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Human-Horse Communication: A cross-species neural dance between prey and predator

By Leland Schwartz

Middleburg -- The standing room only audience of riders at the National Sporting Library & Museum gasped when Dr. Janet Jones, a cognitive scientist who trained hundreds of difficult and green horses over the years, declared that riding a horse is 20 times more dangerous than riding a motorcycle.

"I hate to tell you this, but I should anyway," Jones quipped in sharing the statistic. "I see too many of my friends get hurt. I get hurt myself too many times."

Indeed, it was after her own head injury that Jones began studying the human brain, leading to a PhD in cognitive science from UCLA, where she taught for two decades, and to her research discovery that there is actual neural activation between equine and human brains.

The best way to reduce the chance of injury and to improve riding ability, she said, is by improving communication between the rider and the horse, the central theme of her book, "Horse Brain, Human Brain: The Neuroscience of Horsemanship."

"If your horse is communicating with you, she will tell you when she is scared or confused, and you can help her calm down before she kicks or rears or bolts or throws a great big fit," Dr. Jones said. "But you've got to be communicating, you've got to be watching for the signals in order to notice things. Horses, contrary to assumption, do not just blow up for no reason."

PHOTO: LELAND SCHWARTZ

There's always a reason, she said. "It's just that often we humans don't know what it was. But if you become more aware, then you will know what it is, and you can cut it off at the pass before it gets too overwhelming or dangerous for you or for your horse."

Brain-based horsemanship is all about building trust, she explained, calling the interaction between horses and riders "by far the most powerful form of cross species communication that is known today."

"This is not a metaphor," Jones said. "I'm talking about true sharing between equine neurons and human neurons when we work together. These claims are especially surprising because horses and humans come from two very distinct biological classes -- preys and predator -- who evolve to be enemies."

The communication works, in part, because a horse's skin is super-sensitive, Jones explained. Cues from the rider, like a slight touch of the inner calves to ask the horse to step forward, instantly travel from the horse's side to its brain and then back to her leg muscles.

Jones traced the impulse for the audience: From the horse's side, to its peripheral nerve, over to its spinal cord, and then to the portion of cortex in the horse's brain that picks up touch, pressure, weight, temperature, "all of that that we feel with our skin." From there, it moves straight up in the horse's brain to the basal ganglia, the command center for movement, learning and emotions.

"The average horse at 1,250 pounds weighs 50 million times more than the average fly," Jones told the audience, "but he feels the fly land on him instantly, and he reacts instantly to that with shakes, quivers, swishes his tail, whisks his head around; something."

This observation caused equine scientists to begin to measure the horse's ability to detect weight and pressure, she said. "Studies show the average horse can detect the weight of five dandelion seeds on her skin. Five dandelion seeds weigh 2,500 micrograms. Human touch is nowhere near that sensitive, so a horse is more sensitive at detecting weight than you and I are."

"I always knew that horses experience a heightened amount of sensitivity, especially in the responses I've seen in high-spirited horses when dealing with therapeutic and para-Olympic riders," said lifelong rider and Delaplane resident Vicky Bendure. "It's like they know. It was great to have Janet confirm this."

One of the main reasons the neural dance works "is because we are riding the horse," Jones said. "In other words, our bodies are in full contact with the horse and can provide signals that mimic equine body language, and each body, both the horse and the human, can perceive these signals and convert them to neural impulses."

Jacquie Mars, the Vice-Chairman of the Sporting Library board, said she found Dr. Jones's talk "engaging and humorous" in the way she presented her scientific information. "She was charming."

True story. Dr. Jones cracked the place up when she circled back and said communications between riders and their horses are "even more than you and your dog or cat ... especially more than you and your cat!"