

Male infertility made clear: Quick insights from the AUA guidelines

Why does male evaluation matter?

- Male factors contribute fully or partially to infertility in up to 50% of all couples.
- Although many couples can achieve pregnancy through IUI or ART (IVF ± ICSI), evaluating the male partner is essential.

- The AUA guideline provides a framework for evaluating and managing the male partner by means of:
 - History taking
 - Physical examination
 - Targeted laboratory and imaging tests
 - Appropriate use of medical, surgical and ART interventions

Key recommendations at a glance¹

- Assessment essentials**
 - Evaluate both partners at the same time and take a reproductive history from the male partner during the initial evaluation.
 - Perform one or more semen analyses.
 - If semen parameters are abnormal, conduct a thorough history and physical examination as well as further tests.
- Diagnostic highlights**
 - Obtain hormonal evaluation (FSH and testosterone) for males presenting with impaired libido, erectile dysfunction, oligozoospermia, azoospermia and atrophic testes.
 - For azoospermia, use physical examination, semen volume/pH and FSH levels to differentiate between obstruction and impaired sperm production.

Recommendations¹

- Karyotype testing for primary infertility with azoospermia or sperm concentration <5 million/mL, especially with elevated FSH, testicular atrophy or impaired sperm production.
- Y-chromosome microdeletion testing for sperm concentration ≤1 million/mL with features of impaired sperm production.
- CFTR mutation testing for males with vasal agenesis or idiopathic obstructive azoospermia.

For recurrent pregnancy loss: Karyotype with DNA fragmentation testing is recommended.¹

Values related to the DNA fragmentation index²

- Normal/Low risk: ≤15%
- Intermediate: 15%–30%
- High/Severe: >30%

Higher DFI value is associated with a negative fertility outcome.

Commonly used DNA fragmentation index tests³

- SCSA
- Comet assay
- TUNEL
- SCD

Treatment overview¹

Varicocele

- Consider varicocelectomy for palpable varicocele, infertility and abnormal semen, except in males with azoospermia.

Sperm retrieval

- For non-obstructive azoospermia, perform microdissection testicular sperm extraction.
- For obstructive azoospermia, sperm may be extracted from the testis or epididymis.
- Consider testicular sperm use in non-azoospermic males with elevated DNA fragmentation index.
- For aspermia, consider surgical sperm extraction or methods for induced ejaculation.
- Treat retrograde ejaculation with sympathomimetics, induced ejaculation or surgical retrieval.

Obstructive azoospermia and post-vasectomy

- Microsurgical reconstruction may restore sperm in vasal/epididymal obstruction.
- Ejaculatory duct obstruction can be treated with transurethral resection of the ejaculatory ducts.

Medical and nutraceuticals

- Counsel couples with low total motile sperm count that IUI success may be reduced and ART may be considered.
- Aromatase inhibitors, human chorionic gonadotropin, selective oestrogen receptor modulators or combinations may be used in males with low serum testosterone.
- Avoid prescribing exogenous testosterone for males interested in fertility.
- Consider FSH analogues for males with idiopathic infertility.

Abbreviations

ART: Assisted reproductive technologies; AUA: American Urological Association; CFTR: Cystic fibrosis transmembrane conductance regulator; DNA: Deoxyribonucleic acid; FSH: Follicle-stimulating hormone; ICSI: Intracytoplasmic sperm injection; IUI: Intrauterine insemination; IVF: *In vitro* fertilisation; SCSA: Sperm chromatin structure assay; SCD: Sperm chromatin dispersion; TUNEL: Terminal deoxynucleotidyl transferase dUTP nick end labelling

References

1. Diagnosis and treatment of infertility in men: AUA/ASRM guideline 2020; Amended 2024. Available from: <https://www.auanet.org/guidelines-and-quality/guidelines/male-infertility>. Accessed on: 27 November 2025.

2. Okubo T, Onda N, Hayashi T, et al. Performing a sperm DNA fragmentation test in addition to semen examination based on the WHO criteria can be a more accurate diagnosis of IVF outcomes. *BMC Urol*. 2023;23(1):78.

Available from: <https://link.springer.com/content/pdf/10.1186/s12894-023-01257-y.pdf>

3. Baskaran S, Agarwal A, Panner Selvam MK, et al. Tracking research trends and hotspots in sperm DNA fragmentation testing for the evaluation of male infertility: a scientometric analysis. *Reprod Biol Endocrinol*. 2019;17(1):110.

Available from: <https://link.springer.com/content/pdf/10.1186/s12894-019-0550-3.pdf>