

OVULATION INDUCTION (OI)

INSIDE:

- Ovulation and conception explained
- The fertility drugs available and how they will make you feel
- Dealing with stress



PART OF THE PATHWAYS TO PARENTHOOD BOOKLET SERIES

ABOUT THIS BOOKLET

This series of booklets has been developed and written with the support of leading fertility clinics across Australia, and AccessAustralia – a national organisation that provides numerous services for people having difficulty conceiving. We also acknowledge the many people who spoke openly about their own experiences with assisted conception in order to help others experiencing a similar journey. Merck Serono thanks the many individuals, couples and Australian healthcare professionals, including fertility specialists, specialist nurses and psychologists who shared their knowledge and expertise during the production of these booklets.

Important notice: The information provided in this booklet does not replace any of the information or advice provided by a medical practitioner and other members of your healthcare team. If you have any further questions about ovulation induction, please contact your doctor.

Please note that throughout this booklet, the generic name of a medication will be stated first followed by the brand name in brackets.

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INTRODUCTION

Sometimes women don't ovulate (release an egg from an ovary each month) or ovulate irregularly which interferes with their ability to become pregnant. There are many reasons why this can happen – stress, weight issues, over-exercise, hormonal imbalances or problems with your reproductive system. Sometimes there is no real explanation. It can be a temporary issue or a long-term one.

Ovulation induction is the term for the use of medical therapy to treat women who do not ovulate by themselves. Hormonal medications are used to stimulate the ovaries or egg sacs in order to produce an egg, which can then be fertilised by the male's sperm.

This booklet provides a detailed explanation of how ovulation works, the clinical testing involved and your treatment options. It explains the possible reasons you might be having ovarian issues and how ovulation induction can help you.

A diagnosis of infertility can naturally leave you feeling shocked and lead to a whole range of emotional reactions, which are often very strong and overwhelming. There may be times when you need extra support, reassurance or some coping techniques to help you manage the challenges and your stress levels. It is important that you talk to your partner and other friends and family members about how you are feeling throughout your diagnosis and treatment. Your healthcare team, including counsellors and the support organisations listed in the back of this booklet may also be able to help with any concerns or questions.

The ovarian cycle is extremely sensitive and complex –approximately 30% of female infertility problems are the result of ovulation disorders.¹

THE LINK BETWEEN INFERTILITY AND OVULATION

The term 'infertility' is used when the ability to become pregnant is diminished or absent. 'Subfertility' is a more appropriate term because it does not mean that you are unable to have children but that you may require treatment or assistance to achieve a pregnancy. The term infertility is generally used



if a couple has not conceived after 12 months of regular unprotected intercourse.² Fertility is age dependent and so any woman over the age of 35 who is trying to become pregnant should see their doctor after six months. About one in six couples have trouble conceiving and about half of these couples will require medical assistance to overcome this problem.³

Causes of female infertility include:

- older age (>35)
- polycystic ovary syndrome
- no ovulation or irregular ovulation
- lifestyle factors (e.g. smoking, being overweight or underweight, drug use, always tired)
- blocked fallopian tubes
- endometriosis
- fibroids (non-cancerous growth of the muscle in the uterus)
- problems of the cervix such as mucus hostility.

The impact of age

These days it is common for women to defer pregnancy until they are in their mid-30s due to career and other financial reasons. Unfortunately, about one third will have trouble becoming pregnant, and at least half of women over 40 will have problems conceiving.⁴

Women will begin to lose their fertility (the quality and quantity of viable eggs) from age 35 years onwards with it becoming very obvious at age 40. An age-related decline in the number of healthy eggs in a woman's ovaries is one of the reasons for infertility.

A woman is born with all the eggs she will ever have – about 400,000. Each month, during her reproductive years, usually only a single egg matures. The quantity of eggs starts to diminish in childhood and continues into adulthood. Ovulation contributes to the decrease, but only minimally as 600 eggs are lost per month. The majority of eggs are slowly absorbed by the body. It is important to note that having ovulation induction does not bring on menopause at an earlier age. Other age factors might include a decline in the frequency of intercourse in an relationship, other diseases and various medications.

Ovulation problems

Ovulation is the development and release of an ovum (egg) from your ovaries. Ovulation is the most fertile period of your menstrual cycle. The function of the menstrual cycle is to mature and release an egg and to prepare the uterus to receive and nurture an embryo (a fertilised egg).

Becoming pregnant is dependent on the release of a healthy egg capable of being fertilised by a healthy sperm. However, if your period is irregular or absent then your egg production and release may be affected. Infrequent periods (oligomenorrhoea) or the absence of periods (amenorrhoea) are most often caused by a deficiency in one of the controlling hormones (see page 8). These can be successfully treated with medications.

Problems are also associated with extremely low body weight, being overweight, or a significant change in weight. In addition, ovulation problems can arise if the ovaries themselves are resistant to normal levels of hormones. Absent, damaged or diseased ovaries will also prevent ovulation.

If after a year of trying, you are having trouble conceiving you should consult your local general practitioner (GP). If you are a woman aged over 35, it is best to seek medical help after six months.

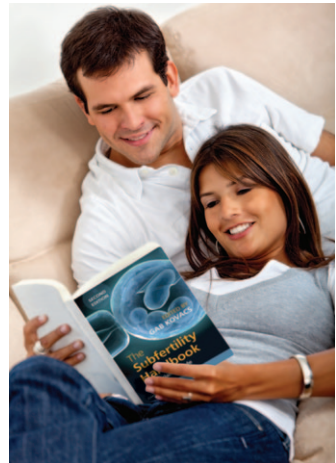
NIKKI AND STEVE'S JOURNAL

"It never occurred to me that we could be infertile. Like most women I know, I spent my early adulthood trying to avoid getting pregnant. I just assumed that I would be like the other women in my family and conceive as soon as I decided to.

I was ready to start our family just a little bit before Steve was, so as soon as he said 'let's do it,' we dropped the contraception.

In some ways I think the first three months of trying were the most disappointing, because I was so unprepared for the let down."

*Nikki and Steve, Australia**



You can find the full story of Nikki and Steve's journey to parenthood along with many other personal stories at www.fertility.com

*This personal statement is the opinion of real individuals. Individual experiences will vary from person to person.

UNDERSTANDING CONCEPTION

Conception is a complicated combination of factors and timing. It can be described in five steps:

Step 1

During the first half of the menstrual cycle, hormones stimulate growth and development of a single follicle within one of the ovaries. At the same time, another hormone stimulates growth of the uterus lining in preparation for the fertilised egg.

Step 2

When the egg cell matures, hormone levels surge and trigger the egg's release. The exact timing of ovulation relates to a woman's individual menstrual cycle (period). In an average 28-day cycle, ovulation occurs between days 13 and 15 – day one being the first day of menstruation. The egg follicle bursts, releasing a fertile egg, which migrates to the fallopian tube. What's left of the spent follicle helps produce a hormone, which prepares the endometrium or uterus lining for the implantation of the fertilised egg.

Step 3

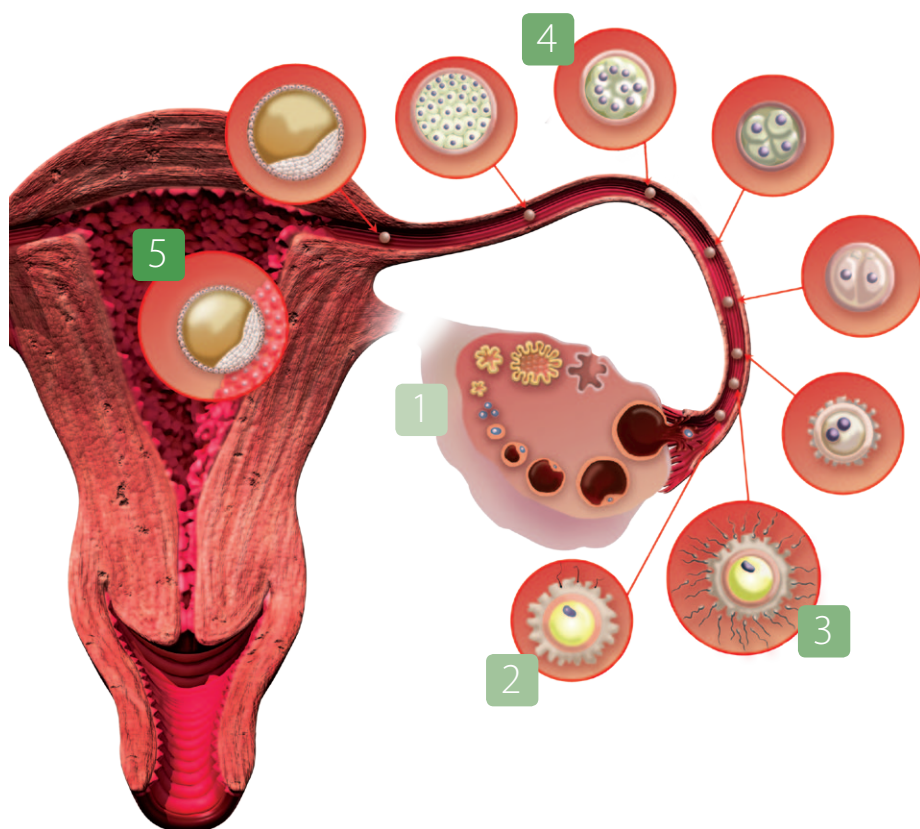
As it makes its way from the fallopian tube to the uterus, the egg may be fertilised. Sperm can live within the human body for 48–72 hours. But of the countless sperm that make it to this stage, only one may penetrate the egg's protective membrane and fertilise the egg. During fertilisation, the couple's genes combine to create an embryo.

Step 4

As the first few cells divide, the embryo continues its course toward the uterus. Just before implantation, it hatches from the egg's protective membrane.

Step 5

Six days after fertilisation, the embryo embeds itself into the nutrient-rich lining of the uterus. A placenta forms to exchange nutrients and gases between mother and embryo, and essential hormones are released to maintain pregnancy. If fertilisation doesn't occur, or if for some reason, the embryo fails to implant, the lining of the uterus is expelled, resulting in menstrual bleeding (your 'period') and the cycle starts again.



USE OF THE TERM 'CYCLE'

When healthcare professionals use the term 'cycle', they can either be talking about your menstrual cycle or if you are undergoing ovulation therapy or more involved treatments such as IVF, it could mean a 'cycle' of therapy. At first many of the terms relating to infertility – especially the abbreviations – can be confusing but you will soon become used to the medical lingo.

The role of hormones

Achieving a pregnancy to a large extent depends on the successful interaction of the hormones that regulate the reproductive cycle in women and sperm development in men. Some hormones are produced from two glands in the brain, the hypothalamus and the pituitary. Specific female hormones are produced in the ovaries, while men's specific reproductive hormones come from the testicles.

Follicle stimulating hormone (FSH)

In women, follicle stimulating hormone (FSH), produced by the pituitary gland, stimulates egg growth and development and contributes to the production of oestrogen.

Luteinising hormone (LH)

In women, luteinising hormone (LH), produced by the pituitary gland, is necessary for the production of oestrogens and triggers the egg's release from the ovary.

Gonadotrophin-releasing hormone (GnRH)

The release of FSH and LH into the bloodstream is triggered by another hormone known as gonadotrophin-releasing hormone (GnRH), which is produced by the hypothalamus.

Oestrogen

The female sex hormone oestrogen encourages the egg to mature and helps prepare the uterus for pregnancy. As the egg matures more oestrogen is produced reaching a peak level about two days before ovulation. There are three main types of oestrogen produced by the body: oestrone, oestradiol and oestriol. These are often collectively referred to in the singular form, as 'oestrogen'.

Progesterone

This hormone prepares the lining of the female uterus for implantation of the fertilised egg. Progesterone is only produced in significant amounts after ovulation has occurred and can then be measured in the blood.

HOW DO I KNOW IF I'M OVULATING?

If you are having regular menstrual cycles, you are almost certainly ovulating (regardless of the length of the cycle). To estimate the day of ovulation, subtract 14 days from your average cycle length. So if your cycles are 28 days, you will ovulate on day 14, but if your cycles are shorter, e.g. 25 days, by subtracting 14 days, you will ovulate on day 11.

There are a number of signs to look for when trying to detect your ovulation time.

Mucus: You might notice a change in your vaginal secretions about the time you are ready to ovulate. Throughout the menstrual cycle, the cervix or opening of the uterus, produces mucus, or fluid. Just before ovulation, the mucus becomes clear and slippery, and looks a little like raw egg white. This mucus helps the sperm to wriggle up the vagina and through the cervix. When you are not ovulating the mucus will have a different appearance, e.g. creamy, white or yellow in colour.

Pre-menstrual symptoms: The menstrual cycle is often associated with symptoms such as abdominal bloating, breast tenderness and mood changes. These symptoms can often be more pronounced in women who are having problems ovulating, such as those with polycystic ovary syndrome or endometriosis. There might also be localised abdominal pain lasting for a couple of hours about the time of ovulation (called *Mittelschmerz* – a German term for 'middle pain').

Temperature: After ovulation, your temperature increases quite significantly and remains higher for the rest of the cycle. This is because your progesterone hormone levels – which help prepare the uterus for implantation and pregnancy – increase with ovulation. You will need to take your temperature every morning with a basal body temperature thermometer (available from pharmacies) after you wake up and before you eat or drink anything. After two or three months of recording your temperature on chart paper, you will hopefully see a pattern and be able to determine your ovulation day. Usually the day before ovulation there is a 'dip' in the temperature, which represents the 'LH surge'. This is a good time to have intercourse.



Clinical testing for ovulation dysfunction

In addition to the ovulation signs listed on the previous page, your doctor may use a variety of tests to identify the reason for a lack of or irregular ovulation and recommend treatment options.

Ultrasound scan

This type of scan, also called a transvaginal ultrasound, uses a long, slender probe inserted into the vagina. Your doctor or nurse will check for the following factors:

- anything that may be affecting your cycles such as the presence of ovarian cysts or endometriosis
- how thick the uterine lining is and how well the uterus is responding to hormone production
- how big your ovaries are and the number of follicles present in your ovaries.

Hormone analysis

Measuring hormone levels will often identify whether ovulation is occurring (e.g. progesterone, FSH, LH) or the cause of the ovulation problems (e.g. prolactin – a hormone that interferes with ovulation). It is important to exclude other causes such as early menopause, polycystic ovary syndrome and thyroid disease, as ovulation induction may not be a suitable treatment plan.

LH or ovulation test kits: These kits, available from pharmacies measure the LH level in your urine. They help pinpoint when the LH surge is occurring that precedes ovulation. However, an increase in LH does not necessarily indicate an egg has been released.

FSH and LH: In some women, blood tests to measure FSH and LH levels may be needed to check that the release of these two hormones is occurring normally. This type of blood test usually happens around day two of menstruation.

Progesterone: Blood tests to check progesterone levels can help determine if ovulation has occurred. It is best done seven days after ovulation. However, if your cycle is irregular, this test is not beneficial.

Prolactin: High levels of prolactin, a hormone that stimulates the production of breast milk, can interfere with ovulation. Blood tests for this can be done at any time during the cycle.

AMH: A blood test to measure Anti Mullerian Hormone (AMH) may be useful to show how many eggs a woman has left (known as her ovarian reserve). AMH is produced by small ovarian follicles and can be measured at any time during the cycle. A low AMH level may indicate low ovarian reserve and a high level may indicate PCOS.

TIMING OF INTERCOURSE

It is recommended that you have intercourse three or four days prior and on the day of your ovulation day in order to maximise your likelihood of becoming pregnant.

WHY AM I NOT OVULATING?

For the vast majority of women, the reason they are not ovulating is because of confused hormonal signals from the body, which mean that ovulation cannot occur in the usual way.

Pituitary dysfunction is a term used to describe a group of disorders in which ovulation occurs on an infrequent or irregular basis (oligo-ovulation). The term **pituitary failure** is used when ovulation fails to occur at all (anovulation) and there are no periods (amenorrhoea).

While there are no specific symptoms of the disorder, there might be some associated features that are common to people having trouble ovulating.

These can include:

- amenorrhoea (lack of menstruation)
- irregular menstrual cycles
- oligomenorrhoea (infrequent menstruation)
- obesity
- excessive weight loss
- excessive weight gain
- milk secretion from the breasts
- hirsutism (abnormal or excessive hair growth on the body and face)
- acne.

Why am I not ovulating? (cont.)

The vast majority of people with ovulation issues experience amenorrhoea. **Primary amenorrhoea** occurs in girls under 16 who have not yet menstruated, and is usually due to a hormone deficiency. **Secondary amenorrhoea** occurs in women who have previously menstruated but have stopped for more than six months.

This can coincide with:

Being overweight: Being just 10–15% over your ideal body weight can contribute to the risk of ovulation problems.⁵ Weight loss in women who do not ovulate will often cause the normal ovulation process to resume. Being overweight is also linked to polycystic ovary syndrome.

Polycystic ovary syndrome: This is a condition where eggs mature in the ovaries but are not released into the fallopian tubes, and instead they remain where they are and develop into cysts.

Endometriosis: Endometriosis occurs when the tissue that normally lines the inside of the uterus grows in other places of your body where it doesn't belong, such as on the ovaries, fallopian tubes and the outside surface of the uterus. Endometriosis found on the ovary can also grow larger and form cysts, which can interfere with ovulation.

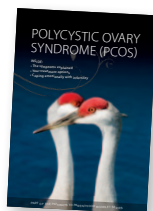
Excessive exercise/being underweight: When a woman exercises heavily and particularly if her body weight is low (less than 20% of your ideal body weight), ovulation may stop. Ovulation can be restored by returning to moderate exercise and nutrition.

Stress: Emotional and other stress, such as bereavement can take a toll on a woman's health, and her fertility.

TREATING POLYCYSTIC OVARY SYNDROME

If you have polycystic ovary syndrome (PCOS), you may also be advised to take a sugar lowering agent called metformin in conjunction with clomiphene citrate.

Ask your doctor for a copy of the PCOS booklet – part of this *Pathways to Parenthood* booklet series.



Pituitary tumours: This is a far less common condition where tumours on the pituitary gland can lead to the production of large amounts of the milk hormone prolactin.

Ovarian failure: This results in loss of egg supply from the ovary, possibly as a result of early menopause.

Lifestyle changes

In conjunction with running a series of tests to determine if you are ovulating, your doctor will probably recommend a few simple lifestyle changes which you can start making immediately. These may help boost your fertility naturally and will also assist with the effectiveness of the therapy that your doctor recommends for you.

- Give up smoking.
- Restrict alcohol intake – the Australian Alcohol Guidelines recommend that you should have less than seven standard drinks in any week and no more than two standard drinks on any one day.⁶
- Say no to illegal drugs such as cocaine, heroin and marijuana.
- Eat a well-balanced diet, which includes plenty of fruit, vegetables, grains, meat, poultry and seafood.
- If you are underweight, exercise with caution. For those who are overweight, regular exercise is recommended.



WHAT IS OVULATION INDUCTION?

Once you have established that there is an ovulation problem, your doctor will discuss with you a number of treatments that can be used to restore fertility – in other words, to start you ovulating again.

The term **ovulation induction** (OI) refers to the use of medical therapy to help you grow and ovulate an egg when you do not normally ovulate.

Ovulation induction involves taking fertility drugs, either in the form of oral tablets or injections, to stimulate the release of follicle stimulating hormone (FSH). Only a small dose of hormone treatment may be needed to develop the follicle. The medications are taken at the beginning of the menstrual cycle. Throughout your cycle you will be monitored with blood tests, to measure the levels of oestrogen, and ultrasound tests to determine when you are ovulating. This will help you decide the best time for intercourse to achieve conception. Based on these results, your doctor will also be able to adjust the dose of treatment and individualise the treatment to suit you.

Typical course of ovulation induction using tablets



SUPEROVULATION OR CONTROLLED OVARIAN HYPERSTIMULATION

You may also hear the terms **superovulation** (SO) or **controlled ovarian hyperstimulation** which involve producing more than one egg to improve fertility in a women who already ovulates. It involves larger doses of fertility drugs and is used in conjunction with assisted reproductive technologies, such as IVF when multiple eggs are required (which can be frozen and stored for later use). This is different to **ovulation induction** where we ideally only want to produce one egg.

Hormonal treatment

Clomiphene citrate

Clomiphene citrate (also known as Serophene® or Clomid®) taken in tablet form is usually the starting point for treating ovulatory failure, particularly due to polycystic ovary syndrome.

In a normal cycle, the hypothalamus (part of the brain that controls a large number of bodily functions) releases a hormone called gonadotrophin-releasing hormone (GnRH) at the beginning of your menstrual cycle. If too little or too much is released, normal follicle development will not take place and ovulation will not occur. Clomiphene citrate stimulates the release of GnRH, which in turn causes the pituitary gland to release more FSH and LH. These two hormones promote growth of the fluid-filled sacs (follicles) containing the eggs. Generally if clomiphene citrate is effective then successful ovulation and pregnancy will occur within three to six months.² If you do not fall pregnant after three ovulatory responses to treatment, further treatment is not usually recommended.^{7,8} Your doctor will advise you on how many courses you should take.⁹ If clomiphene citrate is ineffective for you, medications containing FSH and LH, i.e. gonadotrophins (see next page) may be prescribed.

How is it taken?: Clomiphene citrate comes in an oral tablet form and is usually taken daily for five days at the beginning of your cycle.

Side effects: Side effects may include facial flushes, headaches, breast soreness, nausea and vomiting or abdominal discomfort and bloating.^{7,9}

Success rate: Clomiphene citrate stimulates ovulation in about 80% of women.¹⁰⁻¹²



Gonadotrophins

If clomiphene does not work, the next stage of treatment is usually to start administering a stronger category of medication called gonadotrophins – synthetic forms of FSH, LH and hCG found naturally in humans.

Where clomiphene citrate acts to stimulate the release of gonadotrophin-releasing hormone, gonadotrophins act directly on the ovary, promoting development of the fluid filled sacs (follicles) containing the eggs. Ideally no more than one to two eggs should develop to maturity – more than this may lead to a high risk of multiple birth.

While you are taking gonadotrophins, you will need to visit your doctor or clinic for blood tests and ultrasounds to see how many and how well your eggs are developing. The number of visits varies from woman to woman, but most women need only four or five blood tests and one ultrasound scan. The scans involve the insertion of a small ultrasound probe into your vagina.

There are a variety of different treatment medications that fall under the category of gonadotrophins.

Follicle Stimulating Hormone (FSH) stimulates the development of the follicles containing the eggs. It includes the medications Gonal-f®, Puregon® and Elonva®; Pergoveris® (a mixture of FSH and LH) and Menopur® (a non-synthetic hormone containing both FSH and LH activity).

Luteinising hormone (LH) is similar to the luteinising hormone found naturally in humans. It is recommended for the treatment of women who have been shown to produce very low levels of some of the hormones involved in the natural reproductive cycle. It is used together with FSH to bring about the development of follicles. It includes the medication Luvris®.

Human chorionic gonadotrophin (hCG) is given by injection one to two days after the last dose of FSH and causes the final maturation and release of an egg. It includes the medications Ovidrel® and Pregnyl®. Sexual intercourse is advised on the same day as the hCG injection and also on the next day.

How is it taken?: FSH

(and LH if required) are taken by a self-administered injection under the skin, usually via an easy to use pen-type device. The injections will be made under the skin of the tummy or thigh. Injections are usually required for about 10 days.

Side effects: These may include mood swings, abdominal discomfort, backaches, fatigue and tender breasts.¹²



When an egg is mature you will be given an injection, under the skin, of the **hCG (human chorionic gonadotrophin) hormone** to help you to release or ovulate the egg.

Progesterone

Progesterone may be prescribed in the form of pessaries (inserted vaginally) or as a vaginal gel (Crinone® gel) to better prepare the lining of the uterus for implantation of the embryo.

Alternatively another injection of hCG, one week after ovulation, has the same effect by producing more natural progesterone.

THE RISK OF MULTIPLE PREGNANCIES

The ovaries are highly sensitive, so determining the right dose of FSH for you is not always straightforward. These fertility drugs can cause more than one follicle to develop and this is why your body will be monitored closely through blood tests and ultrasounds at this time.

If more than one follicle develops and there is a risk of multiple pregnancies you may be advised to avoid intercourse at this time because of the risk of pregnancy complications. The clinic or healthcare professional will also advise against proceeding with the hCG injection.

For those having trouble becoming pregnant, being pregnant with twins may be seen as a blessing, but complications, such as the health risks involved with premature births are much more common in twin than singleton pregnancies.

Ovarian hyperstimulation syndrome

Ovarian hyperstimulation syndrome (OHSS) is a potentially life-threatening medical condition which may occur, though rarely, when your ovaries have been overly stimulated by various fertility medications. The ovaries may increase in size and produce large amounts of fluid. It is characterised by pain and bloating in your abdomen and if severe can cause breathing or urinating problems. Contact a member of your healthcare team immediately if you believe you have any of these symptoms.

MONITORING OVULATION

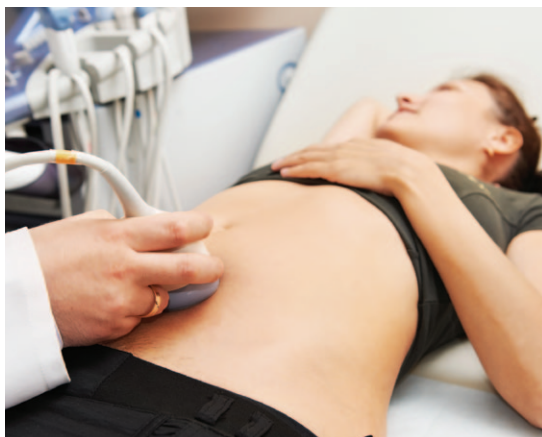
To monitor your menstrual cycle and to give a guide to best treatment timing, your doctor will order ultrasound and regular blood tests. These give a clearer picture of what is happening to the ovaries. Results from these blood tests will help determine the dose of injection to be taken the next day.

Ultrasound: Your clinic (doctor, nurse or sonographer) will often use one or more ultrasound scans to obtain an actual image of the ovaries and to regularly monitor follicle growth in the ovary beginning on or before day eight of the cycle. As follicles mature, they grow larger. Through ultrasound, your doctor can observe the effects of treatment on follicle growth and size, and decide when to give hCG to assist with the release of the egg.

An ultrasound may be performed abdominally or, more usually, vaginally. The sound waves cannot be felt and the procedure is minimally invasive and usually painless.

Blood tests: Testing the blood every few days for oestrogen levels, can monitor the response to treatment with FSH therapy. Developing follicles secrete increasing amounts of the oestrogen hormone. Together with ultrasound, this can help determine the best timing for giving the hCG injection to stimulate ovulation.

Regular blood tests decrease the chance of multiple pregnancy and overstimulation.



ASSISTED REPRODUCTIVE TECHNOLOGIES (ART)

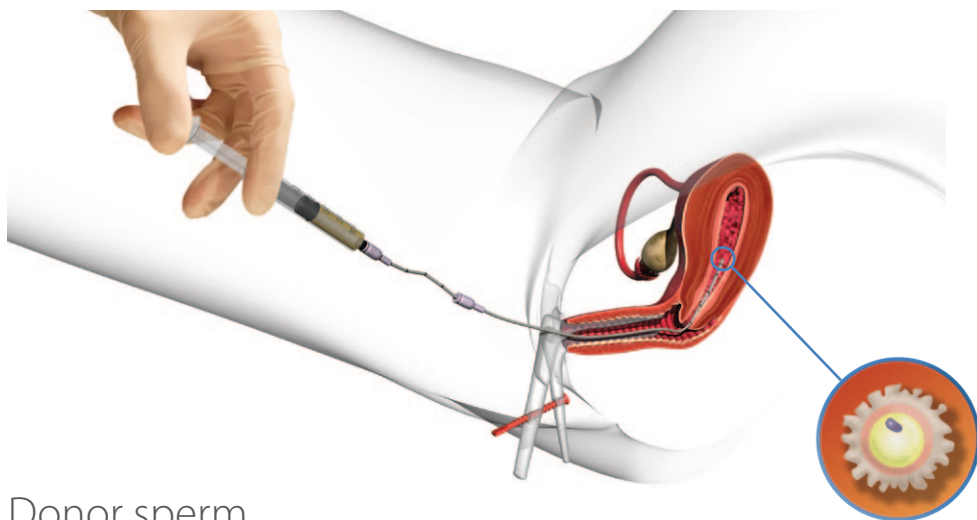
With the use of hormonal medications and a healthier lifestyle, the chance of ovulating and then achieving a pregnancy is very good. However, if this does not work for you, the next treatment option available is **assisted reproduction technology (ART)**. ART is a general term referring to the various methods used to unite sperm and eggs by artificial or partially artificial means.

Intrauterine insemination (IUI) is often recommended to accompany ovulation induction cycles in order to increase pregnancy chances. Other common ART procedures also used in conjunction with ovulation induction include ***in vitro* fertilisation (IVF)** and **intra-cytoplasmic sperm injection (ICSI)**.

Intrauterine insemination (IUI)

Artificial insemination (AI), is a procedure in which the sperm are placed directly into a woman's reproductive tract. A common AI procedure is **intrauterine insemination (IUI)** in which sperm are inserted directly into the uterus around the time of ovulation to assist their journey to the egg. The procedure is often combined with the female partner undergoing ovulation induction.

This procedure is commonly used when there may be endometriosis, problems with semen volume, concentration or motility (movement), physical problems with sexual intercourse or unexplained infertility. The sperm is initially 'washed' – separated from the liquid part of the semen to remove hormones and other substances. It is then inserted into the cervix (neck of the uterus). When sperm quality is lower, sperm are inserted higher up the reproductive tract to reduce the distance they have to travel to reach the egg. IUI can also be done using donor sperm, either from an anonymous or a known sperm donor (known as DI or donor insemination) – see next page.



Donor sperm

Insemination with donor sperm is used when the male partner does not produce sperm, when the sperm is of very poor quality or if there is a high risk of passing on genetic diseases. Donor sperm are used less frequently because of the improvement in technologies which can retrieve viable sperm, e.g. sperm extraction techniques.

The semen selected for a couple closely matches, as much as possible, the male partner's characteristics, e.g. eye and hair colour, height and build.

There are many factors to consider such as whether to tell friends or family about using donor sperm and whether the child should know about their origins as they grow up.

AccessAustralia and the **Donor Conception Support Group** have many resources on the issues relating to donor insemination (see contact details at the back of this booklet).

Donor oocytes

Egg donation is one treatment option for those who wish to have a child but are unable to use their own oocytes (eggs). The eggs may be sourced from an anonymous donor or donated by a close friend or relative. The donor undergoes ovarian stimulation to help the recipient. A comprehensive medical and counselling process is undertaken prior to the initiation of such treatment cycles.

In vitro fertilisation (IVF)

In vitro fertilisation (IVF) was the first ART procedure and is still one of the most commonly used.

During an IVF cycle, eggs and sperm are collected and placed together in a laboratory dish to fertilise. Hormonal medications are usually used to help stimulate the development of as many eggs as possible.

Egg retrieval (also known as egg pick up [EPU] or oocyte pick up [OPU]) is performed under mild sedation, a local anaesthesia or in some cases a general anaesthesia. The mature follicles are identified

using ultrasound,

and then

a needle is

passed through

the vagina to

withdraw the

fluid from the

mature follicle

with gentle

suction. The fluid

is immediately

examined under

a microscope to

see if an egg has

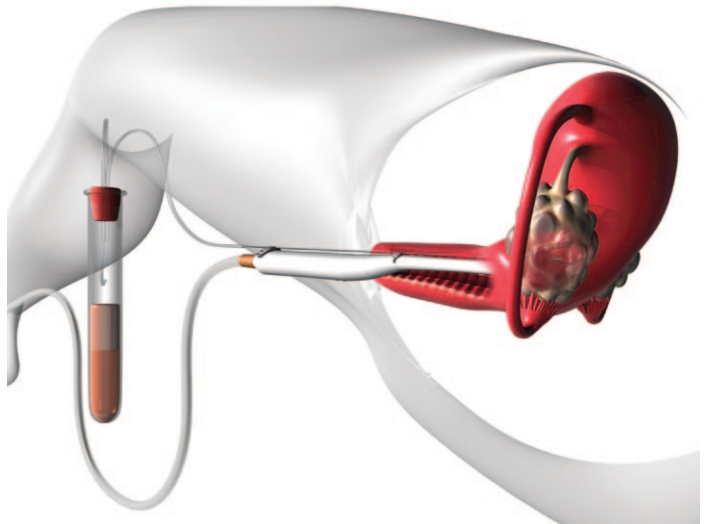
been retrieved. The process is repeated for each mature follicle in both ovaries. Sperm are then placed with the eggs in an incubator set to the same temperature as a woman's body. The next day, the eggs are examined under a microscope to determine whether fertilisation has occurred. If it has, the resulting embryos will be ready to transfer to the uterus a few days later.

Embryo transfer is not a complicated procedure and can be performed without anaesthesia.

The embryos are placed in a tube and transferred to the uterus. The number of embryos

transferred depends on a woman's age, cause of infertility, pregnancy history, and other factors.

Ideally, one of the fertilised eggs will implant and develop, just as in a routine pregnancy.



Intra-cytoplasmic sperm injection (ICSI)

ICSI is a procedure done under a microscope using micromanipulation devices. It involves injecting a single sperm into the egg. This technique is used when the sperm is unable to penetrate the egg wall. If the egg is fertilised, the embryo is inserted into the uterus, as described previously for IVF.



For more information on assisted reproductive technologies, ask your doctor for a copy of the *Pathways to Parenthood* booklets on **IVF** and **ICSI**, and **IUI**.

HOW MIGHT YOU FEEL?

Surviving the two week wait

After your embryo transfer, it takes around two weeks for pregnancy test results to be accurate. This 'two week wait' – the time before your expected period is understandably a time of high anxiety, worry, and frustration for women trying to conceive. Here are some 'survival' tips to help you get through this time:

- **Try not to obsess about pregnancy symptoms** – feeling pregnant does not always mean that you are. Some of the medications can have side effects that resemble pregnancy symptoms.
- **Keep busy** – this may mean working more or planning meaningful or fun distractions.
- **Allow yourself 15 to 30 minutes a day to think about pregnancy** – write down your thoughts, search information online or discuss it with your partner or supportive friends/family members.
- **Try some relaxation techniques** – breathing exercises or meditation can be helpful.
- **Avoid pregnancy tests** – the chance of getting a positive result before your period is late is very slim. The medications may also cause a false positive result.



COPING WITH STRESS

The success rate of modern fertility treatments is high. But for the majority of couples, multiple treatment cycles may be necessary. Learning to cope with stress is an important step towards making sure that you and your partner achieve your goal.

People react differently to stress. Some people are devastated by fertility problems, yet others seem able to adjust and carry on with their lives. One person's strategy for handling difficult emotional issues will be different to another's. The following are some suggestions on how to cope with the stress.

Talk to your partner

Infertility is a couple's problem not an individual's. Blaming yourself or your partner doesn't achieve anything. By asking for and relying on the support of your partner and by communicating openly with them throughout the evaluation, diagnosis and treatment phases, you may find that your relationship grows stronger.

Use active problem solving

Often you'll feel better about a problem once you've taken the time to research it and plan something positive to bring about change. Men are often very comfortable with this approach. Learn together and plan your treatment strategy as a team. Organise the months ahead. With a little planning, the time will pass more easily and you'll find the strength to continue from one cycle to the next.



There are times however, when active problem solving isn't always possible. You can't shorten the waiting time that leads up to a pregnancy test or 'actively solve' your longing for a child. In such situations, other approaches to reducing stress may help, such as distracting yourself with activities or friends, trying to stay positive, relaxation techniques or talking to a counsellor.

Coping with stress (cont.)

The value of a wide support network

Discussing fertility issues may be uncomfortable, but expressing how you feel may help you release your stress. It's important that you reach out for support.

Infertility is a sensitive subject and many people may not know how to react. Guide the conversation and help them avoid topics that may be hurtful or make you feel uncomfortable. Feel free to say you're not in the mood for a heavy chat and ask what's new with them. Let your friends know how they can support you.

If you feel in need of more emotional support than your partner can give, but don't want to share everything with a friend, your fertility clinic usually offers the services of a counsellor or try the following organisations for assistance in finding an appropriate psychologist or counsellor.

- The Australian Counselling Association: (07) 3356 4255; www.theaca.net.au/
- New Zealand Association of Counsellors: (07) 834 0220; www.nzac.org.nz/
- The Australian Psychological Society: 1800 333 497; www.psychology.org.au
- New Zealand Psychological Society: (04) 473 4884; www.psychology.org.nz/cms_display.php

Lifeline also offers confidential Australia-wide 24 hour telephone counselling on 13 11 14.

In New Zealand, call Lifeline on 0800 543 354.

Seek distraction

It's important that you maintain as much balance and normality in your life as possible. Put some effort into planning something fun where you don't need to talk about your fertility, such as going on an outing with your partner or a friend. It will help clear your mind and release stress, especially during periods of uncertainty.



Coping strategies checklist

☐ Read as much as you can about infertility, its causes, and treatments, so that you will be in a better position to make informed decisions on your treatment plan.

☐ Communicate fears and emotions to your partner regularly.



☐ Support one another, but understand that at times this will be difficult.

☐ Acknowledge that periods of depression and anxiety may happen.

☐ Cut down on stressful activities and avoid social gatherings (especially those involving babies and children like Christenings).

☐ Allow yourself private time.

☐ Try sharing your problem with supportive friends or family members.

☐ Ask your partner to go with you to medical appointments so you both understand what is happening. Write down the questions you would like to ask your doctor.

IN CONCLUSION

The chances of ovulating are greatly improved with the use of ovulation induction. However, ovulation induction is usually the first step in treatment and if initially unsuccessful, can be done in conjunction with other procedures such as IUI, IVF and ICSI.

Blood tests, ultrasound and taking medications at certain times are all part of the process. Patience and persistence are helpful in dealing with the challenge of trying to become pregnant.

SUPPORT ORGANISATIONS

AUSTRALIA

AccessAustralia

www.access.org.au

Ph: (02) 9737 0158; Email: info@access.org.au

AccessAustralia is a national organisation, which provides numerous services and resources for people having difficulty conceiving.

Its services include:

- fact sheets, newsletters and personal stories
- putting you in contact by phone or email with others sharing a similar infertility experience
- a register of infertility self-help groups
- listing of infertility clinics accredited by the Reproductive Technology Accreditation Committee (RTAC)
- listing of professional infertility counsellors across Australia
- lobbying governments for equal access to affordable, quality assisted conception treatment.

Endometriosis Association (Qld)

www.qendo.org.au

Ph: (07) 3321 4408; Email: info@qendo.org.au

This association provides information and news relating to the latest research and treatments for endometriosis.

Polycystic Ovarian Syndrome Association of Australia (POSAA)

www.posaa.asn.au

Ph: (02) 8850 9429 or (02) 8250 0222;

Email: info@posaa.asn.au

POSAA is a 'self-help' association for women with polycystic ovarian syndrome (PCOS) and those who suspect they have it. Its website includes information on upcoming workshops, support groups and fact sheets.

Donor Conception Support Group

<http://www.dcsq.org.au>

Ph: (02) 9793 9335;

Email: dcsupport@hotmail.com

The Donor Conception Support Group of Australia is a self funding organisation run by volunteers. Its members include those who are considering or using donor sperm, egg or embryo, those who already have children conceived on donor programmes, adult donor offspring and donors.

SANDS

SANDS is a self-help support group comprised of parents who have experienced the death of a baby through miscarriage, stillbirth, or shortly after birth. It provides 24-hour telephone support, information resources, monthly support meetings, name-giving certificates and other support.

Vic

www.sandsvic.org.au

Ph: (03) 9899 0218 (support) or (03) 9899

0217 (admin); Email: info@sandsvic.org.au

Qld

www.sandsqld.com

Ph: 1800 228 655 (support) or

(07) 3254 3422;

Email: admin@sandsqld.com

SA

www.sandssa.org

Ph: (08) 8277 0304;

Email: support@sandssa.org (quick response) or info@sandssa.org (general query)

NEW ZEALAND

FertilityNZ

www.fertilitynz.org.nz

Ph: 0800 333 306;

Email: support@fertilitynz.org.nz

FertilityNZ is New Zealand's national network for those seeking support, information and news on fertility problems.

It provides various services including:

- regional support and contact groups
- general advice and contact service
- comprehensive information brochures
- a forum for confidential feedback on any issues or concerns

- a chatroom where you can seek on-line support from people in similar situations.

Endometriosis New Zealand

www.nzendo.co.nz/

Ph: 0800 733 277 (free phone support line);

Email: nzendo@xtra.co.nz

Endometriosis New Zealand promotes awareness of endometriosis, provides information, education and raises funds to support endometriosis related initiatives.

SANDS New Zealand

www.sands.org.nz/home.html

Ph: (06) 868 9514; Email: contact@sands.org.nz

The website www.fertility.com has a wealth of information tailored to three different stages of a couple's journey. In addition to personal stories and frequently asked questions, it offers a number of practical 'tools' to assist you including an ovulation calculator, a questionnaire and advice on your most appropriate coping method.

References

- 1 Resolve – The National Infertility Association (US). *Infertility diagnosis*. Available online: <http://www.resolve.org/diagnosis-management/infertility-diagnosis/> downloaded 27/2/11
- 2 Assisted Conception Taskforce (ACT) *Trying to have a baby. Your step-by-step guide to assisted conception*. Available online: http://www.assistedconception.net/resources/ACT_Ratgeber.pdf downloaded 27/2/11
- 3 Speroff L, Glass RH, Kase NG. *Clinical Gynecologic Endocrinology and Infertility*. 5th ed. Baltimore, MD: Williams & Wilkins; 1994.
- 4 Cohen BM. *Management of Infertility: A Clinician's Manual*. 2nd ed. Durant OK: Essential Medical Information Systems; 1991.
- 5 Resolve – The National Infertility Association (US). *Infertility diagnosis*. Available online: <http://www.resolve.org/infertility-overview/optimizing-fertility/risk-factors.html> downloaded 27/2/11
- 6 National Health and Medical Research Council. *Reduce your risk: new national guidelines for alcohol consumption*. Available online: <http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/guide-adult> downloaded 27/2/11
- 7 Merck Serono. *Serophene CMI*. Feb 2008. Available online: www.ebs.tga.gov.au/ebs/picmi/picmirepository.nsf/pdf?OpenAgent&id=CP-2010-CMI-01432-3 downloaded 27/2/11
- 8 Hughes E, et al. *Clomiphene citrate for unexplained subfertility in women (Review)*. Cochrane Database of Systematic Reviews 2010. Issue 1. Art. No.: CD000057. DOI: 10.1002/14651858.CD000057.pub2
- 9 sanofi-aventis Australia. *Clomid CMI*. June 2008. Available online: <http://www.mydr.com.au/medicines/cmis/clomid> downloaded 27/2/11
- 10 Merck Serono/Fertility.com. *Clomiphene citrate therapy: how long should we try?* Available online: <http://www.fertility.com/en/stage2/articles/article22/article22.html> downloaded 27/2/11
- 11 The Practice Committee of the American Society for Reproductive Medicine. *Use of clomiphene citrate in women*. Fertil Steril 2006;86:S187-193 Available online: [http://www.asrm.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines_Committee_Opinions/use_of_clomiphene\(1\).pdf](http://www.asrm.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines_Committee_Opinions/use_of_clomiphene(1).pdf) downloaded 27/2/11
- 12 American for Reproductive Medicine (ASRM). *Medications for Inducing Ovulation. A Guide for Patients*. ASRM 2006; http://www.asrm.org/uploadedFiles/ASRM_Content/Resources/Patient_Resources/Fact_Sheets_and_Info_Booklets/ovulation_drugs.pdf downloaded 27/2/11

Looking for more information?

Ask your doctor for a copy of the other booklets in the *Pathways to Parenthood* informational series.

- Your step by step guide to treating infertility
- Overcoming male infertility
- Female infertility & assisted reproductive technology (ART)
- Endometriosis
- Polycystic ovary syndrome (PCOS)
- Intrauterine insemination (IUI)
- *In vitro* fertilisation (IVF) & intra-cytoplasmic sperm injection (ICSI)
- Managing the stress of infertility