

POLYCYSTIC OVARY SYNDROME (PCOS)

INSIDE:

- The symptoms explained
- Your treatment options
- Coping emotionally with infertility



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 polycystic ovary syndrome, 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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CONTENTS

Introduction..... 2

About polycystic ovary syndrome (PCOS) 3

What is PCOS? 3

Who gets PCOS? 4

Why does it occur? 4

The symptoms..... 5

Your menstrual cycle and PCOS..... 6

What are polycystic ovaries? 8

Irregular periods..... 9

Difficulty becoming pregnant 9

Excessive hair growth 9

Scalp hair loss 10

Acne..... 10

Insulin resistance 10

Weight problems..... 11

Long-term effects 12

Diagnosing PCOS..... 13

Treating PCOS..... 14

Treatment summary chart..... 14

Treating insulin resistance 14

Improving fertility 15

Coping emotionally with infertility 20

Support organisations 21

Glossary 23

INTRODUCTION

If you are reading this booklet you may have been told, or your doctor suspects, that you have polycystic ovary (or ovarian) syndrome (PCOS). This is a common hormonal condition affecting an increasing number of women. While its name is a little alarming, polycystic ovary syndrome sounds worse than it is. There are many ways to help with the symptoms you might have, and the medications and procedures available to assist you in becoming pregnant are well-established and effective.

Even so, being diagnosed and coping with the symptoms of PCOS can be both emotionally and physically challenging. Symptoms such as acne, excessive hair growth and weight issues can make you feel embarrassed and affect your self-esteem. There are also fertility issues and other possible long-term health implications, which may lead to anxiety or depression.

This booklet aims to give you information about PCOS – what it is, why you have it, and how to treat it. In the back of the booklet, you will also find contact details for some support organisations.

With the assistance of your healthcare team, PCOS can be effectively treated and managed allowing you to live a full and healthy life.

There are many ways to help with the symptoms you might have, and the medications and procedures available to assist you in becoming pregnant are well-established and effective.

ABOUT POLYCYSTIC OVARY SYNDROME (PCOS)

What is PCOS?

Polycystic ovary (ovarian) syndrome (PCOS) is a common hormonal disorder affecting an increasing number of women between puberty and menopause. It is called a 'syndrome' because it refers to a number of symptoms experienced at the same time. It is also known as 'polycystic ovary disease', 'Stein-Leventhal syndrome' or 'hyperandrogen anovulation syndrome'.

The condition is usually diagnosed based on the following factors:

1. increased androgens (male hormones, such as testosterone) as shown by excess hair growth, acne or raised blood testosterone levels
2. lack of regular ovulation (irregular menstrual periods or failure to release an egg from the ovary)
3. a characteristic appearance of the ovaries on ultrasound (polycystic ovaries – PCO).



Usually the diagnosis of PCOS requires the presence of at least two polycystic ovaries. Having polycystic ovaries alone is not enough to make the diagnosis of PCOS. Where required, your doctor will exclude other, rare conditions that may present as PCOS.

WHAT'S IN A NAME?

The name polycystic ovary syndrome is confusing because not everyone who has the condition has polycystic ovaries. These are ovaries which contain about 12 or more tiny cysts (see page 8 for more information). Approximately 75% of women with PCOS show that they have polycystic ovaries on an ultrasound.¹

Many women have polycystic ovaries but none of the other symptoms of PCOS and are able to ovulate normally.

Who gets PCOS?

In Australia up to 11% of all women are diagnosed with PCOS.² This translates to PCOS affecting about 400,000 Australian women of reproductive age.^{3,4} In indigenous Australian women, the occurrence of PCOS is much higher – around 21%.² It is thought that PCOS will likely increase in line with the rising rate of obesity in Australia.

Why does it occur?

Doctors are not exactly sure what causes PCOS, although it is believed to be linked to both lifestyle factors and genetics – in other words it runs in the family. Sometimes another family member may have similar symptoms, however PCOS may be inherited from the male side where symptoms may not be obvious. Parents and siblings may have some of the metabolic features of PCOS, i.e. insulin resistance (see below).

The majority of women who have PCOS also have what is known as **insulin resistance**, which occurs when the body struggles to carry out the normal actions of insulin such as regulating the blood glucose levels. High levels of insulin can also increase the production of the male hormones including testosterone from the ovary, which contributes to such symptoms as excessive hair and acne. Insulin resistance can be caused by either genetic factors or lifestyle factors (such as being overweight) or it can be due to a combination of both.⁵

There is no known cure for PCOS and it is thought that once you have it, you always will. But you can work together with your doctor to treat the various symptoms and manage your lifestyle so that you can have a healthy life.



THE SYMPTOMS

The symptoms and signs are often different for each woman but the following characteristics are common:

- difficulty in becoming pregnant (because of lack of ovulation)
- ultrasound appearance of ovarian cysts (polycystic ovaries)
- periods that are absent (amenorrhoea) or infrequent (oligomenorrhoea)
- excess male hormones, causing symptoms such as hairiness (hirsutism) or acne
- weight gain and an increase in fat, especially around the abdomen or tummy area
- prediabetes or diabetes
- abnormal blood fats (lipids, such as cholesterol and triglycerides).



We will look in more detail at many of these symptoms on pages 8–11.

One of the most upsetting and frustrating symptoms of PCOS is infertility, however, this doesn't mean you won't become pregnant. There are many ways to manage infertility, and a large percentage of women conceive after treatment.

While 11-21% of women of reproductive age have PCOS, around 75% of women of reproductive age can have polycystic ovaries on ultrasound.¹

Your menstrual cycle and PCOS

In order to better understand the symptoms of PCOS, you might like to familiarise yourself with the process of ovulation, the menstrual cycle and the role of the various hormones.

The **menstrual cycle** refers to the maturing and release of an egg (ovulation) from an ovary and the preparation of the uterus (womb) to receive and nurture an embryo. A typical cycle takes approximately 24 to 35 days.

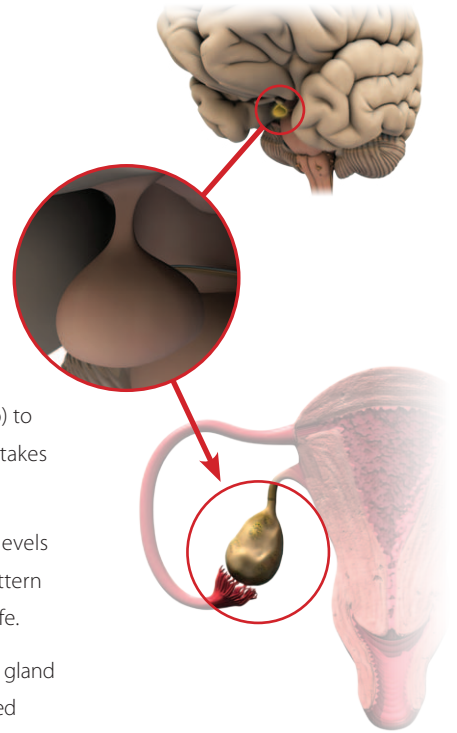
Your menstrual cycle is governed by hormone levels in the body, which rise and fall in a monthly pattern that continues throughout your reproductive life.

When the cycle is running smoothly, the pituitary gland in the base of the brain produces a hormone called follicle stimulating hormone (FSH) to prepare an egg for release. FSH stimulates a fluid-like sac surrounding the egg to grow into a follicle about 2 cm wide.

About two weeks before your period when the egg is ready, the pituitary gland produces another hormone called luteinising hormone (LH). This prompts the follicle to release one egg into the fallopian tube in the process known as **ovulation**. Ovulation is the fertile period of a women's menstrual cycle.

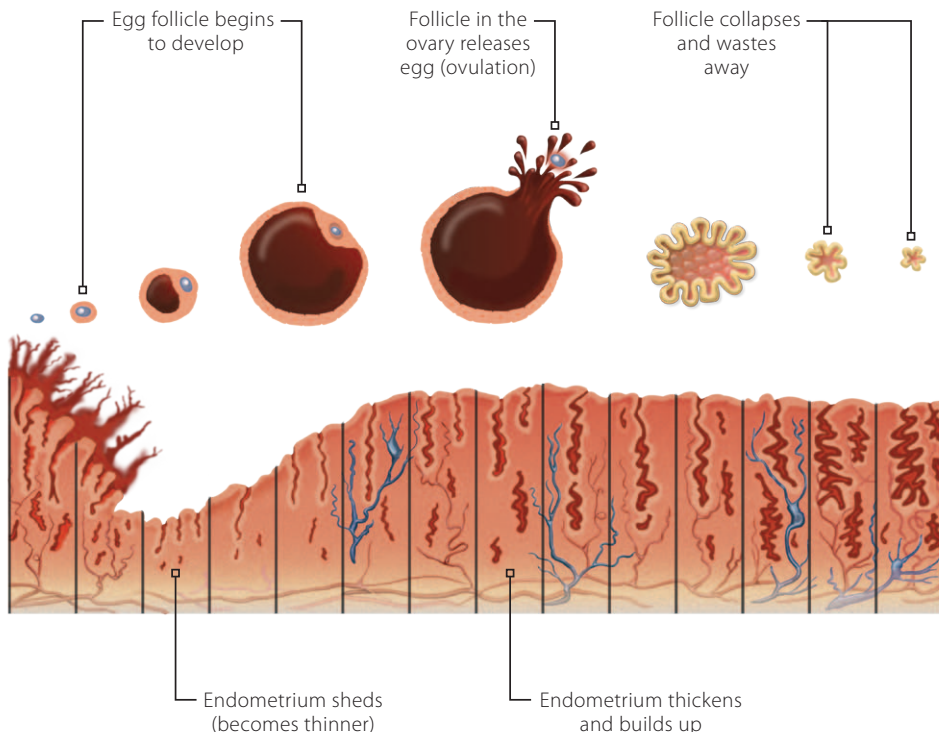
While this is happening, the ovaries are secreting other hormones such as oestrogen and progesterone to thicken the lining (endometrium) of the uterus and prepare it for pregnancy. The ovaries also produce small amounts of androgens (male hormones), such as testosterone, which is converted into oestrogen.

If the egg meets the sperm in the fallopian tube, conception may occur. The fertilised egg is swept through the tube toward the uterus where the embryo – as it is now called – will implant into the lining about six days after ovulation. It begins to produce a hormone called



The pituitary gland at the base of the brain releases follicle stimulating hormone (FSH) and luteinising hormone (LH) – responsible for the development and release of an egg

human chorionic gonadotrophin (hCG), which tells the body it is pregnant. If fertilisation doesn't occur, the levels of oestrogen and progesterone drop again and the lining of the endometrium comes away. This is called your period.



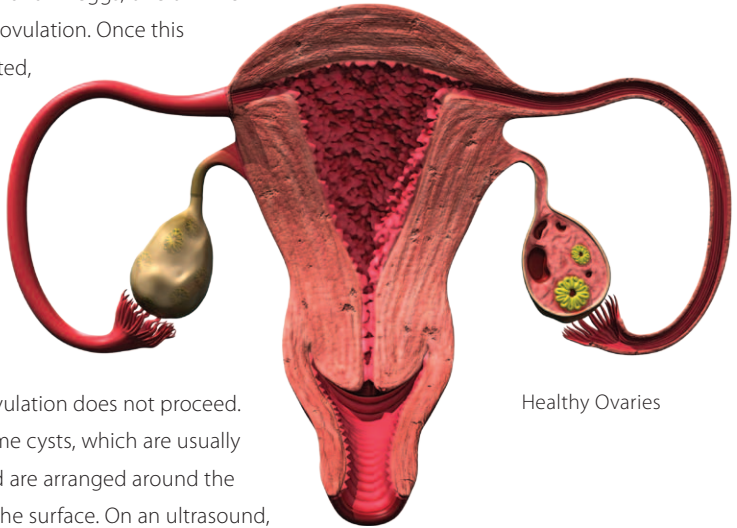
BORN WITH A LIFETIME'S SUPPLY OF EGGS

Females are born with about 400,000 immature eggs (oocytes) stored in their ovaries. Each cycle, one of your ovaries selects between 10 and 20 eggs to become possible candidates for release. However, only one egg is released each cycle.

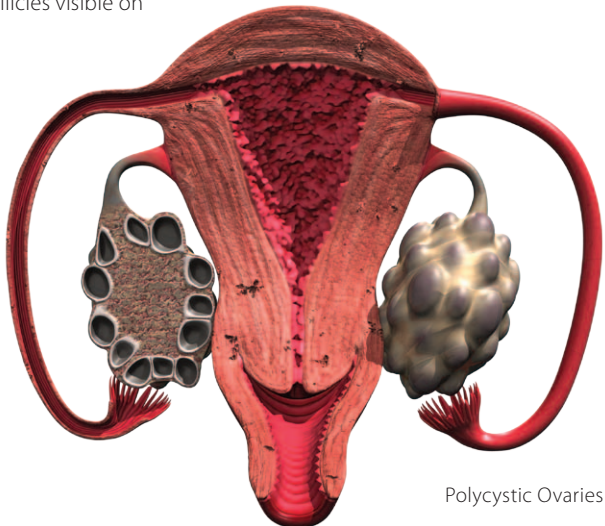
What are polycystic ovaries?

As we have discussed, despite the name, you may or may not have polycystic ovaries as part of having polycystic ovary syndrome. As outlined on the previous page, each menstrual cycle, follicles develop and form eggs, one of which is released during ovulation. Once this process is completed, the follicles are meant to break down and disappear. With PCOS, these follicles stop growing at about half way to maturity and ovulation does not proceed. The follicles become cysts, which are usually less than 1 cm and are arranged around the ovary, just below the surface. On an ultrasound, the diagnosis of polycystic ovaries is confirmed if there are more than 12 follicles visible on one ovary.

These cysts lead to a hormonal imbalance because of an increased amount of testosterone. This can result in acne, an increase in facial and body hair and irregular periods.



Healthy Ovaries



Polycystic Ovaries

Irregular periods

When you have PCOS, the hormone activity becomes irregular because ovulation is not occurring in an expected way. The body is given mixed signals and the menstrual cycle is disrupted. Periods can vary widely from woman to woman.

They can range from:

- irregular
- infrequent (oligomenorrhoea)
- heavy
- absent (amenorrhoea).

Some women with few or absent periods may build up a very thick lining in the uterus, and this may, in rare circumstances, cause uterine cancer. It is important to see your doctor if you do not have regular periods.

Difficulty becoming pregnant

This is one of the most frustrating symptoms of PCOS and can bring the most anxiety. The high levels of androgens can cause ovulation to become irregular or even to stop. We look at some of the medications and technologies to assist you in becoming pregnant on page 14.

Not all women with PCOS will have fertility problems, and some will have children naturally without any medical treatment.

Excessive hair growth

A high level of androgens (male hormones) might cause you to become hairy (hirsute). Unwanted hair can grow on your face, thighs, back, tummy and nipples.

There are a variety of prescription medications that can help with hairiness. Ask your doctor for more information. However, as these medications can take up to six to eight months to take effect, you may like to investigate some of the beauty therapies available that give immediate results. These include waxing, bleaching, hair removal creams and gels (depilatories) and electrolysis (destruction of individual hair follicles using electricity). In addition, laser therapies are now widely available (although not recommended for use on dark/tanned skins).

The symptoms (cont.)

Scalp hair loss

Losing hair from your head, also known as alopecia, can be another consequence of too much testosterone.

Acne

Acne is also caused by elevated levels of androgens and can appear on the face, back and elsewhere on the body.

There are various ways to treat acne including oral contraceptive (birth control) pills, topical creams and oral antibiotics.

Your doctor or a dermatologist may prescribe certain stronger medications including anti-androgens – cyproterone acetate, spironolactone – or a retinoid isotretinoin (Roaccutane®). These types of medications need to be taken in conjunction with effective contraception as they may harm a fetus.⁶

Insulin resistance

The majority – up to 80% – of women with PCOS have insulin resistance, meaning that the body cannot easily carry out the normal actions of insulin.⁵ Insulin is a hormone, secreted by a gland called the pancreas. It regulates our **blood sugar levels** by moving the glucose (sugar) from the foods we eat into the bloodstream.

When there are high levels of insulin present in the bloodstream, the body produces more androgens. These are the same male hormones that can lead to other PCOS symptoms such as weight gain, hairiness, irregular periods, acne and difficulty ovulating. Higher levels of insulin can sometimes cause patches of darkened skin on the back of the neck, under the arms and in the groin area (inside upper thighs).



Insulin resistance can be hereditary. But it can also be caused by lifestyle factors (such as being overweight), or a combination of the two. The incidence of PCOS increases with weight gain. Insulin resistance can lead to diabetes and other longer-term health implications. If you have a family history of type 2 diabetes, you are more likely to develop this complication.

Reducing insulin levels can be achieved through weight loss, diet and physical activity, and through medications which lower the insulin levels (see page 14). This may help to restore normal ovulation and other symptoms such as acne, excess hair and assist with weight loss.

Many women with PCOS have a decreased sensitivity to insulin for which their bodies compensate by overproducing insulin.

Weight problems

Women who are overweight are more inclined to develop PCOS symptoms than women of a healthier weight range. Up to 10% of women in a healthy weight range have PCOS.⁵ This increases to up to 30% of overweight women who have PCOS.⁵

Weight loss in women with a BMI (body mass index) greater than 25 often causes ovulation to resume spontaneously. Often small amounts of weight loss (e.g. less than 5% of body weight) may cause spontaneous ovulation to recur. A healthier lifestyle also promotes a positive self-esteem and has other physical and psychological benefits.

Losing weight – while easier said than done – is best achieved by a program of healthy eating and regular exercise (40 minutes, three times a week). Ask your doctor for advice about the best type of eating plan for you, e.g. lowering your intake of carbohydrates, sugar and fatty foods and choosing foods with a lower GI (glycaemic index) may be a good starting point. You may also like to consult a dietitian – ask your doctor or see the Dietitians Association details in the back of this booklet.

Weight loss medications orlistat (Xenical®) or surgery (gastric bypass, lap band) may be considered the most appropriate form of treatment for people who are clinically obese (BMI > 35 or 40) or have an obesity-related condition (diabetes, arthritis).⁷



WEIGHT LOSS: SYMPTOM OR CAUSE?

For some people, weight gain might be a symptom of the condition, rather than the cause. One reason for gaining weight in the first place might be because of distress over having trouble becoming pregnant. Another reason might be poor body image due to the other symptoms such as hairiness or acne. Insulin resistance is another cause of weight gain. Losing weight may help, but it's not always easy when you are feeling emotional pressure. Adopting a healthier lifestyle can improve insulin levels, self-esteem and reduce other symptoms overall. It can also stimulate ovulation.

Long-term effects

Women experiencing symptoms should talk to their doctor about how to minimise any long-term effects. You may be at risk of developing the following:

Diabetes – Since most women with the condition are insulin resistant, this means that many have an increased risk of developing pre-diabetes or type 2 diabetes.

Complications in pregnancy, i.e gestational diabetes – Women with PCOS who become pregnant are more likely to develop diabetes during pregnancy.

Cardio-vascular disease – There is a potential for an elevated risk of heart disease and high blood pressure, which is further increased if women are overweight. No increase in risk of dying from heart disease has been shown in women with PCOS.

Metabolic syndrome – This cluster of illnesses can occur with PCOS. It includes impaired glucose intolerance, which is closely related to type 2 diabetes. It also includes obesity and high blood cholesterol.

Endometrial cancer – This cancer is three times more common in women with PCOS.⁸ When women experience few or no periods, the endometrium or lining of the uterus can thicken and develop cancerous cells. Risks can be reduced by taking the oral contraceptive pill and by maintaining a healthy body weight.

What can help?

Your body image and self-esteem

For some people dealing with the challenges of PCOS and its accompanying symptoms including acne, weight gain and hairiness can often damage self-esteem and lead to concern over body image, as well as anxiety, stress, loneliness and even depression.

The following hints may be helpful:

- Banish negative self-talk. Don't say anything to yourself that you wouldn't say to a good friend. If you find yourself thinking self-critical thoughts, stop yourself and talk back to them with some new positive messages.
- Start treating yourself as a worthwhile person. Plan fun and relaxing things and set goals for healthy eating and regular exercise. You might like to find a new interest, such as joining a book club.
- Get help. If you find that you have a lot of difficulty seeing yourself realistically, seek help from a trained counsellor or psychologist. Ask your doctor for advice or see the contact details at the back of this booklet.

DIAGNOSING PCOS

There is no specific test for PCOS but your doctor will consider your symptoms and usually complete a physical examination, blood tests and a transvaginal ultrasound. If you are trying to become pregnant, you may be referred to a gynaecologist or a fertility clinic.

Physical examination: Your doctor will ask you numerous questions about your menstrual cycle, symptoms, weight and examine you for physical signs of PCOS, e.g. acne, excess hair growth and darkened skin.

Blood tests: Your blood may be tested for high cholesterol, blood sugar levels (i.e. insulin resistance) and for changes in LH (luteinising hormone) or FSH (follicle stimulating hormone).

Transvaginal ultrasound: A long slender probe is inserted into the vagina to determine the presence of ovarian cysts or enlarged ovaries and also to examine the reproductive organs for any irregularities. If you would prefer not to have a vaginal scan, your doctor may conduct an ultrasound of your abdomen – done externally while you have a full bladder.



TREATING PCOS

Treatment of PCOS can either focus on treating the symptoms or treating the cause of the symptoms. We have discussed some of the treatments for the symptoms on previous pages and these are summarised in the chart below.

Treatment summary chart

Symptoms	Treatment
Obesity, weight gain	Weight loss options include: <ul style="list-style-type: none">• changes to diet• exercise• medications, i.e. orlistat (Xenical®)• surgery, i.e. gastric bypass, lap-band
Hirsutism (hairiness)	<ul style="list-style-type: none">• medications, i.e. insulin lowering agents, such as metformin, oral contraceptive pill, anti-androgens• cosmetic treatments, i.e. waxing, bleaching, laser, electrolysis• weight loss
Acne	<ul style="list-style-type: none">• topical creams• medications, i.e. oral contraceptive pill, insulin lowering agents, such as metformin, anti-androgens
Insulin resistance	<ul style="list-style-type: none">• weight loss
Diabetes	<ul style="list-style-type: none">• changes to diet• exercise• medications, i.e. insulin lowering agents, such as metformin
Infertility caused by irregular periods and ovulation	<ul style="list-style-type: none">• weight loss• medications, i.e. clomiphene citrate (Serophene®, Clomid®), insulin lowering agents, such as metformin, oral contraceptive pill –see page 16

Treating insulin resistance

Metformin has been used for the past 50 years or so to reduce high levels of insulin.⁹ It works to make the body's insulin response last longer, so less insulin is produced.⁹ In addition, it may help to reduce high male hormone levels (androgens) thus reducing hair growth and acne.⁹ It also improves menstrual irregularity and ovulation.⁸

It can be used together with clomiphene (see next page) – a medication that stimulates ovulation.

How is it taken?: This medication is taken as an oral tablet. Your doctor will decide the right dose for you.

Side effects: An upset stomach (nausea) and diarrhoea are common side effects but are usually short-lived.¹⁰

Success rate: After treatment with metformin for four to six months, regular menstruation and ovulation may be established.⁹



Improving fertility

We have already discussed the importance of weight loss in treating PCOS and how to treat the individual symptoms (see table on previous page). On the following pages, we will look at some of the other effective medications and methods available to help you become pregnant.

If you are having trouble becoming pregnant, PCOS could be interfering with your menstrual cycle and ovulation. If you have regular periods and ovulate, it is unlikely that PCOS is preventing you from becoming pregnant, even if you have polycystic ovaries.

Hormonal therapies

Oral contraceptive pill

The oral contraceptive or birth control pill ('the pill') can help regulate menstrual periods and reduce menstrual cramps. It contains oestrogen and progesterone which take over the body's normal hormonal control of the menstrual cycle and ovulation. It also helps to reduce the testosterone level, which reduces such symptoms as hairiness and acne.

How is it taken?: There is a wide range of oral contraceptive pills with differing doses of oestrogen and progesterone. Your doctor will determine the right one for you.

Side effects: Possible side effects include mood changes, weight gain or loss, bloating and breast tenderness. There is uncertainty whether oral contraception may increase insulin resistance and abnormal glucose tolerance (a sign of early diabetes).¹¹ Ask your doctor for more information.

Hormonal therapies (cont.)

Clomiphene citrate

If testing indicates that ovulation is irregular or absent, medication that helps you produce eggs will probably be the starting point for treatment. Typically, a doctor will begin what is known as 'ovulation induction' (the use of medicine to promote ovulation) with **clomiphene citrate** (also known as Serophene® or Clomid®). It works best for those women whose ovaries are capable of functioning but who need a little assistance.

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.¹² If you do not fall pregnant after three ovulatory responses to treatment, further treatment is not usually recommended.^{13, 14} Your doctor will advise you on how many courses you should take.¹⁵ 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. It may be taken in conjunction with an insulin lowering agent called metformin.¹⁶

Side effects: Side effects may include facial flushes, headaches, breast soreness, nausea and vomiting or abdominal discomfort and bloating.^{13,15}

Success rate: Clomiphene citrate stimulates ovulation in about 80% of women.¹⁷⁻¹⁹

CLOMIPHENE CITRATE AND MULTIPLE PREGNANCIES

According to the American Society for Reproductive Medicine, women who conceive with clomiphene have approximately a 10% chance of having twins.¹⁹ It is rare (<1%) to have more than twins but triplets and higher multiple pregnancies may occur.¹⁹ Careful monitoring is therefore recommended during treatment with clomiphene citrate.

BE AWARE OF 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 difficulties or problems with urinating. Contact a member of your healthcare team immediately if you believe you have any of these symptoms.

Gonadotrophins

If clomiphene does not work, the next stage of treatment is usually to start administering a stronger category of medication called gonadotrophins – synthetic versions of FSH and hCG. Where clomiphene citrate acts to stimulate the release of gonadotrophin-releasing hormone, gonadotrophins act directly on the ovary, promoting follicular development.

The injection of high levels of FSH (and sometimes also LH) into your bloodstream stimulates your ovaries to develop multiple follicles and 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. The growth of your eggs will be carefully monitored through ultrasound.

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

Follicle stimulating hormone (FSH) stimulates development of the fluid-filled sacs containing the eggs. It includes the medications Gonal-f®, Puregon® and Elonva®. Pergoveris® is a mixture of FSH and LH.

Human chorionic gonadotrophin (hCG) causes the final maturation and release of an egg. It includes the medications Ovidrel® and Pregnyl®.

How is it taken?: These medications are taken by a self-administered injection under the skin, usually via an easy to use pen-type device.

Side effects: These may include mood swings, abdominal discomfort, backaches, fatigue and tender breasts.¹⁹

While taking hormonal medications, you will be closely monitored so be prepared for frequent office visits, regular blood tests and pelvic ultrasounds.

Laparoscopic ovarian surgery

When hormonal treatments have not been successful, a laparoscopic ovarian diathermy operation is recommended. It is a small procedure, done under a general anaesthetic.

A laparoscopic needle is inserted into the pelvic area to view the ovaries, fallopian tubes and uterus. A series of small drill-holes or burns is made into each ovary, releasing male hormones stored in the cysts and temporarily restoring ovulation. About 70% of women will ovulate after this procedure, and ovulation is often restored for up to 6–12 months.⁷

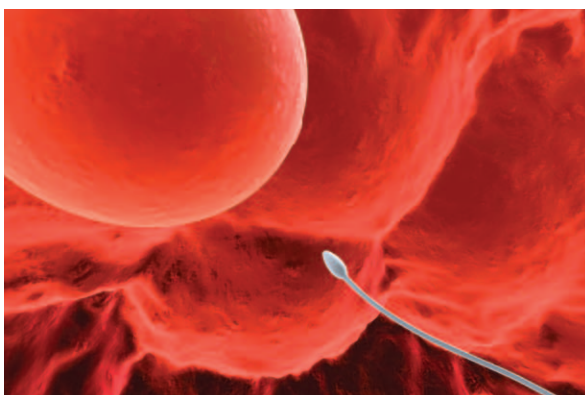
Assisted reproductive technology (ART)

Assisted reproductive technology (ART) is a general term referring to methods used to unite sperm and eggs by artificial or partially artificial means. The most common ART procedures include **in vitro fertilisation (IVF)**, **intrauterine insemination (IUI)**, and **intracytoplasmic sperm injection (ICSI)**. Please see the summary table on the next page, which explains some of the more common methods available.

In vitro fertilisation (IVF)

In vitro fertilisation (IVF) was the first ART procedure and is still one of the most commonly used. IVF has the same pregnancy success rate for women with PCOS as for those without.

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 (as discussed on pages 14–17). If the eggs are successfully fertilised in the lab, they are transferred into the woman's uterus through a soft tube via the vagina. Ideally, one of the fertilised eggs will implant and develop, just as in a routine pregnancy.



ART at a glance

Procedure	Description	When is it used?
IUI (intrauterine insemination – also known as artificial insemination)	Large numbers of healthy sperm are injected at the entrance of the cervix or high in the uterus, bypassing the cervix and giving direct access to the fallopian tubes.	Existence of sperm antibodies in a woman's cervical mucus. Male infertility due to moderately low sperm count or low number of healthy sperm (see also ICSI). Unexplained infertility.
ICSI (intra-cytoplasmic sperm injection)	A technique in which a single sperm is selected and injected into an egg.	Male infertility when very few normal sperm are available. Fertilising ability of sperm is dramatically reduced.
IVF (In vitro fertilisation)	<p>Hormone therapy with gonadotropins is given to stimulate the ovaries to produce several mature eggs.</p> <p>Eggs are retrieved and fertilised <i>in vitro</i> (outside of the body) with either the partner's or donor sperm.</p> <p>If fertilisation occurs within 24 to 28 hours, one or more embryo(s) are placed in the uterus.</p>	<p>Treatment of infertility due to fallopian tube obstructions, PCOS and endometriosis.</p> <p>Male infertility due to sperm abnormalities which prevent fertilisation.</p> <p>Some cases of unexplained infertility.</p>

For more detailed information on ART or IVF, ask your doctor for a copy of the *Pathways to Parenthood* booklets specifically on those topics.

COPING EMOTIONALLY WITH INFERTILITY

We have already discussed how seriously PCOS can affect your confidence and body image (see page 13). In addition, if you are considering treatment for your PCOS in order to become pregnant, you will have to cope with the emotions and frustrations of undergoing fertility treatment.



The inability to conceive a child touches our deepest self. Women who are unable to become pregnant can often feel inferior, guilty and have problems with their self-image. Men often feel that their virility and manhood is placed in doubt.

Many couples who have experienced infertility treatment describe it as an 'emotional roller coaster'. With each monthly cycle and course of treatment, hopes rise of finally getting pregnant. During an IVF process, the two-week wait after the fertilised egg has been transferred to the uterus can be extremely difficult and traumatic. And if the results are negative, the emotional effects can be very difficult to handle.

Talking about your feelings, especially with your partner is vital to coping with the emotions associated with infertility treatment. If ever love and mutual understanding are called upon, it is in moments such as these. Communicating openly with friends and family can create a stronger sense of support in dealing with the psychological and emotional components of infertility.

It can also be helpful to talk to other couples who have gone through similar experiences and understand what you are feeling. Ask your infertility specialist for the contact details of a support group near you or contact one of the organisations listed in the back of this booklet.

Finally, you can soften the emotional impact of infertility treatment by not expecting instant success. You will need to be patient and develop some coping methods for the frustrations and challenges ahead. However, it is helpful to bear in mind that most couples who undergo treatment do eventually have the baby they want so badly.

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.

Polycystic Ovarian Syndrome Association of Australia (POSAA)

www.posaa.asn.au

Ph: (02) 8850 9429; Email: info@posaa.asn.au

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

The Jean Hailes Foundation of Women's Health

www.managingpcos.org.au

Ph: 1800 151 441; Email: education@jeanhailes.org.au

The Jean Hailes Foundation for Women's Health is a not-for-profit organisation providing important services for women from adolescence to mid-life and beyond. It provides a wealth of information on all aspects of PCOS, latest research information and advice on diet and lifestyle related issues.

Dietitians Association of Australia

www.daa.asn.au Ph: 1800 812 942;

Email: nationaloffice@daa.asn.au

Its website includes a search function for a dietitian in your area.

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.

Dietitians NZ

<https://www.dietitians.org.nz/>

Ph: (04) 473 3061

Emotional rescue

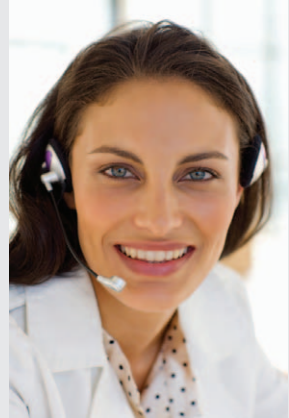
If you require some help with coping emotionally with the frustrations of PCOS or infertility treatment, the following organisations may be able to help you with finding an appropriate psychologist or counsellor.

Australia

- The Australian Counselling Association: (07) 3356 4255; www.theaca.net.au/
- The Australian Psychological Society: 1800 333 497; www.psychology.org.au
- Lifeline (24 hour telephone counselling): 13 11 14
- Black Dog Institute: www.blackdoginstitute.org.au
- Beyond Blue: www.beyondblue.org.au

New Zealand

- New Zealand Association of Counsellors: (07) 834 0220; www.nzac.org.nz/
- New Zealand Psychological Society: (04) 473 4884; www.psychology.org.nz/cms_display.php
- Lifeline (24 hour telephone counselling): 0800 543 354



GLOSSARY

Amenorrhoea: Absence of periods (menstruation).

Androgens: Male hormones (such as testosterone). All women produce a small amount of male hormones in tissues, including the ovaries. These male hormones are converted into oestrogen which has functions in puberty and during menstruation.

Assisted reproductive technology (ART): A general term referring to methods used to achieve pregnancy by artificial or partially artificial means.

Embryo: Term used to describe the early stages of fetal growth from conception to the eighth week of pregnancy.

Follicle: Saclike structure in the ovary that holds, nurtures and during ovulation releases the developing egg.

Follicle stimulating hormone (FSH): A hormone that is made by the pituitary gland in the brain, which stimulates the ovary to develop a follicle for ovulation in women and stimulates the production of sperm in the testicles of the male.

Fallopian tubes: A pair of tubes that link the ovaries to the uterus. It is also where fertilisation of the egg with the sperm occurs.

Menstrual cycle: A woman's monthly process when the body releases an egg, prepares itself for fertilisation of the egg by sperm and creates an environment in the uterus in which the fertilised egg can implant.

Oestrogen: A female hormone produced mainly by the ovaries from the onset of puberty until menopause. Involved in ovulation and the menstrual cycle.

Oligomenorrhoea: Infrequent periods.

Ovulation: Release of a mature egg from an ovarian follicle usually at about midpoint in the menstrual cycle.

Ovulation induction or stimulation: The use of hormonal medication to promote ovulation.

Ovaries: The two small almond shaped sacs that contain a woman's eggs.

Oocyte: Immature egg.

Polycystic ovary (or ovarian) syndrome (PCOS): The development of multiple cysts in the ovaries due to arrested follicle growth. This is caused by an imbalance in the amount of LH and FSH released during the ovulatory cycle.

Uterus: Pear shaped organ (the womb) that provides a safe environment for implantation of the fertilised egg.

NOTES

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References

- 1 The Jean Hailes Foundation for women's health. *Managing PCOS*. Available online: www.managingpcos.org.au/content/view/13/26/downloaded/27/2/11
- 2 The Robinson Institute/National Polycystic Ovarian Syndrome Alliance media release. *National Polycystic Ovarian Syndrome Alliance*. Available online: <http://www.adelaide.edu.au/robinson-institute/mediareleases/pcos/> downloaded 27/2/11
- 3 The Jean Hailes Foundation for women's health. *2008 Apr - PCOS: An Update*. Available online: <http://www.jeanhailes.org.au/content/view/454/573/> downloaded 27/2/11
- 4 Azziz R, Marin C, Hoq L, Badamgarav E, Song P. *Health care-related economic burden of the polycystic ovary syndrome during the reproductive life span*. Journal of Clinical Endocrinology & Metabolism. 2005;90(8):4650-8.
- 5 The Jean Hailes Foundation for women's health. *What causes PCOS?* Available online: <http://www.managingpcos.org.au/content/view/49/79/> downloaded 27/2/11
- 6 The Jean Hailes Foundation for women's health. *Improving symptoms of androgen excess*. Available online: <http://www.managingpcos.org.au/content/view/57/84/> downloaded 27/2/11
- 7 The Jean Hailes Foundation for women's health. *Medical management and surgery for weight loss*. Available online: <http://www.managingpcos.org.au/content/view/59/85/> downloaded 27/2/11
- 8 Chittenden B.D et al. *Polycystic ovary syndrome and the risk of gynaecological cancer: a systematic review*. Reprod Biomed Online. 2009 Sep;19(3):398-405 Available online: <http://www.ncbi.nlm.nih.gov/pubmed/19778486> downloaded 27/2/11
- 9 Polycystic Ovarian Society of Australia. *The Polycystic Ovary Syndrome – a starting point not a diagnosis*. Available online: <http://www.posaa.asn.au/files/PCOS%20Guide.pdf> downloaded 27/2/11
- 10 Alphapharm. *Glucofaphage CMI*. Available online: [http://www.betterhealth.vic.gov.au/bhcv2/bhcmcd.nsf/pages/afcgglucp/\\$File/afcgglucp.pdf](http://www.betterhealth.vic.gov.au/bhcv2/bhcmcd.nsf/pages/afcgglucp/$File/afcgglucp.pdf) downloaded 27/2/11
- 11 The Jean Hailes Foundation for women's health. *Improving menstrual regularity and ovulation*. Available online: <http://www.managingpcos.org.au/content/view/56/83/> downloaded 27/2/11
- 12 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
- 13 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
- 14 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
- 15 sanofi-aventis Australia. *Clomid CMI*. June 2008. Available online: <http://www.mydr.com.au/medicines/cmisis/clomid> downloaded 27/2/11
- 16 Monash University. *Polycystic Ovarian Syndrome*. Available online: <http://www.med.monash.edu.au/medicine/alfred/womenshealth/documents/polycystic-ovarian-syndrome.pdf> downloaded 27/2/11
- 17 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
- 18 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
- 19 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
- Ovulation induction (OI)
- Intrauterine insemination (IUI)
- *In vitro* fertilisation (IVF) & intra-cytoplasmic sperm injection (ICSI)
- Managing the stress of infertility