

Pre-Treatment

Sperm DNA Fragmentation

What You Need to Know



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Sperm DNA Fragmentation

The methods of evaluating male infertility have typically been limited to a semen analysis measuring the sperm's count, motility and morphology.

Up to 8 per cent of infertile men have been shown to have high levels of sperm DNA fragmentation despite a normal semen analysis¹. New studies suggest that sperm with certain levels of DNA fragmentation serve as a strong predictor of reduced male fertility.

The development of a healthy embryo is initiated when the chromosomes from the female's egg combine with chromosomes from the sperm. These chromosomes consist of strands of DNA (deoxyribonucleic acid), which can become damaged.

Research indicates that sperm with high levels of DNA fragmentation have a lower probability of producing a successful pregnancy. A review of data on hundreds of semen samples shows that patients with a DNA fragmentation level of more than 30 per cent are likely to have significantly reduced fertility potential, including a marked reduction in term pregnancies and a doubling of miscarriages².

Sperm that appears to be normal by traditional semen analysis parameters (motile, morphologically normal) may

even have extensive DNA fragmentation. In an effort to achieve the most effective measurement of male fertility potential, sperm DNA fragmentation analysis is an option.

Analysis

The sperm are captured within an inert agarose gel. This is treated with an acid denaturant that removes already fragmented DNA. The remaining material is then treated with a lysing agent that frees the intact DNA into the agarose gel. This agarose is then stained to highlight the released DNA, which is evaluated to determine the degree of fragmented versus intact material.

Possible causes of sperm DNA damage:

- Drugs, chemotherapy and radiation therapy.
- Cigarette smoking and environmental toxins.
- Genital tract inflammation.
- Testicular hyperthermia (use of hot baths, saunas, laptop computers and prolonged periods of driving).
- Varicoceles.
- Hormone factors.
- Infrequent ejaculation.
- Male's age.

Treatment For Sperm DNA Damage

Ways that may help improve sperm DNA include changing to a healthier lifestyle, refraining from smoking, avoiding exposure to toxins, and taking a daily supplement of antioxidants and zinc.

Further clinical options can be discussed with one of our fertility specialists.

(1) Sakkas et.al. 2010, 'Sperm DNA fragmentation: Mechanism of origin, impact on reproductive outcome, and analysis', *Fertility and Sterility*, Vol.93, no.4, pp. 1027-1036.

(2) Evenson, D & Wixon, R 2006, 'Meta-analysis sperm DNA fragmentation using the sperm chromatin structure assay', *Reprod Biomed Online*, vol 12, no.4, pp.466-472.

Where to Now?

I want more information

- Contact our Fertility Advice Team or
- Book a 15 minute nurse chat

I'm ready to take the next step

- Get a referral from your GP, to one of our accredited specialists to book a fertility health check
- Book an appointment with us

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