



PATIENT FACT SHEET

Risks of In Vitro Fertilization (IVF)

Serious complications from the medications and procedures required for in vitro fertilization (IVF) are rare. However, as with all medical treatments, there are some risks.

Medication

Most infertile women who choose to attempt pregnancy by IVF require fertility drugs, also called "ovulation induction" medications, to stimulate their ovaries to produce one or more eggs. All medications used for this purpose are listed and explained in the *Medications for Inducing Ovulation* booklet. Possible side effects of the drugs include:

- Mild bruising and soreness at the injection site. Using different sites for the injections can help.
- Allergic reaction, gastrointestinal distress, headache, or mood changes. Make sure you tell your doctor and nurse if you experience any bad reaction to these medications.

- Ovarian hyperstimulation syndrome (OHSS). This is a condition in which the ovaries produce many follicles (fluid filled sacs each containing an egg) and become much larger than usual. OHSS is a potential complication from almost any fertility drug. Usually, it is mild and improves without treatment. However, in severe cases, OHSS can result in very enlarged ovaries, dehydration, fatigue, and the collection of large amounts of fluid in the abdomen and lungs. Very rarely (fewer than 1% of women undergoing egg retrieval through IVF), OHSS can lead to blood clots and kidney failure.

The risk of severe OHSS can be made very low by: (1) lowering the dosage of fertility drugs to reduce the ovarian response; (2) withholding the human chorionic gonadotropin (hCG) used to trigger ovulation and canceling the cycle; or (3) proceeding with the egg retrieval, but freezing all embryos for a later cycle.

What About Ovarian Cancer?

Despite some older reports suggesting a link with ovarian cancer, more recent studies fail to provide any convincing evidence that supports any association between fertility drugs and ovarian cancer.

Egg Retrieval

During egg retrieval, your doctor uses vaginal ultrasound to guide the insertion of a long, thin needle through your vagina into the ovary and then into each follicle to retrieve the egg. You are usually sedated or under anesthesia. Specific possible risks include:

- Mild to moderate discomfort (**during or after the procedure**).
- Injury to organs near the ovaries, such as the bladder, bowel, or blood vessels.
- Bleeding from the ovary or pelvic vessels. Any bleeding is usually mild, rarely requiring transfusion or surgery.
- Pelvic infection (mild to severe). Such infections are very rare.

However, if they do occur, they may be severe and typically are treated with intravenous antibiotics. Rarely, surgical intervention may be required to remove the infected uterus and/or one or both of the ovaries and tubes.

Embryo Transfer

During embryo transfer, the doctor may or may not use an ultrasound machine to provide guidance while inserting an "outer" catheter through the vagina and opening of the cervix into the uterus. A smaller catheter containing the embryos is then inserted into this "outer" catheter and placed near the middle of the cavity of the uterus. Then the embryos are released into the uterus.

You may feel a slight cramp when the doctor inserts the catheter through the cervix, and rarely may experience some mild cramping, bleeding and/or spotting after the procedure. Very rarely, an infection may develop, which can be treated with antibiotics.

Multiple Pregnancy

Your doctor has probably talked to you about the risk of multiple pregnancy (twins or more) with IVF. The more embryos that are transferred into the uterus, the higher the risk. Multiple pregnancies carry significant risks, including:

- Premature labor with possible risks to the infant
- Premature delivery
- Maternal hemorrhage
- Cesarean delivery
- Pregnancy-induced high blood pressure
- Gestational diabetes

Your doctor should transfer the minimum number of embryos necessary to provide a high likelihood of pregnancy with the lowest risk of multiple pregnancy. If you do become pregnant with multiples, you should consult with a maternal-fetal medicine specialist, a doctor specially trained in high-risk pregnancies, about any possible complications. You may also wish to consider reducing the number of embryos you are carrying.

What About Birth Defects?

The goal of IVF is to help you have a healthy baby. Overall, there does not seem to be an increased risk of birth defects in children conceived through IVF compared to those who conceive naturally.

Fertilization by inserting a single sperm into each egg, known as intracytoplasmic sperm injection (ICSI), does not increase the incidence of multiple gestation compared to standard IVF in which fertilization occurs by simply mixing sperm with the eggs. Because ICSI is a relatively new technique, first performed in 1992, long-term data concerning future health and fertility of children conceived with ICSI are not available. Naturally conceived children have a 3%-to 5%-risk of birth defects, and most reports on birth defects of children conceived through IVF-ICSI show similar rates. However, some studies of babies conceived through ICSI report an increased incidence of rare defects (<1% of children born from IVF-ICSI) known as imprinting disorders (including Beckwith-Wiedemann and Angelman syndromes), a congenital malformation called hypospadias (with the urethra, the opening for urine and semen, found on the underside instead of on the end of the penis), or sex chromosome abnormalities. This is an area of ongoing investigation. Because some causes of male infertility are run in families and are related to genetic problems, male offspring might have reproductive problems as adults. Despite these concerns, ICSI is a major advance in the treatment of severe male infertility for couples who otherwise would be unable to achieve pregnancy.

What About Miscarriage?

The rate of pregnancy loss or miscarriage following IVF is similar to that in the general population, with the risk increasing with the mother's age. The rate of miscarriage may be as low as 15% for women in their 20s to more than 50% for women in their 40s.

There is a 2%-to 4%-risk of an ectopic, or tubal, pregnancy if an embryo moves from the uterus into the fallopian tube. If an ectopic pregnancy occurs, you will need medication to end the pregnancy or surgery to remove it. If you are pregnant and experience a sharp, stabbing pain, vaginal spotting or bleeding, dizziness or fainting, low back pain or low blood pressure (from blood loss), call your doctor immediately. These are all signs of a possible ectopic pregnancy.

For more information on the risks and side effects of IVF, visit our web site at www.asrm.org and click on "Patients" to access the booklets *Assisted Reproductive Technologies*, *Medications for Inducing Ovulation*, and *Multiple Pregnancy and Birth*.

The American Society for Reproductive Medicine grants permission to photocopy this fact sheet and distribute it to patients.