Reproductive Facts

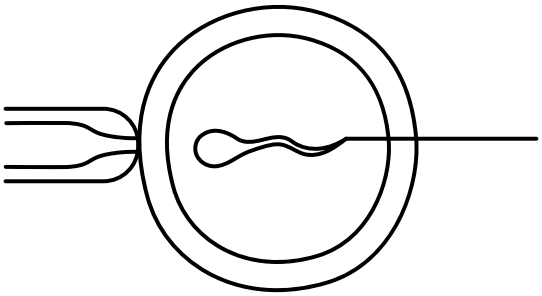
Patient fact sheet developed by the American Society for Reproductive Medicine

Intracytoplasmic Sperm Injection (ICSI)

What is intracytoplasmic sperm injection (ICSI)?

Before a man's sperm can fertilize a woman's egg, the head of the sperm must attach to the egg. Once attached, the sperm pushes through the outer layer of the egg to the inside (cytoplasm) where fertilization takes place. Sometimes the sperm cannot penetrate the outer layer of the egg. The egg's outer layer may be thick or hard to penetrate, or the sperm may be unable to swim normally. In these cases, a procedure called intracytoplasmic sperm injection (ICSI) can be done along with in vitro fertilization (IVF) to help fertilize the egg. During ICSI, a single sperm is injected directly into the cytoplasm of an egg.

How does ICSI work?



Intracytoplasmic Sperm Injection (ICSI)

There are two ways that an egg may be fertilized by IVF: traditional fertilization and ICSI. In traditional IVF, 50,000 or more swimming sperm are placed next to the egg in a laboratory dish. Fertilization occurs when one of the sperm enters into the cytoplasm of the egg. In the ICSI process, a tiny needle, called a micropipette, is used to inject a single sperm into the center of an egg. With both traditional IVF and ICSI, once fertilization occurs, the fertilized egg (now called an embryo) grows in a laboratory for 1 to 5 days before it is transferred to the woman's uterus (womb).

Why would I need ICSI?

ICSI helps to overcome fertility problems, such as:

- The male partner produces too few sperm to do artificial insemination (intrauterine insemination [IUI]) or IVF.
- The sperm may not move in a normal fashion.
- The sperm may have trouble attaching to the egg.
- A blockage in the male reproductive tract may keep sperm from getting out.
- IVF has not been successful in producing a fertilized egg.
- In vitro matured eggs (eggs grown in a lab) are being used.
- Previously frozen eggs are being used.

How well does ICSI work?

ICSI fertilizes 50% to 80% of eggs, but the following problems may occur during or after the ICSI process:

- Some or all of the eggs may be damaged.
- The egg might not grow into an embryo even after it is injected with sperm.
- The embryo may stop growing.

Once fertilization takes place, a couple's chance of giving birth to a single baby, twins, or triplets is the same if they have IVF with or without ICSI.

Can ICSI affect a baby's development?

If a woman gets pregnant naturally, there is a 1.5% to 3% chance that the baby will have a major birth defect. The chance of birth defects associated with ICSI is similar to IVF, which is slightly higher than in natural conception. This slightly higher risk may be due to infertility and not the treatments used to overcome infertility.

The development of certain conditions has been associated with the use of ICSI, such as Beckwith-Wiedemann syndrome, Angelman syndrome, hypospadias, and sex chromosome abnormalities. These conditions are thought to occur in less than 1% of children conceived using ICSI.

Infertility in male children may occur due to genetic reasons. For example, boys conceived with the use of ICSI may have the same infertility issues as their sperm donor. Infertility may be genetic.

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