

# IMSI and PICSI



## Fertility Facts

IMSI and PICSI are variations of ICSI that use different methods to select sperm to inject into the eggs. IMSI uses ultra-high magnification to look for irregular features in the sperm head, while PICSI tests the ability of sperm to bind to a substance that is present on the surface of the egg.

REF 3186.27 0414



### IMSI

In conventional ICSI, sperm are selected at 200 x magnification, which allows the embryologist to select sperm for egg injection on the sperm's movement and the shape of the sperm's head. IMSI is designed around recent advances in microscope optics and computer enhancement of digital images. Newly designed lenses and microscope condensers allow 600 x magnification. IMSI allows embryologists to see the sperm head in a lot more detail, and in particular features inside the sperm head which are thought to be associated with incorrect packing of DNA.



*In this IMSI photograph, arrows point to two sperm with round patches inside the head of the sperm. The two sperm at the bottom of the photograph are considered 'normal'.*

Poor packaging can make the sperm's DNA more susceptible to oxidation damage, which in turn may be associated with lower pregnancy rates and possibly higher miscarriage rates.

IMSI is an acronym for Intra-cytoplasmic Morphologically Selected sperm Injection.

IMSI was first used in 2003, but it has not been until recently that the new type of microscope optics has been commercially available. There have been several scientific papers published in the past few years reporting higher pregnancy rates when IMSI has been used in particular groups of patients.

Fertility Associates guidelines for considering IMSI are:

- Not becoming pregnant despite having at least four embryos transferred in previous IVF or ICSI cycles
- Severe male infertility
- A relatively high level of DNA fragmentation
- No or poor progression of embryos to blastocysts in previous IVF cycles

Two medical trials have shown that there is no benefit to offering IMSI to everyone having their first ICSI cycle.

Contact us

[www.fertilityassociates.co.nz](http://www.fertilityassociates.co.nz) | phone 0800 10 28 28



**FERTILITY**  
associates

*a better understanding*  
TE RAUHANGA O TE WHARETANGATA

# IMSI and PICSU continued

## PICSU

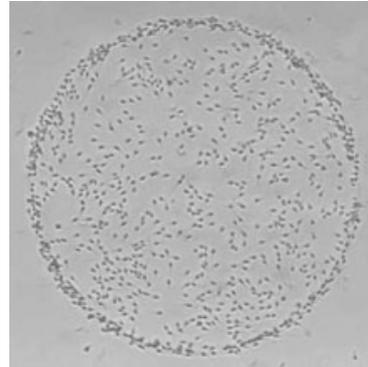
Sperm bind to a protein called Hyaluronic acid (HA) as part of normal fertilisation. PICSU uses sperm binding to HA to select which sperm to use for ICSI. There is some evidence that using PICSU may increase the pregnancy rate and reduce the miscarriage rate when the overall level of HA binding is low in a sperm sample.

Fertility Associates guidelines for using PICSU are based on the largest study to date:

- We first screen the sperm that have been prepared for ICSI using a HA binding test on a microscope slide.
- If fewer than 65% of sperm bind to HA on the slide, we use special PICSU dishes to select the sperm for ICSI.
- At least 200,000 sperm are needed to perform PICSU, so it is not suitable for men with very few sperm.

PICSU is an acronym for Physiological ICSI.

IMSI and PICSU are now available in all Fertility Associates clinics. Your Fertility Associates doctor will discuss them if they might be an option for your ICSI cycle. The place of IMSI and PICSU and their potential benefit is still being investigated. We expect more information in the next few years about for whom these techniques are most useful.



*This is a photograph of sperm binding to a spot of Hyaluronic acid in a PICSU dish. Bound sperm are removed to use in ICSI.*

