

Testicular Descent

The testes are the male gonads that produce both spermatozoa and the predominant male sex hormone, testosterone as well as the hormone estrogen. The testes are walnut-shaped structures that range greatly in size and weight in mature stallions.

During the first 18 to 24 months after birth, the testes are idle as far as sperm production is concerned. Starting at approximately 18 months of age, the testes grow and develop rapidly, and several months later, they gradually begin to produce sperm although the timetable for sexual development for individual stallions varies.

Before this development can occur normally, the testes must descend from the abdomen.

Normally both testes wind up in the scrotum, an outpouching of the skin that is composed of two scrotal sacs, one for each of the testes.

The scrotum is comprised of four layers. The outermost layer, of course, is the skin. Beneath it is a layer of smooth muscle. The third layer is loose connective tissue that allows the testis great mobility within the scrotal sac. The innermost layer is the parietal vaginal tunic, a membranous sac that extends from the abdominal cavity through the inguinal canal.

The inguinal canal is the passageway between the abdomen and the vaginal cavity that surrounds the spermatic cord in the adult male.

At the upper and lower ends of the inguinal canal are the inguinal rings, which form the upper and lower openings of the inguinal canal.

In the normal colt, both testes should descend through the inguinal canal and into the scrotum between 30 days before birth and 10 days after birth. When this doesn't occur on that timetable, the horse owner is faced with the fact that he or she may own a cryptorchid.

Cryptorchidism is the condition involving the retention of one or both testicles, either in the inguinal canal or the abdominal cavity. Why the testis/testes fail to descend is not definitely known. There are several theories, one of which is that the condition is hereditary although this has not been proven scientifically.

There are at least four basic theories why the testes do not descend in some cases:

1. Insufficient abdominal pressure to expand the vaginal process properly.

2. Stretching of the gubernacular cord. (The gubernacular cord is the fetal ligament attaching the epididymis to the scrotum.)
3. Insufficient growth of the gubernaculum and tail of the epididymis so that they are unable to expand the inguinal ring sufficiently to allow entrance of the testis.
4. Displacement of the testis to a position where the pressure of the intestines prevents gubernacular tension from pulling the testis into the vaginal process.

The four above possible causes generally are attributed to one or more of the testes that are suspended somewhere along the inguinal canal. With cryptorchids of this type, hormonal therapy sometimes can be successful. Unless the testis is retained within the abdominal cavity, the use of hormonal therapy may help to stimulate descent of the testis. The two hormones that have been used with some success are gonadotropin releasing hormone (GnRH) and human chorionic gonadotropin (HCG).

Hormonal therapy would be useless where one or both of the testes are retained within the abdominal cavity because the inguinal ring would have closed.

Abdominal retention apparently occurs, when the testis fails to enter the inguinal canal before closure of the internal (upper) inguinal ring during the first two weeks after birth.

What do we do when we have determined that the animal is a cryptorchid?

The answer is relatively simple if the testis has been retained in the abdominal cavity. The only way to remove it in that case is through surgery.

However, if the testis is located somewhere along the inguinal canal, other options are available. Before going further on that point, it should be noted that stallions with one descended testis can be fertile. However, if both testes are retained in the abdominal cavity, the stallion cannot be fertile because the higher temperature within the abdomen will prevent spermatogenesis—the development of sperm. The testis or testes retained in the abdominal cavity still can produce testosterone, which, in turn, can result in stallion-like behavior.

It is commonly believed that if both testes are not descended into the scrotum by two years of age that they will remain undescended. This is not the case with miniature stallions as it can take up to four years for the testis to descend.