IVF Processes

Pre-Cycle Testing – Ovarian Stimulation – Egg Retrieval – Embryo Creation – Embryo Transfer – Pregnancy Test

Pre-Cycle Testing and Procedures

Before starting the in vitro fertilization process, your physician will want to get blood work to check your ovarian reserve. A saline sonogram (SIS) will also be scheduled to evaluate the uterus, the shape of the uterine cavity, the uterine lining and the fallopian tubes. The SIS uses ultrasound and sterile fluid to show the uterus and endometrial (uterine lining) cavity. The ovaries are also seen at the time of SHG. The purpose is to detect any abnormalities.

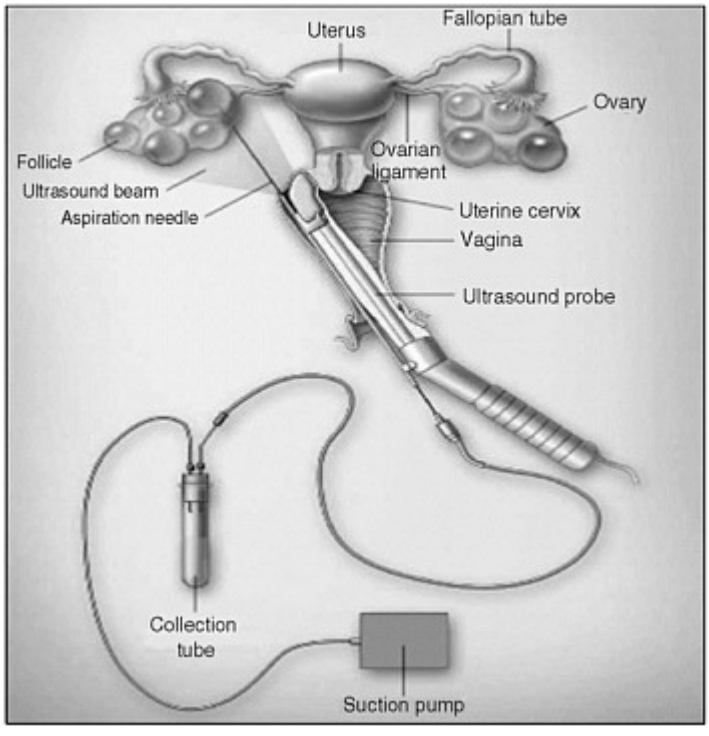
A complete semen analysis and possible functional sperm testing will be performed on male partners to assess sperm count, motility and morphology. The purpose is to detect any abnormalities.

Ovarian Stimulation

During the in vitro fertilization process, your fertility specialist will monitor your ovaries and the timing of the egg retrieval. Patients take fertility medications or hormones at this time to stimulate the ovaries to produce eggs. The physician will make sure that your ovaries are producing eggs by performing several ultrasounds and drawing blood often to monitor hormone levels. The ultrasound measures the growth of the follicles and the thickness of the uterine lining. The blood work measures the estrogen levels in the blood which is a good indicator of the growth and maturation of the eggs.

Egg Retrieval

Under ultrasound guidance, the physician inserts a needle through the vaginal wall and into an ovarian follicle, taking care not to injure organs located between the vaginal wall and the ovary. The other end of the needle is attached to a suction device. Once the follicle is entered, suction is gently applied to aspirate follicular fluid and with it, hopefully, cellular material including the oocyte. The follicular fluid is delivered to a technician in the IVF laboratory to identify and quantify the ova. Next, other follicles are aspirated. Once the ovarian follicles have been aspirated on one ovary, the needle is withdrawn, and the procedure repeated on the other ovary. After completion, the needle is withdrawn, and bleeding is controlled. The procedure usually lasts 15–20 minutes. Egg retrieval is currently performed with a transvaginal ultrasound transducer with an attached needle. Egg Retrieval is performed in a physician's office under procedural sedation administered by an anesthesiologist.



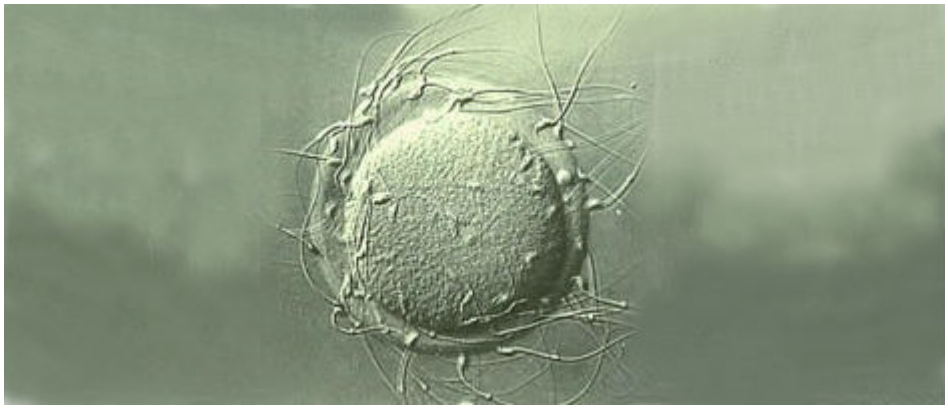
Embryo Creation

If sperm parameters are normal, approximately 50,000 to 100,000 motile sperm are transferred to the dish containing the eggs. This is called conventional insemination.

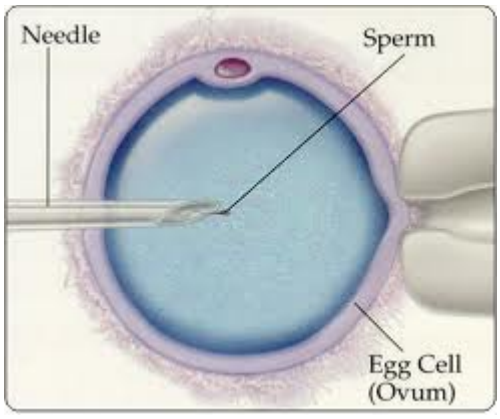
The ICSI technique is utilized to fertilize mature eggs if sperm parameters are abnormal. This procedure is performed under a high-powered microscope. The embryologist picks up a single sperm using a fine glass micro needle and injects it directly into the egg. ICSI increases the chance that fertilization will occur if the semen sample has a low sperm count and/or motility, poor morphology or poor progression.
If there are no sperm in the ejaculate, sperm may be obtained via a surgical procedure (TESE). ICSI is always used to achieve fertilization if the sperm is surgically retrieved.

Fertilization is assessed 16-18 hours after insemination or ICSI. The fertilized eggs are called zygotes and are cultured in a specially formulated culture medium that supports their growth. They will be assessed on the second and third day after retrieval and again on days four through six if needed.

Conventional Egg Insemination Process

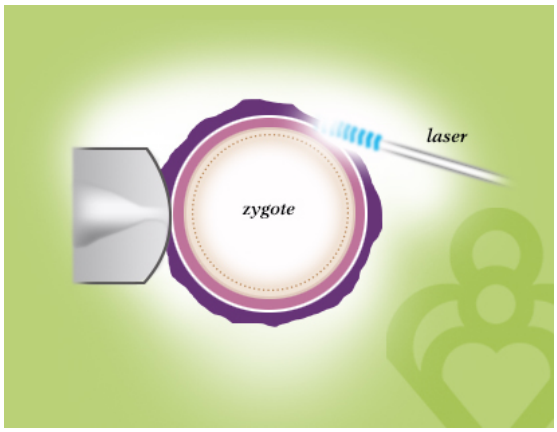


ICSI (Intra-cytoplasmic sperm injection) Process



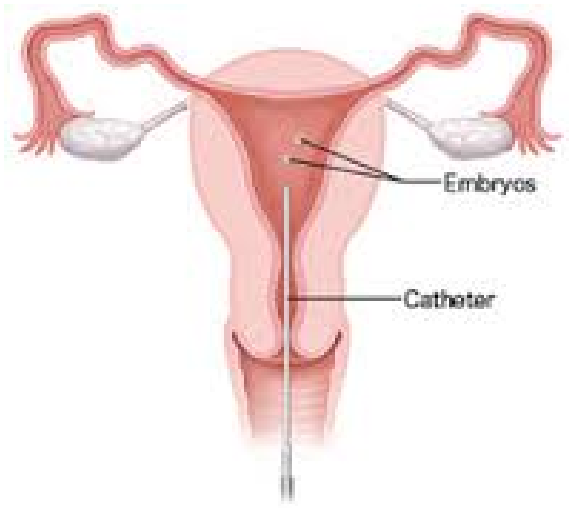
Assisted Hatching Process

Assisted hatching may be used to help the embryo hatch from its protective outer shell, the zona pellucida, and promote implantation in the uterine wall after embryo transfer. The embryo transfer procedure is done shortly after the hatching procedure. The hatching procedure is done with a hyper-focused beam of light, intensity of which is not to be found in nature.



Embryo Transfer Process

The embryo transfer procedure starts by placing a speculum in the vagina to visualize the cervix, which is cleansed with saline solution or culture media. A soft transfer catheter is loaded with the embryos and handed to the physician after confirmation of the patient's identity. The catheter is inserted through the cervical canal and advanced into the uterine cavity. There is good and consistent evidence of benefit in ultrasound guidance that is, using abdominal ultrasound to ensure correct placement. After insertion of the catheter, the contents are expelled and the embryos are deposited.



Confirmation of Pregnancy

During pregnancy, cells in the developing placenta make human chorionic gonadotropin, or hCG. The placenta is the sac that nourishes the egg after it's fertilized and attaches to the uterine wall.

An appointment will be made to return approximately 2 weeks from the day of your egg retrieval to draw a quantitative hCG (blood pregnancy test) to determine if you have achieved pregnancy.