alters the structure of testicles, allowing inefficiencies in sperm production. While it does not cause complete infertility, DNA damages are found on the sperms of men with diabetes, which can increase the chances that a man would not impregnate his partner

The problem for chronic diseases is more complicated for mothers with autoimmune diseases. Note that women are more susceptible to autoimmune diseases, since they have a pair of X chromosomes, with X chromosomes associated with this type of sickness. However, men can also become carriers of these cases.

Some examples of these are Systemic Lupus Erythematosus, Antiphospholipid Syndrome, Rheumatoid Arthritis, Antiphospholipid Syndrome, Immune Thrombocytopenia (ITP), Hashimoto's Disease, Myasthenia Gravis, Antisperm Antibodies (ASA), and Graves' Disease.

Autoimmune disease can attack other tissues in the body, including ovum or sperms. In case a zygote is formed and a fetus developed, rabid antibodies can strike against the amniotic sac and assault the baby in the womb. It can also weaken the mother's muscular support, raise her blood pressure, and instigate infecundity.

Genetic disorders are plausible culprits, too. Cystic Fibrosis, Thalassemia, Canavan Disease Spinal Muscular Atrophy, Canavan Disease, Tay-Sachs disease, and Sickle Cell Anemia are some of the examples of hereditary conditions that reduce fertility in females, according to Brigham and Women's Hospital.

Meanwhile, Cystic Fibrosis, Klinefelter Syndrome, Noonan Syndrome, and chromosomal translocations are some of the genetic disorders that affect male fertility. In total, around 2-8 % of infertility cases are linked to this kind of condition.

**Most of these are affecting either the nervous system, muscles, or the blood. They can stir meiosis in the body and the adaptation towards pregnancy, and therefore stoppage in conception or susceptibility to miscarriage.**

# Sexually Transmitted Diseases (STDs)

Sexually Transmitted Diseases (STDs) in women are the leading causes of Salpingitis, or fallopian tube infection worldwide.

Examples are Chlamydia (*Chlamydia trachomatis*), Gonorrhea (*Neisseria gonorrhoeae*), Trichomoniasis (*Trichomonas vaginalis*), and Mycoplasma (*Mycoplasma genitalium*).

It is estimated that around 15% of all cases of Pelvic Inflammatory Disease (PID) are due to diseases transferred through sexual intercourse.

As repeatedly mentioned in this eBook, infection in the fallopian tube can block the sperms' path towards fertilizing egg cells. It is also possible that the zygote can be intercepted from going to the womb and develop into an ectopic pregnancy, which is harmful to the parent and the child.



For men, Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) can instigate biological changes and inflammation in the male genitalia.

Infections that these brings can block the reproductive tract and cause Ejaculatory Duct Obstruction (EDO). Moreover, they can also reduce sperm count, along with Herpes.

# Exposure to Toxins

There is a wide variety of chemicals that causes infertility. According to a 2018 environmental study, Bisphenol A (BPA), Chlorinated pesticides, Polychlorinated biphenyls, and Organophosphate pesticides and herbicides are just some of these. Heavy metals like cadmium, lead, and mercury are also infertility culprits.

These toxic compounds can disrupt the endocrine system and activate diabetes in men, which in turn contributes to infertility. They can also aggravate irregular menstrual cycles, Polycystic Ovary Syndrome (PCOS), and hypogonadism. Worse, exposure to these compounds can make the chances of fertilization slimmer and make miscarriage more frequent.

***Structures of both male and female reproductive organs can also be affected, as well as developing fetuses.***

# Mental Health Conditions

The connection between mental health and infertility goes in both ways. Being infertile can lead to depression, while depression can also lead to infertility. It can again go in a continuous and tormenting cycle.

Five different pieces of research from 1992 to 2004 all conclude that depression is prevalent in infertile couples, with estimates ranging from 15-54 %.

Anxiety is also considerably higher. In another study, it was found that depressed couples have twice the higher chances of getting childless than those who are not.

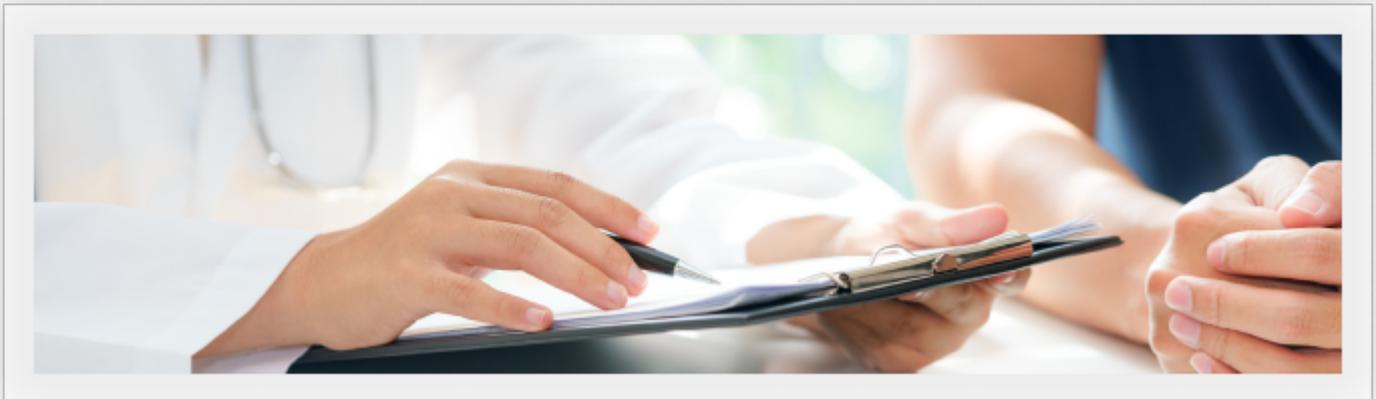
***There are also attributed hormonal changes like a spike in prolactin, abnormalities in luteinizing hormones (LH), dysfunction of thyroid, and weaker libido***

## Exposure to High Temperatures

One of the leading evolutionary and scientific reason why the testicles are located in the scrotum is that it needs to have a temperature that is 1-2 °C lower compared to the whole body. This is the reason why the scrotum relaxes and descends in a hot place, while it contracts and temporarily ascends when in a cold area.

A warmer scrotal exposure will interrupt the normal sperm-making process of the testicles, which will lead to oligozoospermia or reduced sperm count. This principle is evident with infertility in men working in jobs exposed to a higher temperature, like bakers and drivers.

## Masturbation and Pornography

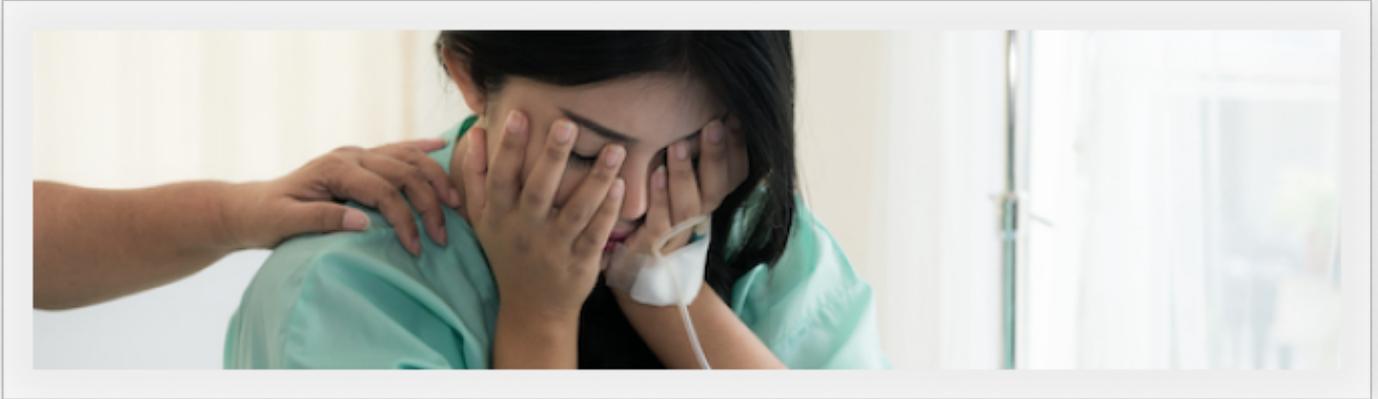


If you saw this heading, then you are probably worried deep inside. Well, you shouldn't be. Let's get the facts straight first. Neither masturbation nor pornography affects fertility. And it is accurate for men and women.

Mayo Clinic and WebMD both stated that there is no correlation between masturbation and fertility. In fact, it might even help in conceiving a child. Masturbation can give psychological satisfaction and confidence for sexual intercourse. It was even discovered that masturbating can release endorphins, which helps people feel better.

***However, the caveat is if the process is wrong as if it is done unhygienically, issues arise.***

# History of Involuntary Miscarriages



Contrary to popular belief that miscarriage dramatically reduces a woman's fertility, there is no scientific evidence to prove that point. However, miscarriages can increase the odds of infecundity, both directly or indirectly.

Undetected underlying conditions are usually the culprit in multiple miscarriages. Miscarriage can also trigger depression which, in turn, affects fertility levels through hormonal and mood changes.

Sometimes, miscarrying a child might need drastic responses, including the removal of ovaries, oviducts, uterus, or cervix. This eliminates all likelihood of getting pregnant.

# History of Unsafe Abortion

Unsafe Abortion is always unsafe, not just for the child but also for the mother.

World Health Organization (WHO) estimates that 20 million abortions done by unskilled and unregistered individuals are happening annually. Among these, 68 thousand mothers pass away from complications, mainly via infection, poisoning, or hemorrhage.

And even if these abortions do not result in deaths, irreversible damage can occur. Scarring in the reproductive area and endometriosis are some of the consequences of unsafe abortions. As previously discussed, these results in a further reduction of the likelihood of being impregnated.

# Chapter 5

## Solutions For Female Infertility



Female Infertility is not a death sentence. With proper procedures and steps, this can be resolved in order to give birth to the child of your dreams. In this chapter, we will start to enumerate and discuss the possible solutions for female infertility.

# Intake of Fertility Drugs

If the condition is mainly attributed to impaired ovulation, doctors can prescribe various drugs to address the problem.

The most common drug used is Clomiphene citrate. In this case, the hypothalamus is stimulated to release gonadotropin-releasing hormones (GnRH). As previously discussed, GnRH will trigger the production of luteinizing hormones (LH) and follicle-stimulating hormones (FSH). These will then incite more estrogens to prompt ovulation.

It is also possible to directly influence the ovary instead of passing through the hypothalamus. Gonadotropins can be injected directly into the ovary to start ovulation.

There are also medicines like Metformin for PCOS-related insulin-resistance and Dopamine Agonists for high prolactin levels or excessive endometrial tissues.

Of course, this might come with side effects, especially that these are tweaking hormonal levels. This might include fatigue, dizziness, headache, nausea, bloating, and mood swings.



## Recommended for:

Polycystic Ovary Syndrome (PCOS), Hypothalamic Dysfunction, Hyperprolactinemia, Endometriosis, Uterine Polyps, and Uterine Fibroids

# Hormonal Replacement Therapy (HRT)

Hormonal Replacement Therapy (HRT) is a strategy used to introduce hormones, primarily estrogen and progestin, in the body that the reproductive system fails to make.

Although used to alleviate symptoms of menopause, HRT can also be used to return a halted menstruation and improve the odds of getting pregnant. By giving these hormones, the ovaries are encouraged to ovulate and release mature eggs.



On its own, Progestin can temporarily stop menstruation and allow tissue shrinkage in case of excessive and uncontrolled tissue growth.

Hormonal Replacement Therapy can come in various hormonal compositions, modes of application, or cycles of treatment. Each one has its pros and cons.

Common issues from undergoing HRT are fatigue, headache, nausea, and irritability.

“

## Recommended for:

Premature Ovarian Failure (POF) and Endometriosis

# Antibiotic Treatment

If the infertility issue is of bacterial origin, antibiotics can be given.

For Genital Tuberculosis, the usual antibiotic treatment for its pulmonary counterpart is used. One of which is RHZE Treatment, which is a combination of Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol.

Antibiotics also cure Pelvic Inflammatory Disease (PID). The Center for Disease Control (CDC) of USA suggests the use of regimens like Cefotetan + Doxycycline, Cefoxitin + Doxycycline, or Clindamycin + Gentamicin.



*In both of these cases, self-medication is strictly discouraged and needs expert diagnosis.*

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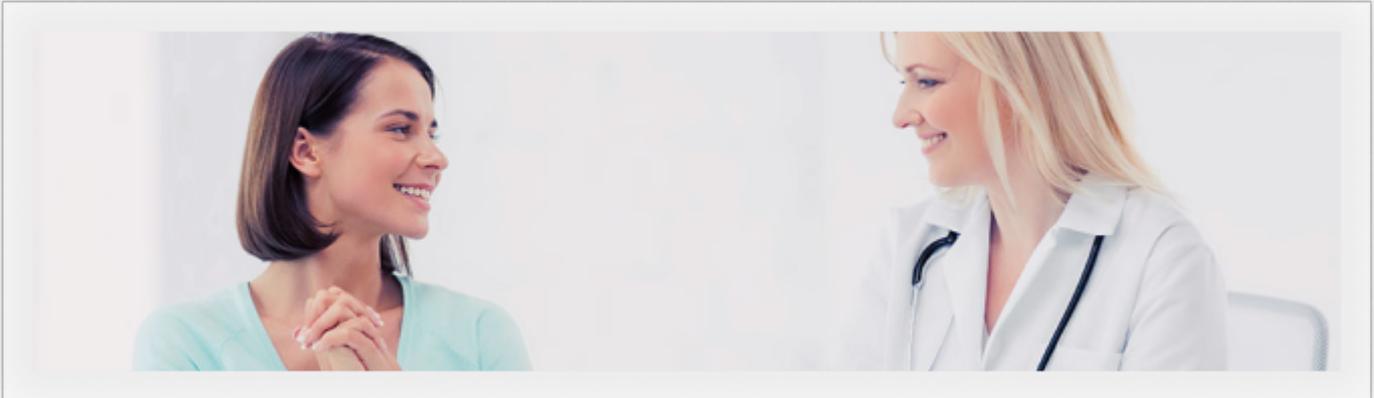
## Recommended for:

Pelvic Inflammatory Disease (PID) and Genital Tuberculosis

# Surgical Removal

For fibroids and polyps, surgery is also an option.

There are various types of surgery possible for removing these unwanted lumps – some are minimally-invasive while others are not.



One example is hysteroscopic surgery. In this procedure, a tube with a camera, called a hysteroscope, is inserted inside the uterus to be examined. Other equipment can then be inserted to remove the mass. Similarly, laparoscopic surgery or ablation are done if the concerning area is outside the uterus. Both of these have a minimal invasion of the body.

Meanwhile, an abdominal myomectomy is performed if there are multiple fibroids involved. Classified as an invasive procedure, this procedure is where the abdomen is opened to remove the tissues.

Lastly, surgery solves Endometriosis in some cases.



## Recommended for:

Uterine Polyps, Uterine Fibroids, and Endometriosis

# Artificial Insemination



Also called Intrauterine Insemination, this is the direct insertion of semen in the uterus via a catheter tube to reduce sperm travel time and maximize the sperm's presence, thus increasing chances of getting pregnant.

This method is primarily used if sexual intercourse is impossible due to restrictions in the pathway towards the fallopian tube, which usually means issues in the cervix or vagina.

This comes with minimal risks like infection, bleeding, or multiple pregnancies.



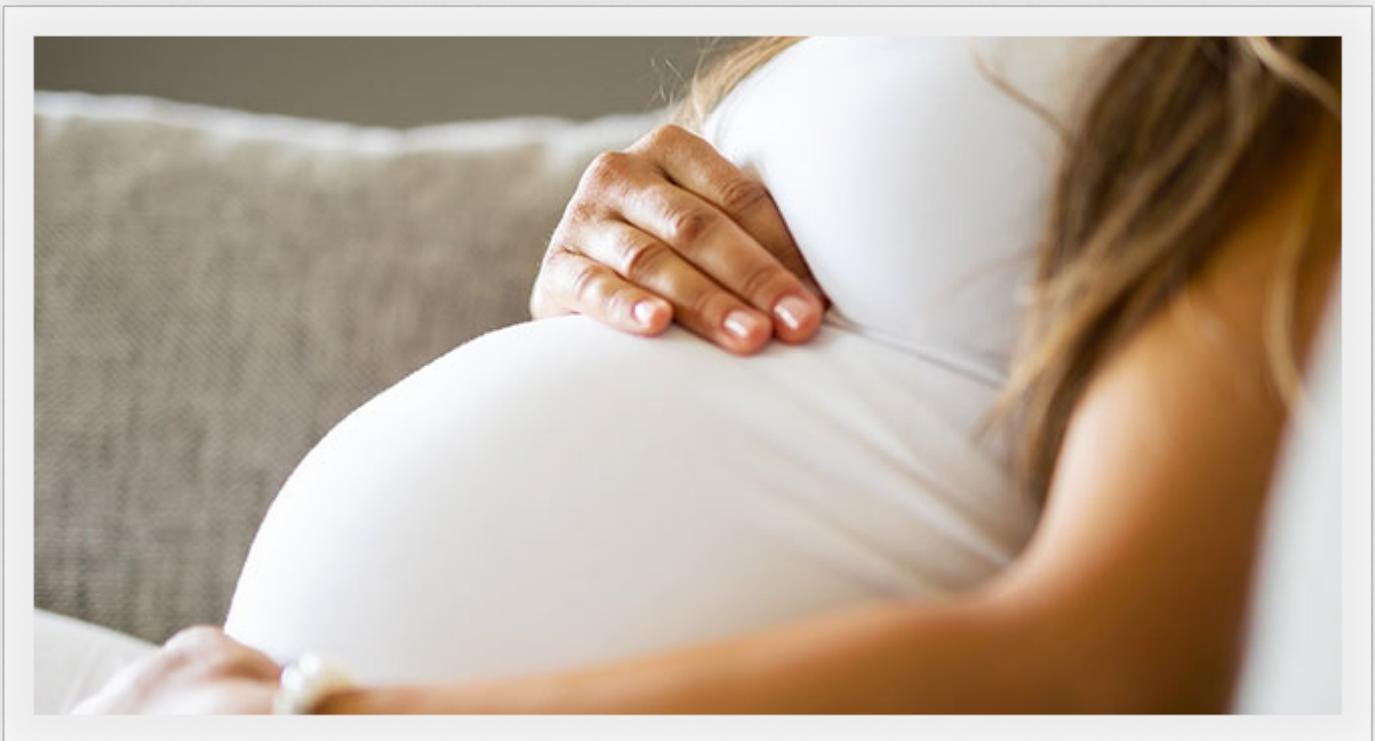
## Recommended for:

Polycystic Ovary Syndrome (PCOS), Hypothalamic Dysfunction, Hyperprolactinemia, Cervical Stenosis, and Endometriosis

# In-vitro Fertilization

As another form of assisted reproduction, in-vitro fertilization (IVF) is the process of harnessing mature eggs from a mother, fertilizing with a sperm in a lab, then implanting the zygote back in the mother's uterus.

**Like in IUI, this is used if there are restrictions on the sperm going to the oviduct.**



IVF also have dangers of infection, bleeding, and multiple pregnancies. Additionally, it can also pose threats of inflammation of the ovaries or ectopic pregnancies.



## Recommended for:

Premature Ovarian Failure (POF), Cervical Stenosis, and Endometriosis

# Third-Party Reproduction

There are many ways that a third party can help in the reproduction process to help an ailing and infertile couple.

There are three types of methods that apply to women.

There is Egg Donation wherein someone donates her eggs to be used for fertilization of sperm cells and implanting them in the recipient's uterus.

Second is Embryo Donation where an already fertilized cell is donated for implantation.

The last one is called Gestational Surrogacy, where a woman volunteers to carry an embryo fertilized by the couple's eggs and sperms.

The good side here is that third-party reproduction resolves almost every woe regarding female infertility. However, ethical and moral dilemmas exist and must be considered.

**These various approaches have not only medical implications but also legal ones. Therefore, undergoing here requires the supervision of a physician and a lawyer.**



## Recommended for:

Polycystic Ovary Syndrome (PCOS), Hypothalamic Dysfunction, Hyperprolactinemia, Premature Ovarian Failure (POF), Cervical Stenosis, Endometriosis, Uterine Polyps, Uterine Fibroids, Pelvic Inflammatory Disease (PID), Pelvic Tuberculosis, and Uterine Shape Abnormalities

# Chapter 6

# **Solutions For Male Infertility**



Male Infertility is also a resolvable issue, and there are strategies to be done in order to combat this issue. In this chapter, we will tackle the potential solutions for male infertility.

# Intake of Fertility Drugs

Doctors can also prescribe various drugs to address the issues concerning sperm and semen production and quality.

Like in females, Clomiphene citrate can also be used for males. It also functions similarly by stimulating the hypothalamus to release gonadotropin-releasing hormones (GnRH). Luteinizing hormones (LH) and follicle-stimulating hormones (FSH) will follow and increase their levels. However, testosterone is activated for men, instead of estrogen. This keeps the testicles from producing high-quality sperms.

Gonadotropins can be injected into the testes quickly to kindle gamete production through testosterone increase. Aromatase Inhibitors also raise testosterone levels.

*Meanwhile, substances like Imipramine, Midodrine, Chlorpheniramine, Brompheniramine, Ephedrine, and other variants are the common drugs used to fix retrograde ejaculation.*

Males with hyperprolactinemia need Dopamine Agonists to combat the condition.

And similar also to females, side effects can also be felt due to varying hormones. Some of these are acne, rashes, breast growth, fatigue, nausea, weight gain, and mood changes.

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**Recommended for:**

Hyperprolactinemia and Erectile Dysfunction (ED)

# Antibiotic Treatment

*Since Orchitis, Epididymitis, and Prostatitis are from bacteria, antibiotics can be utilized.*

Some of the common antibiotics for this matter include Ceftriaxone, Doxycycline, and Azithromycin. However, self-medication is strictly discouraged since bacterial infections must be diagnosed by experts to prescribe appropriate drugs and their dosage.



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**Recommended for:**

Male Genitalia Inflammation

# Surgical Reconstruction

Most infertility issues in men require surgery since these structures are impaired.

For Varicoceles, a surgery called Varicocelectomy can be employed to ligate enlarged scrotal veins. This is performed either through the aid of a microscope or laparoscope.

In Cryptorchidism, a procedure called Orchiopexy manipulates and moves the position of the testicles from the groin and stitches it inside the scrotum.

Meanwhile, Hypospadias Repair involves the repositioning of the urethral entrance, which is usually done during infancy. Instead of being under the penis, the entrance is placed on the tip to emulate the urethra's normal position.

**Lastly, the surgery to fix Ejaculatory Duct Obstruction (EDO) is called Transurethral Resection of the Ejaculatory Ducts (TURED). The process can be described as plumbing where the ejaculatory duct is unclogged or opened to normalize the semen flow.**

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## Recommended for:

Varicoceles, Cryptorchidism, Hypospadias, and Ejaculatory Duct Obstruction (EDO)

# Third-Party Reproduction

Third-Party Reproduction can also be a lifesaver for infertile men and their partners.

## There are three types of method that apply to women.

If the man cannot produce his sperm, then Sperm Donation is the go-to. Here, the donor gives some sperm-containing semen that will fertilize the female's egg or used for in-vitro fertilization (IVF).

There is also Embryo Donation where an already fertilized cell is donated for implantation.

The last one is called Gestational Surrogacy, where a woman volunteers to carry an embryo fertilized by the couple's eggs and sperms.

Mirroring female infertility, third-party reproduction can address almost all male-related infertility issues. However, ethical and moral dilemmas exist and must be considered.

These various approaches have not only medical implications but also legal ones. Therefore, undergoing here requires the supervision of a physician and a lawyer.

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## Recommended for:

Varicoceles, Hyperprolactinemia, Cryptorchidism, Hypospadias, Male Genitalia Inflammation, Ejaculatory Duct Obstruction (EDO), Erectile Dysfunction (ED), and Retrograde Ejaculation

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# Thank You

**We Welcome Your Feedback.**

Feel free to get in touch with us for any feedback or question.

[hw@harrywheat.com](mailto:hw@harrywheat.com)

<https://www.harrywheat.com>

