

Increasing IVF Success Rates With PGS



Pregnancy and childbirth should be the most normal, natural experience in the world. But for many couples, nature doesn't always cooperate with their plans. Indeed, up to one in six couples experience difficulty in conceiving, be it their first child, or in trying to expand their families. Many couples end up trying several fertility treatment approaches, some multiple times in various fertility centres, before achieving success. Sadly though, quite a number give up after a few failed attempts; the financial burden, emotional stress, and psychological roller coaster can all combine to be too much to bear.

Though the concept of conception is a simple one, the actual process is rather complex, and that's where the biology and science lessons come in. Couples often have to brush up on their understanding of the whole process.

Pre-implantation genetic screening (PGS) is an option for couples attempting in-vitro fertilisation (IVF). PGS, as its name suggests, is when embryos are tested for normality before they're returned to their mother's womb for implantation. An embryo is an oocyte (egg) from the mother which has been fertilised by a sperm from the father via an IVF procedure.

PGS offers an added measure of increasing the chance of a healthy pregnancy for couples undergoing IVF, but it's not always successful. The largest cause of IVF failure and miscarriages is known to be due to chromosomally abnormal embryos, clinically called aneuploid embryos, and PGS can help detect these.

You may recall from your high school biology classes that chromosomes carry our genetic material. Each person has genetic material from both parents. We normally have 46 chromosomes each, 23 from our mother, and another 23 from our

father. PGS screens for abnormal chromosome numbers.

Embryologists (scientists who are 'in charge' of the well-being of the embryos) will take a very small amount of cells from each developing embryo to test for abnormalities in the total number of chromosomes within each embryo. This procedure is called an embryo biopsy.

Sunfert International uses a revolutionary technology called 'Next Generation Sequencing' (NGS) to test the genetic material of embryos in its in-house Molecular Biology Laboratory. This state-of-the-art laboratory has received accreditation from the Australian Reproductive Technology Accreditation Committee.

After the biopsy, where a few cells are removed from each embryo, the embryos are frozen (cryopreserved) until the test results are available. This usually takes 2-3 weeks. Once the results are obtained, only normal embryos, called euploid embryos, are transferred into the womb, which significantly increases each couple's pregnancy success rates.

A common concern is, won't the biopsy injure the embryos? Sunfert says the answer is no, citing convincing data, supported by international statistics demonstrating that embryos are perfectly safe after a biopsy.

PGS doesn't play its part alone, however. The conventional method of assessing embryos is by simply viewing them through a microscope and categorising 'normality' based on the the physical appearance of each embryo. This is still an invaluable method employed by all IVF laboratories. The role of PGS is to further refine embryo selection.

Only women undergoing IVF can have their embryos assessed for

chromosomal abnormalities via PGS because only IVF allows embryologists access to the embryos. Chromosomal anomalies which reduce IVF success rates can occur in any embryo; however, the probability increases with rising maternal age, therefore, older women especially, have better pregnancy rates after PGS. Additionally, couples with a history of recurring miscarriages and those with recurrent failed IVF cycles also tend to benefit greatly from PGS.

Here are a few ways PGS can help you in your quest for a child:

- You would have a shorter time to pregnancy since only normal embryos are selectively replaced into your womb
- This would then lead to a higher pregnancy rate with a lower risk of miscarriage
- Since your odds at a successful pregnancy are higher after PGS, we would replace a single embryo into your womb, and therefore, you could carry a single baby to term, which is safer for both you and your baby
- This is of course in contrast to carrying twins or triplets, with all its added risks to mother and babies; due to the practice of replacing multiple embryos into your womb, in the hopes of achieving similar pregnancy rates in non-PGS cycles
- Excess healthy embryos are then frozen (cryopreserved) for future use
- In a nutshell, PGS maximises your chance of having a healthy baby, in the shortest possible time! ■

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