

Improving sperm quality

Who is this information leaflet intended for?

This information leaflet has been created for men that are undergoing fertility investigations and would like more information on the subject, including lifestyle advice to improve sperm quality.

The content is not intended to be completely comprehensive or diagnostic; it is designed to help men improve factors that may contribute to poor sperm quality.

The leaflet is not intended for men who have been given a diagnosis for their fertility difficulties, undergoing investigations for azoospermia (no sperm present in their samples) or men who have been given a severely 'abnormal' semen analysis report. If you are not sure whether you fall into any of these categories, please speak with an andrologist or your clinician.

What is infertility and what are the causes in men?

Infertility or subfertility can be described as the inability of a couple to achieve a pregnancy after 12 months of regular, unprotected sexual intercourse between a man and a woman¹. Infertility in men has many causes including genetics, medical issues or lifestyle². This is often reflected in the quality of the sperm that is produced which can be detected from laboratory investigations.

To help you produce better quality sperm, it may be beneficial to change some aspects of your lifestyle, although in some cases this may not help to improve your sperm quality and medical intervention is required.

What is meant by an abnormal semen analysis result?

This can mean multiple things and should be explained to you by the person clinically responsible for your care. Generally, it means that one or more of the parameters measured by the laboratory is below the lower reference limit given by the World Health Organisation (WHO)³. The laboratory will look at multiple aspects of your semen sample including:

- **pH** – how acidic or alkaline the semen is*
- **Viscosity** – how thick or thin the semen is*
- **Liquefaction** – whether the semen has become 'watery'.
- **Volume** – the amount of semen that has been produced.
- **Motility** – whether sperm are swimming and if they are, how well they are moving.
- **Concentration/Total sperm number** – the number of sperm present in the sample given in two different calculations.
- **Morphology** – the size and shape of the sperm.

- **Vitality** – whether sperm are alive or dead.

* Semen is the description for the fluid produced by all accessory glands and the sperm that are within this (if detected).

The abnormalities may be mild or severe depending on the values in your report. If the results are mild, then your clinician may ask you to make changes as described in this leaflet before having a repeat test.

What lifestyle changes can help improve sperm quality?

This will depend on your current lifestyle but in general, the following may help to improve your sperm quality:

- **Stop smoking** – there is evidence to demonstrate that smoking has a negative impact on sperm quality including motility and concentration⁴⁻⁵. GP's and clinicians have access to health services that can provide help, ask them for more information or visit local services that run smoking cessation campaigns.
- **Reduce alcohol intake** – chronic alcohol consumption may have an impact on sperm. According to the UK Chief Medical Officer, the recommendation is no more than 14 units of alcohol, spread out over 3 days or more⁶. Approximately, 14 units of alcohol is equivalent to the following:
 - 6 glasses (175ml) of red/white/rosé wine
 - 6 pints of lager/beer/cider
 - 14 single shots of spirit
- **Stop anabolic steroid use (drugs used for body building) which includes self-prescribed testosterone** – the use of these drugs can lead to testicular shrinkage, reduced testosterone, loss of libido and possibly erectile dysfunction. Once the use of steroids is stopped, there should be a full recovery of testosterone levels and normal testicular function for most men (although this is not guaranteed) and may take some time for this to occur.⁷
- **Stop the use of 'other' drugs** – this can include cannabis, cocaine, amphetamines and opiates (heroin and methadone). These can have numerous effects, both on the development of sperm cells or the psycho-sexual aspects of sexual function.⁸
- **Consider changing your diet and increasing exercise** – a healthy lifestyle can lead to an improvement in sperm quality and eating a healthy and balanced diet is part of this. It is advisable to eat at least five portions of fruit and vegetables per day, have carbohydrates, lean meat, fish, protein⁹ and foods high in antioxidants such as blueberries and tomatoes. Exercise can help maintain a healthy weight and maintain/achieve a recommended body mass index (BMI) of 18.5 – 24.9.¹⁰
- **Multivitamin use** - there are some instances where multivitamins and antioxidants are recommended or used. These are acceptable but should not be taken as a suitable alternative to a healthy diet and exercise. If you do wish to take multivitamins, ensure that they contain vitamins C, E, B6, B12, Coenzyme Q10 (CoQ10), Zinc and Acetyl L-carnitine, which all play a role in sperm production/function/protection.⁹

- **Reduce stress where possible** – there are numerous causes of stress in modern life, but it is important to know that this can have a negative impact on your health and subsequently your sperm quality. Research how to reduce stress and access resources that can advise you on this topic. You may also want to talk to your healthcare provider.

What do I do if I would like further advice?

If you need any further advice on anything covered within this leaflet please talk to your doctor or Consultant that is looking after you. They have access to healthcare and advice and will be able to ensure you obtain the correct advice based on your own personal circumstances.

References

1. British Fertility Society, 2018. A guide to fertility: what is infertility? Accessed 4th April 2023 [<https://britishfertilitysociety.org.uk/fei/what-is-infertility/>].
2. NHS Choices, 2020. Infertility. Accessed 4th April 2023 [<https://www.nhs.uk/conditions/infertility/causes/>].
3. WHO laboratory manual for the Examination and processing of human semen (2021) 6th Edn. Switzerland. WHO.
4. A. Antoniassi MP, et al (2016) Analysis of the functional aspects and seminal plasma proteomic profile of sperm from smokers. BJU Int, 118: 814-822.
5. B. Li Y, et al (2011) Association between socio-psycho-behavioral factors and male semen quality: systematic review and meta-analysis. Fert Steril, 95(1): 116.
6. NHS Choices, 2017. How can I improve my chances of becoming a dad? Accessed 4th April 2023 [<https://www.nhs.uk/common-health-questions/mens-health/how-can-i-improve-my-chances-of-becoming-a-dad/>].
7. Leme de Souza and Hallak J (2011) Anabolic steroids and male infertility: a comprehensive review. BJU International, 108(11): 1860-1865.
8. Kulkarni M et al (2014). Recreational drugs and male fertility. Trends in Urology and Men's Health, 5(5); 19-23.
9. Ahmadi S, et al (2016) Antioxidant supplements and semen parameters: an evidence based review. Int J Reprod BioMed, 14(12); 729-736.
10. NHS, 2022. What is the body mass index (BMI)? Accessed 4th April 2023 [<https://www.nhs.uk/common-health-questions/lifestyle/what-is-the-body-mass-index-bmi/>]

Information for Patients

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Andrology

Good Hope Hospital
Rectory Road
Sutton Coldfield
B75 7RR

If you require this information in another format, such as a different language, large print, braille or audio version please ask a member of staff or email patientexperience@uhb.nhs.uk.