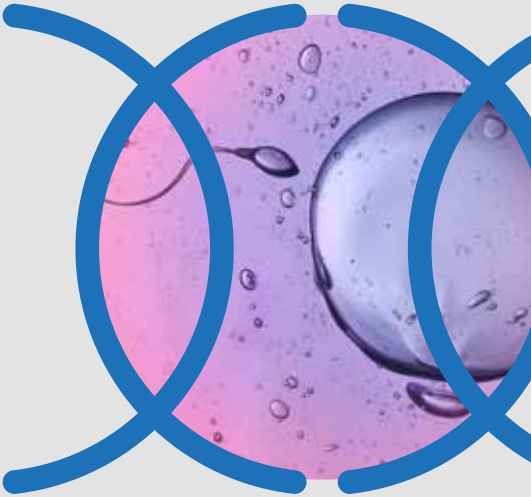
The SpermComet® Test Explained



SpermComet®

The Next Generation Test For Men's Health

Testing a Man's Fertility Potential

A semen analysis can't distinguish between sperm from a fertile and an infertile man. A semen analysis can't predict ART success.

A Sperm DNA test can.

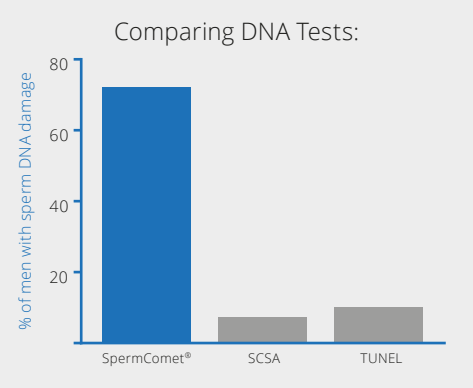
The **SpermComet®** test[1-4] is the most sensitive of all sperm DNA tests. It is the next generation check for male infertility. It adds new information as it can detect molecular defects even when a semen analysis looks normal. It is the ONLY test that measures the actual damage in individual sperm. It can detect damage in sperm of 80% of couples previously diagnosed with 'unexplained infertility' so it provides at least one diagnosis for these 'difficult to treat' couples. It only needs 5000 sperm compared to 1 million sperm for other DNA tests. A small sample from a semen analysis is enough so clinics don't need another sample just for DNA testing.

The **SpermComet®** is so sensitive it can predict:

- Fertilization failure
- Poor embryo and blastocyst quality
- Lower pregnancy rates with IVF
- The chance of a healthy baby

Other tests can't. They are only associated with poorer pregnancy rates and beyond.

Compare the SpermComet with other DNA Tests



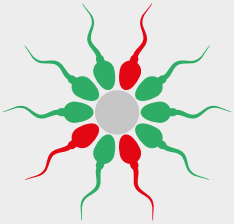
Difference 1:

The SpermComet® is much more sensitive than other popular DNA tests[5].

With the **SpermComet®**, damage can be picked up in sperm from 73% of men, compared to only 13% with the **SCSA** and 15% with the **TUNEL.**

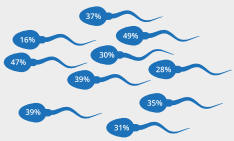
Taken from Simon, Carrell et al, 2014[5]

Other Tests:



These tests tag all the sperm with damage which is usually just about 20-40% of sperm. The sperm with DNA damage are tagged with a red marker. The sperm with no detectable damage are green. For example, here 3 out of 10 sperm have damage so these tests give a result of 30%.

The SpermComet® Test:



The **SpermComet®** is so much more sensitive that it detects DNA damage in nearly every sperm; even from fertile men. So a **SpermComet®** result of 30% means that there is an average of 30% damage per sperm.

Difference 2:

TUNEL and **SCSA** are 'all or nothing' tests whilst the SpermComet® quantifies the damage PER SPERM.

The only other DNA test currently used is the **Halo** test. It is cheap and easy to incorporate into the routine lab. However, large multicentre studies[6-7] have shown that **Halo** has no relationship with either pregnancy or live birth following IUI, IVF or ICSI.

The important clinical question is:
'How much damage will reduce the man's fertility potential?'

Tests for Aneuploidy and FISH

Recent studies (reviewed by Dul et al, 2010[8]) show that there is **no benefit** in aneuploidy testing for men who can produce sperm in their ejaculate; no matter how poor the semen quality. The only group of men who need aneuploidy testing are those with azoospermia as they may well have a higher prevalence of chromosomal abnormalities.

This also means that tests like fluorescence in situ hybridization; **FISH** add nothing to the male workup. It can only examine a small number of chromosomes whereas DNA testing gives an overall picture of damage in the whole sperm genome. There is little evidence that the aneuploidy of embryos as seen in pre implantation diagnosis is directly related to the sperm rather than egg. The only cases only where **FISH** or **karyotyping** may be useful are in couples who have had recurrent pregnancy loss or in men with very low sperm counts or recovering from cancer and chemotherapy.

MACS Testing

MACS (magnetic activated cell sorting) is a technique to remove abnormal sperm and thereby isolate the best sperm for IVF.

It has potential, but as yet it can only isolate sperm that we know are abnormal. It cannot isolate sperm with good DNA so it does not supersede sperm DNA testing.

Further, the latest study from IVI, Spain[9] reports that applying MACS technology to remove these abnormal sperm does not improve the reproductive outcome of ICSI in ovum donation.

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