

ICSI



Royal Devon
University Healthcare
NHS Foundation Trust

Intracytoplasmic Sperm Injection (ICSI)



Fertility
+xeter

What is ICSI and how is it different from standard/conventional IVF?

There are two methods for attempting to fertilise eggs when performing IVF treatment. With 'standard' or 'conventional' IVF the sperm are 'prepared' from the semen sample in the laboratory and then mixed with the eggs in a dish. This relies on the sperm's natural mechanisms to attach to, enter and transfer their genetic material to the inside of the egg. With ICSI (Intracytoplasmic sperm injection) the cells around the egg are removed and a single sperm is selected from the 'prepared' sample then, using a special microscope and micromanipulation equipment, the sperm is injected into the egg. After this, the rest of the treatment is the same as for conventional IVF.

- ICSI is the injection of a single sperm into a single suitable egg.
- The rest of the procedure is the same thereafter.

Will we need ICSI?

Very often, it is possible to predict which would be the best method to recommend based upon the man's semen analysis. When sperm quality is reduced, conventional IVF (often referred to as just 'IVF'), can help couples to conceive but this does increase the risk of failed fertilisation, resulting in no embryos being created. Using ICSI significantly reduces the risk of failed fertilisation and improves the chance of success in these circumstances. If there is a low sperm count, not many forward-moving sperm and/or a high number of abnormally shaped sperm, shown in the man's semen analysis, ICSI will be recommended. If sperm has to be obtained surgically from the man's testicles or a frozen sample has not thawed and 'prepared' optimally, ICSI will be required. Additionally, if you have had a previous IVF cycle, knowledge of how well eggs had fertilised can help make the decision as to whether to perform ICSI or not as sometimes 'conventional IVF' reveals a problem with the ability of the sperm to fertilise the eggs that may not be predictable in advance.



Treatment using frozen eggs will always require ICSI as the freezing process changes the properties of the shell and makes it less penetrable to sperm.

You will require ICSI if:

- The quality of the man's sperm is poor.
- If the sperm has to be obtained surgically (Surgical Sperm Recovery [SSR]).
- You use frozen sperm and it is not of optimal quality after processing.
- You have had IVF previously with no, or very low, fertilisation.
- You are having treatment using frozen eggs.

What are the advantages of ICSI?

The advantages of choosing ICSI to attempt fertilisation of the eggs are that:

- It may reduce the likelihood of having a treatment cycle in which all the eggs fail to fertilise, although ICSI in itself does not guarantee fertilisation.
- It may increase the number of embryos available from which the best quality may be selected or spare embryos frozen.

What are the disadvantages of ICSI?

The disadvantages are:

- It adds to the cost of treatment, as there is an extra charge for ICSI.
- The process circumvents the 'natural selection' of sperm that may otherwise have occurred in the 'conventional' method and therefore sperm that may not 'normally' have fertilised an egg may be injected into the egg.
- There is a slightly higher rate of developmental abnormalities among babies born from ICSI (e.g. childhood hernias, 'hole-in-the heart' abnormalities that don't necessarily need surgery to correct) and rare genetic abnormalities in the babies that may affect their own fertility on growing up, compared with those born from conventional IVF; but these may be related to the underlying cause of infertility ('male factor') and not the ICSI procedure itself.
- It may mean that we don't find out whether there is likely to be a sperm fertilisation problem that may make natural conception less likely.
- For some people, embryo quality and the chance of success may be greater with conventional IVF.
- Some eggs are 'sensitive' to the ICSI process and do not survive the injection (necrosis).
- In rare cases, especially when only a few eggs are injected, none of the eggs may fertilise.



- ICSI reduces the chances of total fertilisation failure.
- There are no guarantees and total fertilisation failure can still occur with ICSI, especially if a low number of eggs are injected.
- A very small number of genetic and developmental abnormalities have been associated with ICSI, but may be linked with the underlying cause of infertility, not necessarily the ICSI process.
- Normally in the clinic, we recommend IVF to fertilise the eggs unless there is a good reason to believe that ICSI would be needed.

Can we do both IVF and ICSI?

We can try and fertilise some of your eggs by IVF and some by ICSI but you must have sufficient eggs (≥ 12) for this to be a reasonable option. This is called a 'Split Cycle'. It may be recommended if you have previously been through repeated failed cycles of intrauterine insemination (IUI), or the sperm sample is considered 'borderline' by the embryologists after processing. Sometimes, none or a very low number of the eggs randomly selected are suitable for ICSI. Your options will be to leave things as they are, or add some or all of the remaining eggs randomly allocated to IVF to the ICSI group. If embryos are obtained via both methods, the best quality embryo(s) will be transferred regardless of which method was used to fertilise the eggs. This may mean transferring embryos created from both methods, where more than one embryo is

transferred. The Human Fertilisation and Embryology Authority (HFEA) have set a limit to the overall rate of this 'mixed' transfer. There is a very small chance that we will not be able to perform a 'mixed' transfer if this limit has been reached. If there are 'top quality' embryos from both methods, you will be given a choice between embryos from either method. Please note that you or your commissioning body will still have to pay for the ICSI.

A split IVF: ICSI cycle may be considered if:

- You have previously had repeated IUI failures.
- Your sperm is 'borderline' after preparation.

In a split cycle:

- You can perform IVF on some of your eggs and ICSI on the others.
- You must have enough eggs (≥ 12) to be able to do a 'split'.
- You will need to think about what you might want to do, if none or very few of the eggs allocated to ICSI are suitable for injection.
- If you are transferring more than one embryo, the best embryos will be transferred even if they are from both methods ('mixed transfer').
- If there are 'top quality' embryos from both methods, you may choose which ones to transfer.



A photograph of a woman with short, wavy blonde hair, smiling warmly. She is wearing blue medical scrubs. A yellow name tag is pinned to her left chest, and a pair of glasses hangs from the neckline of her scrubs. The background is a blurred clinical setting. The entire image has a light teal overlay.

**Together we can
achieve so much**



Feedback

Here at Fertility Exeter we care about getting things right for our patients. As such we would welcome any feedback that you may have, to help us continually improve the services we provide. You can do this in a number of ways:



Patient Advice & Liaison Service (PALS)
Royal Devon and Exeter Hospital (Wonford)
Barrack Road
Exeter
EX2 5DW



Direct Dial: (01392) 40 2093



rduh.pals-eastern@nhs.net

You can also provide feedback about Fertility Exeter directly to the HFEA by using their online feedback tool:

<https://www.hfea.gov.uk/choose-a-clinic/clinic-search/results/5/patient-rating/>



“What went well could go better if”

These are yellow cards and you will find them in our waiting area, please complete and put them in the box provided. The box is sorted on a weekly basis and suggestions are acted on accordingly.

Alternatively:

Complete our Patient Surveys on our website
www.fertilityexeter.co.uk

See our Patient Survey links on our emails.

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