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Fertility or infertility



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We're ready! Now what?

So you've decided to have a baby!
We bet you're excited and happy about it—
founding a family is such a
wonderful event!

But you may have a lot of questions. When should I stop using contraception? What is the best time for relations? Am I fertile? There's so much to know.

This guide can help. It's divided into three sections. The first one describes how the menstrual cycle works. The second explains how fertilization typically occurs. A final section discusses infertility. After reading it, you'll know more about the mysteries of fertility and no doubt be better equipped to tackle the challenges surrounding this sometimes lengthy process.





The menstrual cycle

During each menstrual cycle, variations in hormone levels cause the ovaries to produce an egg (ovum). This egg can be fertilized by a sperm cell. Eggs develop in **follicles** (small pouches) in the ovaries in a process triggered by estrogen levels. A woman's estrogen level generally remains constant, but rises dramatically (**estrogen spike**) once the follicle is ready, or mature, causing the follicle to rupture and release the **egg** into the ovary.

The egg then travels to the uterus via the **fallopian tube**. This is the point at which it can be fertilized by a sperm cell. Each month the uterus lining, called the **endometrium**, swells and thickens to prepare to receive and nourish the potential fetus. If the egg is fertilized, it

Glossary

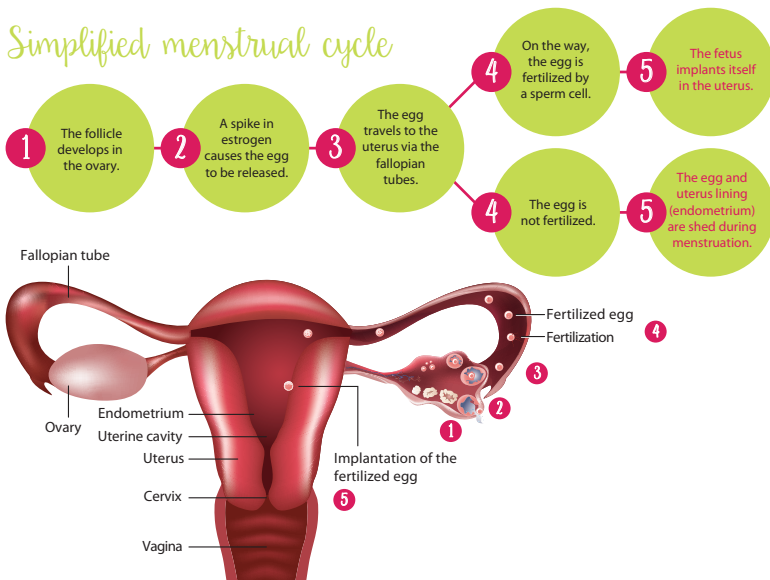
Endometrium: Lining of the uterus where the embryo burrows in (implants itself) and begins to grow after fertilization.

Follicle: Circular groupings of cells in which eggs form and develop. The follicles are located in the ovaries.

Ovary: Organ situated on either side of the uterus. Ovaries secrete progesterone and estrogen and produce the eggs, which, if fertilized, develop into pregnancy.

implants itself in the endometrium and begins its growth in the **uterus**. If it hasn't been fertilized, it is expelled from the body at the same time as the endometrium. This is menstruation.

Simplified menstrual cycle



Estrogen spike: Sudden rise in hormone levels in the blood. This estrogen spike causes the ovaries to release the egg.

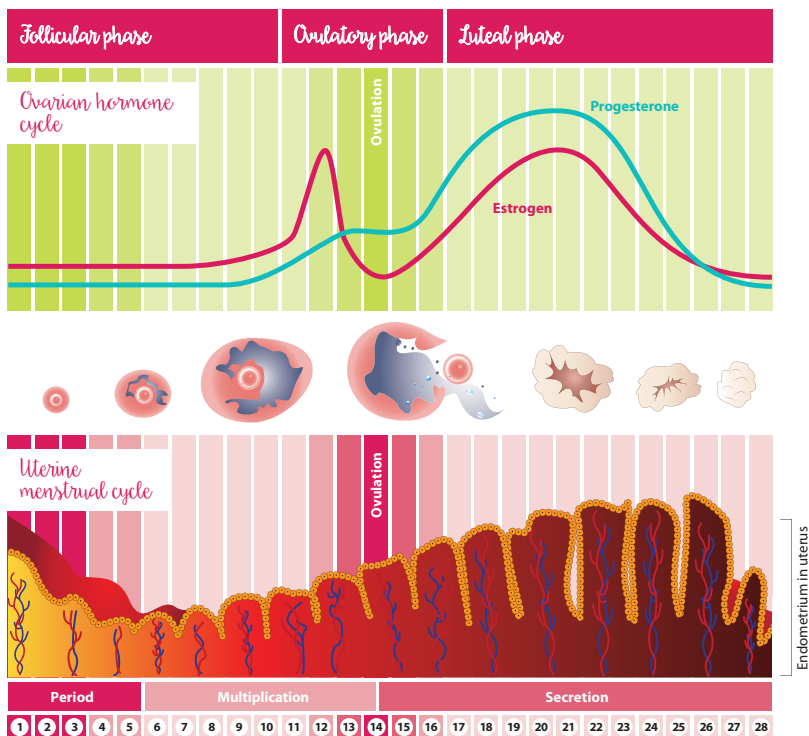
Fallopian tubes: Where fertilization occurs. The tubes transport the fertilized egg to the uterus. If the egg remains unfertilized, it is expelled during menstruation.

Uterus: Organ about the size of an upside down pear where the fertilized egg implants itself and grows into a fetus.



The menstrual cycle

The average menstrual cycle lasts 28 days. Some women, however, have shorter cycles—as little as 21 days—and others longer ones—up to 35 days. If you want to get pregnant, the important thing to know is how long YOUR cycle is. Traditionally the first day of menstruation marks the first day of your menstrual cycle.



IMPORTANT! The estrogen spike corresponds to ovulation and **always occurs 14 days** before the first day of a woman's period, no matter how long her menstrual cycle is.

Contraception

There are several means of contraception. It's important to choose the one that fits your needs and lifestyle the best.

Oral contraceptives (birth control pills), **vaginal rings**, and **patches** work by regulating hormone levels in the body. They stop the estrogen from spiking and thus block the release of the egg by the ovary. They also thin the endometrium, making it harder for the egg to implant itself, and alter the cervical mucus, creating a barrier for sperm cells. In other words they replace the natural menstrual cycle with an artificial menstrual cycle.

Hormonal IUDs (intrauterine devices) thin the endometrium, making it harder for fertilized eggs to implant themselves. They also thicken the cervix mucus, forcing sperm cells to work much harder to get past. They can even prevent ovulation in certain women.

Myth **Hormonal contraception can make you infertile.**

Reality Women can take the pill day in, day out, month after month—even for years—without affecting their fertility in any way. The same goes for IUDs. Although contraceptives can provoke a slight hormonal imbalance when women stop taking them—making it harder to reestablish a normal menstrual cycle or know how long it is—the effect is temporary.



If I want to get pregnant, when should I stop using contraception?

The first step on the road to getting pregnant is stopping all means of contraception. If you're using condoms, it's easy—don't use them anymore. However, if you're taking the pill or using patches, an IUD, injection, or a vaginal ring, the time it takes before you start ovulating again can vary.

The key thing to remember is that after you stop using contraception, no matter what type, conception becomes possible as soon as **you start ovulating again**. It can happen right away or several months later. There is no guaranteed, one-size-fits-all formula.

IMPORTANT!

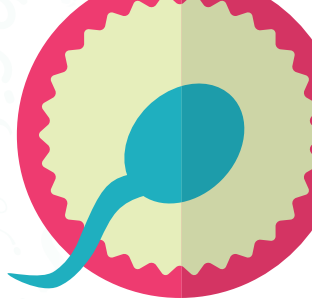
If you're planning on getting pregnant, it is strongly recommended that you take a folic acid supplement to prevent malformation of the neural tube, the most common form being spina bifida. Ideally, you should begin taking **folic acid** three months before conception. To find out more, talk to your healthcare professional.

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My fertility

When am I fertile?



First of all, women are fertile a limited number of days per month whereas men are fertile all the time. So if a couple wants to conceive, it's important they know when the woman is fertile, i.e., when a sperm cell can fertilize the egg. It will put the odds in their favor!

A woman's **fertility window** is determined by when she ovulates. To calculate when that window opens during a regular menstrual cycle, you'll need to do a bit of math. But first, there are three rules you need to know:

- 1 Ovulation **always occurs 14 days** before a woman's period.
- 2 Sperm cells can live up to **5 days** in a woman's body.
- 3 Eggs have a very short life—just **2 days**.

So if a woman has a 28-day menstrual cycle, when is she fertile?

Step 1

Subtract 14 days from the menstrual cycle's total length to know when the egg will be released:

$$28 \text{ days} - 14 \text{ days} = \text{Day } 14$$

Step 2

Subtract 5 days from the day of ovulation because a sperm cell from an earlier relation can still be in the woman's body:

$$14 \text{ days} - 5 \text{ days} = \text{Day } 9$$

Step 3

Since eggs live for 2 days after being released, add 2 days to the day of ovulation:

$$14 \text{ days} + 2 \text{ days} = \text{Day } 16$$

This means that a woman whose menstrual cycle is 28 days long is fertile from **day 9 to day 16** of her cycle. Obviously, the closer relations occur to the time of ovulation, the greater the chances the egg will be fertilized.





How can I know that I'm fertile?

There are several ways to find out when you are fertile. Whether you choose the classical approach of taking your body temperature or use higher tech methods like fertility monitors, you can have a clear idea of when you're ready to get pregnant.

Body temperature method

This method consists of monitoring your **basal body temperature**, i.e., your temperature at rest. Body temperature generally varies during the menstrual cycle, thus indicating when ovulation has occurred. A basal thermometer is best—it is designed precisely for this purpose and offers greater accuracy.



How should I take my temperature?

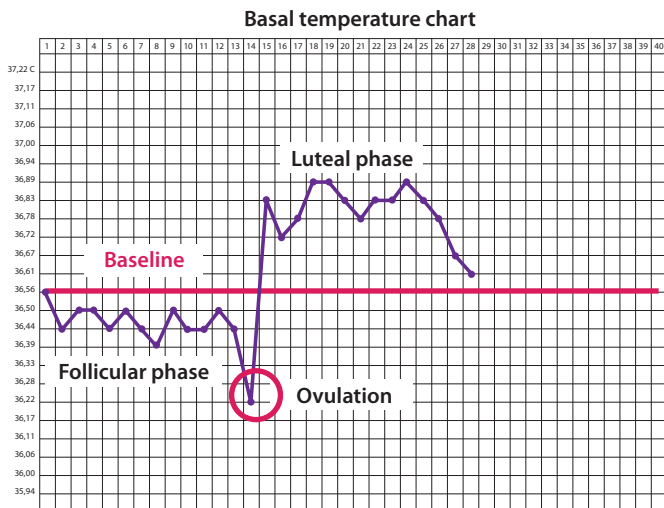
For greatest accuracy, be sure to proceed as follows:

1. Ideally take your temperature in **the morning** before you get out of bed, for 30 to 60 seconds, at about the same time every day.
2. Do not drink, eat, talk, or smoke before taking your temperature.
3. Be sure you have slept for four consecutive hours.

IMPORTANT!

You can take your temperature **orally, rectally, or vaginally**, but it's important you always do it the same way.

Note down your temperatures on a chart (included with the thermometer you purchased or available on the Internet). This chart will reveal when ovulation is most likely to occur. The chart should look like this:





Note that the chart divides into two phases. The first one shows lower temperatures, between 35.5°C and 36.6°C. This phase is called the **follicular phase**—the time during your menstrual cycle when the follicle is getting ready to release an egg. The chart then shows a rise in temperature, to between 36.1°C and 37.2°C. This is the **luteal phase** during which the endometrium thickens. Note that this is only an average! Your temperatures could be higher or lower and still be perfectly normal. If unsure, consult your healthcare professional.

Your fertility window opens in the **transition period between the two phases**. Your body temperature will drop below its usual level. This is called the **nadir** and is when ovulation occurs. Once your temperature starts to go back up on the chart, this normally means that you have **ovulated**.

There are, however, several drawbacks to the body temperature method. Although the procedure is simple enough for anyone to do, you must be very disciplined about taking your temperature every morning. You must also have a predictable menstrual cycle. In addition, certain factors can alter your readings—an infection, stress, alcohol consumption, irregular sleep, even some medications.

What's more, you can use the results only after taking your temperature for a second month—the first month is to create a **baseline chart**. The method is considered reliable 70% of the time. Sometimes it's possible to combine it with observation of certain changes that occur when the body undergoes ovulation. One such change is in the cervical mucus, which is generally thick, whitish, sticky, and elastic. It becomes clearer and more liquid and free flowing during ovulation. Combining the two techniques increases your odds of more precisely identifying your fertility period.





Ovulation tests

Ovulation tests are sold in pharmacies and come with a series of test strips. You'll need to take several tests on several consecutive days to identify your point of optimal fertility. Both the standard and digital versions are more accurate and provide better results than the basal temperature method. They are considered reliable 90% to 100% of the time. However they also require you to know the average length of your menstrual cycle so that you take the tests around your biggest fertility window.

How do they work?

Ovulation tests are designed to detect luteinizing hormone (LH) in the urine. This is the hormone that causes the estrogen spike that triggers ovulation. Ovulation is estimated to occur 24 to 36 hours after any increase in LH in the urine. So if a test returns a positive result, that means you are fertile that day and the next. For the test to be as accurate as possible, it is recommended you test your **first urine of the morning** because it contains a greater concentration of hormones.

How do I perform the test?

First check the test's expiration date. If it has passed, the results will probably be wrong. Most tests use reactive strips. Since it's best to protect them against contact with moisture, take them out of the package only once you are ready to use them, then place them in the stream of urine. You may also collect urine in a clean, dry container and dip the strips in.

You can also choose a **digital fertility monitor**, which measures variations in two hormones to provide a more accurate picture of your fertility period. The monitor analyzes your state of fertility using a series of ten strips soaked in urine and displays a new result for each day. The first month serves as a reference period to record personal data and draw a picture of your optimal fertility window. The monitor stores the data and prompts you to perform new tests in the following months based on your personal hormonal profile. These monitors are very accurate, but require good discipline and are quite costly.

ATTENTION!

Make sure you always read the instructions provided with the test. It is vital that you perform the test **precisely when indicated** by the manufacturer. If it says to take a reading after three minutes, for example, make sure you do so precisely after three minutes.



Certain medical conditions and certain drugs (including some designed to help with ovulation) can influence test results. Talk to your healthcare professional.

Myth During sexual relations, the woman should assume certain positions to promote fertilization of the egg by a sperm cell.

Reality No position works better than another for fertilization. One thing a woman can do, however, is remain lying down for ten minutes following a relation, to help the sperm cells travel to the cervix.

I've heard tips on how to get pregnant. Should I believe them?

Myth If I perform a vaginal douche with baking soda, I have more chances of having a boy, and if I use vinegar, it will be a girl.

Reality The child's sex is determined randomly during fertilization. Vaginal pH has no impact on the child's sex. What's more, vaginal douches are not recommended, especially ones with products that could alter the vagina's pH, as this could cause infection and be a barrier to fertility.



Myth Evening primrose oil promotes sperm cell motility, vitamin C improves sperm cell quality, and root vegetables help the embryo implant itself in the uterus.

Reality No studies prove that certain foods are better than others for promoting sperm cell quality or embryo implantation. However, all women wishing to get pregnant should watch what they eat and follow a healthy diet. Choosing foods rich in vitamins and nutrients is a good habit to have, but probably not one that will help you get pregnant.

Myth Alcohol, and particularly champagne, aids fertilization.

Reality Women seeking to conceive are urged to avoid alcohol as it can harm the embryo. This is one tip you're best to ignore!



I think I'm pregnant, but how can I know for sure?

First, your body will send you clues that you are pregnant. For one, your periods will stop. Some of the following signs and symptoms may also appear:

- Morning sickness
- Fatigue
- Tender or swollen breasts
- Bloating

For some women, however, there may be no signs at all.

If you think you're pregnant and you want confirmation, it is recommended that you take a pregnancy test. There are two types of test:

- 1 Over-the-counter tests sold in pharmacies that measure hormone levels in the urine.
- 2 Blood tests performed with bloodwork.

Blood tests, which are 100% reliable, are prescribed by your doctor and analyzed in the laboratory to determine whether or not you are pregnant.



Pregnancy Test

Pregnancy tests from pharmacies work the same way as ovulation tests, but they check for a different hormone—human chorionic gonadotrophin or hCG, the one secreted by the placenta. It is found only in healthy, pregnant women. It doesn't matter whether the test is digital or not as long as it is approved by Health Canada.

When should I take the test?

Given that the test detects hCG in the urine, which is not secreted until an embryo has implanted itself, you're best to wait 14 days after sexual relations or until the day your period is set to start to take a urine pregnancy test. If you do the test too early, it may not detect the hormone even if you are in fact pregnant (see the paragraph on **Efficacy** on page 22).

How do I perform the test?

Like for ovulation tests, it's best to use your first urine of the morning, because it's more concentrated. Check first to make sure the test kit is not past its expiry date, then remove it from its package without touching the reactive strip. Next, place the strip in the stream of urine or collect urine in a clean, dry container and dip the strip in. **Wait the number of minutes indicated on the test packaging.**



How do I know what the results mean?

To interpret the results, it's important that you consult the product packaging. If the test is not digital, make sure that a line appears in the control window; otherwise, the test has not worked. If a second line appears in the results window, that means the result is positive, **regardless whether it is lighter or darker**. For digital tests, reading the results is easier because it will say "yes" or "no," or "pregnant" or "not pregnant," in the results window.

**Non-significant
result**



**Negative
result**



**Positive
result**



Efficacy

Urinary pregnancy tests often claim to be 99% reliable, but in actual fact they are rarely used in ideal, controlled conditions. As we explained, the closer to fertilization you take your test, the less accurate it will be. The reason is that the placenta and the fetus are the source of the hormone the test is designed to identify, and hormone concentration in the urine doubles every other day.

Some companies even claim that their tests can detect pregnancy up to four days before your period is expected. However, since the concentration of hormones in the urine is still low, you are much less likely to get a positive result. That means the egg may have been fertilized, but it is still too early for the test to be able to tell.

The chances of getting a false positive (the test says you're pregnant, but you are not) are very low with these tests. Although the hCG hormone may be abnormally present in the case of certain illnesses, it is generally only secreted by pregnant women. Whether you wanted to get pregnant or not, if you obtain a positive result the odds are very strong that you are indeed pregnant. You'll need to see your doctor to confirm the pregnancy with a blood test and make sure that everything is fine.

In summary:

- 1 Choose a Health Canada–approved test that is not past its expiry date.
- 2 Wait ideally until the first day your period is late to make sure the result is as reliable as possible.
- 3 Take the test using the first urine of the morning, because it has the greatest concentration of hCG.



Infertility

You won't always get pregnant the first month you start trying. It can take several months.

Even when all the conditions appear just right for fertilization, normal couples (those who have sexual relations and no problems with infertility) are estimated to have a 15% to 25% chance of conceiving in any given month. This means the odds of getting pregnant within six months of trying are relatively high. However, after several months, or even several years, certain couples may learn that they suffer from infertility. Only your doctor or a fertility clinic can render a diagnosis of infertility after both the woman and the man undergo a series of tests.

Infertility can be defined as the inability of a woman under 35 years of age to conceive after a full year of regular, unprotected sexual relations. This figure is adjusted after six months of trying for women over 35. About 14% of couples are estimated to have trouble procreating, and the proportion of infertile couples is said to have doubled since the 1980s. Many point to the fact that more and more today, couples delay their decision to have a child for personal or work-related reasons. Later in this section we're going to see what an important impact age can have on fertility.

Female infertility

In about 40% of cases, infertility is attributable to the woman. Below are the most frequent causes:

CAUSE	EXPLANATION
Age	Age is a major factor for women trying to start a family. It is estimated that fertility starts to decline around age 35 . This loss of fertility is due to a drop in the number and quality of eggs available. However, nothing is absolute. Many women remain fertile after age 35.
Ovulation problems	Certain women have trouble ovulating. Some don't ovulate at all, while others might only ovulate every two cycles, for example. This problem may be due to a hormonal imbalance, which results in an irregular cycle. A number of other factors may be involved, particularly a significant weight change, too much stress, illness, or excessive physical exercise.
Polycystic ovary syndrome	Polycystic ovary syndrome affects 6% to 8% of women of childbearing age. Women who suffer from this syndrome usually have a number of cysts (sacs containing tissue) on the surface of their ovaries. Other symptoms may also be present, such as acne, an increase in body hair, and metabolic problems (obesity, onset of diabetes, etc.). A blood test is usually sufficient to make a diagnosis. This problem can generally be reduced or even eliminated through lifestyle changes (especially weight loss) and medication. For more information, talk to your healthcare professional.



Female infertility (cont.)

CAUSE	EXPLANATION
Endometriosis	Endometriosis comes from the word “endometrium” and plays a role in 38% of infertility cases . It has a significant genetic predisposition (if your sister or mother has it, you are more at risk of getting it). As previously mentioned, the endometrium is the inner lining of the uterus. In some women, endometrial tissue is found outside of the uterus, e.g., in the fallopian tubes or vagina, on the ovaries, etc. Over time, small scars tend to form, which may restrict the mobility of the fallopian tubes and ovaries and eventually lead to infertility. Some women have no symptoms, while others may suffer pain during menstruation and sex.
Blocked fallopian tubes	The fallopian tubes carry eggs from the ovaries to the uterus. However, they may become blocked, preventing eggs from entering them to be fertilized by sperm. The causes of this blockage may vary, but it often occurs following an infection or surgery performed for sterilization purposes or an ectopic pregnancy—i.e., when the fetus develops outside the uterus, like in one of the fallopian tubes, for example.
Hygiene and lifestyle	Too much caffeine can increase the risk of miscarriage. Women who wish to get pregnant are advised to limit their coffee intake to one or two cups per day . Weight is also a major factor to consider if you’re having trouble conceiving. Both extremes (weight that is too high or too low) may lead to difficulties.

CAUSE	EXPLANATION
Hygiene and lifestyle (cont.)	<p>Weight loss in the 5% to 10% range may be enough to help some women conceive. In fact, a healthy weight and a good diet bring all kinds of benefits, including potential results for women suffering from infertility.</p>
	<p>Smoking increases the risk of infertility in both men and women. Women who smoke have more difficulty getting pregnant due to the toxic compounds found in cigarettes. Furthermore, women who smoke during pregnancy are at a higher risk of having a premature birth and an underweight baby. Men who smoke have sperm of lesser quality. For all these reasons, couples having trouble conceiving are recommended to stop smoking.</p>
	<p>Drug use can also interfere with the ovulatory cycle and should be avoided by women wishing to get pregnant.</p>
	<p>Exposure to heat in therapeutic baths or hot tubs, for example, may alter the quality of sperm once it is inside the woman.</p>
	<p>In a nutshell, a healthy lifestyle can aid conception. Eating well, drinking lots of water, exercising, and getting enough rest are good habits to develop!</p>
Unexplained	<p>For some couples, the cause of infertility may remain undetermined despite extensive testing. This is referred to as unexplained infertility, which accounts for about 10% of infertility cases.</p>



Male infertility

An estimated 35% of infertility cases are attributable to the man. As in the case for women, age can be the cause, along with alcohol consumption, smoking, and drug use, which affect sperm production. Erectile dysfunction, ejaculatory disorders, certain chronic diseases, and a man's medical history can also affect male fertility.

Although there are a number of causes, the most common ones involve a reduction in sperm quantity and quality.

CAUSE	EXPLANATION
Oligospermia	Some men naturally produce less sperm.
Azoospermia	Some men have no sperm in their semen at all. This doesn't necessarily mean that they don't produce any, but it may mean that the ducts that carry sperm to the outside of the penis are blocked.
Asthenospermia	Poor sperm motility, which makes it hard for sperm to find their way to the egg.
Teratospermia	A high number of abnormally shaped sperm make it difficult to fertilize an egg.



What to do if you or your partner are infertile?

As mentioned, there are a number of causes of infertility. Treatment should be tailored to each couple's situation.

Psychological impact

Infertility is first and foremost something that couples go through together. Both partners have to deal with the emotional challenges and heartache. Fertility treatments are not always easy. They often involve making frequent visits to a clinic, taking medication, receiving injections, undergoing examinations, etc. All of these steps suddenly take on a great deal of importance in the day-to-day lives of the people involved.



Some partners will see their dream of having a child threatened and go through a whole range of emotions, ranging from stress to anger and often sadness. Many will experience feelings of isolation and powerlessness that may lead to lower self-esteem and relationship problems.

The need to have sex on demand takes the spontaneity, pleasure, and satisfaction out of this intimate act. However, every person and couple reacts differently to this emotional journey. Various types of psychological counselling (individual, couples, group) are available to help improve stress management. The goal is to be guided through this difficult journey as well as overcome and even break the isolation from family and friends.

It's important to know that there are more and more methods and specialized clinics that can help couples who are having trouble conceiving.

Medication

Women with ovulatory problems can try drugs designed to force their cycles by inducing ovulation. These drugs increase the amount of hormones released into the blood, thus stimulating the ovaries and increasing the number of hormone spikes.

Surgical interventions can address certain underlying fertility problems in women, such as endometriosis, ovarian cysts, and blocked fallopian tubes.

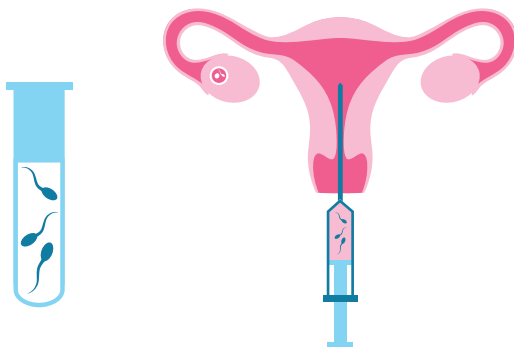
There are treatments and surgeries that may be attempted for men, depending on the type of infertility.

If nothing works despite all attempts, artificial insemination or in vitro fertilization may be another possibility.

Intrauterine insemination (IUI)

To increase the chances of conceiving, sperm can be inserted deep in the uterus using special tools, a procedure known as insemination. During this procedure, the doctor injects sperm from the male partner or a donor into the woman's uterus via the vagina using a thin nylon tube.

This technique is painless for the woman, who can quickly resume her normal activities. Intrauterine insemination is used particularly in cases where sperm have trouble getting to the fallopian tubes, either due to a sperm motility problem or because the woman's cervical mucus is less conducive to sperm movement. The average success rate per cycle is 10% to 15%, and couples are recommended to make at least five or six attempts before declaring failure.



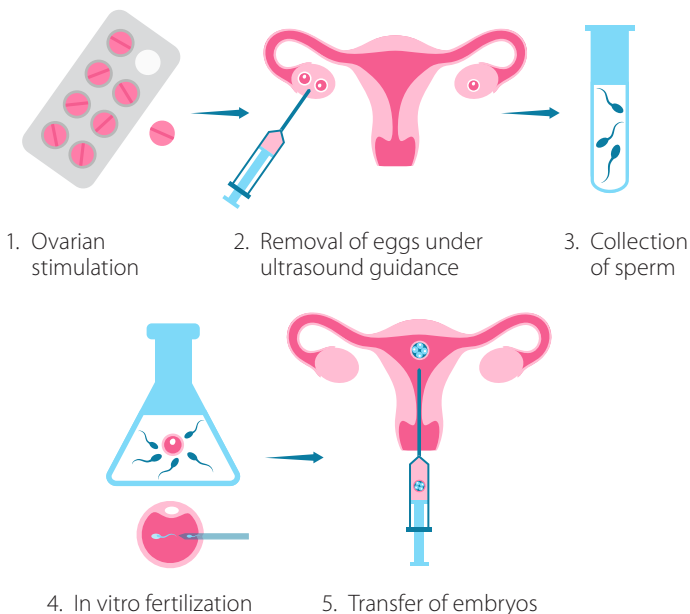
1. Sperm from the male partner or donor collected in the laboratory

2. Insemination using a catheter



In vitro fertilization

Sometimes artificial insemination is not enough to make a woman pregnant. A slightly more advanced technique involves combining the egg and sperm outside the woman's body (in vitro). To do this, live eggs are removed from the woman and healthy semen is provided by the man. The semen is then washed so that only the sperm remains. The eggs and sperm are placed together in a laboratory dish. Fertilized eggs are collected and implanted in the woman's uterus. There are clinics that specialize in this type of procedure.





What about adoption?

Unfortunately, despite their efforts and the medical techniques available, some women remain unable to conceive. For couples in this situation, adoption may be a viable solution. Even for fertile couples, adoption or foster parenting can be an enriching experience that gives a child a second chance.

In conclusion

Although planning a family is a special and deeply emotional experience that generally starts off the same way for everyone, problems can occur at any time along the way. Don't hesitate to talk to your healthcare professional, who can direct you to the various resources available.

Sources and useful links

Infertility Awareness Association of Canada

<http://www.iaac.ca/en/our-resources>

Centers for Disease Control and Prevention

www.cdc.gov/reproductivehealth/infertility/

Government of Canada

www.healthycanadians.gc.ca

Fédération des médecins omnipraticiens du Québec (in French only)

www.fmoq.org/

Canadian Healthcare Network

Lysanne Marcel, "Méthodes de détection de l'ovulation"

(September 2013) (in French only)

Lysanne Marcel, "Mise à jour sur les tests de grossesse" (June 2013)

(in French only) <http://www.canadianhealthcarenetwork.ca/>

Association des obstétriciens et gynécologues du Québec

<http://www.gynecoquebec.com/en/woman-health.html>

Ordre des psychologues du Québec

Katherine Péloquin, "Infertility: A social and spousal reality that needs to be studied," Integrating Science and Practice, Vol. 3, No. 2 (November

2013) <http://www.ordrepsy.qc.ca/en/documentation-et-medias/integrating-science-and-practice.sn>

The Society of Obstetricians and Gynaecologists of Canada

<http://sogc.org/>

Ministère de la santé et des services sociaux

(Secrétariat à l'adoption internationale) (in French only)

www.adoption.gouv.qc.ca/

Naître et grandir (in French only)

www.naitreetgrandir.com/fr/



In this guide

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Only pharmacists are responsible for pharmacy practice. They provide related services only on behalf of a pharmacist/owner and use various tools such as the Psst! (Plan to Stay in Shape Today) program tools.

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