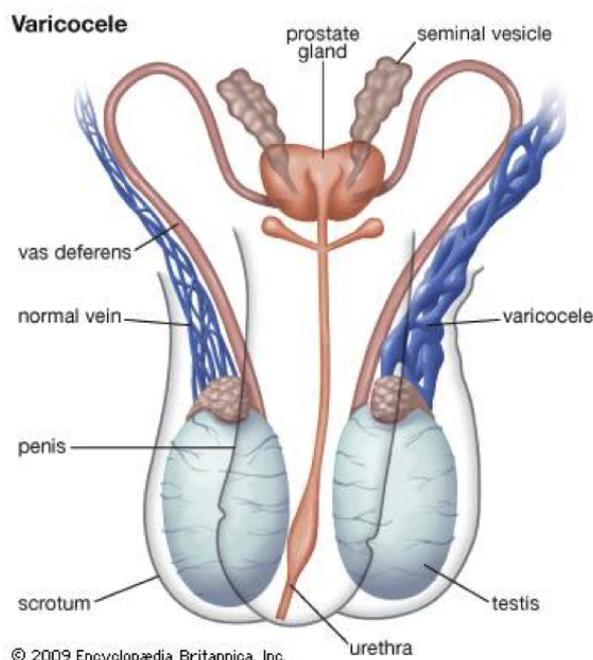


# Varicocele and Male Factor Infertility

## Varicocele and Male Factor Infertility

Varicocele and male factor infertility: Many men (40%) with low sperm count, low movement and high abnormal sperm shape have dilated veins around the testes. On the other hand, many men (15%) with varicoceles have normal sperm parameters and fertility. Only large varicoceles that can be felt by a physician are associated with lower fertility in men. Varicoceles are found during physical examination and can be confirmed with Doppler ultrasound of the testes. How dilated veins – varicoceles may cause abnormal sperm and [male infertility](#) is still unknown for sure (pressure, heat, toxin accumulation, oxidative stress).



varicocele surgery

# Does surgical treatment of varicocele increase the chance of pregnancy in female partners?

Some urologists recommends surgical treatment of varicoceles in adult men to improve the chance for spontaneous conception

This recommendation should at least be issued if and only if:

1. Varicocele was large enough to be felt on examination (not ultrasound).
2. The couple had documented infertility or desire future fertility.
3. The female partner had normal fertility (especially normal [egg reserve](#)) or correctable infertility.
4. The male partner had one or more abnormal semen parameters.

The rationale is that repair may restore normal sperm parameters and spontaneous conception. *Varicocele repair is definitely not indicated in the presence of female factor requiring IVF* e.g blocked fallopian tubes, as improved sperm parameters will not achieve a pregnancy. Some studies reported improved sperm parameters and sometimes fertility after surgical treatment of varicocele but many of them were low quality studies (no control group, not randomized, non-palpable varicocleles).

**Good quality studies:** randomized (one group of men underwent surgery for large varicoceles and another group did not)

Ten randomized studies were published (including 894 men). Some studies indicated improve in sperm parameters after surgery. Most of the studies indicated that the chance for live birth is not increased after varicocele repair. There is no conclusive evidence that varicocele repair increases the chance for pregnancy and delivery in female partners of men

diagnosed with varicocele (summary below).

**Surgery or embolization for varicoceles in subfertile men:**

**Varicocele is a dilatation (enlargement) of the veins along the spermatic cord (the cord suspending the testis) in the scrotum. Dilatation occurs when valves within the veins along the spermatic cord fail and allow retrograde blood flow, causing a backup of blood. The mechanisms by which varicocele might affect fertility have not yet been explained, and neither have the mechanisms by which surgical treatment of the varicocele might restore fertility. This review analysed 10 studies (894 participants) and found evidence (combined odds ratio was 1.47 (95% CI 1.05 to 2.05) to suggest an increase in pregnancy rates after varicocele treatment compared to no treatment in subfertile couples, in whom, apart from poor sperm quality, varicocele in the man was the only abnormal finding. This means that 17 men would need to be treated to achieve one additional pregnancy. However, findings were inconclusive as the quality of the available evidence was very low and more research is needed with live birth or pregnancy rate as the primary outcome (Kroese 2012).**

Surgical repair of varicocele should only be considered in carefully selected subfertile couples. There is no conclusive evidence that repair increases the chance for delivery in female partners. Data supporting surgical repair of varicocele are controversial and results of surgery is certainly inferior to IVF-ICSI.

A consultation with reproductive endocrinologist & fertility specialist is very important before deciding on varicocele surgery to study [female factor infertility](#) and discuss potential benefits and harm from surgery in achieving the final goal which is conceiving not just improving sperm count and motility.

[varicocele and Male Factor Infertility](#)

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# Money-Back Fertility Treatment Payment Plans

## *Money-Back Payment Plans*

Money-back fertility treatment payment plans or shared risk plans are payment plans that offer unsuccessful patients a portion of their money back. They usually include two or three fresh IVF cycles followed by the transfer of resulting frozen embryos. Money – back fertility plans commonly include fertility financing programs, fertility medication program and some re-arrange or restrict benefits through employer (sponsor) or insurance plan. All together called the bundle.

## **Who Qualifies for Money-Back Fertility Treatment Payment Plans?**

IVF programs that offer money back plans usually require certain age limits and normal to excellent ovarian reserve markers. Older women and those with low egg reserve usually do not qualify for such plans. Programs also place contingencies on ovarian reserve and transferring more embryos. Hence they exclude women interested in a single embryo transfer.

Some of the money – back fertility enterprise do not operate clinical IVF programs. They offer the financial scheme for payment and in some instances fertility drugs. They refer patients to clinics but do not conduct the treatment. The specifics of the couple may not coincide with the contingencies for money – back arrangement. The result is either you are alert to dismiss the plan or follow the plan and take your chances with the success rate. This is the most disturbing aspect of money-back fertility plans.

The delivery rates after fresh IVF in women commonly included in money back plans is close to 40% with single embryo transfer, 50% with two embryo transfer. Use of frozen embryos add approximately 30% chance for delivery after transfer of frozen embryos from the first fresh IVF cycle. In other words they are the least likely to require multiple cycles in the IVF population. Moreover, they are the most likely to get pregnant with multiple babies. The cost for money back fertility treatment plan is maybe higher than a single fresh IVF cycle and a transfer of frozen embryos. Interest is associated with monthly payment plans. Medicine and multiple treatment cycles are also sometimes bundled. In addition cost can escalate due to obstetric care for multiple pregnancy.

At New York City IVF we educate women and recommend single embryo transfer up to age 38.

One opinion about money back fertility treatment plans is [New York State Department of Health Task Force Report: Executive Summary on ART](#)

*Payment plans that offer unsuccessful patients a portion of their money back create significant ethical concerns.*

*Physicians whose payment depends on the success of treatment have an incentive to accept only those patients with a strong chance of success (perhaps patients who do not qualify as infertile under generally accepted standards) and to turn away needy patients whose outcome may be less certain. In addition, when payment is linked to outcome, physicians may encourage patients to accept aggressive treatments that increase the chance of success without due regard for the risk those treatments may entail.*

*Nonetheless, while the Task Force members are deeply troubled by the risks created by money-back payment plans, they do not believe that these plans are inherently unethical in all cases. Programs that offer money-back payment plans should*

*clearly inform patients of all essential terms of the plan. No plan should require patients to provide a blanket consent to all treatments and procedures recommended by their physician.*

*Patients enrolled in money-back payment plans should receive a prorated refund if they withdraw from treatment before they have completed all of the cycles covered under the plan. The most appropriate definition of "success" in the context of money-back payment plans is a live birth. The condition of the child should never be a factor in the definition of success*

IVF programs can address this ethical question using different arrangement. Reducing fees for the second cycle as opposed to selling multiple cycles together would be one suggestion.

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## **IVF: The Way We Do It**

### **IVF : The Way We Do It**

#### **Efficient approach**

IVF: The Way We Do It. We believe you should consistently be able to get an advice / recommendation for a fertility treatment, handcrafted to your special reproductive potential and egg reserve. *Your ovarian stimulation protocol will most certainly not be suited for the next woman.* We think carefully and for quite sometime about the best adjuvant and stimulation medication protocol, after obtaining adequate information about you and your partner. Moreover, attention to details

during stimulation avoids pitfalls and optimize the quality of oocytes through selecting the most appropriate size to trigger final egg maturation. We then present the regimen to you in a simplified and chronological presentation that is easy to follow.

We believe that you should be able to understand all the intricate details of treatment and train on medications within one to two visits (supplemented with phone calls and e mails). You and your reproductive endocrinologist can reach a treatment decision and even train you on execution parts of that decision in the second visit even if you did not do any fertility tests before. This is how we efficiently do it.

## **IVF : The Way We Do It**

### **I. Initial visit ultrasound, labs and prior records**

Basic information about you and your partner are collected through detailed history, exam and vaginal ultrasound. The main aim is to identify any specific fertility factor as well as estimate ovarian reserve. In addition we order fertility labs and preconception tests. We then discuss in details treatment options, including expected pregnancy rates, multiple pregnancy rates and potential complications.

We obtain and interpret lab results in few days and are discuss them with you especially genetic risk assessment, in person, via secure e mail or phone.

*Reproductive endocrinologists should want to care for their patients to help them achieve a healthy baby, not just go through the motions and dynamics of treatment, that has minimal or no chance of working. This is an absolute guiding and ethical principal. Its related to the biological possibilities detected on initial fertility testing and its also related to their physician skills and expertise. At the*

*end of the day infertility specialists need to be **clearly convinced** that a particular woman has a reasonable chance of get pregnant before initiating a proposed fertility treatment. Fertility specialists then should take that woman to her maximum potential.*

## **II. Second Visit: Saline sonography, trial transfer, medication teach, stimulation protocol.**

Checking the cavity of the uterus is essential to exclude factors that prevent implantation. Passing a catheter into the uterus helps anticipating difficulty in embryo transfer. Both are simple office procedures.

Ovarian stimulation Protocol Selection: we think deeply when assigning stimulation protocols in relation to dose and type of protocol (agonist or antagonist) and adjuvant use of medications before and during stimulation. Reviewing prior stimulation can help in improving the current protocol in terms of egg yield and quality. The physician that saw you first will conduct all day to day monitoring as well as all procedures. Attention to details during monitoring is paramount in determining the dose and length of stimulation and time for egg retrieval.

Additional procedures that we perform during an IVF cycle include sex selection, PGD, number of embryos for transfer, egg and embryo freezing are all available to you. I explain those in details.

Medication teach: a hands on exercise on using the medicine. Now You are ready to start.

## **III. IVF: monitoring, retrieval, embryology lab procedures.**

We always strive to deliver compassionate day to day Guidance, tailored around you comfort and convenience. We want you to waste minimal time waiting because you have the rest of your

life and work to attend to.

Cycle conduct: we meticulously interpret the response to stimulation through ultrasound and blood work, with each visit and modify the dose of medications to improve response in the ovaries and minimize complications. The same physician perform monitoring and daily instructions as well as all other procedures. He or she knows your story and you never have to repeat yourself to a new person each time.

Embryology procedures: egg retrieval and embryo transfer done by the same reproductive endocrinologist. Excellent embryologists attend to your reproductive tissue.

Embryo selection for transfer: aiming at transfer of the smallest number of embryos that do the job. Up to age 39 we champion single embryo transfer to minimize twin pregnancy. Sometimes, when appropriate, we employ PGS / PGD to select the best embryo for transfer

#### **IV. Pregnancy Follow up**

10-12 days later you will get a blood pregnancy test, then early pregnancy ultrasounds. The aim is to confirm viability, position and health of the embryo. I then discuss nutrition in early pregnancy. I also explain different options in prenatal screening of chromosomal abnormalities in details. These include quad screen, nuchal translucency, Non Invasive Prenatal Test. Amniocentesis and CVS.

In addition, I describe options on multiple pregnancy and fetal reduction in details. We generally transfer a single blastocyst up to age 39 to the majority of women, minimizing the risk for twins.

*The years of discomfort, time wasted, untoward effects and long waiting should all be behind us. You should be able to get pregnant in few weeks, safely without loosing any work*

*time. Fertility treatment can be successful while attending to all other aspects of your life. We want to make sure that you are not dealt a false hope but if there a small hope will go fight for it together till we realize it together.*

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## **Male Factor Infertility: Azospemia**

### **Male Factor Infertility: Azospemia**

Male Factor Infertility: Azospemia means no sperm are found in the ejaculate. Azospemia requires careful evaluation and treatment so that the couple has the best chance to conceive with IVF. The evaluation should be methodical and compassionate to guide the couple through such a multifaceted process to pregnancy and delivery of a healthy child.

### **Four Things Have to Happen at Initial Evaluation for Azospemia**

a. Is it truly azospemia? sometimes repeat sperm analysis together with spinning of the ejaculate multiple times may yield few sperm. This has to be performed by a diligent andrologist and in a facility that can freeze sperm immediately if found. In some azospemic men, repeat analysis and freezing can avoid a surgical procedure to retrieve sperm.

b. A genetic cause for azospemia should be excluded. Specifically three known genetic problems should be excluded because they can be passed to offspring and because they can predict the success of surgical sperm retrieval. A chromosome

analysis should be done to exclude sex chromosome abnormalities e.g klinefelter Syndrome (47XXY). Y chromosome microdeletion study should be conducted to exclude a deletion of the part of Y chromosome related to sperm production. Cystic fibrosis carrier screening should also be run to detect defect in the CF gene that may be associated with absence of the ducts conducting the sperm outside of the testes.

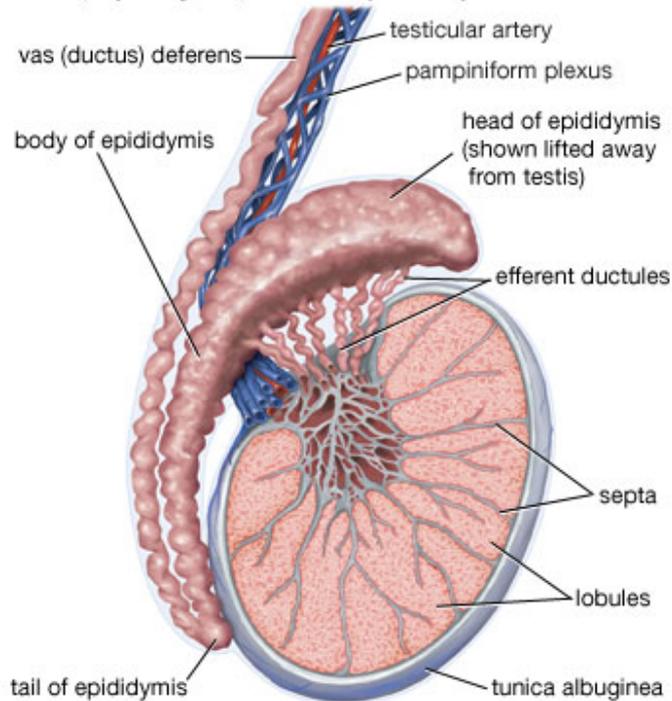
c. Evaluation of Ovarian Reserve for Female Partner. If ovarian reserve evident by day 3 FSH, AMH levels and antral follicle count seen on vaginal ultrasound is not diminished, this predicts reasonable chance for success with IVF-ICSI if sperm are found. Extremely low ovarian reserve or advanced female age may preclude surgical sperm retrieval, unless an donor eggs are acceptable.

d. Urological evaluation. This has to be the last step in evaluation. Male urologists are the physicians specializing in evaluating the chance for successful sperm retrieval (TESE) as well perform these procedures. Before referral by a reproductive endocrinologist and infertility specialist, there should be every reason to think that if sperm were obtained there is a reasonable chance for conception after IVF-ICSI. The urologist should be a specialist in male reproduction and well versed in the techniques of sperm retrieval. You actually need to ask your urologist two questions: what are my personalized chance for finding sperm when surgery (TESE) is performed? What the technique used to obtain sperm? Authorities generally agree that the technique for TESE markedly affect the chance for finding sperm.

Moreover, every workup should end with an important question; would you accept donor sperm if no sperm were obtained after surgery?

## **How is TESE Performed?**

### Testis, epididymis, and vas (ductus) deferens



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### Testes and ducts

Testicular sperm extraction is a surgical procedure that entails sampling of multiple areas of the testes aiming at finding sperm to be used for IVF-ICSI. The testis is delivered outside the scrotum, bisected and multiple biopsies obtained from several areas of the testes. The tissue is examined for the presence of sperm. If no sperm were found, more biopsies are obtained till sperm are found. There are generally two types of azospermia: obstructive azospermia (due to obstruction of the ducts of the testes while sperm production is intact). Sperm is obtained in close to 100% of these cases. Non-obstructive azospermia (NOA) where there is a defect in sperm production, approximately 60 to 70% of the procedures yield sperm.

Blind biopsy from one area of the testes has no place in modern treatment of azospermia. Asking your urologist about the technique of TESE is of paramount importance. The first surgical attempt carries the highest chance for success.

Recently, Doppler ultrasound mapping of the testes can help localize the areas of that should be biopsied because they

yield a higher chance for finding sperm.

## **Why is IVF-ICSI Required after Sperm Retrieval?**

The number of sperm obtained after TESE is small in the magnitude of tens to hundreds of sperm, too small to use the sperm for IUI. ICSI is absolutely required for all cases of surgical retrieval of sperm. The sperm can be used in one of two ways

a. Frozen TESE sperm: The sperm are frozen to be thawed at a later date, on the day of egg retrieval for the female partner. This method saves the cost of IVF if no sperm were retrieved and donor sperm use is unacceptable.

b. Fresh TESE sperm: Ovarian stimulation is started and TESE is performed on the day of egg retrieval or the day before. Fresh sperm are used for ICSI. Donor sperm (if acceptable) is obtained as a backup. Though suggested, there is no concrete evidence that fresh TESE sperm is superior to frozen TESE sperm.

In addition in some cases with associated genetic problems, preimplantation genetic diagnosis (PGD) can be performed followed by the transfer of normal embryos.

## **Can the Chance for Pregnancy be predicted in Male Factor Infertility: Azospermia ?**

There are several predictive factors for pregnancy in female partners of men with azospermia. These can be categorized into:

i. Successful sperm retrieval is related to whether the procedure is the first one or a repeat procedure, the volume of the testes, medical treatment before surgery, the technique used and the cause for azospermia. Some causes are associated

to minimal chance for obtaining sperm.

ii. Pregnancy after sperm retrieval is related to the female partner age and her ovarian reserve. Younger women have a very good chance of conceiving if sperm are obtained. This is the most important factor once sperm are retrieved.

iii. Obstructive azospermia has a higher chance for sperm retrieval than non-obstructive azospermia.

iv. Moving sperm at the time of ICSI has a higher chance to yield a pregnancy than non moving sperm

v. Men with higher testosterone levels and lower LH levels has higher chance of sperm retrieval

vi. The effect of using of frozen TESE sperm is controversial. Some authorities think that using a fresh TESE sperm is better than frozen sperm.

vii. Use of Doppler: recent work indicates that the use of Doppler study of the testes before the procedure may help localize the areas that should be biopsies and yield a higher chance for sperm harvest.

*Male Factor Infertility: Azospermia requires a multidisciplinary approach; first consultation with a reproductive endocrinologist (female age is still the most important factor) followed by a consultation with a reproductive urologist for the TESE procedure for successful sperm harvest and pregnancy*

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# Age Related Fertility Preservation: Should you Consider Multiple Egg Freezing Cycles?

## **Age Related fertility Preservation: Should you Consider Multiple Egg Freezing Cycles?**

All what we really know for sure about reproductive competence (ability of eggs and sperm to produce a baby) is that embryos that has the correct number of chromosomes has a very high chance of implanting and produce healthy babies. In the majority of cases, the egg is the source of abnormal chromosome material: extra or missing chromosomes.

Female age is the most important fertility factor. As age advances, the number of eggs in the ovary decline and the proportion of abnormal eggs increase. This fact underline the need for modern women think about **reproductive planning** as early as possible, say age 25 to 30. When do you want to get pregnant for the first time? Is it socially feasible to start now? Do you have enough support around you to have a baby now? how large of a family do you want? do you care about the sex of the baby?

*In general the following are available options*

Try to get pregnant on your own as early as possibly can

Consider Embryo freezing with partner for later use

Consider using donor sperm to create embryos for storage

Egg freezing is a viable option for fertility extension

## **Egg Freezing**

The ovaries are stimulated to produce multiple eggs. Eggs are retrieved using a simple procedure. Mature eggs are frozen using flash freezing (vitrification). The eggs are stored in a special device in liquid nitrogen, indefinitely. The main aim here is to freeze multiple mature eggs at a younger age that can be used at a later female age when eggs are fewer and less healthy.

The most critical part of counseling women here about ultimate chance of conception using egg freezing is accurate estimation of egg reserve via [history, antral follicle count and AMH level](#).

In general women <38years that produce >8 eggs has a very good chance of conceiving and delivering at least one baby from an egg freezing cycle.

### [Egg-freezing-study](#)

Women who are older or produce less eggs then would ask do I need more eggs?

## **Multiple Egg Freezing Cycles**

Should you Consider Multiple Egg Freezing Cycles? If you do not produce enough eggs in the first round of egg freezing you can consider another egg freezing cycle. But you now have the advantage of knowing how did you respond the first round. You know a bit more about the quality and maturity of the eggs. You know if the stimulation protocol worked for you and you can discuss with your reproductive endocrinologist methods of improving response. If increasing the number of frozen mature eggs is possible with another cycle of egg freezing, then another cycle should be considered.

On the other hand if the prior response is low, egg quality is low and age is 40 or more, women should consider conceiving as soon as possible.

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## **Fertility Apps Do not Help You Get pregnant**

### **Fertility Apps Do not Help You Get pregnant**

#### **Beyond Regular Intercourse**

Many women use fertility apps to track their menstrual cycle and time intercourse. Tracking cycles, using apps as method of registering when the cycle started and ended is fine. The use of apps to time intercourse is not supported by any scientific evidence. We know for a long time that conception is likely to occur when exposure to sperm takes place in the six days that end in ovulation.

#### **Why Fertility Apps are Unlikely to be Helpful**

An analysis of large number of apps and websites indicates that only a minority will yield that fertile window and thus are unlikely to help women get pregnant.

Variation in the length of menstrual cycle 21 to 35 days will also means that ovulation day is very difficult to predict with methods readily available for women. Early ovulation (day 6 or 7 of the cycle) as well as late ovulation (day 18 to 20) will be missed. Conception will be a possibility in these

cases for women having regular intercourse.

Sperm survives for at least 3 days. The WHO in a large study indicates that intercourse 3 times a day yields highest pregnancy rate among normal couples. Conceptually if you have intercourse 3 times a day, after menses, you have exposure to sperm all the time and there is no need to time ovulation. More accurate timing of ovulation using many self administered methods has so far to demonstrate increase in pregnancy rate. More recently survey of more technology mediated methods also failed to show an increase in pregnancy rate beyond regular intercourse.

## **Effectiveness of Fertility Apps**

Beware of many writings about [fertility apps](#), what do they do and what do they do not do...They miss the most important piece of information. Do they enable you to get pregnant at higher odds than those not using the app? And of course they cannot accurately answer that question as they did not do the research that prove an improvement in pregnancy rate. Many articles about fertility apps start with the narrative assumption that they are effective without offering a reference or proof.

One recent scientific survey of over 50 apps indicated that most of them even miss the fertile period. Insisting on intercourse at a specific day is not helpful also can impair performance in men.

## **How Long Have you Been Trying to Conceive (TTC)**

It's exactly how long have you been having intercourse not protected by a birth control (pills, condom), irrespective of use of apps or any other method of timing ovulation. Not accounting for this period, artificially shorten the duration of infertility and delay seeking medical care.

It's great to use technology when it helps, it gives women a

sense of empowerment. But when technology is not proven to be helpful then simple proven solutions should be used.

## **Possible Harm Caused by Using Apps**

When you use fertility apps alone to conceive you are in effect

1. Depriving yourself of other fertility tests. You will not know if your partner sperm is normal or if your Fallopian tubes are open. Your egg reserve is also not evaluated. All these factors are important for decision making about fertility and how long you should continue to try using the app. For example, if your tubes are blocked or your husband sperm is low intercourse close to your ovulation will not be helpful leading to more time wasted and no improvement in chance of conception.

2. Preconception testing and counseling performed at initial fertility evaluation is skipped. That means the risk of common genetic and other diseases are not tested for e.g cystic fibrosis, sickle cell disease, spinal muscular atrophy, Ashkenazi Jewish Profile and others. These increase the risk of transmission of genetic diseases to the baby. Other infectious diseases are not tested for too e,g hepatitis, immunity to Rubella and chicken pox.

3. [Serious security and privacy flaws has been cited for some fertility apps](#). Fertility apps ask users for intimate details including weight, sex life, pregnancy, miscarriage.. [A recent consumer report](#) indicated that someone with no hacking skills can access all these data. Data are also shared without permission with other apps

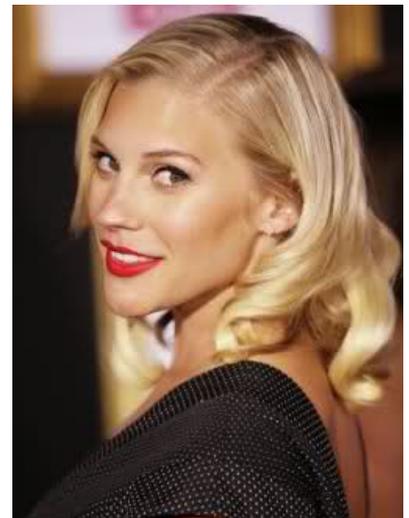
**Do not use apps and have regular intercourse 3 times a week. Fertility Apps Do not Help You Get pregnant beyond Regular Intercourse and Delay a**

**Complete Fertility Testing.**

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## **Thyroid Cancer and Future Fertility**

### **Thyroid Cancer and Future Fertility**



Thyroid Cancer and future fertility

Thyroid cancer is diagnosed in 45,000 individuals each year in the US. Its treatment may affect future fertility in men and women. It is more common in women with female to male ratio of 3 to 1. It is the most rapidly rising cancer in women living in the US. Thyroid cancers are commonly diagnosed in young women in their reproductive years. Treatment of thyroid cancer generally yields excellent results, with the majority of women surviving 10 years or more after diagnosis. Some women develop thyroid cancer due to iodine deficiency in diet or prior neck radiation. Some types of thyroid cancers are related to

inheriting an abnormal gene.

Several types of thyroid cancer are recognized 1. Papillary cancer 2. Follicular cancer 3. Medullary cancer 4. Anaplastic cancer 5. Thyroid lymphoma. Papillary and follicular cancers are less invasive tumors and are encountered in the majority of women diagnosed with thyroid cancer. They also respond to estrogen as they carry estrogen receptors. Estrogen may promote growth of thyroid cancer cells. Thyroid cancers are usually suspected on neck examination followed by ultrasound or Iodine scan then biopsy. In general, treatment of thyroid cancer require total thyroidectomy-surgical removal of the thyroid gland followed by radioactive iodine to ablate any thyroid remnants. This is followed by long term thyroid hormone replacement. Long term follow up is required after treatment.

## **Effect of thyroid cancer treatment on the ovary**

Thyroidectomy followed by thyroid hormone replacement is not known to affect future fertility in men and women. Radioactive iodine can affect the number and quality of eggs remaining in the ovary. The effect is dependent on the dose of radioactive iodine and the age at treatment. Twenty to 30% of women experience transient amenorrhea or irregular menses starting about 3 months after treatment. Normal menses resume about 6 months later. Permanent ovarian failure is rare but may occur in women at age 40 or older at the time of treatment. Increased incidence of miscarriage is reported in the first year after treatment. With the exception of miscarriages, there is no evidence that exposure to radioiodine affects the outcome of subsequent pregnancies and health of borne children.

## Effects of radioactive iodine treatment on the testes

Effect of radioactive iodine treatment may be more severe in men. and is related to the total dose of radioactive iodine received. Transient reduction in testosterone and sperm count may occur but sometimes permanent reduction in sperm count and testosterone levels. Men who received large total dose sometimes sustain permanent damage to the testes with absence of ejaculated sperm-azospermia. There is no evidence of effects of radioactive iodine on their newborn children, although its advised that men avoid fathering children for 6 months after treatment.

## Options for fertility preservation

Men interested in future fertility should consider sperm freezing prior to radioiodine treatment. Women should also consider fertility preservation if they will be treated with radioactive iodine and are older than 35 years. Radioiodine treatment will reduce their ovarian reserve. In addition they will be required to avoid pregnancy for a year or so. Options available for preservation of fertility in women include ovarian stimulation and egg retrieval followed by egg or embryo freezing. Ovarian stimulation can be modified to avoid estrogen exposure during stimulation. Moreover, in familial thyroid cancers, embryos can be genetically tested to avoid transmission of the abnormal gene to children. Men and women diagnosed with thyroid cancer can benefit from consultation with a fertility preservation specialist prior to treatment to discuss effects on gonads and methods to preserve future fertility. Read more at <http://nycivf.org>

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# Ovarian Reserve Revisited-Do You Have Enough Good Eggs?

## **Ovarian Reserve Revisited-Do You Have Enough Good Eggs?**

### **Trying to conceive over age 35 is generally not easy**

I know because I tried for years to have a baby without success. While there are many factors which impact conception, one of the first concerns for women over 35 is if they have enough healthy eggs to get pregnant. Research has shown that women carry a reserve of eggs throughout their lives and that reserve diminishes over time. There are several tests which help to determine ovarian reserve including antral follicle testing, the clomid challenge and the AMH test which is relatively new.

### **The antral follicle test**

Uses vaginal ultrasound to count and measure the small follicles, antral follicles, on the ovary. The higher the number of antral follicles, the better ovarian reserve and better odds for conception.

### **The AMH Test**

Anti-mullerian hormone test, measures the levels of AMH in a woman's blood. Since this hormone remains relatively constant over the menstrual cycle, it can be tested at any point in the month. Women with higher AMH levels tend to have a better ovarian reserve and a better chance at conception.

# When I decided to try to conceive one last time at age 44

My [reproductive endocrinologist](#) began by ordering the *Clomid Challenge Test*. For the test, I took clomid, a fertility drug used to induce ovulation, for 5 days. Generally speaking, the procedure works like this:

- On Day 3 of your menstrual cycle, a blood test is given to measure your FSH, LH, and estradiol levels.
- On Day 5 of your cycle, you begin to take a 5-day supply of clomiphene citrate, 100 mg of clomiphene each day for five days.
- On Day 10, you will have another blood draw to check FSH, LH, and estradiol levels again.

Normal results include low FSH values on both Day 3 and Day 10, and low estradiol values on Day 3. Results are abnormal if your FSH values are elevated. Your doctor may decide to re-test if your results are abnormal.

My results were normal but that is a fraction of the total conception story and half of the ovarian reserve story. [Ovarian reserve](#) consists not only of the quantity of eggs but also the quality of eggs. Research tells us that while tests like the clomid challenge check for the quantity of eggs, the quality of eggs is generally determined better by age. This is an unfortunate fact for those of us over 35.

According to Dr. James Toner in his paper "Ovarian Reserve, Female Age and the Chance for Successful Pregnancy", once women reach their mid thirties, specifically 37, their egg quantity begins to diminish at a faster rate. Toner also reports that even if egg quantity is good, chances of a viable pregnancy drop due to the diminishing quality of eggs as women age.

Based on the research, it is clear that the averages do not

look promising for women over age 35 trying to have a baby. There is, however, other information to consider. Let's take a look at the bell curve. Basically, about 2/3 of the cases for a given situation fall in the fat part of the curve meaning that averages generally apply to most people. However, there are still one third of the people who fall outside of the fat part of the bell curve and averages do not generally apply to them. As you look at your individual situation, it is your lab work, anatomy and physiology that matter. I am a classic example of defying the odds. My ovarian reserve quantity was good but that wasn't what was preventing me from conceiving a child. It took many more tests to determine that a badly placed uterine tumor was most likely preventing implantation. At age 44, the research showed that an average woman in my situation had only a 3% chance of having a healthy baby. Yet, I was able to conceive in two of 4 IUI treatments and gave birth to a healthy little girl 9 months ago at the age of 45.

## **There are many components to conceiving a child**

Ovarian reserve is one of them. There are also many medical interventions to boost the odds of conception. Medical research provides us with excellent information about infertility and age including work on ovarian reserve. While the research tells us that the odds of getting pregnant in late 30's and 40's diminishes, one needs to remember that each woman is unique and she needs to work with her doctor to explore all options in her quest for pregnancy.

✘ *About the Author: Deborah Lynn is the creator/owner of Over 35 New Moms and a former corporate vice president. She holds degrees in Education, Kinesiology and pursued doctoral study in Physiology. She spent over 17 years working in the corporate environment and now focuses her time on raising her daughter and helping other women over 35 in their*

*journey to have a baby. For more information, visit The Resource Guide for Pregnancy over 40 at <http://www.selfgrowth.com>*

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## **Hepatitis B: what do you need to know if trying to conceive**

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Hepatitis B is relatively common in the US and worldwide. There are approximately one million individuals living in the US with chronic hepatitis B. According to the CDC, the highest rate of infection occurs among those 20 to 49 years old. Approximately 5% to 10% of adults and children older than age 5 with hepatitis B infection go on to develop chronic infection. Globally, 350 million individuals live with chronic hepatitis B infection, according to WHO and other sources. One third of those infected reside in China (中国). It is more common in Asia, Saharan Africa and some areas in South America. Migration and medical tourism may increase the magnitude of hepatitis B problem in the US. In Asian countries the prevalence is slightly higher in men and is about 10% of adult population. Universal vaccination of all infants at birth and vaccination of at risk individuals e.g type I and II diabetes, sex partners of hepatitis B infected individuals, men who have sex with men, travelers to high risk areas, can prevent transmission of hepatitis B.

Reproductive endocrinologists and fertility specialists are

responsible for detection of hepatitis B in partners and prevent the transmission of hepatitis to non infected partner and newborn. Women and men are tested for hepatitis B at the time of initial fertility consultation. Abnormal results are interpreted and measures are taken to avoid transmission to others, during natural conception and with the use of assisted reproduction (IVF).

## **Hepatitis B Discordant Couples Discovered Prior to Fertility Treatment**

One of the major means of transmission of hepatitis B is sexual intercourse. At initial consultation if one partner is hepatitis B Surface antigen positive (HBsAg) indicating chronic infection, vaccination of the other partner will most likely prevent the transmission of hepatitis B during attempts of natural conception and fertility treatment. The vaccine is administered three times at 0, one month and 6 months. High levels of Hepatitis B surface antibody (anti-HBs) indicates immunity.

During fertility treatment, when the male partner is infected and female partner is not, modification of sperm washing techniques minimize the risk of hepatitis B transmission. These include separation of sperm from seminal fluid and then testing of the sperm for hepatitis B before use IUI or intracytoplasmic sperm injection (ICSI). The use of ICSI may reduce but not eliminate the transmission of hepatitis B virus (controversial).

## **Prevention of Hepatitis B transmission from Egg Donors**

Egg donors are initially screened through careful history to exclude those exposed to risk factors, then a complete physical examination. They are also initially screened for viral infections including hepatitis B. Within one month of

egg retrieval, donors are retested using conventional labs as well as DNA based testing for hepatitis B (and hepatitis C and HIV) to further minimize the risk of transmission.

## **Prevention of Hepatitis B transmission from Sperm Donors**

Sperm donors undergo a careful questionnaire related to risk factor, followed by examination and laboratory screening. Sperm is obtained and frozen and quarantined. Donors are then retested using FDA approved laboratories to further minimize the risk of transmission of infectious diseases including hepatitis B.

## **Prevention of Hepatitis B transmission to Gestational Carriers**

Male and female partners (intended parents) are tested in a manner similar to sperm and egg donors. If testing was not possible, the carrier is carefully counseled that FDA mandated testing is not followed. In case of a hepatitis B carrier partner, the carrier is vaccinated prior to transfer of embryos.

## **Low Temperature Storage of Cells & Tissue from a Hepatitis B infected individual**

There were few reported cases of transmission of hepatitis B from frozen tissue. Those cases did not involve sperm, eggs or embryos. As a precaution, reproductive cells from infected individuals are frozen in separate tanks than those not infected. More recently, the use of closed systems that do not allow cells to touch liquid nitrogen in the tank, the use of nitrogen vapor instead of liquid and the sterilization of nitrogen using ultraviolet rays can further minimize the risk of transmission.

## **Hepatitis B Discovered During Pregnancy**

A hepatitis B infected mother have a small risk of transmission of the virus to the fetus during pregnancy. The risk of transmission, however, is significant at the time of delivery. Sometimes medical treatment of mothers is indicated with anti-viral medications to minimize this risk after consultation with a maternal and fetal medicine specialist.

All newborn to a hepatitis B infected mother should receive at birth

i. Hepatitis B immune globulin (HBIG) to neutralize a virus acquired from the mother and ii. Hepatitis B Vaccine to produce long term immunity.

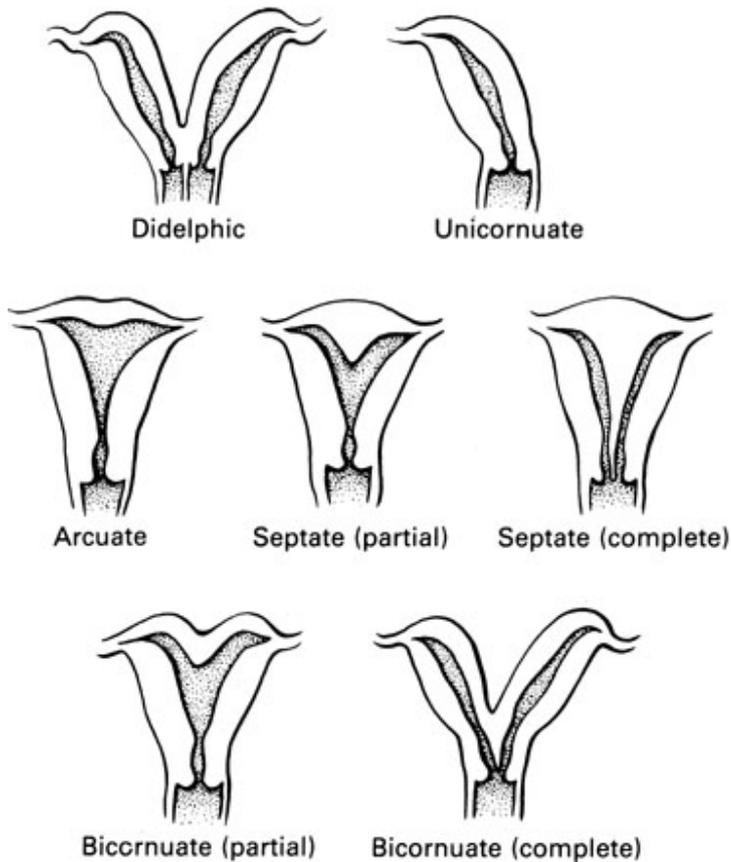
Careful screening of intimate partners, egg and sperm donors can markedly reduce the chance of hepatitis B transmission during natural conception and IVF.

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## **Congenital Anomalies of the Uterus: septum**

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Congenital Anomalies of the Uterus: septum: A uterine septum is a vertical separation in the middle of the uterus dividing the cavity into two: right and left. The septum may be partial or could extend all the way through the cervix or even to a varying distance into the vagina.



## Uterine Septum and congenital uterine anomalies

Many of these separations are unnoticed. Septa may be discovered accidentally e.g during a hysterosalpingogram (HSG) done to investigate infertility. The role of a reproductive endocrinologist is to a. confirm the diagnosis of a septum and differentiate it from other conditions that make the uterus appear as double; bicornuate uterus and uterus didelphys and b. to counsel the couple about the possible effects of the septum on reproduction and indication for corrective surgery of the uterus

### Diagnosis of Uterine Spetum

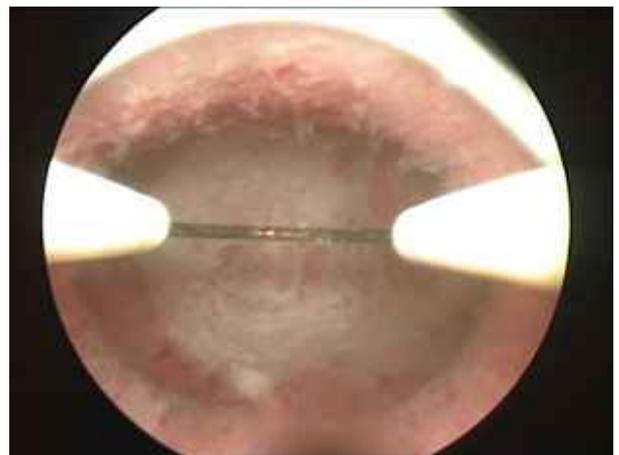
After clinical exam to inspect the cervix, HSG can visualize the duplication of the uterus but cannot accurately differentiate a septum from two separate uterine horns. MRI and 3D ultrasound can accurately characterize the abnormality.

## Effects of Uterine Septum on Reproduction

A septum is not a proven cause for infertility. In fact the majority of women with uterine septum are without symptoms. Some women with a septum manifest with recurrent first trimester pregnancy loss or less commonly late (second trimester) pregnancy loss and preterm labor.

It is unpredictable who will carry a pregnancy to term and who will have a pregnancy loss. Because the outcome cannot be predicted, the majority of reproductive endocrinologists

recommend resection of the septum to unify the uterine cavity. This is especially the case after this



Hysteroscopic Resection of Uterine Septum Completed

surgery can be accomplished with minimal access hysteroscopic surgery. An operative hysteroscope is introduced into the uterus and a micro scissors or an electric loop is used to cut the septum.

There is some evidence that resection of a septum may reduce the chance for pregnancy loss.

Accurate diagnosis of uterine septum is essential before

discussing the possible reproductive consequences and method of correction.