



# Intracytoplasmic Sperm Injection (ICSI)

## WHAT YOU NEED TO KNOW

**Intracytoplasmic Sperm Injection (ICSI) is a specialised form of IVF that is used for the treatment of severe cases of male-factor infertility. ICSI involves the injection of a single sperm directly into a mature egg.**



At First Step Fertility, our highly skilled team of scientists preferentially use your partner's better-quality, more mature sperm to maximise your chances of falling pregnant.

### Who is ICSI Recommended for?

ICSI - IVF is recommended for couples who have had poor or no fertilisation during standard IVF, as well as men who have:

- Poor sperm morphology (abnormally shaped sperm).
- Poor sperm motility (slow moving).
- A low sperm count.

### ICSI Treatment Procedure

Before ICSI can be carried out, mature eggs must be retrieved from the female partner during a standard IVF cycle. The male partner's semen sample is prepared in the lab to isolate as many healthy, moving sperm as possible. After allowing the eggs to continue the maturation process for two to three hours following their removal, the tight outer coating of cells (cumulus) is removed from each egg. Only then can we be sure the egg is mature enough to undergo ICSI.

Immature eggs cannot be injected. However, they can be incubated for a further two to six hours and reassessed. If they mature in that time, they can still be injected along with the other mature eggs.

A special instrument is used to hold the egg in place. It is very small and not visible to the naked eye. A thinner, sharp, needle-like instrument is used to pick up a single sperm.

Motile sperm are selected for injection on the basis of their morphology (shape). The selection of sperm using this visual approach may not necessarily reflect the functionality of the sperm or its ability to fertilise an egg (oocyte).

With great precision, the needle is inserted through the egg's outer coating (the zona pellucida) and into the egg itself.

The sperm is slowly injected into the egg and the needle is removed, leaving the sperm behind.

The injected eggs are placed in an incubator overnight and examined the next morning for signs of fertilisation. After an additional 24 hours, we can expect to see cell division. Not all eggs fertilise, and not all fertilised eggs become embryos. Provided they are developing appropriately, additional embryos can be frozen if desired.

### What is the Success Rate of Fertilisation With ICSI?

An average 70% of mature eggs will fertilise normally. Of the rest of the injected oocytes, on average about 5% may not survive the injection, some may fertilise abnormally and others may not fertilise at all. Failed fertilisation after ICSI occurs in less than 2% of cases, and more than 90% of couples undergoing ICSI will have at least one embryo to transfer.

The clinical pregnancy rates are similar to those of standard IVF and vary with the age of the woman.

It is important to note that ICSI does not guarantee fertilisation or embryo development. A number of factors may affect the success of ICSI, including:

- DNA quality of the oocyte or sperm.
- Integrity of the oocyte structure - some oocytes may not survive the injection due to instability of the membrane.

## What are the Potential Risks?

**For the egg:** As ICSI is more invasive and requires more handling than standard IVF insemination techniques, there is a small chance (less than 2%) that the egg may be damaged during the procedure - resulting in a non-viable egg.

**For the Resulting Child:** Thousands of children around the world have been born as a result of ICSI. So far, there is no definitive evidence that the incidence of birth defects is any different with ICSI or IVF compared with children born to other parents of similar age and health. Long-term studies are ongoing to confirm this finding.

The mother's age at delivery, family history and the presence of pregnancy complications are the most important predictors of newborn health. However, these studies are still ongoing. It is possible that a male child born as a result of ICSI might have a fertility problem similar to his father's.

Some men have an acquired cause of their sperm problem that we know will not be hereditary (i.e. vasectomy, spinal cord injury etc.). However, other men have sperm problems that may have been present since birth. These may be passed on to the male children due to a small chromosomal rearrangement, a deletion of a small portion of the Y chromosome etc. As well, men with very low sperm counts or an obstruction in their sperm ducts (vas or epididymis) may carry one of the cystic fibrosis (CF) genes. In this situation, the child may inherit the CF gene, and if the female partner also carries one of the CF genes there is a chance of producing a child who actually has CF.

Just as the mother's age influences the risk of birth defects, men with very low sperm counts also have an increased chance (about 1%) of producing a son with an abnormal number of sex chromosomes (i.e. XXY or XYY instead of the usual XY). These children have a normal physical appearance and are likely to have normal IQs, but they may develop learning difficulties, behavioural problems or infertility.

Blood tests can screen one or both partners for many (but not all) of these problems, including chromosomal rearrangements, CF carrier status etc.

## Treatment & Costs

### > ICSI Cycle - Bulk bill

**Please note:** some parts of treatment do carry an out-of-pocket charge, including day surgery costs, PBS medication costs and some pathology tests. For more information please visit our IVF Treatment Process page, on our website.

At First Step Fertility, we don't charge a Registration Fee for standard IVF services. Also, if your IVF cycle results in a number of excess embryos, we offer complimentary storage fees for the first 12 months at NO COST - this service is normally valued at \$380.

With bulk billing our streamlined model makes ICSI as easy on the budget as possible while you access first-class specialists, scientists, and nurses.

## After-Hours Support

Should you need to see a doctor outside of normal clinic hours, please contact your local GP or present to the emergency department of your local hospital.



### Contact Us

-  1800 111 373
-  [info@firststepfertility.com.au](mailto:info@firststepfertility.com.au)
-  [firststepfertility.com.au](http://firststepfertility.com.au)