How does the male reproductive system work?

The male reproductive system is designed to manufacture, store and transport sperm. The hormones testosterone and Follicle Stimulating Hormone (FSH) regulate this process. Like sperm, testosterone is produced in both testicles, which are suspended in pouch-like skin sacs called the scrotum, located below the penis.

Sperm production begins when immature cells grow and develop within a network of delicate microscopic ducts, called seminiferous tubules, inside the testicles. Initially these new sperm cannot move on their own and depend on adjacent organs to become functional. They mature while travelling through the epididymis, which is a coiled channel behind each testicle. When orgasm occurs, sperm are carried out of the body within seminal fluid secreted from various male reproductive glands, most notably the prostate and paired seminal vesicles.
Developing and transporting mature, healthy, functional sperm depend on a specific sequence of events occurring in the male reproductive tract. Many disturbances can occur along that path, preventing cells from maturing into sperm production. Infertility may be caused by:

- **The testicles producing fewer sperm**
- **Genetic factors triggering abnormal sperm production**
- **A number of lifestyle choices (e.g. smoking, alcohol and recreational drugs)**
- **Long-term illnesses (e.g. kidney failure)**
- **Childhood infections (e.g. mumps)**
- **Hormonal or chromosomal deficiencies (e.g. insufficient testosterone)**
- **Hormone therapy for transgender patients (male to female) as this would affect sperm production.**

All of the above issues impair the normal production of sperm cells, which, in turn, decreases their number.

**Types of Surgical Sperm Retrieval Techniques**

- **Testicular Sperm Aspiration (TESA):** Initially a diagnostic procedure in azoospermic men, TESA is now sometimes used to recover sperm from the testicles of men with obstructions or ejaculatory problems that cannot be treated by any other methods. A fine biopsy needle punctures the skin to aspirate sperm tissue directly from the testes. Sperm are then dissected out of the tissue for use in the ICSI procedure.

- **Percutaneous Epididymal Sperm Aspiration (PESA):** PESA can be completed without a surgical incision. The procedure is done under local or general anaesthesia in which a needle attached to a syringe is inserted into the epididymis, and fluid is gently aspirated. The epididymis is the structure into which the sperm first flow after developing and leaving the testes. Sperm may not always be obtained in this manner and the doctor may have to perform an open procedure. This technique is used for men who have had a vasectomy and for those who have a congenital or acquired obstruction of the genital tract, such as absence of the vas deferens. The sperm retrieved can only be used with ICSI treatment.

- **Microsurgical Epididymal Sperm Aspiration (MESA):** MESA is an operative procedure used to obtain sperm by opening the ducts in the epididymis. It is performed in the operating room under local or general anaesthesia. This technique is used for men who have had a vasectomy and for those who have a congenital or acquired obstruction of the genital tract, such as absence of the vas deferens. MESA is often performed when PESA has been unsuccessful. This sperm can only be used with ICSI treatment.
Where to now?

I WANT MORE INFORMATION
Contact our Fertility Advice Team

I’M READY TO TAKE THE NEXT STEP
Book an appointment with us and get a referral to Rainbow Fertility from your GP for a semen analysis

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