

# Infertility and IVF

## The IVF Unit at Sophiahemmet

The IVF Unit was established in 1984. We can offer most types of treatment for infertility. IVF (in vitro fertilization) constitutes a large part of our work.

Staff:

Physicians: Arthur Aanesen, MD, PhD  
Claes Gottlieb, Associate Professor  
Kerstin Krüger, MD  
Lars Nylund, Associate Professor  
Åsa Rylander, MD

Midwives, nurses: Catharina Blomberg  
Kristina Haglund  
Marianne Karbin  
Cecilia Lärksäter  
Cecilia von Segebaden  
Ninnie Sidesjö  
Margareta Stefenson

Laboratory staff: Anna Ivansson  
Kaija Hyvönen-Töcksberg  
Marie Höglund  
Björn Loftås  
Ann-Marie Thörnblad

Administration: Ingrid Jansson  
Lena Ringdén

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Visiting address: Valhallavägen 91, Entrance A  
Postal address: Box 5605, S-114 86 Stockholm, Sweden  
Phone: +46 8 406 20 00, Fax: +46 8 10 16 21  
e-mail: [ivf.fertility.sophia@ivf-gruppen.se](mailto:ivf.fertility.sophia@ivf-gruppen.se)  
web site: [www.ivf-gruppen.se](http://www.ivf-gruppen.se)

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## When is IVF applicable?

### *Damaged tubes.*

Tubal infertility is a main indication for IVF. In many cases a previous tuboplasty has been performed without positive result. IVF then remains as the best alternative.

### *Male infertility.*

We have experienced that male infertility is becoming a substantial part of our indications for IVF. New techniques such as microinjection and sperm aspiration has given us tools to help this group of patients.

### *Unexplained infertility.*

IVF is one of several possible treatments in these cases.

### *Other indications.*

There are a number of other diagnoses that are indications for IVF such as endometriosis, immunological defects etc.

## Prerequisites for treatment

A thorough hormonal and clinical investigation of the infertility should have been performed.

Our age limit is <43 years.

## The treatment

Several treatment regimes exist but most patients are treated with hormonal stimulation aiming at a large number of mature oocytes.

**Down regulation:** 7 days prior to menstruation down regulation of the pituitary is initiated with daily injections (or sometimes nasal spray) of busserelin. This blocks the stimulation from the pituitary to the ovaries. The duration of this treatment lasts for two to three weeks and after this period the hormonal stimulation can start.

Alternatively the hormonal stimulation starts at the beginning of the menstrual cycle without previous down regulation. Instead the pituitary is blocked by adding another injection to the stimulation hormone after five days.

**Hormonal stimulation of the ovaries:** Injections of gonadotrophin (FSH, a hormone from the pituitary) are given daily. The down regulation with nasal spray is continued simultaneously. This treatment is often completed after two weeks.

**Monitoring of the stimulation:** Vaginal ultrasound examinations of the ovaries and the uterine lining is done regularly with a few days' interval. In addition, blood samples are analyzed for estradiol rise. The results determine when ovulation induction with an injection of hCG should be administered.

**Oocyte retrieval:** In the morning two days after the hCG injection the oocyte retrieval is performed. This is done vaginally under ultrasound guidance. Local anaesthesia and sedation is given. The woman can leave the hospital in the afternoon. On the same day a sperm sample is required. The sperms are prepared during the day

and the insemination (i.e. sperms are added to the oocytes) is performed in the afternoon. The eggs are then cultivated for two days in incubators.

**Microinjection (ICSI):** In cases of a very low sperm count or if there is any other major abnormality in the sperm analysis, microinjection of one sperm into the oocyte can be used. An oocyte obtained after retrieval is fixed in a holding pipette under microscopic control. Using micromanipulators one single sperm is injected into the cytoplasm of the oocyte. Cultivation is performed for two days as at conventional IVF. Images from cultivation of embryos can be found at [www.ivf-gruppen.se](http://www.ivf-gruppen.se)

**PESA:** If no spermatozoa are found in the seminal fluid but the production of spermatozoa in the testes works, there is a possibility of getting sperm from the epididymis. This is a procedure which is performed under local anesthesia and an ICSI procedure then follows.

**Assisted hatching:** In women over 40 years of age and in some other defined cases assisted hatching might improve the results: The shell surrounding the dividing pre-embryo is some-times hard to get out of . The hatching procedure can be facilitated by a weakening of the shell by laser treatment before embryo transfer.

**Embryo transfer:** After cultivation the oocytes have cleaved and are now called pre-embryos. Transferral to the uterus is performed with a very thin flexible catheter from the vagina, through the cervical canal, into the uterine cavity. After a short rest the woman can leave the hospital.

**IVF in a natural cycle** is an alternative to the conventional IVF described. This is recommended primarily for women under the age of 35 with a regular menstrual cycle. The natural menstrual cycle is monitored with hormonal determinations and ultrasound examinations and oocyte retrieval is accomplished from the single follicle that matures naturally.

To avoid high estradiol levels during treatment and/or to avoid an excess of eggs, another alternative is to give only a slight stimulation with clomiphene, 2 pills a day for five days.

**Cryopreservation:** Usually two embryos are transferred at embryo transfer. If there are spare embryos of good quality they can be frozen in liquid nitrogen for later use (FER = Frozen embryo replacement). This is of interest if the first IVF treatment failed or if the couple wishes to have another pregnancy after the delivery of the child of a successful IVF treatment.

The Swedish law restricts IVF treatment to couples constituted by a man and a woman. Surrogacy, embryo donation or IVF using gamete (egg or sperm) donation is not allowed.

## Success rates

In 2008 655 IVF treatments were completed at Sophiahemmet: 42% of the embryo transfers performed after hormonal stimulation gave rise to a pregnancy in the age group below 37 years. Women below the age of forty had a pregnancy rate of 39%. 143 frozen/thawed embryo transfers in 2008 resulted in a 34% pregnancy rate for women below the age of forty.

Please contact us by phone or fax or write to us for further information.

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Phone: +46 8 406 20 00 Fax: +46 8 10 16 21  
e-mail: [ivf.fertility.sophia@ivf-gruppen.se](mailto:ivf.fertility.sophia@ivf-gruppen.se)

## Costs in vitro fertilization

All amounts in SEK

Visits to doctor	5,000
Visits to nurse	2,000
Monitoring of treatment with ultrasound	2,500
Hormone tests	2,000
Blood tests	1,500
Egg retrieval	3,000
Egg and sperm culture	16,000
Embryo transfer	2,000
Check-up and hormone test	1,000
Total	<hr/> 35,000