



Why do horses sleep standing up?



In the wild, when startled or alarmed, animals survive through the fight-or-flight response. This is the same response that kicks in when someone jumps out from the dark and scares you: do you throw up your hands to fight, or do you engage your feet and take flight? Humans, who have been called the ultimate predators, often fight. Horses, who are in almost all situations prey (except for fights between horses), take flight.

By natural selection, horses who could sleep standing up, wake up, and run away from predators faster were the ones more likely to survive and pass on their genes. Put another way: when you're a large herbivore, and a carnivore with a rumbling stomach looks your way, you're better off if you can move at a moment's notice.

So that's why horses sleep standing up, but how do they do it? The answer is called a "stay apparatus," which is a unique adaptation of the musculoskeletal system of the horse that allows the animal to lock limbs in position so that very little muscle function is required to remain standing.

In the front legs, this is relatively easy, since these limbs naturally rest in a straight, load-bearing position. The hind legs presented a bigger challenge, however, and for them, horses have over time developed a combination of ligament and joint adaptations that allow them to lock two principle joints, the stifle and the hock, in a fixed and immovable position.

When enjoying a short nap, the horse will lock one hind limb in this fixed position. The weight of the hind end is resting on the locked limb while the other hind limb is in a flexed and resting position.

The stay apparatus is a nifty adaptation, but one small problem remains. Like humans, horses have both shallow sleep and a deeper period of rest known as rapid eye movement (REM) sleep. Horses need about fifteen minutes of REM sleep each day, and they can get that only while lying down. Good thing they don't need much REM sleep, because a horse who lies down for long periods of time has difficulty getting blood supply to the large muscles of the legs, which makes getting up difficult. The bigger the horse, the bigger the problem, which is why some horses (particularly the large draft horses) have a very difficult time recovering from lengthy periods under anesthesia.

Whether they are in the wild or in a domestic setting, a horse must feel safe before lying down to enjoy a few

minutes of deep sleep. A horse would die without eventually getting deep sleep. There may be a delay of many hours, even days, but eventually a horse feels safe enough to go prone, go to the REM zone, and catch some deep z's. In a traditional herd setting, horses enjoy the protection of their herd during the time of deep sleep. Often one horse will stand and nap while the others lay down for a deep sleep.

Different horses require different amounts of deep sleep. Babies need more sleep than adults; fortunately, their mothers will protect them while they rest. Wild horses lie down less than domesticated horses. The difference is believed to be less about predators and more about the scarcity of food in the wild, which requires wild horses to eat pretty much day and night. Food isn't as much of a concern for most domesticated horses. The famous race-horse Seabiscuit, known for enjoying lots of deep-sleep naps, never had to worry about where his next meal was coming from, after all.

Getting a Leg Up

Horses are fast to run but slow to rise. Have you ever seen a horse get up? It's no easy feat. First they have to roll into a sitting position, tuck their hind legs under them, and stretch their front legs out in front. Then they slowly press their front half up into a sort of dog-sitting position. Then they swing their head as a counterweight and push the back end up. So if a horse feels vulnerable, which most horses do when they're lying down, he'll sleep standing up.





Q: Why do horses let people ride them?



A: Horses could easily dislodge humans from their backs with an upward flick of their hind ends. So why don't they? The reason is actually pretty simple: horses recognize humans as dominant herdmates.

Horses are social animals who, in the wild, live in herds. And whenever there is a herd, there must be a leader, as well as a pecking order. Horses are good at figuring out who is in charge. It's part of their nature.

Domestic horses raised from a very young age by humans learn that people are the ones in charge. From the time they are born, these horses are taught to wear a halter, walk alongside a human, and move their feet the way people want them to. They are made to submit to human will from the get-go, so by the time they grow up, they see people as the dominant creatures in their world.

Horses trained for riding learn that humans like to climb up on their backs. There is no question in the horse's mind that he must submit to this idea, because,

after all, these two-legged creatures are the ones in charge of everything.

Of course, some horses like to challenge the status quo, and some humans are better than others at establishing and maintaining dominance. Some humans won't allow horses to buck them off; some horses won't allow humans to ride them and will buck them off without a moment's notice. In some cases, these horses become professional rodeo broncos and end up making their living removing riders from their backs. So in the end, the humans still get what they want.



Q: Why do horses get spooked so easily?



A: This is one of those age-old questions often asked by those new to horses, as well as more experienced riders entering middle age—you know, that age when falling off a horse suddenly feels like a very big deal.

On the surface, it seems absurd that an animal as big as a horse would be afraid of anything, let alone a fluttering piece of paper. Yet most horses are real scaredy-cats, easily frightened by objects they can't readily identify, especially if these things are moving.

The horse's nervous nature stems from a long history as a prey animal. Long before being domesticated, the horse was at the top of the large predators' dinner menu. Creatures the likes of saber-toothed tigers, wolves, and even prehistoric humans are all believed to have regularly dined on horses.

Given this reality, it's not hard to understand why horses are so flighty. Even though a lot of time has passed since they were stalked by Ice Age creatures, the

horse's instinct to run first and ask questions later remains ingrained.

So what does a piece of paper blowing across the trail have in common with a saber-toothed tiger? domesticated horses haven't had the experience of living in the wild, where they learn to recognize modern-day predators like coyotes, wolves, and mountain lions. The result is that when our horses see something strange in their environment, they often assume it isn't safe and act instinctively.

There's also the issue of vision. Unlike humans, who have a flexible lens inside each eye that can rapidly adjust and focus on objects at various distances, the horse's lenses are mostly rigid, so the only way to focus on something that's too close or too far away for his particular focal distance is to move his head closer or farther away. When a horse is scared, that takes too much time. So horses use the general philosophy of run first, investigate later. On top of all that, the shape of their eyeball gives them excellent long-distance vision (for keeping an eye on the horizon for bogeymen), but up close things are not only out of focus, they're actually magnified. So, an 8 x 10 piece of fluttering paper that's magnified and out of focus and moving and making a rustling noise (not too unlike the sound of a cougar

sliding through the brush) may quite logically seem like something that could actually do some damage.

Stampeding is part of this same intrinsic need to flee from danger, combined with the horse's intense herd instinct. Horses are social animals, and they find safety in numbers. All it takes is for one member of the herd to act frightened, and the entire group will respond in kind, assuming the one who is scared is feeling that way for good reason. If one member of the herd takes off in fear, the others will follow in that classic staple of any Western movie, the stampede.

SPOOKY BY NATURE

In my lifetime of riding horses, I have encountered the entire gamut of spookers. Frantic spookers, careful spookers, whirling spookers, and spookers-in-place. I've ridden spookers who bolted and had to be pulled to a stop using an emergency one-rein maneuver. I've had spookers who jumped straight up in the air, landing exactly in the same spot where they were before they spooked. I've ridden horses who spooked at garbage trucks, waving flags, goats, and even miniature horses.

My very first spooker was a little bay mare named Peggy. She was my first horse, and the perfect child's mount: she was calm, reliable, and nearly fearless. Whizzing cars, barking dogs, and flying plastic bags didn't phase her. But she did have an Achilles' heel: the dreaded calabaza bush. This terrifying flora lurked along the side of trails, hiding between darker foliage, trying to camouflage itself from unsuspecting horses. With their large pale leaves and their yellow-orange

summer squash-like gourds, they were horrific and menacing—at least to Peggy—and only, it seems, when we were galloping along on the trail while I was bareback and barefoot.

Peggy's modus operandi for spooking at top speed was to suddenly leap to the side as she passed a calabaza bush. Without a saddle to grab, I'd go flying off and land butt-first in the dirt. She'd stop and wait for me to climb back on until the next time we passed one of those green monsters.

These days, I'm a lot less cavalier about falling off a horse. I wear a helmet and riding boots, and always use a saddle. I also choose to ride horses who have a low spook threshold, since my idea of a fun ride isn't holding on for dear life over every sight and sound on the trail.

It's amazing how much horses vary from individual to individual when it comes to spookability. While a more daring rider may not mind constant jumpiness in an equine companion, I prefer a braver horse, one even braver than my old friend Peggy.

Audrey Pavia



Q: Why do they measure horses in hands and what does it mean?



A: Most horses weigh about 1,000 to 1,200 pounds. But horse people don't consult the scales when describing how big their horses are, nor do they refer to the tape measure. Oddly, at least to nonhorse people, the size of a horse rests in the palm of the hand. You see, even in an age of laser accuracy where distances are measured with great precision, the standard measurement of a horse's height is still done in hands.

A hand is equal to 4 inches, with one-inch increments (1 inch being equivalent to .1 hands, 2 inches being equivalent to .2 hands, and so on), and horses are measured from the ground to the top of their withers, the high point of the back located between the shoulder blades. So if a horse measures 60 inches high, the horse is 15 hands. If the horse stands 62 inches off the ground, the horse is 15.2 hands. Because the hand is an increment of 4 inches, if the tape measure shows 64 inches, the horse is 16 hands, not 15.4 hands.

The story behind this unit of measurement is that a king went to measure his favorite horse. Not having a device to measure with, he used the only thing he knew would be consistent—the palm of his hand—which measured four inches across. Since then, the hand has been the unit of measure for equines.

Giving Yourself a “Hand”

Height is really only important if you intend to ride a horse or show it. An average woman does well with horses from 14 to 16 hands tall, whereas larger men may want to saddle up a horse 16 hands or more. Horse size has a lot to do with fashion as well as function. Just as great big guys can look a little funny shoe-horned into tiny economy cars, a tall person looks better on a tall horse than on a tiny one. And if you're heavy, a larger horse can carry you more comfortably for a longer period of time than one whose back sags under your weight.

