



# The Hull IVF Unit.

We understand fertility

## In Vitro Fertilisation (IVF)

When you hear people talking about “test tube babies” they mean babies that have been created using IVF. IVF is a treatment for infertility. The woman’s eggs are mixed in a glass dish with the man’s sperm and fertilisation takes place. The fertilised eggs (embryos) are then put back into the woman’s womb, in the hope that they will survive in the womb and grow into a baby.

### What does IVF involve?

This is a simple guide to IVF. It explains how IVF is carried out in PRE-MENOPAUSAL WOMEN (i.e. women who are still having regular periods). IVF may be carried out differently in women who have stopped having periods. For more information, please speak to your fertility doctor.

IVF is a complicated process and it is easy to feel confused or intimidated. Staff at the Unit will be more than happy to talk through the process with you and go over any parts that you do not understand. If you are considering having treatment with IVF, please make sure that you read our [patient information pack](#) carefully, as it contains more detailed information.

In very simple terms, a single IVF treatment cycle involves:

- “Switching off” your body’s own reproductive hormone production.
- Growing eggs in your ovaries.
- Having the eggs removed from your ovaries.
- Mixing the eggs with sperm in the laboratory.
- Having the fertilised eggs put back in your womb.

This process is carried out via a series of steps:

- **STEP 1: SWITCHING OFF YOUR BODY’S NATURAL HORMONE PRODUCTION** (known as “downregulation.”)
- Why is a “mock embryo transfer” carried out before my treatment starts?
- **STEP 2: STIMULATION OF FOLLICLE PRODUCTION.**
- How will I be monitored during steps 1 and 2?

- STEP 3: EGG MATURATION
- STEP 4: PREPARING YOUR WOMB TO RECEIVE THE EMBRYOS.
- STEP 5: EGG COLLECTION (also called “ovum retrieval” and “oocyte capture.”)
- What happens to the eggs and sperm in the laboratory?
- STEP 6: REPLACING THE FERTILISED EGGS (known as “embryo/blastocyst transfer”).
- Can I have spare embryos/blastocysts frozen and stored?
- STEP 7: PREGNANCY TESTING

Please remember, the information on this website is intended as a rough guide only, to give you an idea of what you can expect during treatment. Any treatment that is carried out will be personalised to you, so it is VITAL that you follow the instructions given to you by staff at the Unit carefully.

## **STEP 1: DOWNREGULATION**

*(“Switching off” your own reproductive hormone production.)*

A woman’s reproductive (menstrual) cycle is controlled by the pituitary gland. This tiny gland can be found on the base of the brain, somewhere behind your eyes. The pituitary gland releases hormones (chemical messengers) that control the actions of your ovaries. Hormones from the pituitary gland tell the eggs in the ovaries when to grow and when to be released.

Your pituitary gland needs to be “switched off” before you can receive drugs to stimulate egg production. These drugs stimulate the production of a “follicle.” A follicle is an immature egg, surrounded by a bubble of fluid, in the ovary. These immature eggs need to grow and develop inside their bubbles of fluid before they can be collected.

If the pituitary gland is not “switched off” it may release a hormone that causes the bubbles (follicles) to burst (doctors call this “spontaneous ovulation”). When the follicles burst they release the immature eggs into your body and the doctors are not able to collect them. The immature eggs have to remain in their bubbles of fluid if they are to be collected for use in your IVF cycle.

Turning off your reproductive hormone cycle in this way allows the doctors to have better control over the actions of your ovaries.

The drugs used to switch off your reproductive cycle are called gonadotrophin-releasing hormone analogues, or GnRH analogues for short. They may include buserelin (also called Suprecur) and goserelin (also called Zoladex). You will need to take these drugs every day. They are given by injection and staff at the Unit will teach you how to do this yourself.

Having your reproductive cycle turned off tricks your body into thinking it is going through the menopause. Because of this, you may experience symptoms similar to those of the menopause, such as hot flushes, headaches, mood swings, dizziness, lack of concentration, dry mouth and vaginal soreness. Don't worry - this artificial menopause is only temporary and will stop once you stop taking the drugs.

There is an alternative drug that may be prescribed called cetrorelix (also called Cetrotide). This drug also prevents your developing follicles from bursting. You would take this drug instead of taking buserelin or goserelin. It is given at the same time as you take your follicle-stimulating drugs (see step 2). Because this drug is given later than the other drugs, you would avoid the menopause-like symptoms that are common with buserelin and goserelin. However, like all drugs, Cetrorelix has drawbacks and is not suitable for everyone. Your doctor at the Unit will be able to recommend the best drug for you to take, taking into account your preferences.

## **Why is a mock embryo transfer carried out?**

A mock embryo transfer will be carried out before your treatment begins. It is normally carried out when you come for your first downregulation appointment (see step 1) or when you come for your first monitoring scan.

The mock embryo transfer is a practice for when you have your embryos put into your womb (see step 6). It allows the nurse to take measurements of your womb and to spot any potential problems early, so that we can be prepared when you have your embryos put back for real.

The mock embryo transfer will be carried out in a private treatment room. A small plastic tube will be inserted into your womb via the natural opening in your cervix. It is normally painless and takes only a few minutes.

## **STEP 2: STIMULATION OF FOLLICLE PRODUCTION**

You will receive drugs to encourage follicle production after your own reproductive hormone cycle has been switched off (or "downregulated" - see step 1). You will need to carry on taking your downregulation drugs at the same time as you take your follicle stimulating drugs.

A follicle is simply an immature egg surrounded by a bubble of fluid. Follicles can be found on the outer wall of the ovaries.

Follicle production takes place naturally in the ovaries once a month. A natural hormone called follicle-stimulating hormone (or FSH for short) tells the ovaries when to produce follicles. This hormone also encourages the follicles to grow. Eventually, there is usually only one follicle that grows to the right size and bursts. When this follicle bursts it releases an egg into your fallopian tubes.

Drugs that are given to encourage follicle production work in a similar way to FSH. These drugs do, however, encourage the growth of many more follicles than would normally grow in your ovaries at any one time. As follicles contain eggs, this means that there will hopefully be many more eggs available for collection.

Drugs that encourage follicle production are called Merional, Menopur, Gonadal-F and Puregon. They are all given by daily injections. Staff at the Unit will teach you how to do this yourself.

Remember, your drug regime will be **PERSONALISED TO YOU**. It is vitally important that you take these drugs correctly every day, so please, please, ask if there is anything that you are not sure about.

## **How will I be monitored?**

We will want to monitor you closely whilst you are taking drugs for downregulation (see step 1) and follicle production (see step 2). This is done using ultrasound scans. Ultrasound scans use sound waves to see inside the body. The scans are painless and completely safe.

The scans will be carried out in a dedicated scan room at the IVF Unit by an ultrasonographer. An ultrasonographer is someone who is specially trained and registered to perform ultrasound scans. The ultrasonographer will come and find you in the IVF Unit waiting room to show you to the scan room. Please remember to tell the reception staff at the Unit that you are waiting. You can bring your partner or a friend with you for the scan. Alternatively, we can arrange a chaperone for you if you wish.

You will need to visit the toilet before you have your scan, as it can be a little uncomfortable if your bladder is full. A full bladder will also make it difficult for the ultrasonographer to see your ovaries and womb properly.

The scan involves placing a small plastic device (probe) next to your body to see inside. The ultrasonographer will need to place the device as close as possible to your ovaries and womb to see them clearly. To do this they will need to place the device inside your vagina (a vaginal ultrasound). Don't worry, the plastic device is not very big (about as wide as slim curling tongs) and the ultrasonographer will use plenty of lubricant, so the scan should not be uncomfortable. The device is covered in a single-use protective sheath (like a condom) before it is placed inside your vagina.

The scan will enable the ultrasonographer to check that the drugs for downregulation have worked (see step 1). They will also be able to count and measure the follicles growing in your ovaries. By counting and measuring your growing follicles, we will know when you are ready to have your eggs collected (step 5).

You will be given all the drugs you need to prepare for egg collection at your last scan appointment.

## **STEP 3: EGG MATURATION**

When the scan shows that your follicles have grown to the right size, you will be given a drug to mature the eggs within the follicles. This will prepare the eggs for the egg collection (step 5).

The name of the drug is Pregnyl. It works in the same way as the natural hormone “human chorionic gonadotropin” (or hCG for short). This drug matures the eggs inside your follicles and prepares them for collection.

Pregnyl needs to be given 36 hours before the egg collection procedure (see step 5) which means that it may need to be taken late at night. It is given by injection.

## **STEP 4: PREPARING YOUR WOMB TO RECEIVE THE EMBRYOS**

Your womb will need to be prepared before it can receive the fertilised eggs (embryos). Embryos are more likely to attach themselves to the sides of the womb (implant) and develop into a baby if the lining of the womb is thick and rich in blood vessels.

You will be given a drug that keeps the lining of your womb thick and gives your embryos the best possible chance of survival. This drug works in the same way as the hormone “progesterone.” Progesterone is released in your body naturally every month, just before you have your period. Its job is to keep the lining of your womb thick in case an egg is fertilised. When progesterone levels drop, you have a period.

The drug that is given is called Utrogestan. You will need to start taking this drug at the same time as you take the drug to mature your eggs (Pregnyl - see stage 3).

Utrogestan is usually taken vaginally before you have your embryos put back in your womb. You will need to take the tablets at bedtime, as one of the side effects is drowsiness. You will need to continue taking Utrogestan after your embryos have been replaced.

You may be given another drug that works in the same way as Utrogestan, such as Crinone cream.

Taking Utrogestan helps keep the lining of your womb thick and gives your embryos the best possible chance of implanting and growing in your womb.

## **STEP 5: EGG COLLECTION**

***This procedure is also called “oocyte capture” and “ovum retrieval.”***

This is simply a procedure to collect the mature eggs from the follicles in your ovaries. After the eggs have been collected, they will be mixed with your partners sperm and allowed to fertilise.

The egg collection procedure is a bit like having a mini-operation.

Your eggs are normally ready to be collected after 10-14 days of treatment with follicle-stimulating drugs (see step 2). You will be monitored closely with ultrasound scans whilst you are taking these drugs. The ultrasonographer will measure the size of your growing follicles each time you have a scan. When your follicles have reached the right size, you will be given a date to come in for the egg collection procedure. You will also receive clear, written instructions on how to prepare for the procedure. These instructions will include:

- When to take your last dose of down-regulation drug (see step 1).
- When to take your last dose of follicle-stimulating drug (see step 2).
- When to take Pregnyl (the drug to mature your eggs - see step 3).
- When to start taking Utrogestan (see step 4).
- How long you will need to abstain from intercourse (not have sex) before the procedure.
- How long you will need to fast (not eat or drink) for before the procedure.
- What you should bring with you on the day.

You will be given a date and a time to come in for your egg collection procedure. It is normally carried out in the morning.

When you arrive, you will be shown to a bed and asked to change your clothes. There will be a curtain to protect your privacy whilst you change. The nurse will give you a surgical gown to wear underneath your dressing gown. A cannula (fine plastic tube) will be inserted into a vein in the back of your hand. The cannula will be used to give you drugs to make you feel sleepy and relaxed (sedated) throughout the procedure.

Whilst you are being prepared for the procedure, your husband/partner will be taken to a private room and asked to provide a semen (sperm) sample. He will be given clear instructions on the best way to do this.

There have been many research studies carried out to decide how long a man should go without sex or masturbation before he gives a semen sample, in order to give the best quality sperm. Our advice is, in order to provide a sample with the best quality sperm, your partner should not have sex or masturbate for 3-6 days before the egg collection procedure is due to take place. This will maximise the number of healthy, active sperm in the sample.

The egg collection procedure will be carried out in the treatment room at the IVF unit. This will be the same room in which you had your mock embryo transfer. Your partner or a friend can sit with you whilst you have it done, if you want. The procedure will be either carried out by a doctor or by a highly-trained, experienced nurse. There will be other people in the room, such as another nurse to assist and an embryologist to take care of the eggs once they have been collected.

When you are ready, a nurse will give you drugs to numb the pain and relax you. These drugs will be given via the small plastic tube (cannula) in your hand. Although you may feel very sleepy, you will be awake throughout the procedure. The nurse can give you top-ups of the painkilling drugs, if you feel you need it.

You will also be given oxygen throughout the procedure. This is given via two short plastic tubes that sit at the base of your nostrils. An inflatable cuff will also be strapped around your upper arm to monitor your blood pressure.

The team will not start the egg collection procedure until you feel ready.

The doctor/nurse will insert an ultrasound probe into your vagina to see the follicles in your ovaries. A fine needle will then be used to collect the eggs from the follicles. The doctor/nurse will push the needle through the top of your vagina and into each follicle in turn.

The needle is attached to a syringe for filling the follicle with fluid and sucking fluid back out. When the tip of the needle reaches a follicle, the doctor/nurse will collect all the fluid from the inside of the follicle. The fluid is taken to the laboratory next door and examined under a microscope to see if it contains the egg from the follicle. If it does not contain the egg, the doctor/nurse will refill the follicle with fluid and attempt to “flush out” the egg. This fluid will be collected and the laboratory team will look for the egg. Once the egg has been found, it will be kept safely in the laboratory, ready to be fertilised. This doctor/nurse will repeat this process for each follicle.

The team will try their best to find an egg in each follicle, but this is sometimes not possible.

The egg collection procedure varies in the length of time that it takes. For some women it takes only 20 minutes or so, but for others it may take up to an hour.

When the team have collected as many eggs as possible, you will be taken to the recovery room to rest. You can stay here until you feel ready to go home. You will need to take it easy for the rest of the day. We strongly recommend that you do not work, drive, cook or operate any machinery, as the drugs used to make you feel sleepy and relaxed will still be in your body. You will be given written instructions on how to prepare for the embryo/blastocyst transfer (step 6) when you leave.

## **What happens to the eggs and sperm in the laboratory?**

Your eggs will be taken to the laboratory as they are collected. Your partner's sperm will also be processed in the laboratory. They will be looked after by our dedicated team of embryologists. The eggs and sperm will be kept separately in an incubator. This is a special cupboard that keeps the temperature and chemical conditions around the eggs and sperm similar to conditions found naturally in the body.

A few hours after your egg collection procedure has taken place, the embryologist will mix your eggs with your partner's sperm. The dish containing the eggs and sperm will then be returned to the incubator to allow fertilisation to take place.

The egg is said to be "fertilised" when a single sperm has burrowed its way through the tough outer coating of the egg. When the sperm reaches the core of the egg, it tells the egg to divide into two cells. These cells then divide again and keep dividing each day until a tiny ball of cells is formed. This ball of cells is the earliest stage in the growth of a baby. It is called an "embryo."

The embryologist will check on the dish approximately 18 hours later, to see if the sperm and eggs have become embryos.

We will telephone you to let you know if your eggs have fertilised or not. You can expect this call 2-3 days after your egg collection procedure has taken place.

## **STEP 6: REPLACING THE FERTILISED EGGS**

***This procedure is called an "embryo transfer" or a "blastocyst transfer."***

We will telephone you to let you know when your eggs have fertilised. We will then keep you updated on your embryos' progress until you come in to have them transferred to your womb.

Embryos are usually transferred to your womb approximately three days after your egg collection procedure has taken place.

The team will advise you on the best day/stage for your embryo transfer to be carried out, based on how your embryos are developing and information from previous treatment cycles. Blastocysts are simply embryos that have been allowed a little more time to mature in the laboratory. They are the next stage in the growth of a baby. Blastocysts are usually transferred to your womb approximately five days after your egg collection procedure has taken place.

You will need to keep days 3-6 after your egg collection procedure free, as we may telephone you on any one of these days to tell you that your embryos are ready to be transferred to your womb. You will need to be prepared to come to the Unit immediately, in case we need to see you very soon. Your partner will need to come with you to the Unit for the embryo transfer. This is because both partners will need to sign the consent form, should you wish to have any spare embryos frozen and stored.

The embryo / blastocyst transfer will be carried out in the same way as the mock embryo transfer that you had before your treatment started. It will be carried out in the treatment room at the IVF Unit. A small plastic tube will be threaded into your womb via the natural opening in your cervix. This tube will be used to gently place the embryos/blastocysts in your womb. The embryo/blastocyst transfer is usually quick and painless.

By law, there is a limit to the number of embryos/blastocysts that can be transferred to your womb at any one time. This is because there is a risk of multiple pregnancy (twins, triplets, etc.) if more than one embryo/blastocyst is transferred. Although the idea of having twins or triplets may sound good to you, it has to be remembered that multiple pregnancy carries many serious health risks to both the mother and the babies, including an increased risk of losing the pregnancy (miscarriage).

It is for this reason that we transfer a maximum of two embryos or blastocysts in women under 40. We are permitted to transfer a maximum of three embryos in women over 40, but only in exceptional circumstances.

We also have a policy where we will transfer only one embryo in women who's chances of successful treatment are good, as this minimises the risk of multiple pregnancy. Each case is decided on an individual basis.

After your embryo/blastocyst transfer has taken place you will be taken back to the recovery room to rest. You can stay here until you feel ready to go home. You will be given clear, written information on what you should do next. This information will include:

- How long you should continue to use the progesterone cream/pessaries for (see step 4).
- How long you should wait before you do a pregnancy test.

It is important that you follow these instructions carefully. If you carry out the pregnancy test too early, it may give a false positive result. This is where the test says that you are pregnant, when you actually are not. This happens because the drugs used during the treatment cycle will still be in your body. These drugs are detected by the pregnancy test as a false "pregnancy." A false positive result would be extremely distressing, which is why we ask patients to wait.

You will need to take it easy after your embryo/blastocyst transfer. We advise patients to rest completely for the rest of the day and avoid stressful situations for the next two weeks. This may mean that you have to take time off work, if you find your job particularly stressful.

It will not, however, be necessary for you to remain lying down after the procedure. Lying down for a long period of time will not increase the chance of the embryo/blastocyst implanting in your womb. You can also use the toilet as normal, as the embryos will not be affected.

## Storing spare embryos/blastocysts

Spare embryos and blastocysts can be frozen and stored for use in future treatment cycles.

This will make future treatment cycles easier and cheaper, as it will mean fewer injections and no egg collection procedure.

However, freezing spare embryos or blastocysts for storage is not a suitable option for everyone. The freezing and thawing out process is very tough on embryos and blastocysts and many do not survive. Blastocysts are less likely than embryos to survive. The embryos and blastocysts have to be of the very best quality if they are to have any chance of surviving freezing and thawing.

Your best embryo or blastocyst will be the one selected to be transferred to your womb, so it is likely that any spares will be of a poorer quality. It is for this reason that we do not recommend storage to all our patients.

An embryologist or a doctor will come to talk to you before you have your embryo/blastocyst transferred, to discuss whether or not your embryos/blastocysts would be suitable for freezing. Both partners will need to come to the embryo/blastocyst transfer, as you will both be required to sign the consent form before storage can take place.

The consent form will cover issues such as what the Unit should do with the embryos in the unfortunate event of one partner dying or becoming incapacitated. Either partner can change their mind and withdraw their consent at any time.

The Unit will only be allowed to store your embryos for the period of time agreed on the consent form. We will contact you when you are nearing the end of your agreed storage period to ask you what you would like us to do next. If we cannot contact you, we will be forced to take your embryos out of storage and allow them to degenerate (break down). It is for this reason that you must keep us up to date if you change your contact details.

If you choose to have another cycle of treatment with your stored embryos, this will be known as a “frozen embryo transfer,” or FET for short. For more information about frozen embryo transfers, please refer to our [patient information booklet](#).

## STEP 7: PREGNANCY TESTING

You will be given a pregnancy test after your embryo/blastocyst transfer. The nurse will give you a date on which you should do the test. You must wait until this date to do the test, as doing the test earlier may give a false positive result. (A false positive is when the test says that you are pregnant when you actually are not.) False positive pregnancy tests are very distressing, which is why we ask patients to wait.

However, we understand that waiting to do the test can be very stressful. Please do not forget, our [dedicated team of specialist counsellors](#) are available if you feel you need

someone to talk things over with. Counselling is available free of charge before, during and after your treatment.

If you experience a period after the treatment you should still do the pregnancy test. This is because we have known patients in the past who have had bleeding, despite being pregnant.

However, a period usually means that you are not pregnant. You can expect to have a period 12-16 days after your embryo/blastocyst transfer if this is the case.

Vaginal bleeding can also occur as the embryos/blastocysts try to implant in your womb. If you experience any bleeding you should contact us. Continue with your progesterone cream or pessaries.

You should call us after you have done the pregnancy test to let us know what the result is. If the result is negative, you may not feel ready to speak to us in person. If this is the case, you may want to call out of hours and leave an answerphone message.

If your pregnancy test is negative we will provide you with support to help you through this difficult time. We hold weekly meetings in the Unit where we look carefully at treatment cycles that have not been successful or that had to be stopped mid-cycle. We do this to see if there is anything that could have been done differently. The weekly meetings also enable us to make recommendations to improve the chances of future cycles being successful. For example, if your treatment had to be stopped because your eggs did not fertilise, we may recommend that you try ICSI if you choose to have treatment in the future.

We will send you a letter to let you know when this meeting has taken place. You are welcome to hear the findings of this meeting, if you wish. You may choose to have this over the phone or face-to-face at a follow-up appointment.

If your pregnancy test is positive, you should let us know straight away. We will arrange an ultrasound scan to confirm that you are pregnant. This scan will be carried out in about 3 weeks time. This is because we need to wait for the baby to grow to a certain size before the heartbeat can be seen on the scan. You will also need to come to the Unit to collect a supply of pessaries, which you will need to carry on taking until the ultrasound scan confirms that the pregnancy is viable.

Your antenatal care (the care that you receive during pregnancy) will not be carried out at the Unit. You will need to get in contact with your GP and let him know that you are pregnant, so that he can arrange appropriate care for you.