



Acknowledgements

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1. Introduction



Quite often the focus is on the woman, and quite right as there is so much more they are going through. But the sensitivity towards men and in particular my experience felt very cold. Almost an attitude of go in there and just get what you need done, after all it is just the easy bit.

It is very important to really understand all the complex set of emotions a man is going through during a fertility journey.

Firstly, I wanted to do everything I could to take good care of my partner. Watching her body change through the treatment, her emotions run wild from the hormones. I just wanted her to be okay and pushed my feeling aside.

There is then the pressure to maintain a job, in my case a very high-pressured job that I couldn't risk losing as the further we go down this road, the more treatment would be necessary.

Which brings me quite nicely onto the financial strain this has. The cost of the treatment is huge, we gave up buying a house so we could throw everything at it. The pressure of this alone was occasionally overwhelming.



There are two main categories of male fertility issues – those where sperm production is occurring but there is a problem with transmission, and those where an issue with sperm production.

Issues that can affect sperm transmission

- **Genetic disorders:** some genetic conditions can affect sperm production and cause male factor fertility. Genetic testing is recommended if the man has a sperm concentration beneath 2-5 million per ml or has small testes. Common genetic disorders include Klinefelter syndrome and Y-chromosome microdeletions of genes and chromosomal translocations.
- **Kallmann syndrome:** this rare hormonal disorder is due to underdevelopment of specific neurons, or nerves, in the brain that signal the hypothalamus. There is often an impaired sense of smell and delayed puberty.
- **Hormonal causes:** A change to the levels of hormones that control sperm production may cause male factor fertility. Examples include hypothalamic and pituitary disorders or tumours. Hormonal imbalances can also affect sexual function. These should be managed in an integrated way with endocrinologist support.
- **Infections:** Historic infections including post-pubertal mumps can damage the testes and affect sperm production. Epididymal infections, caused by urinary tract or sexually transmitted infections, are the commonest cause of unplanned obstruction. Current bacterial or viral infections are common in men attending for fertility investigations with infections such as active Human Papillomavirus Virus (HPV) now considered to affect fertility (Capra et al., 2022).



5. Testing and diagnosis

Men may wish to seek the help of a specialist to look at options available for assessing their fertility. Fertility testing can take place via several options.

- **GP referral:** patients can ask their GP for a referral to an accredited diagnostic laboratory such as a local NHS fertility clinic, andrology service or hospital in order to obtain a semen analysis. Results will be sent back to the GP to be discussed with the patient. Blood tests for hormone profiling can also be arranged in addition to a semen analysis if clinically indicated.
- **Private fertility clinics:** Private fertility clinics (who should be accredited by UKAS – see below) offer semen analysis services and men may be able to self-refer to these clinics. These clinics may also offer consultations as part of the semen analysis to discuss the results with the patient.
- **Private andrology laboratories:** These laboratories also offer semen analysis services where a man can attend to produce a sample for assessment. They usually require a referral from a GP or specialist.
- **At home testing services:** There are a number of companies now offering at home semen analysis kits that can be ordered online, to be either dropped to a pharmacy

The sample should be analysed against WHO (2021) reference values. These include:



Providing written information at the start of treatment which outlines and summarises the emotional roller coaster and how they are likely to respond to treatment including in cases of female factor fertility is highly valued, reduces stress, may increase openness and can improve their experience (Arya and Dibb, 2016).

Whilst it has sometimes been assumed that men do not want or need to share their experiences, the landscape is changing and whilst historically men were less likely to attend in-person support groups or seek fertility counselling more men are now open to participating without hesitancy. The emerging evidence is that men value the opportunity to have a space to connect with others and share unique aspects of their male experiences (Hanna et al., 2020). Health care professionals should signpost men to both online forums and in person groups and other resources which can provide a dedicated space for men to share their experiences with autonomy and privacy.

Appropriate referrals to accredited fertility counsellors are essential and a normal part of the treatment pathway. Counselling may help navigate the fertility journey by providing individuals and couples with tools and strategies to cope with this unexpected life. Men can attend alone or with their partner, to explore their feelings and/or discuss relational issues such as communication, coping, decision making, and decreasing sexual stress.

Further support groups are identified at the end of the document.

7. Lifestyle and treatments

Vitamins and supplements: The health of sperm is largely dependent on a balanced and nutritious diet (Skoracka et al., 2020), although caution should be taken to ensure that men/couples are aware of the limitations in evidence to support sperm quality improvement. It is always better to consider overall health and wellbeing as many contributing factors can influence sperm quality and endocrine function.

Table 2 outlines some foods that may support overall general health, and therefore sperm health. Consuming processed foods, sugary drinks, and excessive amounts of alcohol or caffeine may have a negative impact on sperm health (Salas-Huetos et al., 2017).

Table 2

Food type	Benefit
Fruits and vegetables	Provide antioxidants, vitamins, and minerals that may protect against oxidative stress
Nuts and seeds	High in healthy fats, protein, and minerals like zinc, which is important for general health as well as sperm production.
Whole grains	Provide fibre, B vitamins, and minerals such as selenium.
Fish and seafood	Rich in Omega-3 fatty acids.
Lean protein	Provide amino acids that are essential for sperm production.
Water	Drinking plenty of water ensures good hydration which is vital for overall general health.

Several vitamins and minerals may be useful for sperm health and production (Table 3), however should be taken with caution (and take account of an individual's health and medical history) due to limited available evidence.

Table 3

Vitamin	Benefit (Salas-Huetos, A. et al 2017)
Vitamin C	An antioxidant that may protect sperm from damage and may improve sperm quality.
Vitamin E	An antioxidant that may improve sperm motility and reduce sperm damage.
Zinc	A mineral that can help production of healthy sperm and may help improve sperm count and motility.
Folate	A vitamin that may help DNA synthesis and prevent sperm abnormalities.
Vitamin D	Deficiency has been associated with poor sperm quality, so it is important to maintain adequate levels.
Selenium	A mineral that can help with healthy sperm production and motility.
Vitamin B12	A vitamin that may help sperm count and sperm motility and reduce sperm DNA damage.

There are several supplements that have been suggested to support male fertility, and nurses need to understand those which patients/partners may request information and guidance on. Cochrane (2022) remains inconclusive with regard to supplements.

The landscape of evidence supporting effectiveness is complex, and not all supplements have peer reviewed scientific evidence supporting their effectiveness (Cilio et al., 2022), consequently they should always be taken as instructed. Supplements with studies showing possible benefits for improving sperm count or quality include:

- **Coenzyme Q10 (CoQ10):** an antioxidant that plays a crucial role in energy production in cells. Studies have suggested that CoQ10 may improve sperm count, motility, and



IVF (In vitro fertilisation) – involves the use of fertility drugs to make the ovaries produce eggs which are retrieved via a minor surgical procedure and then mixed with sperm and fertilised. The best quality embryo is selected for transfer to the uterus while remaining embryos can be frozen.

ICSI (Intracytoplasmic sperm injection) – is similar to IVF except that instead of sperm being mixed with the eggs the best sperm is injected directly into the egg to fertilise it so less sperm are required. If there is a problem with the semen production or there is no sperm in the semen caused by a block or testicular failure that can't be corrected, sperm may be collected surgically ICSI does carry some additional risks. It is known that abnormal sperm production, as is the case in men with very low sperm count or absent sperm in the ejaculate, can be associated with genetic disorders.

The success rates depend on many factors, including the female partner's fertility, the quality of the sperm retrieved from the male partner, and the number of times IVF with ICSI is performed.

Sperm storage (cryopreservation) – for patients who are planning to undergo fertility-affecting medical treatment, such as certain operations, chemotherapy or radiotherapy, sperm storage can play a vital role in allowing patients to have biological children through fertility treatment, should the man's fertility be irreversibly damaged by his medical treatment. Even when medical intervention only allows enough time to freeze a single poor sperm sample, ICSI treatment can enable numerous treatments in the future. Posthumous use of sperm is possible – but only where the sperm-provider has clearly provided detailed consent around all aspects of use in advance, so this is never usually possible in UK law outside planned treatment or preservation.

Sperm selection methods used in ICSI

As research continues, there is no conclusive evidence as to the benefits and effectiveness of these techniques, however they may be techniques that patients inquire about in practice and an understanding of their theory will be beneficial to the nursing team when asked about them.

It is important to note that they are considered add-ons with limited evidence and the HFEA has clear guidance available at: [hfea.gov.uk/treatments/treatment-add-ons](https://www.hfea.gov.uk/treatments/treatment-add-ons)

- **Hyaluronan-sperm binding prior to ICSI** – is a technique used to try to select the more mature sperm to use in ICSI treatment. This involves placing sperm in a specialised dish containing hyaluronan, a natural compound found in the body. If sperm bind to hyaluronan, they are thought to be more mature and are selected for ICSI. This treatment may be used in cases of previous implantation failure or low fertilisation even after ICSI, low embryo quality (not related to poor egg quality), high levels of sperm DNA fragmentation and recurrent miscarriages.
- **Intracytoplasmic morphologically selected sperm injection** – is a sperm selection method used in ICSI. The technique involves using a microscope to view sperm under very high magnification, allowing the embryologist to select the best sperm with which to fertilise the egg. IMSI can be used as an enhanced sperm selection tool, in severe male factor, when sperm quality or morphology is sub-optimal, for men with previous poor outcomes with ICSI and recurrent miscarriages. IMSI does not carry any additional known risks over and above those known from ICSI.

Artificial insemination or IVF with donor sperm

If the testicles are unable to produce sperm, an alternative option is sperm donation. Donor sperm may be obtained from a known donor or from a sperm bank, which screens men for infections and certain genetic problems and provides a complete personal and family history.

In the UK, sperm banks are obliged in legislation to keep the identity of their donors confidential at the time of treatment. However, some details can be released following a request from the person conceived by donor sperm, from the age of 16 (non-identifiable information) and from the age of 18 (identifiable information). Visit: hfea.gov.uk/donation/donor-conceived-people-and-their-parents for further information.

In the UK, donated sperm can be used to create up to 10 families with licenced treatment centres. Internationally, this limit will vary in different countries.

The decision to use donor sperm is rarely an easy one but for some couples may be their preferred option. The emotional burden on a couple is considerable and counselling may be helpful for both partners to discuss their feelings and the potential implications of using donor sperm including whether and when to talk to a child about their genetic origins. Guidelines recommend telling children if they were conceived with the help of donated sperm. See: hfea.gov.uk/donation/donor-conceived-people-and-their-parents for further details.

The emotional impact of fertility treatment can be considerable, and individuals/couples should be offered therapeutic counselling and implications counselling to explore their thoughts and feelings in relation to the potential consequences of creating a family with the use of donor sperm including openness with any child conceived. The RCN's *Fertility Care and Emotional Wellbeing* publication provides further information and is available at: rcn.org.uk/Professional-Development/publications/fertility-care-and-emotional-wellbeing-uk-pub-011-054

Conclusion

As nurses, it is essential to have a good understanding of male factor fertility and the influences that can impact on male fertility. By expanding knowledge in this area, all nurses can play a crucial role in supporting patients who may be struggling to conceive by enabling them to access the care and resources they need to either start a family or come to terms with any diagnosis or treatment they may have had.

By providing compassionate and informed care to patients, a knowledgeable and competent nurse can make a real difference to outcomes and better support the reproductive health of all individuals and couples.

Key elements to supporting male factor fertility

- **Maintain a healthy lifestyle**

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Further reading and useful links

Association of Reproductive and Clinical Scientists arcscientists.org

Appendix 1: RCN fertility nursing competency assessment tool for male factor fertility

The following competencies are recommended for best practice in supporting male factor fertility, and should be used in conjunction with the instructions and information contained in the *RCN Education and Career Progression Framework for Fertility Nursing* at:

rcn.org.uk/professional-development/publications/rcn-education-and-career-progression-framework-for-fertility-nursing-009-926-uk-pub

Male factor fertility assessment

Knowledge	Self-assessment (circle as appropriate)	Minimum standard for achievement	Expected date of achievement	Evidence submitted	Date of completion	Level achieved	Assessor sign-off (print and sign)
Can demonstrate a good understanding of anatomy and physiology in relation to male factor fertility.	N,AB,C,B,E	Competent					
Can demonstrate a good understanding the causes of male factor fertility.	N,AB,C,B,E	Competent					
Be able to provide the patient with clear and concise information regarding the tests available for male factor fertility.	N,AB,C,B,E	Competent					
Understands the emotional impact of male factor fertility and can refer to appropriate emotional support services including counselling as required.	N,AB,C,B,E	Competent					
Understands how diet and lifestyle can impact sperm health and can discuss appropriate lifestyle changes.	N,AB,C,B,E	Competent					
Understands hormonal treatments available.	N,AB,C,B,E	Advanced beginner					
Understands the surgical treatment options available.	N,AB,C,B,E	Advanced Beginner					
Can provide the patient with clear and concise information regarding ART procedures available.	N,AB,C,B,E	Competent					

This tool uses Benner's Stages of competence to assess competence:

Benner's Stages of competence

Code	Novice to expert continuum	Description
N	Novice or beginner	No experience in the situation in which they are expected to perform and depend on rules to guide their actions. Lacks confidence to demonstrate safe practice and requires continual verbal and physical cues.
AB	Advanced beginner	Demonstrates marginally acceptable performance because the nurse has had prior experience in actual situations. Often needs help setting priorities and cannot reliably sort out what is most important in complex situations and will require help to prioritise.
C	Competent	Demonstrates efficiency, is co-ordinated and has confidence in their actions. Able to plan and determine which aspects of a situation are important and which can be ignored or delayed. The practitioner lacks the speed and flexibility of a proficient practitioner but they show an ability to cope with and manage contingencies of practice.
P	Proficient	Someone who perceives the situation as a whole rather than in parts. They have a holistic understanding of clinical situations which makes for quick and more accurate decision making. They consider fewer options and quickly hone in on accurate issues of the problem.
E	Expert	No longer relies on rules, guidelines, etc. to rapidly understand the problem. With an extensive background of experience demonstrates an intuitive grasp of complex situations. They focus on the accurate region of the problem without first considering fruitless possibilities.

RCN quality assurance

Publication

This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.

Description

Male factor fertility is important, and all nurses and midwives should have a good understanding of the influences and the factors that can impact fertility, especially as they may often be the first point of contact for p(e)2.1 (n b)-5 (e2 (s)16.aya)9 (n)-3.9 (d m)8.21n be ttact

