

**Information Leaflet**

**What does In-Vitro Fertilisation (IVF) involve?**

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IVF involves collecting eggs from the ovaries, putting them together with sperm in a dish, and if they fertilise, putting one or two of the embryo(s) that result back in the womb.

**What does IVF Involve?**

Naturally each month the ovaries develop several eggs, and usually only one is ovulated and released into the fallopian tube. During IVF, drugs are given to stimulate the production of more eggs to increase the chance of making embryos for embryo transfer or freezing. There are several ways to stimulate egg production and the most suitable method will be decided for you when we have discussed your medical history and test results. We want your treatment to be as convenient for you as possible; you have the choice between our Liverpool and Knutsford (near Manchester) centres for egg collection.

Once you have started treatment, we will need to find out how well your body is responding by using vaginal ultrasound scans. We use a special ultrasound machine and ask you to empty your bladder before your scan. The ultrasound probe is inserted carefully into the vagina to measure the size of any ovarian follicles. Most people find this examination less uncomfortable than having a smear taken or an internal examination. On the day after the last daily hormone injection, you will need an injection of the hormone human Chorionic Gonadotrophin (hCG). This matures the eggs which should be ready for collection 36 hours later.

**Egg Recovery**

36 hours after the hCG injection, we will collect the eggs from your ovaries. This is carried out using some of the same equipment used for the scans. We pass a fine needle through the back of the vagina and into each ovary. The fluid from each follicle is collected into tubes to be examined by an embryologist who looks for eggs using a microscope. The whole procedure takes about 10- 15 minutes. You will usually have your eggs collected under sedation. Your clinician will discuss sedation with you before you start your treatment. You can expect to be in the clinic for 3-4 hours on the day of your egg collection.

**What happens in the embryology laboratory?**

The next stage is to put the sperm together with the eggs. If you are using partner sperm, the sample should be produced in the morning of the egg collection. If you are using frozen sperm (donor or partner), the sperm will be thawed after successful egg collection. The sperm are prepared and mixed with the eggs by either conventional IVF or intra-cytoplasmic sperm injection (ICSI). The day after egg collection we can examine the eggs for fertilisation. Not all eggs fertilise properly, therefore not every egg will form a viable embryo. Eggs which have displayed normal signs of fertilisation are called embryos. Embryos are cultured for several days until either embryo transfer and/or freezing.

**What is the difference between IVF and ICSI?**

IVF is used if the semen sample meets specific IVF quality criteria based on motility, count and morphology. Conventional IVF is the process of mixing the eggs with the prepared sperm in a dish and incubating them overnight. ICSI is used for patients with poorer semen quality or in cases of low or failed fertilisation from previous cycles. ICSI involves selecting a single sperm and injecting it into each mature egg by a highly trained embryologist. ICSI allows the use of sperm that may not otherwise have been able to fertilise an egg. There is a risk of low or failed fertilisation with either method of insemination. We will give you a recommendation of which treatment is more suitable for your needs based on your previous history and semen quality.

**Are there any risks associated with ICSI?**

Eggs are prepared for ICSI by removing the cells from around the eggs, and this process may cause damage to a small number of eggs. The number of eggs available for ICSI can also decrease if they are not mature after the cell removal process. There is also a small risk that the injection process used to insert a sperm into each egg can cause egg damage.

ICSI has previously been linked with certain genetic and developmental defects in a very small number of children born using this treatment. However, it is difficult to determine whether this is a result of the ICSI procedure or the underlying cause of infertility. Follow up studies from children born using this technique are still on-going. Another issue to consider is the possibility that if you conceive a male child as a result of ICSI, there is a risk of inherited male infertility. At this stage it is too early to know if this is the case. If you need more information about the genetic risks of ICSI, please contact us.

**It is important that you discuss possible risks with your doctor before going ahead with treatment. You may also find it helpful to discuss your concerns with a counsellor.**

**How could ICSI help me?**

ICSI could be helpful if you or your partner have:

* Low sperm count (oligozoospermia)
* Abnormal sperm shape (poor morphology)
* Sperm with poor swimming ability (poor asthenozoospermia)
* Sperm that cannot bind or penetrate the eggs for an unknown reason
* Damaged or missing tubes (vas deferens) which carry sperm from the testicles to the penis
* Immune system adverse reaction to sperm (anti-sperm antibodies)
* Difficulty obtaining an erection or achieving ejaculation. This particularly affects men with spinal cord injuries, Hodgkin’s disease and numerous other disorders.
* Previous failed or low fertilization
* Failed reversed vasectomy. Testicular sperm extraction (TESE) may be required to obtain sperm. For more information about TESE and what it involves, and whether these may be options for you, please speak to your doctor.

**What are my chances of having a baby with ICSI?**

The chances of having a baby using ICSI are similar to those for IVF. As with most fertility treatment, success depends on many factors such as female age and sperm quality. For up-to-date information and access to recent patient experiences using ICSI, please use the following link to access the HFEA website:

**https://www.hfea.gov.uk/treatments/explore-all-treatments/intracytoplasmic-sperm-injection-icsi/**

**Embryo Transfer**

Embryo transfer is organised for either day three or day five of embryo development, with day of egg collection counted as day zero. An embryo is only selected for embryo transfer if it has met the development stage expected for the day of embryo culture. The embryo transfer procedure is quick and simple. A fine plastic tube containing the embryo(s) is passed through the neck of the womb and the embryo(s) are placed high into the womb. The policy in our unit is to replace one embryo at a time to reduce the risks associated with multiple pregnancies. Double embryo transfer is only considered after several failed attempts, poor quality embryos or advanced maternal age. We will talk about the number of embryos to be transferred before your treatment. Any other embryos not replaced at this time may be frozen, provided they are of a suitable quality to freeze. Following your embryo transfer you will be given further advice about your aftercare from the staff before you go home. The fertility drugs that you have been given sometimes cause the ovaries to be less effective than usual in preventing the start of your next period. We help prevent this by giving you a hormone called progesterone which is given in the form of a pessary. We will discuss how to take this and how often during your treatment.

**Pregnancy Testing**

Two weeks after your embryo transfer you will carry out a pregnancy test. After the result of the pregnancy test, we will spend time talking things over with you. If you are pregnant, we will be able to offer pregnancy advice and support and arrange a scan. If the treatment has not worked, then there are always things we learn from your cycle. We can use this information to plan another course of treatment should you want this. The way your body has responded to the drugs will often give us clues about the problems that might have stopped you from becoming pregnant naturally. Sometimes we can also find out more about the ability of your eggs to fertilise.

**What are the risks of fertility treatment?**

There are several risks associated with IVF, these include how your body responds to the drugs during treatment. It is important that you read the leaflet 'Ovulation Stimulation' for further information on possible side effects of the medications used during treatment.

There are also risks associated with the embryology laboratory. The embryology laboratory cannot guarantee egg fertilisation or normal embryo development during your treatment. Our highly trained staff will handle your eggs, sperm and embryos with great care, but this does not eliminate the small risk of loss or damage during handling tasks. We have strict protocols to ensure we can do our very best during each laboratory procedure. There are however more risks associated with certain procedures than others. Please see our ‘Egg freezing’ and ‘Embryo Freezing and Thawing’ leaflets for more detailed information on risks. We will do our very best within the laboratory to ensure we have done everything we can to encourage the best possible outcome of your treatment.

**Complications of fertility treatment**

Complications are very rare, for example infection rates after egg collection are very low. In our experience, a bacteraemia is encountered once every 3 years giving an approximate incidence of 1:3000. Bleeding and pain may occur after egg collection but the risk of this is low. As we offer treatments at two different locations, it is important to know how your care will be managed if we were to encounter any complications. Our Liverpool site is based at The Liverpool Women’s Hospital which has excellent access to emergency care services on site. The centre based in Knutsford is based in a rural area which means in the event of an emergency, care would be transferred to the reputable emergency care facilities of Wythenshawe Hospital.

Multiple pregnancies are more common when more than one embryo is replaced at any one time. A multiple pregnancy can be very difficult with a higher risk of miscarriage and complications (bleeding, raised blood pressure and premature labour) than a pregnancy with a single baby. Twins (or triplets) are more likely to be born with a disability as abnormalities and infant mortality are much greater in multiple birth babies than single babies.

If a pregnancy occurs, unfortunately there is still a risk of a miscarriage or an ectopic pregnancy (this is when the pregnancy develops outside of the womb). If at any time you have any questions or queries, please do not hesitate to contact the unit. If at any stage, you wish to see one of our counsellors this can be arranged for you.

**This leaflet can be made available in different formats on request. If you would like to make any suggestions or comments about the content of this leaflet, then please contact the Patient Experience Team on 0151 702 4353 or by email at** **pals@lwh.nhs.uk**

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