

Hormones and Horse Behavior

What is the truth about stallion-like behavior? Is it those things we love best about horses, or is it something vicious and unpredictable that should be checked by gelding the horse?

By Brenda Forsythe Sappington, M.S., Ph.D.

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I had the pleasure of touring some of the leading horse breeding and training facilities in the country while I was at a professional conference in Gainesville, Fla. But the most remarkable visit on my tour was to the home of Rugged Lark, the famous American Quarter Horse stallion, because he defied all of the legends about the unpredictability and dangerous behavior of stallions. The handsome bay displayed his docile and cooperative temperament in one unique way after another. I watched with the other spectators in stunned silence as Rugged Lark's rider and trainer Lynn Palm guided him through freestyle dressage tests and over obstacles with just her lower-body aids and a garland of flowers around his neck. This stallion's behavior struck me because it was so unusual to see.

A few months later, I encountered stallion behavior many people would consider more normal at the horse facility where I did my behavioral research. I was walking around the grounds, past the rows of stallions I thought I knew so well, when I was overcome by an excruciating pain. One moment all was right with the world, and the next moment I was sailing through the air, landing face first on the hard ground. I looked back at the normally gentle, middle-aged stallion that had just attacked me, and observed his displays of aggression directed at the brand-new stallion in the adjacent paddock. It was clear that I had been the target of misdirected aggression between them.

What is the truth about stallion-like behavior? Is it docile and cooperative, or aggressive and dangerous like popular legend? Is it those things we love best about horses—charisma, nobility, controlled fire—or is it something vicious and unpredictable that should be checked by gelding the horse? Which gender makes the most easily trained riding horses, and which is the best for a performance horse?

Although gender isn't the only determining factor, a horse's sex does play a significant role in behavior. Survival and reproduction are the two driving forces of all animals, including horses. Personal survival dictates that they must find food, water and protection from the elements above all else. When those basic needs are met, sexually intact animals (those who haven't been gelded or spayed) treat the call of their reproductive hormones as the next priority. These hormones ensure the survival of the species and drive animals to send their hereditary attributes into the next generation, giving them a sort of immortality through their offspring.

Hormonal signals tell horses when to breed, and during those times it is a very important item on their agendas.

For mares, the breeding urge is seasonal and cyclical, but for stallions, the drive is ever-present. Libido in stallions is driven by the hormone testosterone, which is primarily produced by specialized cells of the testicles called leydig cells in response to chemical signals from the brain's hypothalamus and pituitary gland. These chemical messengers are more active when the days are longer, increasing testosterone production to coincide with the time that mares are most fertile and receptive to breeding. But even during the winter, when most mares are unwilling to breed, stallion behavior is still under the direct influence of testosterone, maintaining some degree of libido, sperm production and secondary sex characteristics. This maintains the drive in stallions to seek out prospective new mates and to check them for willingness to breed.

This is what makes stallions such unique animals, giving them that brilliance, that something extra. In his book *Lyons on Horses*, John Lyons explains "...reproductive drive is behind many of the stallion's behaviors ... If we recognize this, we can deal with it in a logical manner. We'll teach the stallion when and where to use this inner drive, when it's okay to breed and when it's not. But because of the stallion's strong purpose in life, we'll need to invest more time in his training. It may take us two hours to train the gelding, five hours to train the mare and 20 hours to train the stallion."

This drive to breed makes stallions exceptional performance prospects for highly experienced riders. If the stallion's strongly driven sexual behavior can be controlled through proper training and that energy channeled into athletic endeavors, they can indeed be the species' most brilliant members. Consider, for example, the performances of 1996 Olympic dressage sensation Peron and 1984 Olympic gold and silver medal-winning international show jumper Abdullah.

On the other hand, stallion-like behavior can make "studs" difficult to train and potentially very dangerous, particularly in inexperienced hands. Even those stallions with unusually docile temperaments need to be handled properly by expert horse people at all times. Even "nice" stallions can be lethal to novice handlers. For this reason, unless a horse has a one-in-a-million combination of top-quality conformation, temperament and bloodlines, and the owner intends to use him for breeding — or sell him as a stud — most trainers would advise owners to geld horses intended for everyday riding or showing.

A horse's behavior changes after gelding because of the quick and marked drop in blood testosterone levels. In horses, testosterone levels plummet to less than half their original levels very quickly after gelding. Without high testosterone in their blood, geldings are not hormonally driven and distracted by the urge to reproduce, so they are able to devote more attention to their training. This makes them generally easier to train than stallions, with more consistent behavioral tendencies. Gelding is also believed to alter a horse's personality, making him less moody and more complacent.

On rare occasions, stallions that are gelded after puberty continue to display stallion-like behavior. This problem is most common in horses that formerly had careers as breeding stallions, and occurs because of what was "learned" through sexual experience. Other good reasons for early castration are that geldings can end up taller than stallions due to later closure of long bone growth plates, and that the chances of intestinal herniation as a post-surgical complication are fewer.

Mare behavior tends to fall between that of geldings and that of stallions. Some horse handlers call the erratic behavior some mares exhibit during estrus "mare-ish" behavior. They are typically referring to the distracted attitude and edgy nature of certain mares that are more interested in finding mates and breeding during this time than they are in anything else. Starting sometime around April and going approximately through September in the Northern hemisphere, the increased day length stimulates the mare to initiate 21- to 23-day reproductive cycles known as estrus cycles. During an estrus cycle, the typical mare will spend around five to seven days in heat, primarily under the influence of the hormone estrogen, and will ovulate near the end of that period of breeding receptivity. This can cause problems when it interferes with athletic performance or when it causes mares to become cranky and unpredictable, presenting dangers to their human handlers.

During the shorter days of the year, more mares are sexually inactive and unresponsive, behaving very similar to geldings. During the remaining 14 to 16 days of the cycle, they are primarily under the influence of the hormone progesterone and are not interested in breeding at all.

For mares affected by behavioral problems during estrus, there are various products utilizing the reproductive hormone progesterone, which can be prescribed by veterinarians to keep them out of estrus. However, these may cause side effects in some mares. Because removal of the ovaries or spaying in mares is a major surgical procedure, it is generally not done unless for medical reasons, such as for certain ovarian tumors. Most mare owners are either not aware of the behavioral changes during estrus or are not disturbed enough by them to invest in medical treatment. Of course, many mares are wonderful riding horses, brilliant show horses and powerful athletes that perform consistently despite the influences of estrus.

This column has highlighted the most obvious differences in behavioral tendencies of stallions, geldings and mares. The "best" gender depends on the ability, experience and preference of the rider, as well as the job required of the horse. Remember that generalizations about gender are simply guidelines, and that the temperament of the horse is ultimately the most important factor to consider. These guidelines can be used to help increase the likelihood of ending up with a compatible horse, but what matters most is finding one that can be trusted and that will be a pleasure to work with.