Male reproductive health optimising fertility

1 in 3 fertility problems can be attributed exclusively to MALES\(^1\)

MAJORITY OF MALE INFERTILITY IS IDIOPATHIC\(^2\)

LOW SPERM COUNT < 15 million sperm per millilitre\(^3\)

40% is the minimum percentage of active sperm required in a sample to be considered normal\(^4\)

4% is the minimum percentage of normal shaped sperm required in a sample to be considered normal\(^5\)

SPERMATOGENESIS\(^4,6,7\)

Hypothalamus releases gonadotropin-releasing hormone (GnRH), which triggers the pituitary gland to release follicle-stimulating hormone (FSH) and luteinizing hormone (LH).

Testosterone inhibits GnRH production from the hypothalamus and LH from the anterior pituitary.

FSH and LH stimulate Leydig cells to secrete testosterone; FSH and testosterone stimulate Sertoli cells which facilitate the production of sperm.

The Sertoli cells release inhibin and Leydig cells release testosterone into the bloodstream.

Inhibin inhibits the release of FSH from the anterior pituitary.

In the testes, LH stimulates Leydig cells to secrete testosterone. FSH and testosterone stimulate Sertoli cells which facilitate the production of sperm.

Low sperm count is the minimum percentage of normal shaped sperm required in a sample to be considered normal\(^5\)

Influences on sperm health\(^3,6-17\)

IDIOPATHIC

Damage to sperm DNA may result in miscarriage or infertility

IATROGENIC

Medications, medical procedures

LIFESTYLE

Smoking, alcohol, obesity, stress, advanced paternal age, poor diet

ENVIRONMENTAL

Heat, pollution, heavy metals, plasticisers, pesticides/herbicides

INFECTION

Genito-urinary tract, systemic, mumps, STDs

AUTOIMMUNE

Sperm antibodies, genito-urinary obstruction, testicular inflammation

TESTICULAR TRAUMA

Vasectomy, torsion

CHRONIC DISEASE

Diabetes, haemoglobinopathies, hyperhomocysteinaemia

Spermatogonium

Primary spermatocyte

Secondary spermatocytes

Spermatids

Spermatozoa

Lumen of seminiferous tubule

Cross-section of seminiferous tubule

Abnormal motility

Normal motility

Abnormal sperm

Normal sperm

Low sperm count

Normal sperm count

Normal healthy sperm

Damage to sperm membrane decreases motility and the sperm's ability to fuse with oocyte.

All rights reserved © 2019 FX Medicine