EPIDIDYMIS

Epididymides

The epididymis is a tube that connects a testicle to a vas deferens in the male reproductive system.

💖 Organ  ♂ Male

About Epididymis

Function

From the lumen of the seminiferous tubules, the immotile sperm are surrounded by testicular fluid and moved to the epididymis - a coiled tube attached to the testis where newly formed sperm continue to mature. Though the epididymis does not take up much room in its tightly coiled state, it would be approximately 6 m (20 feet) long if straightened. It takes an average of 12 days for sperm to move through the coils of the epididymis, with the shortest recorded transit time in humans being one day.

Sperm enter the head of the epididymis and are moved along predominantly by the contraction of smooth muscles lining the epididymal tubes. As they are moved along the length of the epididymis, the sperm further mature and acquire the ability to move on their own. Once inside the female reproductive tract, they will use this ability to move independently toward the unfertilized egg. The most mature sperm are stored in the tail of the epididymis (the final section) until ejaculation occurs.

During ejaculation, sperm flow from the lower portion of the epididymis (which functions as a storage reservoir). They have not been activated by products from the prostate gland, and they are unable to move independently, therefore they are transported via the peristaltic action of muscle layers within the vas deferens, into the urethra, collecting secretions from the male accessory sex glands such as the seminal vesicles, prostate gland, and the bulbourethral glands, which form the bulk of semen.

Anatomical structure

Epididymis is divided into three main regions (Pic.1):

- **Head (caput)** - receives spermatozoa via the efferent ducts of the mediastinum of the testis. It is characterized histologically by a thin myoepithelium. The concentration of sperm here is dilute.
- **Body (corpus)**
- **Tail (cauda)** - has a thicker myoepithelium than the head region, as it is involved in absorbing fluid to make the sperm more concentrated.

Histological structure

The epididymis is covered by a two layered pseudostratified epithelium. The epithelium is separated by a basement membrane from the connective tissue wall which is composed of smooth muscle cells (Pic. 2).

The major cell types in the epithelium are:

- **Main cells** - columnar cells that, with basal cells, form the majority of the epithelium. These cells extend from lumen to basal lamina. They also have non-motile stereocilia, which are long and branching in the head region and shorter in the tail region. They also secrete carnitine, sialic acid, glycoproteins, and glycerylphosphorylcholine into the lumen.
- **Basal cells** - shorter, pyramid-shaped cells which contact the basal lamina but taper off before their apical surfaces reach the lumen. These are thought to be undifferentiated precursors of principal cells.
- **Apical cells** - predominantly found in the head region.
- **Clear cells** - predominant in the tail region.
- **Intraepithelial lymphocytes** - distributed throughout the tissue.
- **Intraepithelial macrophages**

### Find more about related issues

#### Diagnoses

**Azoospermia**
Complete absence of sperm in the ejaculate of a man.
Learn more at: [www.fertilitypedia.org/therapy/diag/azoospermia](http://www.fertilitypedia.org/therapy/diag/azoospermia)

**Obstructive azoospermia**
Absence of sperm in the ejaculate despite normal spermatogenesis, caused by an obstruction of the genital tract.
Learn more at: [www.fertilitypedia.org/therapy/diag/obstructive-azoospermia](http://www.fertilitypedia.org/therapy/diag/obstructive-azoospermia)

**Oligozoospermia**
Semen with a low concentration of sperm and is a common finding in male infertility.
Learn more at: [www.fertilitypedia.org/therapy/diag/oligozoospermia](http://www.fertilitypedia.org/therapy/diag/oligozoospermia)

**Painful ejaculation**
A physical syndrome described by pain or burning sensation of the urethra or perineum during or following ejaculation.
Learn more at: [www.fertilitypedia.org/therapy/diag/painful-ejaculation](http://www.fertilitypedia.org/therapy/diag/painful-ejaculation)

**Retrograde ejaculation**
The semen, which would normally be ejaculated via the urethra, is redirected to the urinary bladder.
Learn more at: [www.fertilitypedia.org/therapy/diag/retrograde-ejaculation](http://www.fertilitypedia.org/therapy/diag/retrograde-ejaculation)

**Sperm autoantibodies**
Antibodies that bind to sperm, inhibiting their movement, stopping recognition and entry into the egg.
Learn more at: [www.fertilitypedia.org/therapy/diag/sperm-autoantibodies](http://www.fertilitypedia.org/therapy/diag/sperm-autoantibodies)

**Undescended testes**
In the case of cryptorchidism one or both testes are absent from the scrotum. It is the most common etiologic factor of azoospermia in the adult.
Learn more at: [www.fertilitypedia.org/therapy/diag/undescended-testes](http://www.fertilitypedia.org/therapy/diag/undescended-testes)

**Varicocele**
An abnormal enlargement of the pampiniform venous plexus in the scrotum.
Learn more at: [www.fertilitypedia.org/therapy/diag/varicocele](http://www.fertilitypedia.org/therapy/diag/varicocele)

#### Symptoms

**Anejaculation**
The pathological inability to ejaculate in males, with (orgasmic) or without (anorgasmic) orgasm.
Learn more at: [www.fertilitypedia.org/edu/symptoms/anejaculation](http://www.fertilitypedia.org/edu/symptoms/anejaculation)

**Infertility**
The failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.
Learn more at: [www.fertilitypedia.org/edu/symptoms/infertility](http://www.fertilitypedia.org/edu/symptoms/infertility)
Painful ejaculation
Pain or burning sensation of the penis or scrotum following ejaculation.
Learn more at: www.fertilitypedia.org/edu/symptoms/painful-ejaculation

Sexual frustration
A frustration caused by a discrepancy between a person's desired and achieved sexual activity.
Learn more at: www.fertilitypedia.org/edu/symptoms/sexual-frustration

Gallery

Pic
An illustration of an adult human testicle with the epididymis highlighted.

Histological cross - selection view of epididymis.

Sources

"Anatomy and Physiology of the Female Reproductive System" — sourced from OpenStax College licensed under CC BY 4.0 Download for free at http://cnx.org/content/col11496/latest/

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