

Welcome to this lesson today on sperm formation.

Today we are going to be discussing the process in which sperm is formed. Spermatogenesis is the name that we give the process for sperm formation. So spermatogenesis is the process in which sperm are formed.

Testosterone is an important male sex hormone that's involved in various aspects of the male reproductive system, and it's also involved in secondary sexual traits. This hormone plays a large role in the reproductive system, and in the secondary sexual traits, such as the development of a deep voice or facial hair during puberty.

Testosterone is the main hormone involved in the male reproductive system.

Sperm formation specifically involves four hormones. We have FSH which stands for follicle stimulating hormone. Follicle stimulating hormone is FSH. This hormone acts on sertoli cells, which we'll discuss a little bit more in depth in just a few minutes. LH stands for luteinizing hormone. This hormone stimulates the release of testosterone. So it's a hormone that's involved in stimulating the release of testosterone. GnRH stands for gonadotropin releasing hormone. Gonadotropin releasing hormone is a hormone that is released when testosterone levels fall below a set point. And then testosterone is the last hormone that is also involved in sperm formation. So these are the four hormones involved in sperm formation.

Sperm are actually formed in the testes by meiosis and mitosis. Basically, these processes of cell division make sure that sperm are haploid, so that when the sperm and the egg combine it is a total of 46 chromosomes in the zygote. So these haploid sperm cells are formed after meiosis II.

As I mentioned, the sperm are formed in the testes, but they're specifically formed in here, in the seminiferous tubules. These seminiferous tubules basically kind of wind around themselves, inside these little compartments in the testes. So this is the actual location of sperm formation. And these seminiferous tubules are lined with sertoli cells. These sertoli cells basically provide nourishment for developing sperm cells. As I had mentioned, FSH, or follicle stimulating hormone, acts on those sertoli cells specifically.

And then leydig cells are found between the tubules. So between these seminiferous tubules, we have these cells called leydig cells, which release the hormone testosterone.

From there, the sperm is formed and it moves up to the epididymis, which is this structure right here. The epididymis is basically a location where sperm can mature, and also where sperm is stored.

The vas deferens is this tube right here. So once the male becomes aroused, the sperm would move from the epididymis into the vas deferens, and then the vas deferens would carry it to the rest of the male reproductive

system, where eventually it would be ejaculated from the body. So again, this is the location right here, the testes, where sperm are actually formed.

We're going to take a look over here at a picture of a sperm cell, and we're going to label a couple of the different components. So right here, this is the head of the sperm cell. The head contains the DNA, and it also is kind of covered by this cap of enzymes, called the acrosome. This cap of enzymes basically allows the sperm to be able to penetrate the egg cell when it comes in contact with the egg cell. So the enzymes in this acrosome cap allow the sperm to penetrate the egg cell.

Then we have a midpiece here. This midpiece contains mitochondria for energy. And then we have the tail here. And the tail is a type of flagellum for movement. So it kind of allows it to swim. To swim through the reproductive tract towards the egg. So this acts as movement.

This lesson has been an overview on sperm formation.