

# In Vitro Fertilisation (IVF)

## What You Need to Know



## In Vitro Fertilisation (IVF)

In Vitro Fertilisation (IVF) is a process used to treat infertility that has failed to respond to other medical or surgical interventions. Since the birth of the first IVF baby, Louise Brown, in 1978, more than 5 million bundles of joy have been welcomed into the world as a result of the assisted reproductive procedure.

### What is IVF?

Literally, IVF means “fertilisation in glass”, with the egg and sperm placed together in a glass dish in the laboratory. If fertilisation occurs, the embryo is transferred into the uterus in the hope of achieving a pregnancy.

### IVF treatment process

An IVF cycle has eight treatment phases:

#### 1. Pituitary suppression\*

In a natural menstrual cycle, hormones from the pituitary gland, luteinising hormone (LH) and follicle stimulating hormone (FSH), cause the growth of an egg within the fluid-filled space (follicle) in the ovary. Although several follicles start to grow each month, in a natural cycle, only one will become mature enough to release its egg. Release of the egg (ovulation) is triggered by a sudden surge of LH at mid-cycle, which is two weeks before menstruation.

In contrast, during an IVF cycle it is desirable for several eggs to mature simultaneously. To prevent a premature LH surge from triggering early release of these eggs, a gonadotropin-releasing hormone (GnRH) agonist is used to temporarily turn off your own LH and FSH secretion. These medications are used at various stages of the IVF cycle.

\*If you are undergoing what is called an antagonist cycle, there is usually no need for pituitary suppression. Your fertility doctor will have selected the right cycle type, based on your individual needs.

#### 2. Ovulation stimulation and monitoring

The ovulation stimulation phase involves daily FSH injections (Gonal F or Puregon) for nine to 14 days. This stimulates the growth of several follicles instead of just one or two. The ovaries’ response is monitored by ultrasound and, occasionally, blood tests. The dose and combination of medications are adjusted to suit your individual response, so do not be surprised if you are on a slightly different protocol or FSH dose to other women. Most women learn to give their own injections, to reduce the number of visits to the clinic.

#### 3. Trigger injection

Once the ultrasounds indicate a reasonable size and number of follicles, the stimulation phase ends and the FSH injections and GnRH agonist are stopped. An injection of hCG is then given, causing final maturation and loosening of the egg from the wall of the follicle. The egg retrieval occurs on the second morning after this final injection (34 to 36 hours later).

#### 4. Egg retrieval and semen collection

The egg retrieval is performed by an ultrasound-guided needle puncture through the top of the vagina.

The egg retrieval process takes 20 to 30 minutes and involves these steps:

- You are given light sedation.
- The ultrasound-guided needle is passed through your vaginal wall and into each follicle on your ovary.
- The fluid in the follicle is aspirated into a test tube.
- This is then examined under a microscope to look for eggs.
- You rest in the recovery area for about an hour.

Some cramping and discomfort after egg retrieval are common, as is some vaginal spotting or bleeding. If this continues, a heat pack, hot-water bottle or analgesic may be helpful at home.

After egg retrieval, you will be issued with medication (progesterone) that will support development of the endometrium (lining of the uterus) in preparation for embryo transfer.

#### Semen collection

Your partner will be asked to produce his semen sample on the day of your procedure. A room is available for this at our clinic. Understandably, some men have concerns about this part of the process. It may be possible to produce the sample at home and take it to the clinic – this can be discussed with our staff at the start of your cycle. If you have any concerns about collecting the sample, please discuss them with us before starting your cycle as it may be possible to freeze one of your partner’s semen samples as a back-up.

#### 5. Fertilisation (insemination) and embryo development

The sperm sample is washed and concentrated, then added to the eggs a few hours after retrieval. The eggs are examined the next day for signs of fertilisation. We expect about 60% to 70% of the eggs to fertilise if the sperm sample looks normal. Not every follicle will contain an egg, and not every egg will fertilise. Not every egg that fertilises will go on to form a good-quality embryo.

The fertilised eggs are then kept in the incubator for an additional 48 hours. If the sperm quality is low (sperm count or motility), your specialist may suggest Intracytoplasmic Sperm Injection (ICSI) as part of your treatment plan. ICSI is a specialised form of insemination that is used for the treatment of male infertility. It involves the injection of a single sperm directly into a single mature egg.

## 6. Embryo transfer

Two to five days following egg retrieval, the fertilised eggs (embryos) are transferred to the uterus using a fine plastic tube (transfer catheter). The exact number transferred depends on the woman's individual circumstances, age and embryo quality. This procedure takes only a few minutes and is usually not uncomfortable.

The embryo transfer steps are:

- Embryos chosen for transfer are loaded into a catheter, which is passed through the cervix, into the uterus and gently released.
- The catheter is then slowly removed and checked under the microscope to ensure that no embryos remain.
- Some couples will have extra embryos that are suitable for freezing.

The best-quality embryos (those most likely to result in pregnancy) are usually transferred in the treatment cycle. To be selected for freezing, embryos must show minimal or no sign of fragmentation (cell breakdown) and no sign of abnormal development.

## 7. Luteal phase

The luteal phase is the two-week period between embryo transfer and the pregnancy test. You will be encouraged to limit your activity for 24 hours after the transfer. Your movement can be increased gradually over the next few days to non-strenuous, non-aerobic pursuits. Many women return to work the following day if their job is not strenuous.

The progesterone medication you start taking after egg retrieval can sometimes cause cramping, nausea, bloating and tiredness. An analgesic may be taken to relieve any discomfort. If you are concerned about any symptoms, speak to a fertility coordinator.

Vaginal spotting or bleeding may occur before you are due for your pregnancy test. This does not always mean that treatment was unsuccessful. You should continue using any medications until a full period begins and/or the blood test results are known. Progesterone itself may delay your period, and this does not necessarily mean that you are pregnant.

## 8. Pregnancy test

Your pregnancy blood test will be carried out about 14 days after embryo transfer. It is important to look after yourself in that time, which is often emotionally charged with expectation and anxiety. We understand this can be difficult and encourage you to call us for support if you are finding it especially hard to deal with the stress of waiting.

### Optimising your chances

Women who are underweight or markedly overweight may have difficulties during the treatment cycle or a resulting pregnancy. As medication doses and responses tend to be weight-related, overweight women may require much larger amounts of drugs and may have problems absorbing them.

If you smoke, you should attempt to quit or at least cut back. Women who smoke have a lower chance of becoming pregnant and a higher rate of miscarriage. Male smokers should also quit, as smoking affects the quality of sperm. All women who are trying to fall pregnant should take a multivitamin supplement containing folic acid (0.5mg or 500mcg daily). This vitamin reduces the risk of some serious defects of the central nervous system in the fetus. It should be started a few weeks before treatment begins and taken until the 12th week of pregnancy.

Men should be aware that zinc deficiency can reduce testosterone levels and semen production. Taking a supplement may improve the DNA quality in sperm. We recommend taking a supplement with antioxidants and zinc.

### Possible risks associated with IVF

There are some potential risks and side effects associated with IVF procedures including:

- An exaggeration of usual menstrual cycle symptoms (e.g. bloating, breast tenderness, mood swings) because the ovaries have been stimulated to produce more than one follicle.
- In about 1% of cases, Ovarian Hyperstimulation Syndrome (OHSS) develops. The ovaries become extremely enlarged and extra fluid accumulates in the abdomen. This complication requires rest, close monitoring, intravenous fluids or even drainage of the abdominal fluid. In rare cases, if we feel you are at a high risk for developing OHSS, the embryos may be frozen rather than replaced.
- If more than one embryo is transferred into the uterus, a multiple pregnancy may occur. Multiple pregnancies carry a higher risk of preterm delivery and other associated problems. Twins can occur in 10-20% of cases.
- Fertility drugs have not been proven to increase the risk of breast, ovarian or uterine cancer. However, women who have never been pregnant have a higher risk of breast or ovarian cancer. Past or future use of the birth control pill will lower your risk of ovarian cancer. A yearly physical exam is important for the prevention and early detection of all diseases.

## Counselling

Infertility and its treatment can be quite stressful from an emotional, physical and financial point of view. We encourage partners to be supportive and participate in the treatment process. It can also be helpful to develop a network of supportive friends and relatives.

In addition to support from our medical and nursing staff, a counselling session with our trained infertility counsellor is included in the cost of each IVF cycle. Our counsellors are experienced in infertility-related issues.

## Cycle costs

For details about our cost structure, please refer to the Costs page of our website.

## Where to Now?

Should you need to see a doctor outside of normal clinic hours, please contact your treating specialist or present to the emergency department of your local hospital or medical centre.

Call City Fertility Centre during office hours if you have any questions regarding your cycle.

## Contact Us

Adelaide	1300 483 235
Brisbane City	1800 123 483
Brisbane Southside	1300 483 784
Gold Coast	1300 859 116
Melbourne City	1300 781 483
Melbourne Bundoora	1300 483 232
Sydney	1300 277 447

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