Understanding your horse’s thought process can lead to an improved partnership for both of you.

Confident riders, nervous novices, people who love horses and people who fear them—all kinds of people from around the world come to the Equine Research Foundation (ERF), a nonprofit organization that studies equine cognition and behavior, to participate in their public programs. They come for a variety of reasons, but all come with the goal of learning about equine intelligence—and all come with opinions on the subject.

There are dozens of myths and misconceptions about the horse’s mind. Top trainers claim that the horse’s brain is the size of a walnut. Others insist that the horse is merely a conditioned-response animal. Some sense that horses are smart; some believe they don’t think at all.

Dispelling the Myths

For starters, a walnut weighs about 15 grams, while the horse’s brain weighs between 400 and 700 grams. The brain of a horse is a complex organ made up of many convolutions. These grooves, or folds, increase the surface area of the brain and are associated with the ability to think—more folds, more brainpower.

Contrary to popular belief, the two sides of the horse’s brain are connected by a structure—the corpus callosum—which is quite substantial. Transfer of vital information occurs between both sides, a fact just recently confirmed in ERF noninvasive studies. Using positive reinforcement, researchers found that what a horse visually learns with one eye is later immediately recognized by the other.

Yes, horses are conditioned-response animals. But so are we. Every time you see a red light while driving, your foot moves to the brake (assuming you are not a thrill seeker). That is a conditioned response. Every time you apply a leg aid, your horse moves in a certain direction (assuming your horse has been trained to do so). Another conditioned response. Most organisms learn this way, which is one of the simplest forms of the cognitive process.

However, the horse’s brain comprehends much more. Recent scientific research, much of it based on ERF studies, shows that horses are able to form categories and generalize quite easily. They can sort geometric shapes, such as triangles or varied figures with open centers, into specific classes, just like you can sort different breeds of dogs into the category...
of canine. By adopting a category and making use of their exceptional memory, horses can then generalize about things they have never seen before. This is a handy training tool for any discipline.

Not only can they categorize objects and events in their world, they appear to have some ability to conceptualize. The ERF discovered this when they taught one of their horses to always select the largest of a pair of two-dimensional black shapes. When he was shown a medium and a small square, he chose the bigger one. The same thing happened with a large and a medium square. A giant versus a large square? Again, he went for the biggest one. Even when all four were present at once, he selected the largest. Because he understood the concept of size, he was able to choose the largest of circles, triangles and intricate shapes such as computer-generated cloverleaves, trees, coyotes and clowns. Not only that, he was right on the mark when they switched from two-dimensional to three-dimensional objects such as yellow Nerf balls, green plastic flowerpots and red plates. This was solid evidence that horses possess some learning abilities akin to those of the more accepted animal intellectuals, i.e., dolphins, sea lions and chimpanzees—the result being a far cry from simple conditioning.

Those Things They Do

Why does a horse sometimes behave as if there were not a thought in his head? Anyone who has spent any time on top of a horse has experienced the disconcerting behavior of a spook, or perhaps the even more unsettling spook-and-bolt. A sign of low intelligence, many would say.

More accurately, it is an exquisite example of natural selection. Since the beginning of time—as equines go—horses were prey animals. As such, they evolved to be highly aware of sights, sounds and smells. Anything unusual might mean a predator was nearby. Those horses that responded with their primary defense mechanism of flight were the ones that got away; the slowpokes became dinner. Even today, when predators normally pose no threat, the flight instinct remains strong. Because of this, horses react to leaves rustling, banners flapping, balloons blowing, bicycles zipping by, raincoats crinkling and more. Horses spook not because they are stupid but because they are smart enough to
An animal that develops vices, such as cribbing, does so because not all of its physiological and psychological needs are met. Horses that are confined and isolated from other horses are prone to these behaviors.

have survived a few million years. This does not mean we must forever ride with fear that our horses are going to go tearing off down a hillside. Using habituation and generalization training (see “Mind Games,” below) we can help our horses learn to deal with just about anything odd or disturbing.

Next question... If horses are so smart, why do they always seem to injure themselves? Horses frequently scrape themselves on stall doors or feeders or get tangled in fences. It would seem that an intelligent animal should know better. But think about this. Horses evolved to live on wide-open ranges and move quickly when the need arose. They were not meant to exist in small, dark enclosures with sharp edges or come up against barriers they could not get around. It is not for the good of the horse that humans unnecessarily house them in stalls for too many hours and too many days. Rather, this convention is based on either the human’s misconception of what pleases the horse or the human’s desire to keep him clean and shiny—neither of which is in the best interest of the species.

Which brings us to the following concern: Why is it that stalled horses develop stereotypical behaviors, better known as vices? Again, such actions are not indicators

**Mind Games**

Would you like to improve your relationship with your horse and keep him content? You can, by using his mind. Here are some things you can do anywhere, anytime.

1. **Habituation Training.** Get your horse used to all sorts of sights and sounds by exposing him to anything he may come across. Do this property by learning about this technique beforehand or else you may end up making him fearful. Horses remember past events very well so train them right the first time.

2. **Positive Reinforcement Training.** Spend some time off his back and teach him all sorts of useful behaviors like trailer loading and unloading using just hand signals or a target; lifting a hoof on only a verbal cue; standing quietly for vet care and grooming; you name it. Horses are highly motivated when it comes to learning through positive reinforcement and when done correctly this is a wonderful method of training. Be careful though! When food reinforcement is involved it is extremely important to know when to reward, when not to, and how to gradually fade out food so you are not encumbered by it. Do not confuse positive reinforcement training with treat giving.

3. **Generalization Training.** Don’t just ride your horse in the same place day in and day out; diversify. If you ride primarily in an arena, take him on a trail, try a river crossing, or a vista where you can see for miles. Endurance rider? Try some basic dressage. Do away with endless longeing. Instead, do groundwork like jumping him over logs. Variety reduces boredom and helps your horse become more confident and more athletic.

4. **Enrich his environment.** If your horse spends most of his time in a stall, try to provide much more turnout. Let him graze and roll in the dirt. Companionship is a must for all horses. Try to keep him around other horses, or at least near other animals. Some horses like toys—try several!
Using positive reinforcement, this horse has been trained to trailer load on just a hand signal—no ropes, no whips and no force.

Trailer unloading is just as easy. Here the horse is calmly touching his nose to a target, which is a tool in positive reinforcement training.

It is normal equine nature to be anxious about being alone. However, if you establish a trusting relationship, your horse will look to you as the leader and be more willing to leave the safety of the herd.

of low intelligence. They are generally the result of improper management. An animal that cribs, weaves, repeatedly kicks walls, monotonously bobs his head, or mutilates himself does so because not all of his physiological and psychological needs are met. Horses that are confined and isolated from other horses are prone to these behaviors.

Because they are intelligent, horses need mental stimulation and companionship. Lacking this, they often develop stereotypes as a means to cope. When stereotypes show up, owners frequently resort to mechanical devices to stop the behavior rather than improve the environment to suit the horse’s needs. This only adds to mental stress.

How many times have you heard someone scold his or her horse and say he is behaving stupidly when he becomes anxious after leaving the barn? Maybe the horse neighs or jigs on the trail. Or maybe he freezes up with tension, ready to bolt at the slightest provocation. This anxiety stems from another natural equine behavior. Horses are herd animals that need others nearby in order to feel safe. Out in the wild, a lone horse is vulnerable and few willingly choose that predicament. Being herded is a survival mechanism. Observant riders take advantage of this by establishing trusting partnerships so that their horses look to them as leaders and become confident enough to leave the perceived safety of their equine herdmates.

Generalization training requires you to diversify your horse’s routine. If you ride primarily in an arena, take him on a trail, try a river crossing, or a vista where you can see for miles.

Lose The Labels

We, as humans, are quick to assign anthropomorphic terms to equine behavior. Say the horse is slow to come in from pasture—well, he’s being a jerk! Or the horse resists a bath—of course, he’s an idiot! Maybe he is simply not doing what we want—clearly, he’s dimwitted! These labels may, in some instances, apply to us but they are completely inappropriate for animals.

When horses do not behave as we wish (and no physical reason is involved) it is most often because we have not communicated well enough or we have unnatural expectations. Horses are not people, nor are they puppies. There is no scientific evidence that they are psychic. Their way of thinking is unique to them. Horses are perfect at being horses. And as such, they should be accepted
Horses are skilled communicators. Although they do vocalize at certain times, their main mode of communication is body language. Next time you come across a herd of horses, watch them. A dominant horse will move another with just a look or a flick of an ear; a younger, using a lively approach, will entice another to play; a stallion will direct his mares by snaking his lowered head back and forth; subordinates will follow a leader just by how she acts. Each species has its own form of communication. Some seem very foreign to us while others are easy to read. People knowledgeable about equine behavior are able to interact with horses using a modified version of their communication—with excellent results. Instead of trying to squeeze the horse into a human mold, these individuals fit themselves into the horse’s world. They use body language based on the nature of the horse in order to bond, communicate and train. Whereas people who do not understand horses may try to force, or bribe, or cajole by babbling, horsepeople simply “talk” as horses do—naturally.

and treated accordingly. They are extremely adept at reading body language. They can transmit silent signals with just a subtle look, and they are perceptive of the slightest actions of other animals, including humans. By observing horse behavior in a natural state, we can gain a thorough understanding of how they communicate and can learn to appreciate what is important to these highly adaptable animals. Using their intelligence and sociability, we are then able to develop training and handling methods tailor-made for them. From experience at ERF we have found that a combination of natural horsemanship, positive reinforcement and working within the horse’s cognitive capabilities leads to excellent results. 

Evelyn Hanggi is the president and cofounder of the California-based nonprofit Equine Research Foundation and has written many general and scientific articles on equine cognition and behavior. For more information about the Foundation, visit www.equineresearch.org or call (831) 662-9577.