

# Castration In The Horse

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Becoming educated on the entire process of castrating horses can only help you make decisions that are best for your horse. Castration has been used to control masculine/aggressive behavior in the male horse for hundreds of years. In medieval times, kings rode stallions, and people of less stature often were described as riding geldings. Castration also is called gelding, cutting, or emasculating. The scientific name for castration is orchidectomy--orchid meaning testicle and -ectomy meaning to remove or resect. Orchidectomy therefore is the surgical removal of a testicle.

Castrating horses in the past was, of course, not always performed by licensed veterinarians. Even today in some cultures it is performed by a lay person. Although it is one of the most common surgeries performed by a veterinarian, it should never be considered routine, as the procedure can have very serious complications. Furthermore, the follow-up care is extremely important. In this article, we'll see how an orchidectomy is performed in the horse, when it can be performed, potential complications, and the myths behind castration in horses.

## Why Castration?

Castration in any species involves the removal of one or both testicles and associated structures (such as the epididymis) and part of the spermatic cord. The spermatic cord is the tube-like structure that contains the blood supply (veins and artery), ductus deferens, and nerve supply to the testicle. Castration usually is performed in male horses of inferior breeding stock, in cases of cryptorchidism (see "Cryptorchidectomy" in the September 1999 issue of *The Horse*, article #372), or in stallions which are difficult to manage. Some owners believe that stallions perform better than geldings; this is common in several disciplines.

The testicles are the organs responsible for producing testosterone (the main hormone that creates stallion-like physical features and behavior). Removal of both testicles usually rids the horse of unwanted stallion-like behavior, including screaming at and fighting with other horses, attempting to mount other horses, erection, masturbation, and potentially aggressive behavior toward humans. However, when castration is performed at a late age and/or after the horse has been used to breed mares, is not always successful in abolishing learned stallion-like behavior. Even though the horse will not be able to reproduce, the behavior of mounting mares in the pasture in an attempt to breed and aggressive behavior with other horses might not cease.

According to Christine Schweizer, DVM, Dipl. ACT, from Cornell University, the age of the horse at the time of castration usually plays a big factor in residual stallion-like behavior. Older stallions which have been in a breeding program are much more likely to retain studdish behavior than those gelded as yearlings. Castrating older stallions will tone down the stallion-like behavior, just not necessarily eliminate the behavior completely.

## When To Castrate?

Horses can be castrated at any age. I have castrated foals at one day of age and stallions into their 20s. Although both of these extreme situations were emergencies where the horses had developed scrotal hernias (the small intestine had herniated or protruded into the scrotal sac), all recovered well. Most veterinarians will agree that castrating horses at a young age (less than one year old) is ideal.

Male horses at that age have smaller testicles that are easier to remove and have less of a chance of severe bleeding post-operatively. Many people castrate horses when they become a management problem--around two to three years of age. This could be due to a desire for the horses to develop a more masculine appearance (thicker neck, heavier build).

If a horse is gelded earlier in life, then it will grow taller--closing of the growth plates in the legs is delayed with early castration. The ideal time to castrate a horse is variable and will depend on several factors, including the management of your farm, the climate, training schedules, and so on.

For example, you might want to wait to castrate your yearling colt until he is two years old. However, if the barn where you board your horse only has one paddock, turning your intact colt out with other horses invariably results in a fight when the colt begins mounting and herding the other horses. To save the peace (and injuries to your colt), it might be best to castrate him earlier.

Another example could be that you want to castrate your 2-year-old colt in January so that he is acting like a gelding by the first show in March. However, you live in central New York, where heavy snow and extremely cold temperatures are the norm in January. It might be best to wait for warmer weather so that regular exercise following castration won't be impeded. Or, for a little more money, you can have him castrated at a clinic where the incisions are closed and there is no need to worry about the castration sites becoming swollen or infected. What's the difference between field and clinic castration? Read on.

### **Field Vs. Clinic Castration**

A castration can be performed in a number of different ways, and each veterinarian will have a different preference. The differences usually are due to several factors, including the farm's facilities, how the farm is managed, age of the horse, and what lay-up time can be allowed following castration. Other important factors are whether the horse has both testicles descended into the scrotum, and the skill of the veterinarian performing the surgery.

The most basic requirement for a normal castration is that the horse has two testicles descended into the scrotum. Your veterinarian must confirm this *before* surgery is begun! If one or both testicles are "missing" (or more correctly described as not descended into the scrotum), then the horse is considered a cryptorchid. A cryptorchid castration requires more extensive surgery than a routine castration, so that surgery usually is not performed in the field.

Removing only the descended testicle and leaving the retained testicle is not an ethical procedure, due to the problems described previously. Furthermore, removing only one testicle will *not* cut stallion-like behavior in half--so don't be fooled!

If the horse has two fully descended testicles, then the second decision to make is whether or not he will be anesthetized for castration. Castrations can be performed with the horse standing or recumbent (lying on his side or back) and under anesthesia.

The requirement for a standing castration is that the horse must be big enough for your veterinarian to lean under the belly to remove the testicles--no miniature horses! The horse must be trained well enough to be restrained properly--that means no standing castrations in foals. The reason standing castrations are performed is that some people do not want the horse injuring himself during administration of anesthesia or recovery, or having a reaction to the anesthetic drugs. These very seldom happen.

Standing castrations are much riskier to the veterinarian performing the procedure than to the horse; many veterinarians will not perform standing castrations due to the risk of injury to themselves. Before you decide how you want your horse castrated, you should weigh the pros and cons with your veterinarian. The main advantage of standing castrations is that the horse does not have to be anesthetized. The horse will have to be sedated and restrained with a twitch, but he will not have to lie down, therefore avoiding the possibility of harming himself when he attempts to stand after the procedure. The main disadvantage is that if a major problem occurs (severe bleeding or evisceration-removal of part of or a whole organ), then it is nearly impossible to correct with the horse standing, and the horse will have to be anesthetized very quickly for treatment.

Some people do not want to care for the incision sites, or wait for the open incision sites to heal. For those owners, the horse can undergo surgery in a clinic and have the incisions closed. Closing the castration incisions eliminates most of the complications of castration such as hemorrhage, infection, delayed healing, and intestinal herniation (more on these later). This procedure is, of course, more expensive than a routine castration in the field, but for some the saved time and peace of mind is very much worth the extra cost.

## **Normal Castration**

When a horse is presented to me for castration, I talk to the owners and describe what is going to happen and what the owners/caretakers can expect afterward. I find this to be extremely important, as it never ceases to amaze me how someone who says they have experience with castrating horses is scared afterward by the open and draining castration sites. The first step is good communication.

The second step is a thorough physical examination of the horse, including palpation of the testicles. This is to make sure that both testicles are descended and that there is no evidence of a scrotal hernia (intestine that has herniated from the abdomen into the scrotum). If the horse is healthy and normal anatomically, then surgery can be performed at the farm. If there is a hernia or if a testicle is missing, then we must plan for the operation in a clinic instead.

The next step is to ensure that the horse has been vaccinated against tetanus in the last six months. A tetanus booster should be administered to any horse that is undergoing surgery, because the surgical sites can become infected with the organism that causes tetanus. Tetanus is easy to prevent, but very difficult to treat (and often is fatal). If there is a question of vaccination status, administer the booster vaccine!

I perform 99% of castrations with horses anesthetized, so this is the method I will describe.

After the horse is sedated, then anesthetized with drugs given intravenously, the horse is placed on its side with the hind legs tied out of the way. The scrotum is prepped for surgery and two incisions are made through the skin, one over each testicle. The connective tissue surrounding each testicle is removed, leaving the testicle, epididymis, and spermatic cord exposed. At this point, emasculators (instrument with a broad surface and a cutting edge made for castration) are used to crush the blood supply in the spermatic cord, then sever the vessels along with the other tissue. The emasculators are left in place for up to two minutes.

When the emasculators are removed, the stump of the spermatic cord (the part that is going to remain in the horse) is inspected for hemorrhage. This is repeated on the other side.

The last step is veterinary preference; I remove the skin between the two sites, leaving one large incision to drain. Other veterinarians leave the two sites open without removing the skin in between.

The horse will stand up within 10-20 minutes, sometimes sooner. The open incisions are left to heal on their own (otherwise called second intention healing).

## **Complications**

Although castration is one of the most common surgical procedures performed in the horse, it also has several complications, some of them quite serious. The most common complications are swelling at the incision sites or in the prepuce (sheath), and post-operative bleeding. It is normal for an occasional small amount of blood to drip from the incision sites; however, a steady drip or stream of blood is too much. If bleeding persists after surgery, then the incision must be packed with gauze to apply pressure and stop the bleeding. In cases of severe bleeding, the horse usually is anesthetized again and the offending blood vessel is ligated (tied) to prevent further hemorrhage.

It is normal and expected for a certain amount of swelling to be present at the castration site. However, severe swelling usually indicates a problem, usually infection.

Castration sites need to heal from the inside out. If the outside skin heals first, serum and blood can accumulate in a pocket and the site will become infected. Your veterinarian will treat the infection with antibiotics, and probably will reopen the incision sites for drainage. Sometimes the infection ascends the remaining spermatic cord and surgery needs to be performed to remove the infected tissue. Once this is done, the problem is solved. The incision is once again left open to drain.

One of the most serious complications is eventration. This is when a segment of small intestine travels from the abdomen down through the inguinal canal (a small opening that connects the abdomen to the scrotum). In an uncastrated male, this would be called a scrotal hernia. However, in a castrated horse with open castration sites, the intestine can descend through the open incisions and disaster can result.

This is a life-threatening emergency--the first sign of intestine (or anything else) protruding from the castration site should alert you to call the veterinarian immediately. Emergency surgery must be performed to return the intestine to the abdomen and close the opening to the inguinal canal.

The horse's omentum, which is a fatty yellow tissue that surrounds some of the abdominal organs, also can protrude through the open incisions. This is called omental eventration. If this happens, the offending omentum will be removed via an emasculator, but this is not life-threatening like intestinal eventration because the omentum will block the inguinal canal and prevent the intestine from coming through.

## **Follow-Up Care**

Care after the surgery is extremely important, especially if the skin incisions are left open to heal on their own. The horse should rest quietly in his stall for 24 hours following castration. After that time, however, it is imperative that he has exercise for at least one hour every day. Frequently, people make the mistake of turning the horse out in a paddock or pasture. Many times the horse, especially if he is a little sore, will just stand quietly and graze. Castrated horses need exercise to keep their incisions draining appropriately. Therefore, they need to be longed or chased!

If they are not exercised appropriately, then the skin incisions can close prematurely, and the area can become very swollen, painful, and infected. Daily cold water hosing also helps keep the swelling down and will help clean the incisions.

In most horses, the effects of the residual testosterone in the horse's body will last approximately six weeks. So unfortunately, you will not see an immediate attitude adjustment in unruly horses. For this reason, I recommend not turning out your new gelding with mares or any other horses until six weeks after castration. He can't impregnate your mare during that time, but he might get hurt when he mounts her uninvited.

## The "Proud-Cut" Myth

Geldings which continue to mount mares or those which have continued aggressive behavior following castration are often referred to as being "proud cut." This term has been used to imply that the castration was not completely performed (intentionally or unintentionally), and that a portion of a testicle or epididymis was left in the horse and is still producing hormones (particularly testosterone) that cause stallion-like behavior. If a portion of the epididymis was left in the horse, it would not cause the horse to continually act like a stallion as the epididymis cannot produce testosterone on its own.

If you have a "gelding" which acts like a stallion, there are two possibilities.

**Problem 1:** The horse might have a cryptorchid testicle that is retained high in the flank or in the abdomen that still is producing testosterone and creating the stallion-like behavior. The testicle was not found during a normal castration, and the entire testicle or a major portion of it was left in the horse.

**Solution:** Your veterinarian can take blood samples to determine if your horse is producing testosterone at similar levels to a stallion. A baseline blood sample is taken, then a hormone (hCG--human chorionic gonadotropin) is administered and will stimulate testosterone production if the horse has functional testicular tissue in his body. This is one of the best ways to determine if a horse has a cryptorchid testicle hidden somewhere.

**Problem 2:** Your horse is a true gelding with no testosterone-producing tissue in his body (i.e., no testicular tissue) and still displays stallion-like behavior, possibly due to learned behavior. On the other hand, in one study in which male horses' behavior was evaluated following castration, there was no significant difference in behavior whether the horses were castrated at less than two years of age or at more than three years of age. Regardless of the age at which they were castrated, up to 30% of the horses still displayed stallion-like behavior, including aggression toward other horses. The study noted that 5% of the horses displayed aggression toward humans.

**Solution:** Most veterinarians believe that in true geldings, appropriate training can reduce or eliminate the stallion-like behavior. Luckily, most castrations in horses are performed with no complications, and a healthy, well-adjusted gelding is the end result.