



IVF In vitro fertilisation

Part of the Treatment Guide series of brochures

Attention:

The information provided in this brochure should not be used as a substitute for information or advice provided by a doctor. Your doctor can help you choose the best option for you.

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Introduction

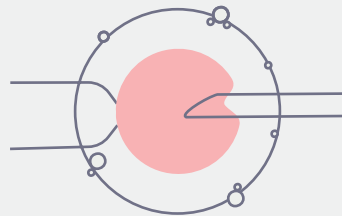
It may come as a surprise to most couples when they have trouble conceiving. Many people assume that a pregnancy will follow right after they stop using contraception, but the fact is that one in six couples in the world experience difficulties conceiving in the first 12 months of trying.

Today we have diagnostic and treatment options that can help you get pregnant. There are simple methods that can help you on your journey to having a baby, especially in the beginning. In these methods, an optimal amount of eggs and sperm are collected, the eggs are fertilised in a laboratory to create embryos, and then the embryos are transferred back into the uterine cavity. Collectively, these procedures are referred to as assisted reproductive technology (ART), and they include but are not limited to in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI). There is still controversy surrounding these methods, but we don't decide the success of these treatments, nature is still in charge.

This brochure shows you what to expect with IVF and ICSI, and it provides advice on coping with the stress and emotions you may feel during treatment. There's nothing to worry about, the vast majority of you will have no problem handling the methods of assisted reproduction, but there may be times when you need additional support or reassurance that everything is going as it should. It is important that you talk to your partner, family and friends about how you are feeling throughout the process. Our medical team is ready to help you at any stage of the treatment.

What is IVF?

In vitro fertilisation is one of the most effective assisted reproduction methods; in this procedure, the fertilisation and development of the embryo takes place outside a woman's body in the carefully controlled environment of an embryology laboratory, after which it is transferred into the uterus.



Babies conceived through this method are commonly called test tube babies. Louise Brown became the first 'test tube' baby in 1978. Robert Edwards, who discovered this method, won the 2010 Nobel Prize in Physiology or Medicine. At the same time, independently of Edwards, Indian doctor Subhash Mukhopadhyay of Calcutta also performed in vitro fertilisation, producing the second test tube baby girl, Kanupriya

Agarwal, in October 1978. The name 'test tube baby' is misleading, as the actual fertilisation takes place in a small dish. Since the birth of Louise Brown, a large number of 'test tube' babies have been born. We know that there is no difference between these children and children conceived naturally, perhaps they are just watched and pampered more.

What is the difference between IVF and ICSI?

IVF and ICSI are two methods of assisted reproduction used for fertilisation. The difference between them is in the way the egg is fertilised.

In IVF, the fertilisation of the egg by the sperm is spontaneous, while in ICSI the sperm is inserted directly into the egg. ICSI is performed by our embryologists under a microscope using very fine manipulation tools. If the egg is fertilised, the embryo develops in the laboratory and is transferred into the uterus in the same way as in IVF.

ICSI was first used in 1992, and the probability of fertilisation in this method is higher than in IVF.





Who is IVF/ICSI suitable for?

This treatment is recommended for couples where:

- the woman has no fallopian tubes, or her tubes are blocked,
- most of the woman's cycles are anovulatory (no egg released from the ovary),
- the man's sperm quality is poor,
- the woman has endometriosis,
- artificial insemination is repeatedly unsuccessful,
- the man has idiopathic (unexplained) sterility,
- the woman has premature ovarian failure,
- there is a genetic indication,
- one or both of the partners have had cancer/undergone cancer treatment,
- a surrogate mother is needed.

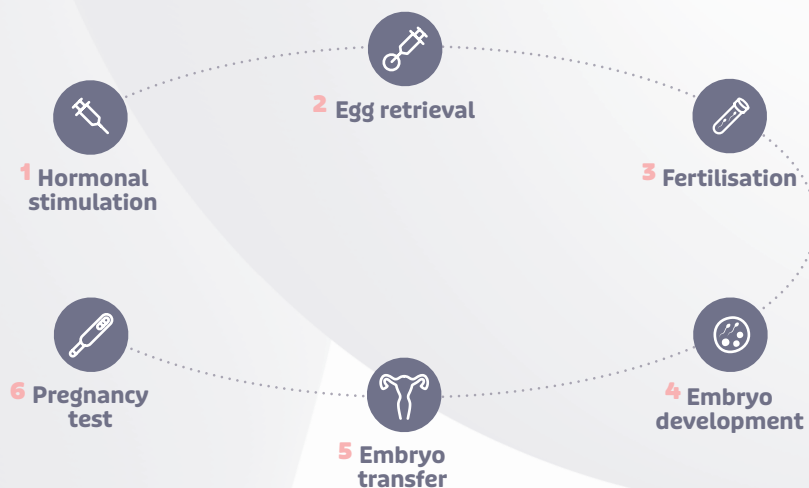


What to expect

IVF/ICSI is not a single procedure, but rather a series of stages, each of which must be successfully completed before proceeding to the next, so it is often a very tedious and time-consuming process.

You must also realize that you will most likely have to undergo several cycles before you

conceive your desired baby. Some couples may not succeed even after repeated attempts. The basic stages of the IVF/ICSI procedure are described below. The whole process up to the embryo transfer usually takes several weeks.



1 Stimulation and monitoring of ovarian activity

The first step is hormonal stimulation with drugs to trigger the growth of eggs. The goal of ovarian stimulation (encouragement) is to increase the number of mature eggs and then induce ovulation itself.

Ovarian stimulation gives us a higher number of eggs available for fertilisation, which increases the chance of pregnancy. We basically use drugs to increase the number of growing follicles and mature eggs, as well as to prevent premature release of eggs (ovulation). During this first phase, your response to the stimulation medication will be carefully monitored to see if the ovarian response is adequate. We use regular ultrasounds to get a clear picture of what is happening with the follicles.

Ultrasound

Our team will schedule several ultrasounds with you during the stimulation. The first ultrasound is generally scheduled between day 6 and 8 of the menstrual cycle, with the second a few days after the first. This is to check the response of your ovaries to the administered drugs. The ultrasound is performed with a transvaginal ultrasound probe, like the one your gynaecologist uses. This is not painful and it is minimally invasive.

Blood tests

In some cases, your doctor will recommend laboratory tests during the stimulation. You don't have to worry about this, you will undergo regular blood sampling that you are familiar with.

Getting used to injections

For some women, the idea of injecting themselves regularly is quite daunting, but most people get used to it very quickly. Most medications are administered with an injector pen or prefilled syringes. It is easy to inject, as it is goes just under the skin. It's similar to how diabetes patients inject themselves.

You don't have to worry about anything, we will give you clear step-by-step instructions for injecting the shot. You may want your partner to inject it for you, in which case we can give him instructions. In any case, you can always rely on us to help you, and you can try it out with one of our nurses. We're here to help you feel sure of yourself and safe.

2 Egg (oocyte) retrieval

Eggs are retrieved just before ovulation, usually 34–36 hours after the administration of ovulation-inducing drugs. Your doctor will retrieve as many eggs as possible guided by a vaginal ultrasound.

The retrieval is carried out under partial anaesthesia (analgesedation) or, most often, under general anaesthesia (narcosis) using a thin needle, the position of which is checked by the doctor with an ultrasound. The needle is inserted through the vaginal wall directly into the follicle and the fluid is safely aspirated.

This fluid is immediately checked under a microscope to see if an egg has been retrieved. This procedure is repeated for each follicle on both ovaries. All retrieved eggs are removed from the follicular fluid and placed in an incubator.

However, not every follicle contains an egg, and not every egg is mature, so don't be surprised if the number of retrieved eggs is lower than the number of follicles that you watched develop on an ultrasound. The optimal number of retrieved eggs is between eight and fourteen, and the retrieval process takes about 15–20 minutes.

The partner submits a sperm sample on the day of the egg retrieval, or pre-frozen sperm can be used for fertilisation. If no sperm are present in the ejaculate, an attempt can be made to collect them surgically; however, this must be planned well in advance, and the man is examined by an andrologist (specialist in male infertility), who will recommend and perform this procedure, before the procedure itself.

Is egg retrieval painful?

You may feel some tension in your abdomen after the procedure. You may also feel tired because of the anaesthesia.

You will rest in bed under the supervision of our medical staff to make sure you go home safely.

You may also notice light vaginal spotting or bleeding that is brown or red in colour after the procedure.

We recommend that someone drives you home from the clinic, and it may be a good idea to take the next day off work to speed up recovery after the procedure.



Surgical sperm retrieval

If no sperm is found in the man's ejaculate and this procedure is recommended by an andrologist, sperm can be obtained from the epididymis or testicles surgically. Our clinic's sperm retrieval procedures include:

- ✓ **Microsurgical epididymal sperm aspiration (MESA):** MESA is performed in the operating theatre under general anaesthesia. It involves opening the ducts of the epididymis and extracting the fluid to obtain live sperm.
- ✓ **Testicular sperm extraction (TESE):** This procedure is used when there is no sperm in the epididymis. TESE is performed in the operating theatre under general anaesthesia. It involves making a small incision in the testes and removing a piece of testicular tissue to retrieve the sperm.

You may experience some pain and bruising after surgery, which can be generally managed with common painkillers and rest.



3 Fertilisation

On the day of the egg retrieval, the sperm is processed to select the 'strongest and most active' sperm.

The egg is most often fertilised by injecting sperm directly into it with a thin needle (ICSI). The eggs are checked, their maturity is confirmed and they are prepared for injection. In a gentle laboratory procedure, one sperm is placed directly into the

cytoplasm (centre) of the egg. After this, the eggs are placed in an incubator set to the same temperature as a woman's body. On the following day/days, the resulting embryos are checked under a microscope. The coordinator of your treatment process will inform you over the phone or in writing the day after the retrieval how many eggs have been fertilised, i.e. how many developing embryos you have.

4 Embryo development

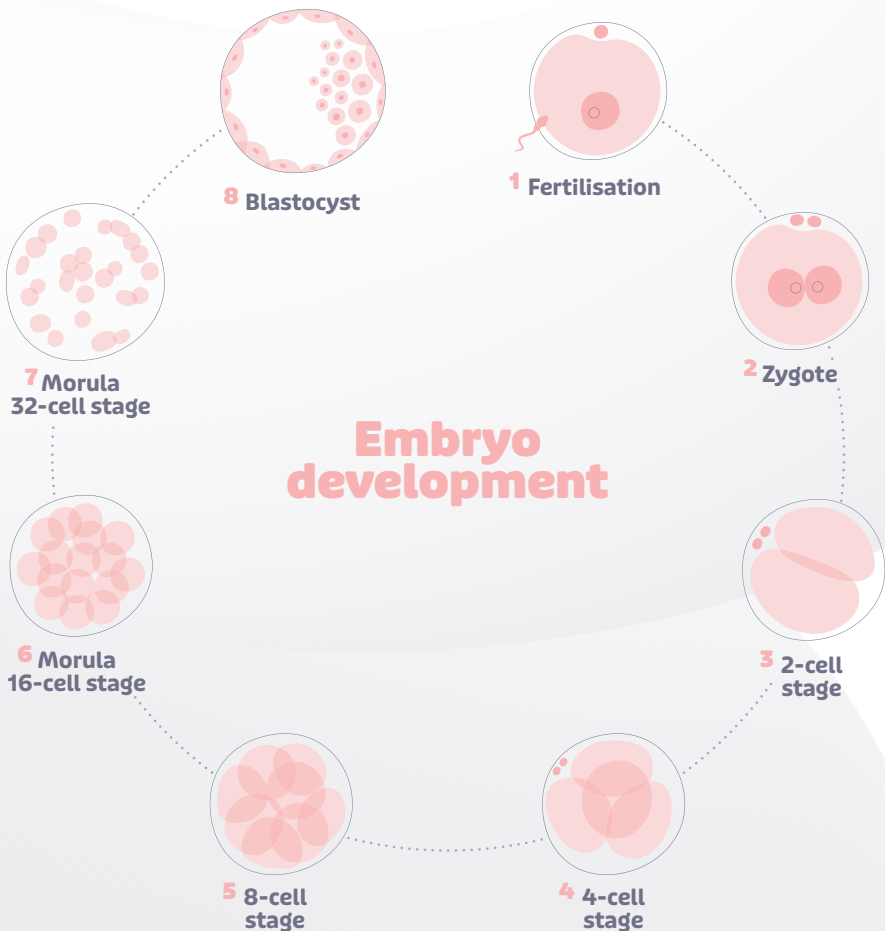
Under laboratory conditions, it generally takes 3-5 days for an embryo to develop from a fertilized egg.

'Embryo cultivation' is a term used for the process following egg retrieval and fertilisation. Your doctor will inform you of the duration of embryo development and their quality.

The transfer is usually performed on the fifth day of embryo development (blastocyst

stage) due to a higher chance of pregnancy, and sometimes also between the second day (2 to 4-cell stage) and the fourth day (morula stage) of development. Monitoring the development of embryos in the laboratory will help us select the embryo with the best chance of a successful pregnancy.

The resulting embryos will either be transferred to the uterus (embryo transfer) or frozen for later transfer (cryopreservation).



5 Embryo transfer

Unless arranged otherwise, on the fifth day after the egg retrieval the woman visits our clinic for an embryo transfer – the transfer of an embryo through the cervix into the uterus with a thin catheter. An embryo transfer is not a complicated procedure, and it is generally performed without anaesthesia. The embryo is placed in a catheter (soft tube/tube) and transferred to the uterus through the cervical canal (entrance to the uterus).

In the vast majority of cases, a single embryo is transferred to the uterus. If other high quality embryos are available, they can be frozen for later use.



EmbryoGlue

EmbryoGlue is a special transfer medium that can increase the chances of embryo implantation and subsequent pregnancy. As the name suggests, this medium works a bit like a tissue adhesive.

It contains all the nutrients necessary for the development of the embryo and mimics the natural environment in a woman's womb; it also contains a large number of substances providing optimal conditions for the growing embryo and supplying it with energy for further development and growth.



EmbryoGen/BlastGen

These are special culture media that contain a specific substance, GM-CFS (granulocytes - macrophage colony-stimulating factor/protein). This helps the early embryo take in nutrients, thus accelerating its growth and increasing the chance of it reaching the blastocyst stage. It should also protect a healthy embryo from cellular stress and apoptosis.

EmbryoGen/BlastGen media can especially help women who suffer from repeated implantation failure of quality embryos (failed embryo transfers), repeated miscarriages, age factor (40+ years) or idiopathic infertility.

6 Embryo cryopreservation

The freezing of quality embryos is a process we call cryopreservation.

At our clinic we use vitrification, which is a modern method of cryopreservation.

We place the embryo in a protective substance called a cryoprotectant. We quickly cool the drop of cryoprotectant with the embryo to the temperature of liquid nitrogen -196 degrees, so no ice crystals form in the protective substance or the

embryo. We keep the embryo in liquid nitrogen in a sealed case for as long as you wish. The embryo is quickly warmed to body temperature and the protective material is washed off before use, after which it can be transferred to the uterus in just a few hours. The success rate of 'fresh' embryo transfers and cryo-embryo transfers is the same, so you don't have to worry about this procedure.



How to survive the two-week wait

After the ICSI procedure, it will take about two weeks to get an accurate pregnancy test result. This 'two-week wait' is often a time of great anxiety, worry and frustration for women trying to conceive. Here are a few tips to help you manage this period:

- ✓ Try not to obsess over pregnancy symptoms - feeling pregnant doesn't always mean you're pregnant. After treatment, your doctor may prescribe medication with side effects similar to pregnancy symptoms.
- ✓ Get busy - this could mean doing more work or planning meaningful or fun distractions.
- ✓ Give yourself just 15 to 30 minutes a day to think about your pregnancy, write down your thoughts, search for information on the Internet, or discuss it with your partner or supportive friends/family members.
- ✓ Try some relaxation techniques, such as breathing exercises or meditation.
- ✓ Avoid pregnancy tests - the chance of a positive result before your period is late is very small. An hCG shot is administered to help ripen and release the eggs, and it can also be used as a booster.

Are you ready to take the first step?

If you are ready, book your first appointment at our clinic.

Our coordinators can offer you in-person, phone or video appointments.

We are available during normal business hours if you request, at a time that suits your preferences

Book a consultation with one of our leading fertility specialists



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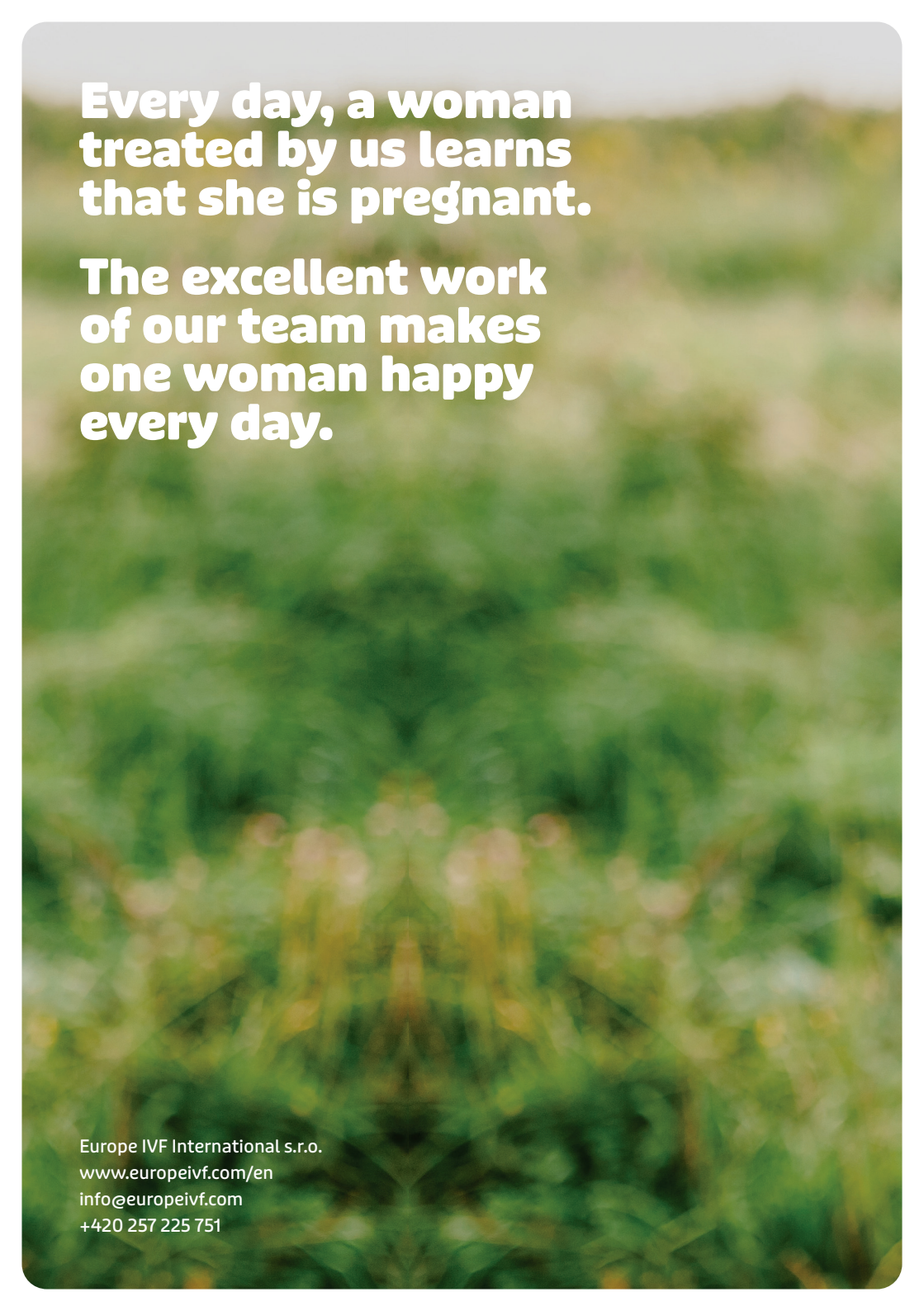
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**If you have any questions,
ask us.**



You dream. We care.



**Every day, a woman
treated by us learns
that she is pregnant.**

**The excellent work
of our team makes
one woman happy
every day.**

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