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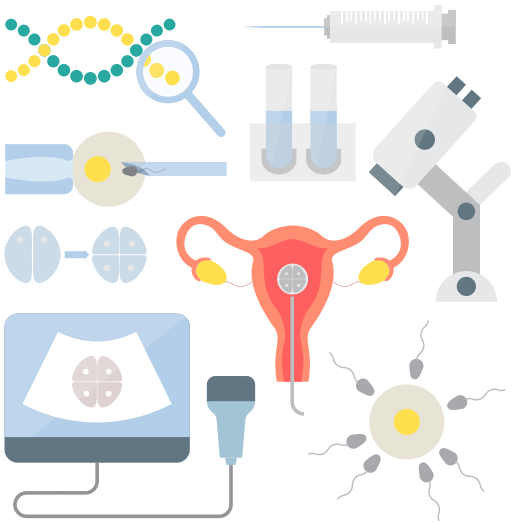

IVF Treatment

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Introduction

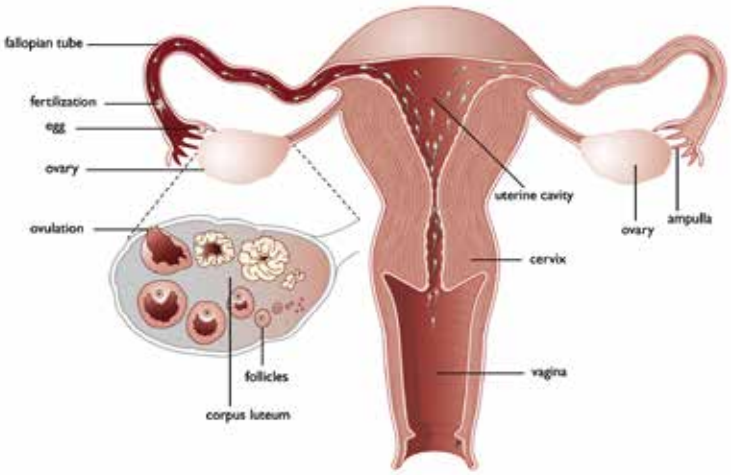
This brochure provides information on in vitro fertilisation, also referred to as IVF treatment.

Should you have any further questions after reading this brochure, please do not hesitate to contact us. The doctors and midwives at the Leuven University fertility centre will be happy to provide further information.

THE MENSTRUAL CYCLE

The start of the menstrual cycle coincides with the presence of several small follicles. One of these follicles will grow and mature within the ovary over the course of the first fourteen days. As the follicle grows it will produce more and more hormones (oestrogen). The high oestrogen concentration will affect the endometrial lining and cervix. Ovulation will follow under the influence of the luteinising hormone. The mature follicle will tear and release the egg (ovum), approximately 14 days before the end of the menstrual cycle.

When the egg is released it is captured in the oviductal ampulla. The egg proceeds through the fallopian tube as a result of the rhythmic contractions of the uterus and fallopian tube.



What remains of the follicle changes after ovulation into a corpus luteum under the influence of the luteinising hormone. The corpus luteum secretes progesterone, a hormone that maintains the endometrium. If the egg is not fertilised after ovulation the corpus luteum will not survive. Progesterone production will decrease and the endometrial lining will come away, resulting in menstruation.

IN VITRO FERTILISATION

IVF treatment differs from the normal menstrual cycle in several ways:

- ✔ Hormone injections are used to stimulate several follicles.
- ✔ Appropriate medication will be administered during IVF treatment to prevent spontaneous ovulation.
- ✔ Fertilisation will take place outside the body in the fertility laboratory. The embryo will be returned to the uterus a few days after fertilisation.

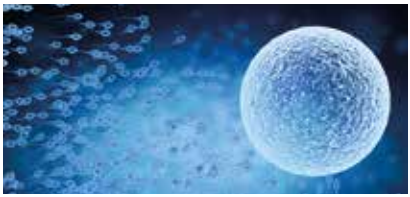
WHAT IS IVF TREATMENT?

In vitro fertilisation (IVF) is a form of fertility treatment in which hormones are administered in order to develop several eggs simultaneously.

The eggs are fertilised outside the body in a fertility laboratory. A fertilised egg is referred to as an embryo.

A successfully developed embryo will be returned to the uterus a few days after the ovum aspiration.

In some cases, e.g. with a poor quality sperm sample, the ICSI (intracytoplasmic sperm injection) technique may be used. During this process a single sperm cell is injected directly into the egg using a fine needle.



IFV technique

ICSI technique

INITIATING IVF TREATMENT

You can contact the Leuven University fertility centre at your own initiative or with a referral from a doctor.

Your initial consultation with the fertility centre will provide ample scope for a detailed consultation. In preparation of this initial consultation you will have to complete a questionnaire at home. The fertility consultant will ask specific questions to establish a

clear insight into your situation. Sometimes this consultation will be preceded by a consultation with a specialist midwife. You will then be given information on any necessary additional examinations involving you and your partner. The examination phase may take up to two or three months.

Once all examinations have been completed, a consultation will be arranged with the fertility consultant to discuss the results of the examinations. If these results indicate that a spontaneous pregnancy is highly unlikely, IVF/ICSI treatment may be an option for the couple in question.

Before starting the fertility treatment an appointment will be arranged with the midwife for an intake consultation, during which each stage of the treatment will be explained. You and your partner will be expected to visit and read the information on the www.mynexuzhealth.be website beforehand and bring the signed contracts with you to the intake consultation.

IVF TREATMENT PROCEDURE

STEP 1:
HORMONAL STIMULATION OF THE OVARIES

During IVF treatment several follicles will be stimulated to mature. To stimulate the follicles you will be given daily hormone injections for a period of approximately 14 days. Follicle growth will be monitored via blood samples and ultrasound follicle measurements. Once sufficient follicles have matured the ovum aspiration will be planned.

Different types of hormones (gonadotropins) can be used to stimulate the follicles. The doctor will decide which hormones you will receive during your fertility treatment. Gonadotropins contain follicle stimulating hormone (FSH), with or without luteinising hormone (LH), which stimulates the growth of follicles.

The hormones are administered daily via subcutaneous injections, which you, your GP or the home nurse can perform.

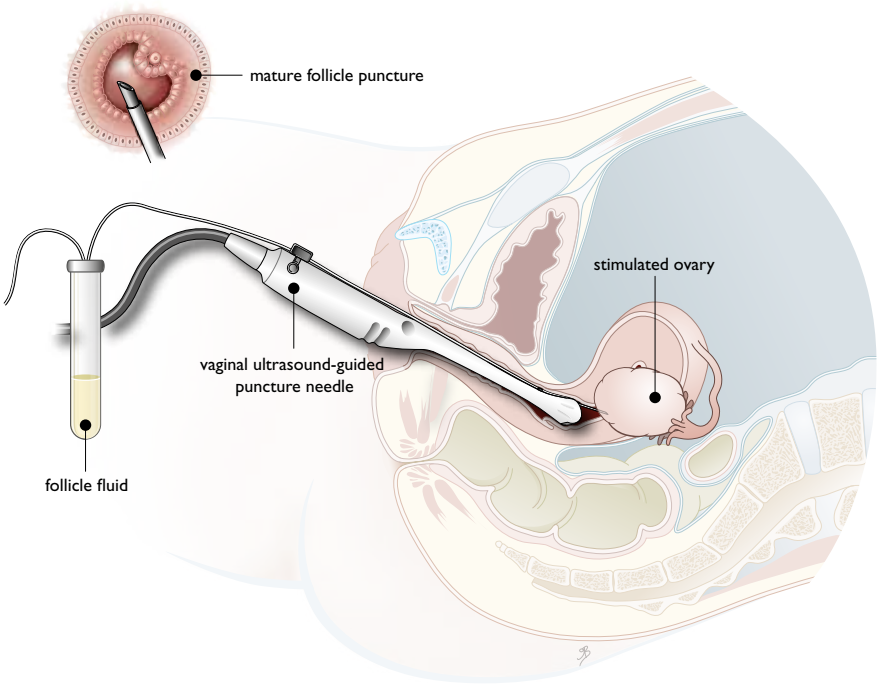
During IVF treatment you also need to take hormones on a daily basis using a nasal spray or injections in order to prevent ovulation.

STAP 2:
OVUM ASPIRATION AND SPERM PROCESSING

Once sufficient follicles have matured the ovum aspiration will be planned. You will have to administer a one-off hormone injection in preparation of the ovum aspiration. This will stimulate the eggs to mature and promote the start of the ovulation process.

Human chorionic gonadotropin (Pregnyl®) promotes the start of the ovulation process. Pregnyl® is administered via a subcutaneous injection into the abdomen. The timing of the injection depends upon the time of the planned ovum aspiration. If you inject too soon or too late we may not find any eggs during the ovum aspiration. You must inject Pregnyl® exactly at the stipulated time.

Ovum aspiration will take place on average 36 hours after the Pregnyl® injection. During the ovum aspiration procedure a vaginal ultrasound-guided fine needle is inserted and gentle suction is applied to aspirate all the mature follicles. This procedure is performed under a light anaesthetic. The follicle fluid is examined in the laboratory for the presence of an egg. The fertility consultant will tell you how many eggs there are on the day of the ovum aspiration. If the ovum aspiration takes place during the weekend, supplements may be charged.



Ovum aspiration: mature follicles are punctured and aspirated using a fine needle on the vaginal ultrasound-guided probe.

On the day of the ovum aspiration your partner will be expected to produce or deliver a sperm sample at/to the laboratory, unless frozen or donor samples are used. The sperm sample will be processed in preparation of the fertilisation. A sperm cell from a recently collected sperm sample will not be able to fertilise an egg just yet. It first needs to undergo a number of changes. This process, which naturally occurs in the fallopian tubes, is referred to as sperm capacitation. The capacitation process is emulated in the laboratory and the concentration and motility following capacitation is checked.

STEP 3:
FERTILISATION AND DEVELOPMENT OF THE EMBRYO

The ova and sperm are combined several hours after the ovum aspiration. There are several fertilisation techniques.

- ✔ With IVF treatment the capacitated sperm sample is added to the ova in a petri dish, which is placed in an incubator. The next morning the ova are checked to see whether they have been fertilised.
- ✔ If the number of motile sperm is too low to guarantee successful fertilisation of the ova, the ICSI technique will be used. A single sperm cell is injected into the ovum using an ultra fine needle. Similar to IVF treatment, fertilisation is checked in the laboratory the following day.

If fertilisation was successful the midwife will call you to arrange the planning of the embryo transfer.

With a successful stimulation attempt it is anticipated that approximately 80% of the ova will have matured. On average 60% of mature ova are fertilised.

Embryo development

day 1 day 2 day 3 day 4 day 5

A fertilised egg is referred to as an embryo. Embryos divide repeatedly. The development of the embryo is monitored daily in the fertility lab. Three days after fertilisation a successfully developed embryo will have reached the six to eight cell stage.

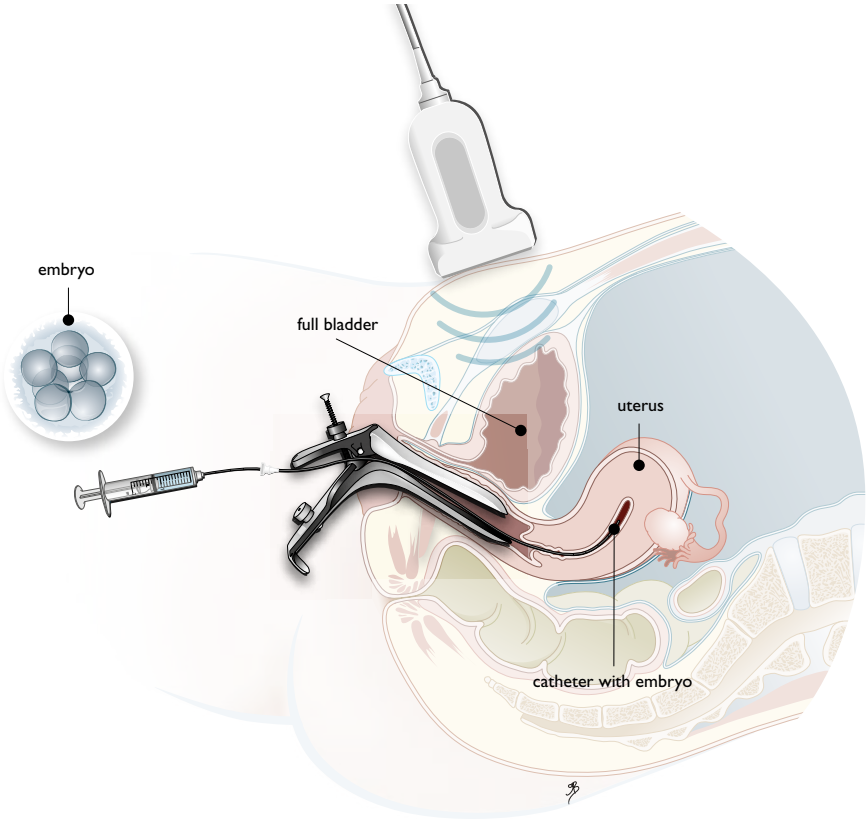
STEP 4: EMBRYO TRANSFER

The transfer procedure during which one or more embryos are transferred via a catheter directly into the uterine cavity is not painful. It is important that your bladder should be full to ensure that the embryo transfer runs smoothly. Once the embryo has been transferred you can return to your daily activities.

An embryo will be transferred 3 to 5 days after the eggs were collected. The doctor will provide more information on the number of fertilised eggs, the quality of the embryos and the possibility of freezing an embryo. The number of embryos that can be transferred is determined by law.

Sometimes it may also be possible to perform assisted hatching before the embryo transfer. With assisted hatching the barrier around the embryo is thinned, using a laser beam, to promote the release and hatching of the embryo. This technique can be performed starting from the third IVF/ICSI treatment.

The fertility consultant will discuss the embryo transfer policy with you before starting the fertility treatment. For more information refer to the section on ‘legal age limits’ further in this brochure.



The embryo is inserted/transferred into the uterine cavity via a catheter.

STEP 5: POST TREATMENT

Progesterone treatment will start on the evening of the ovum aspiration. This is necessary to keep the endometrial lining in optimum condition during the second half of the cycle.

Fifteen days after the ovum aspiration the pregnancy hormone is measured via a blood test.

- ✔ If the pregnancy test is positive, a second blood test will be arranged a week later to check the situation. The midwife will discuss with you which medication you need to continue to use.

- ✔ If the pregnancy test is negative, a new treatment can be initiated. If frozen embryos are available they will be used first in a thawing cycle. If no frozen embryos are available a new fertility treatment will have to be initiated. The fertility consultant will first discuss the start of a new treatment with you during an appropriate consultation.

FREEZING EMBRYOS

If several embryos have developed successfully on the day of the embryo transfer, the remaining embryos will be frozen and stored. Only good quality embryos will be frozen.

If new fertility treatment is required a frozen embryo will be used for the next embryo transfer. A frozen embryo will be transferred during a natural cycle or following the administration of hormone tablets.

POTENTIAL TREATMENT RISKS

OVERSTIMULATION OF THE OVARIES

The purpose of IVF/ICSI treatment is to mature several ova at the same time.

In some cases hormone medication (gonadotropins) can lead to excess hormone production, resulting in the stimulation of a large number of follicles. The ovaries will overreact and enlarge and there will be an accumulation of fluid in the lower abdomen. In rare cases this may affect the way the body manages fluid levels. This is referred to as ovarian hyperstimulation syndrome. Frequently occurring symptoms include pain in the lower abdomen, weight gain, difficulty breathing, stomach problems, dizziness or nausea.

If this occurs you must contact the fertility centre. We will perform a blood test and ultrasound scan to assess the seriousness of the situation. In most cases we will advise you to rest. In more severe cases patients will need to be admitted to hospital.

COMPLICATIONS FOLLOWING OVUM ASPIRATION

There is a small risk (less than 1%) of bleeding or infection following an ovum aspiration. If, soon after an ovum aspiration, you notice severe blood loss or develop a fever, you must contact the fertility centre.

LEGAL AGE LIMITS

In Belgium ovum aspiration procedures are permitted up to the age of 46. The legal age limit for frozen embryo transfers is 48 and the procedure can only be performed providing the application was submitted before the age of 46.

Since the Royal Decree dated July 2003 health insurance funds have contributed to the cost of IVF/ICSI treatments, with a maximum of 6 cycles up to and including the age of 42. Financial contributions from Belgian mutual health insurance funds are subject to approval from the health insurance fund's medical adviser. Repayments are linked to a limitation in the number of transfer embryos, depending upon the woman's age and treatment sequence (see table).

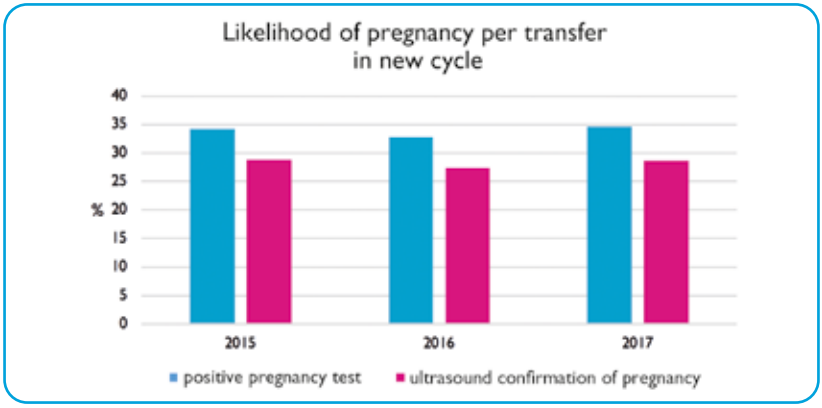
The following regulations apply to embryo transfers during IVF treatment:

	First attempt	Second attempt	Third up to and including sixth attempt
Below the age of 36	maximum 1 embryo	1 embryo, potentially 2	maximum 2 embryos
aged 36-39	maximum 2 embryos	maximum 2 embryos	maximum 3 embryos
aged 40-42	unlimited	unlimited	unlimited

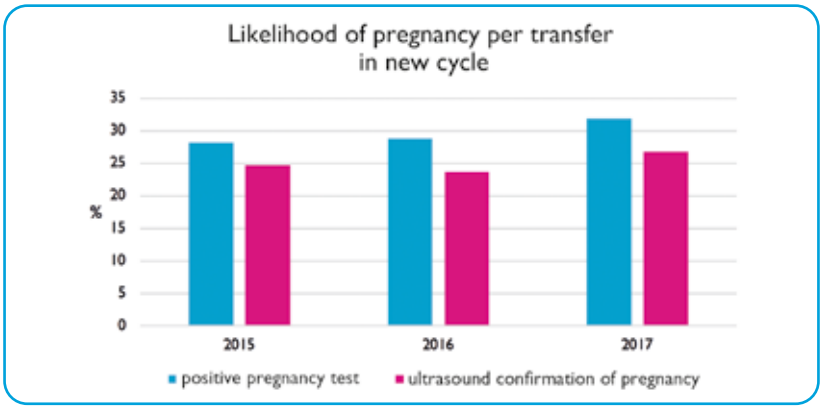
IVF TREATMENT RESULTS

The following tables illustrate the likelihood of pregnancy following an embryo transfer.

In 2017, 34% of patients recorded a positive pregnancy test following an embryo transfer with an IVF/ECSI procedure. In 28% of patients this resulted in a clinical pregnancy, i.e. the pregnancy could be confirmed during an ultrasound scan.



With a thawing cycle the likelihood of pregnancy per embryo transfer is slightly lower. In 2017 pregnancy hormone was recorded in 31% of patients. Further progress to an ultrasound confirmation of a pregnancy amounted to 26%.



PSYCHOLOGICAL SUPPORT

Fertility problems or the start of fertility treatment are extremely emotional experiences. You may be subject to various emotions and thoughts, continually changing in intensity and direction, at different times. Often talking to your partner or someone close to you may help. If you feel that there are still a number of unanswered questions, you can request a consultation with our fertility psychologist.

They will be happy to talk to you individually, or together with your partner, covering all the different aspects of fertility problems.
Ample time will be taken to consider your specific concerns and the individual and relational decision-making process in detail. How can you talk about your experiences with your partner or your nearest and dearest? How do you manage insecurities, the highs and lows of the treatment process? Sometimes it may be a relief to be told that your feelings and thoughts are a quite normal part of the journey. Talking to someone is always possible, during the investigation stage, the actual treatment or after its termination.

RELAXATION THERAPY

If you are under a lot of stress as a result of the treatment or a combination of different factors, our psychomotor therapist will be happy to provide support.

Psychomotor therapy is a type of physiotherapy, which focuses on the body and its expressivity. This may help when stress manifests itself in physical complaints such as muscle tension, anxiety, sleeping badly, no longer being able to relax, pain, hyperventilation, etc.

Your specific symptoms are investigated and the results used to jointly find a meaningful approach to deal with your particular situation. You will be provided with various tips and techniques, tailored to your specific requirements, to help you along the way.

CONTACT DATA

Leuven University fertility centre

- Medical queries: 016 34 36 24
- Administrative queries: 016 34 36 50
- fertiliteitscentrum@uzleuven.be
- www.uzleuven.be/lufc
- Psychologist: Uschi Van den Broeck
- Physiotherapist: Gillian Demin

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