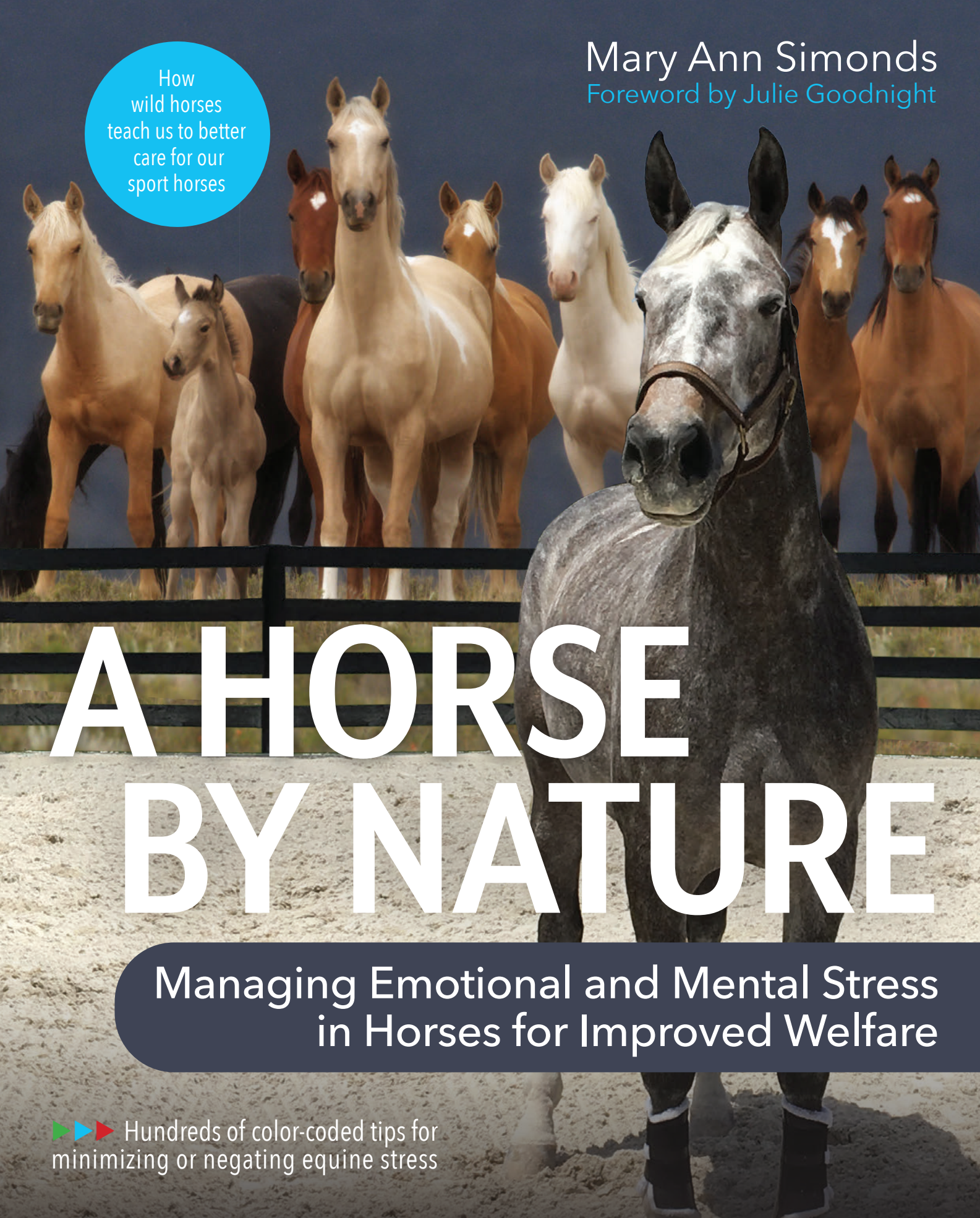

How wild horses teach us to better care for our sport horses
Mary Ann Simonds
Foreword by Julie Goodnight
A HORSE BY NATURE
Managing Emotional and Mental Stress in Horses for Improved Welfare
Hundreds of color-coded tips for minimizing or negating equine stress

Foreword by *Julie Goodnight* XI

Introduction 1

// PART ONE: HORSES WITHOUT HUMANS 7

Introduction to Part One by *Dan Rubenstein, PhD* 9

- How Wild Herds Function 9
- The "Wild" in Your Domestic Horse 10
- Horses Are Adaptable 11
- Understanding the "Wild" in Your Horse 11

Chapter [1] Why Understanding Wild Equines Is Important to Horse Welfare 13

- Living the Dream 17
- From Human-centric to Horse-centric—An Old Approach Refreshed 22

Chapter [2] Horses as a Species in Nature 25

- Fifty Million Years of Evolution, 6,000 Years with Humans 27
- Free-Roaming Social Herbivores 29
- Adapting Toward Group Cohesiveness 31
- Adoptability vs. Adaptability 42

Chapter [3] How Horses Sense Their World 45

- Sight 47
- Smell 50
- Taste 53
- Hearing 54
- Touch 55
- Subtle Energy Sensing 57
- Integrating the Brain and Body 59

Chapter [4] How Horses Communicate 63

- What Do Horses Talk About, and How Do They Talk About It? 65

Chapter [5] Understanding Horse Culture 85
- Adapting Toward Emotional Intelligence, Awareness, and Leadership 87
- Social Structures 89
- Space Games 91
- Family Life, Herd Rhythms, and Relationships 93
- Learning and Education 99

Chapter [6] Functional Horse Society 105
- Normal Horse Behaviors 109

// PART TWO: HORSES WITH HUMANS 113
Introduction to Part Two by *Dr. Med. Vet. Dorothe Meyer* 115
- Is the Horse a Prisoner? 116
- Behavior Caused by Stress 117
- Lowering Stress Equals Success 118

Chapter [7] Considering Our Impact on the Horse—How Domestication Has Changed the Horse (or Not) 121
- How We View Our Horses 126

Chapter [8] Giving Up Freedom, Finding Friendship 129
- From Wild to Domestic 131
- Adaptability Depends on Temperament 133
- Dominance, Leadership, and Friendship 136
- Interspecies, Trans-Species, and Equestrian Psychology 148
- What Kind of a Horse Person Are You? 154

Chapter [9] Horse-Human Communication and Relationships 161
- Feeling Safe Together—The Horse-Human Bond 165
- So…How Should We Communicate with Horses? 169
- Communication Channels 177
- Integrated Communication: Bringing the Channels Together 208

Chapter [10] Analyzing the Individual: Equine Personality, Temperament, and Training Assessments 217
- General Observation Assessment 221
- Specific Horse Personalities 222

• The SAICC Evaluation 224
• Benefits of Understanding Your Horse's Personality 244
• Training Readiness by Age, Gender, and Experience 244
• Assessing Trauma 247

Chapter [11] Understanding Equine Mental and Emotional Stress 257
• Consider the Research 260
• Types of Stress 261
• How Stress Affects Your Horse 264
• Primary Stressors 265
• How Horses Show Stress 268

Chapter [12] Managing Stress in Horses 283
• First…Manage *Your* Stress 285
• Understand How Horses Think and Learn 287
• Reducing Stress Related to Breeding 294
• Improving Early "Foalhood" Education and Initial Training 297
• Preparing Your Horse to Learn (Whether Young or Not) 307
• Less is Always Better: Tack and Training Devices 316
• Limiting Stress When Teaching Specific Skills 324
• Managing Riding Stress 327
• Habitat Management 335
• Shipping, Showing, and Selling Horses 349
• Solving Common Behavior Issues Related to Stress 358
• Our Humane Responsibility 363

// PART THREE: WHAT WE DO WITH HORSES: ETHICS, ECONOMICS & WELFARE.... 365
Introduction to Part Three by *Duncan Peters, DVM, DACVSMR* 367

Chapter [13] The Future of Horses 373
• How Do We Best Help the Horse? 377
• Industry Ideas for Improving Horse Welfare in Equestrian Sports 385
• Everyone Is Responsible 388
• Keys to Remember 391
Acknowledgments 397
Index 401

← **[5.1]** Horses have developed emotional intelligence, allowing them to form cooperative social networks.

CHAPTER

[5]

UNDERSTANDING HORSE CULTURE

“For a species to evolve over millions of years before humans entered the picture, it must have been doing something right.

[5]

Adapting Toward Emotional Intelligence, Awareness, and Leadership

Horses are one of the most adaptable social species. Their ability to grow large social networks and maintain strong bonds has not only helped horses survive but also given them opportunity to form friendships with humans and other species. Horses are rather unique because, like humans, they usually move their sons and daughters out of their family band when they are old enough to form family units of their own. These family units may still live within the larger herd population.

While it is clear horses have high emotional intelligence, little research has been conducted to investigate their awareness, cognition, and learning tendencies. Horses evolved over 50 million years ago from a small dog-sized forest-dwelling *Eohippus* into the modern horse, *Equus*, and domestication seems to have taken place in multiple areas with humans only about 6,000 years ago. For a species to evolve over millions of years before humans entered the picture, it must have been doing something right. Surely, horses have had to be aware, cognitive, and be able to teach their young how to stay alive.

★ **TIP: / By making good decisions for the safety and welfare of the whole group, horses successfully evolved for over 50 million years before humans entered the picture.**

When wild horses roamed the western grasslands of North America in the hundreds of thousands, many social groups lived together. But because horses are so adaptable, they have adjusted to their shrinking habitat and reduced populations. Their social structures have been altered, and we only have sparse herds to study today. In the early 1970s, before the United States government began removing horses from public lands, there were still many herds with minimal human influence to study. Thus, my research was able to identify behaviors related to awareness, cognition, good decision-making, nurturing, and ability to teach others in the group.

★ **TIP: / Functional horses are aware and have good emotional intelligence, allowing them to exist in peaceful, cohesive groups. /**

Those horses who were able to maintain long-term social bonds between reproductive pairs as well as other friendships in the group—whether in bachelor bands or "harem bands"— demonstrated the fewest injuries and were able to balance their level of reproduction with their habitat. Given plenty of habitat and forage, wild horses will grow their social network. Average herd sizes today, on adequate habitat, are 100 to 150 horses made of up 10 to 12 harem bands (mares and offspring with stallions) and bachelor bands (all stallions) that live on the periphery of the harem bands.

The stable social structures I noted were based on good leadership, which could be demonstrated in both fluid and rigid hierarchies, and the emotional intelligence of the individuals—that is, whether they all got

Key Points of Equine Culture

- Free-roaming social herbivores.
- Adaptive to a variety of habitats.
- Social structure based on spatial awareness and respect.
- Sustainable herds have functional social bonds.
- Mares are primary educators and "social facilitators."
- Many males live in bachelor bands their whole lives, never reproducing.
- Culture varies based on habitat and the behaviors of the individuals.

↗ **[5.2]** Some mothers form strong bonds with their offspring and allow them to stay in the herd as long as they like. Here, the mare in the middle grooms her two-year-old daughter while her yearling rubs on her.

along, established "equine etiquette" when it came to respecting others' space, and formed cohesive bonds. This conserved energy. The rhythms of the social groups were clear: there were times for eating, times for sleeping, times for moving to water, times for rolling, times for playing and learning, and times for re-establishing and maintaining social structures. We will discuss all these things in more detail in the pages ahead.

Social Structures

Social organizations in horses vary. Overall horses appear to have loose hierarchical structures that can range from strongly dominant to shared leadership. While some groups appear to be *stallion-dominated,* other groups tend to have more *matriarchal* influence. While not territorial, some groups of horses adopt protective behaviors concerning resources, particularly when they are limited. But generally, horses' free-roaming, social nature drives them to form cohesive social bonds with a seeming awareness that social order and organization is important for the welfare of the group.

Social structures in groups of 12 or fewer horses most often consisted of a bonded male and female pair, and other mares and offspring. The group would include foals, yearlings, and two-year-old—and often even three- and four-year-old—family members. Although horses are *neolocal* (younger family members live or relocate away from both their father and their mother) like humans and typically pressure reproductive offspring to leave their family bands, some family groups maintain social relationships with their offspring. I have observed both mature males and females living with their own families in their original family bands. It is not

uncommon to see a mother, her daughter, and her granddaughter remaining together if their social bonds are strong.

★ TIP: / Leadership in equine society can be stallion-dominant for some specific tasks and matriarchal for other group decisions. /

The *alpha* or *lead* mare was usually the most alert horse in the group and would notify the other group members when there was danger. The stallion would then gather the band from behind, and as the lead mare took off, the stallion would protect from the rear. In larger herds with several bands of horses, the social structures adapted slightly differently: frequently, there would be a second stallion, a friend of the dominant stallion who would assist in protection and guarding. (Sometimes, there could even be two assistant stallions.)

As you already know, much of a group's energy and risk is reduced by keeping cohesive units at peace. Although ingress and egress is not uncommon with horses coming and going, group dynamics that include being able to make friends quickly and "agree" to leadership decisions are essential for the welfare of the whole group. In my research, I noted individuals who often seemed to regulate conflict and make decisions regarding actions and movement, and I called them *social facilitators* (I mentioned them briefly in chapter 2—p. 37). These were also the horses that other horses would most often check in with through social contact. They were the "rhythm keepers" of the herd. They were the "aware" horses who kept the peace. Sometimes they were the "leaders," but sometimes they were somewhere in the middle of the herd hierarchy and just more social than others. It could be that this trait is one that has allowed horses to become so social with humans.

The terms *social dominance* and *hierarchy* are often used regarding horses, and while some herds I studied demonstrated clear social hierarchy, others did not. Equine culture can vary, as I've mentioned, depending upon individuals and habitat, but "horse etiquette"—those skills needed to stay safe in a group and get along—seem universal and simple. The driver in horse society as a prey species is "to stay alive," and horses are still wired with the motto, "One for all, and all for one," thinking and learning as a "one-mind species." By this I mean they often appear to learn as a social group, adapting behaviors through a variety of learning styles (see p. 290) and driven by changing habitat and circumstances.

→ **[5.3]** Onaqui wild horses graze in large groups of 75 to 150 horses. Their healthy herd culture has allowed them to maintain large groups, which increases their social networks and provides more time for grazing, raising foals, and forming and strengthening bonds within those networks.

Space Games

We've discussed how horses use space as a form of communication (see p. 77). It is key in influencing social structure. In bachelor bands, spatial awareness does not seem to be as key as as in mare or family groups. But in well-organized herds, lead mares and more dominant individuals are able to walk into the space of lower-ranking individuals. While there is a strong tendency in functional herds to "get along" with each other, spatial awareness and respect for the social structure is obvious (fig. 5.3). From the moment they are born, all horses learn to understand the social dynamics and importance of reading the energy and intentions of herdmate leaders who dictate movement of the group. Horses within a herd learn to read the energy of other horses. When a dominant animal walks toward a less dominant horse, the less dominant individual must recognize that he either needs to *stand still* or *move*. Stallions may do this to younger stallions or offspring who are allowed to live in the herd, or a mare may do this to a younger mare who in turn may repeat the same behavior to a younger animal, or one of lesser status. Once "awareness" and status has been acknowledged, then the individuals often return to grazing, relaxing, and nurturing social bonds. If the dominant horse wants the space, his energy "pushes" the other horse into moving, often with eye contact, ears slightly back, and a head bob. Stallions will often use "snaking behavior" to move a sleeping foal or a mare who wants to continue grazing. If the dominant horse wants mutual grooming, then he can walk into the less-dominant horse's space, greet him, tell him to stand still with his energy, and ask for mutual grooming. This behavior can be seen in stallions and mares.

← **[5.4]** A pleasant family photo: A pinto stallion with one of his mares and her foal.

Even young foals will try taking space from each other. These "space games" are all a part of leadership development and training. Because the most aware horses usually end up being the decision-makers and leaders, horses learn to respect each other's space. This awareness requires diligence as well as good proprioception. Some horses just want to stay out of the way of others and not cause trouble, while others may constantly play space-taking games to challenge the awareness of a leader. (It is interesting to note here that most often lead mares have foals who also become leaders.)

More dominate horses can demand the biggest space, take space from other individuals, or tell them to stand still. When you spend time watching a group of horses, you will observe that it is pretty common for one horse to walk over to another horse and into his space, and then that horse will walk away. This may appear to be subtle show of dominance, but it is actually a useful awareness game that ensures all horses are paying attention to each other. Mares commonly wander over near various friends and graze, but when they are posturing, the more dominant mare may ask the lesser mare to move away.

Stallions also play space games; theirs often involve chasing each other out of an area. Even friends do this with each other, again as a way to ensure both stallions are aware and paying attention to each other. In bachelor bands, there is more "bumping into each other" until young males mature, and you can observe space games like one stallion running

by and biting another stallion as he grazes or two males suddenly having a rearing match. If a horse isn't aware of space and where other horses are, he may get kicked, struck, or bitten.

★ **TIP: / Understanding spatial awareness—"My space, your space," and "Stand still" or "Move"—is critical to horse society. /**

Family Life, Herd Rhythms, and Relationships

It may be difficult for people to imagine the complexity of equine family life and social culture if they only have observed their domestic horses in the barn. But given a chance, horses living in pastures together often do form close friendships and surrogate family units, as they might have in the wild (fig. 5.4). It is not uncommon to see geldings hanging out together as if in a bachelor band, or a mare and gelding pairing up and demonstrating mating behaviors. Horses seek social relationships, and even with our human influence, they still try to achieve functional social groups.

Most wild horse groups I studied maintained a peaceful existence, with some horses developing deep friendships for life. Conflict was often avoided under natural circumstances when food, water, and reproductive opportunities were abundant. Confrontations usually ended with posturing and keeping respected spatial distances.

STORY FROM THE FIELD: //

Human Influence on Wild Horse Society

Many wild herd social structures were destabilized or destroyed when roundups and "gate cuts"—whereby a specific number of horses are pushed into corrals and the gates are closed (dividing the herd) when the quota is reached—were implemented in the 1970s in the Western United States as a method to remove horses off public lands. A more recent development has been the use of fertility control, which allows mares to cycle but not become pregnant. The result of all these factors is many long-term bonded pairs have been dissolved.

The leadership of many herds was disrupted due to removal or injury of mature stallions or dominant mares during roundups, and so young stallions were able to breed younger mares. This destroyed the stable social structure, leading to unnaturally high reproductive rates. The youngest stallion with a harem in Wyoming at the time of my research in 1973 was 13 years old, and many were in their late teens. Today's wild horse herds appear to have much younger stallions breeding younger mares. Reproductive rates in the herds I studied were 2 to 4 percent, consistent with other equid rates globally in stable populations. There were also few mares in foal younger than four years old and most mares only had a foal every other year. This, like maintaining a cohesive herd that "gets along," conserves energy for the whole group and is consistent with other equid populations. But today, this is not the case in most wild horse herds in the United States. //

← **[11.1]** Mental and emotional stress leads to physical stress in horses. This mare was stuck in a 10-foot by 10-foot stall at a horse show for weeks where she could not lie down or even stick her head out. This is typical housing at many shows, causing sleep deprivation in competing horses, as well as other stressors.

CHAPTER

[11]

UNDERSTANDING EQUINE MENTAL AND EMOTIONAL STRESS

"The better you know your horse, the better you will be at knowing when something is 'off.'

[11]

Assessing stress is not always easy for trainers or veterinarians. This is because most have been trained to do things to horses to get the horses to perform or be "obedient." Human minds get busy with analytical complex thoughts, while horse minds are simple—they *react* to frightening things, too many stimuli, and negative emotions, but *respond* to kindness, safety, and love. Ahead I will give you tools to determine equine stress and pain, which is helpful in removing human bias (subjectivity), but there is no replacing connection and empathy between two individuals in the process, regardless of species. The better you know your horse, the better you will be at knowing when something is "off." If you become a good observer, learning to look "with" not "at" your horse, and you customarily greet your horse with soft eye contact, then you will easily observe changes in your horse's eyes, reflecting his moods and feelings.

★ **TIP: / Horses are designed by nature to tolerate physical stress, but they are not wired to adapt to emotional or mental stress. /**

★ **TIP: / If your horse looks stressed or worried, always question what you are doing. Rethink and reassess your methods. /**

Horses are designed by nature to be pretty physically tough, but they are not well-suited for handling emotional or mental stress. Hence, many horses have stress-related disorders that could be managed. It is not complicated to manage horses mental and emotional well-being when people keep in mind how horses think and feel. It is rather simple. Horses want to feel safe, be physically comfortable, and have friends around to eat, sleep, groom, and socialize with when they feel like it. Having food, water, and shelter is of course a given, and can vary from being out in pastures to living in stalls. Everything you learned in chapter 10, including how your horse was raised and what he has learned, along with his temperament and personality, are all instrumental in how well your horse will adapt to various living situations and activities, and whether or not he will experience stress.

Let's get a better understanding of the kinds of stress horses experience, how they deal with it, and how we can manage it.

Consider the Research

Horses have fallen into an odd category when it comes to welfare, and thus until recently, few research studies had been conducted to identify mental and emotional impacts on equine well-being. But the landscape is changing. As more data becomes available, people will have the ability to develop better tools and standards for the care of their horses, and they will be able to apply these standards to both competitive horse sport and recreational equestrian pursuits.

There is a disconnect, however, because academic institutions and veterinary schools publish research results primarily in academic journals not easily interpreted or available to the average horse person. Thus, the numerous studies that could benefit horses take a long time to make their way into the horse industry. Horse show and breed organizations continue to operate with little knowledge of the world of equine science, aside from nutritional and medical issues related to sponsor products.

For example, numerous studies now have been conducted that show ulcers occur in 34 to 85 percent of foals weaned too early or unnaturally, which can affect them the rest of their lives. One found that 98 percent of foals in the study developed gastric lesions within two weeks of weaning. Separation from family and friends is probably the strongest stressor in a horse's life, starting with weaning. In nature, mares decide when to wean their foals, and in some cases, foals simply lose interest and prefer to eat on their own. It is a natural cycle, and the timing is left up to the individuals.

Learn more

Separation anxiety and related ulcers do not just affect foals. They can affect mares as well as any strongly bonded horses. Mares tend to internalize stress, having ulcers more frequently than geldings. In a clinical study that I conducted between 1983 and 1993, involving the brokering and sale of horses, twice as many mares had ulcers than geldings. In one group of Thoroughbreds shipped, *all* the mares had ulcers, while only 60 percent of the geldings did. (Note that while anecdotal data, treating all the mares for ulcers eliminated behavioral and physical signs of discomfort.) In fact, ulcers in domestic sport horses are so common they are considered "normal" by many. But they are *not* normal in nature. And they are something people can better manage by reducing stress often caused by separation anxiety.

A study in New Zealand found that social isolation is a significant stressor for horses and may influence both their behavior and heart rate variability measurements, as might be associated with mild somatic pain.

Learn more

Numerous studies have looked at both the physiological and psychological effects of shipping horses and various stressors based on common shipping practices. Research is now demonstrating that *infrared thermography (IRT)* used to measure eye temperatures combined with *salivary cortisol levels* can be noninvasive ways to measure stress in show horses. A number of studies have investigated the stress caused from restrictive and painful bits, bridles, and tack, and elevated stress levels in horses with tight nosebands (figs. 11.2 A & B).

As more and more people become aware of the science behind horse-human interactions, the paradigm related to how we interact with horses will be guided by public perception. It is therefore critical that every horse person stay current with the growing body of science related to equine stress and continue to learn how to better understand and care for their horses.


A


B

↑ **[11.2 A & B]** Many horses suffer mental and emotional stress trying to please humans. Training methods are socially accepted and being taught to each generation because they produce results in performance, but not because they are good for the horse.

★ **TIP: / Do not mistake the horse's willingness to cooperate as comfort with performing. /**

Types of Stress

In psychology, stress is divided into three main types:

STORY FROM THE FIELD: //

Separation vs. Shipping Stress

A veterinary friend of mine was conducting a study near Portland, Oregon, to measure the effect of heat stress when hauling horses in hot weather. He carefully took measurements before leaving on two horses—one to stay home as the "baseline" and one to be hauled for three hours on a hot afternoon. He loaded the "test" horse into a trailer, then drove around for the prescribed period of time in the heat, and returned to the barn where he found the "baseline" horse in a high state of stress and anxiety. After taking measurements again, the vet found that the horse who stayed home and worried about being alone had lost more weight and sweated more than the horse who was trailered in the heat for hours. In this instance it seemed separation from a friend caused more stress than shipping on a hot day! //

1. **Acute** This kind of stress is transient and usually disappears when the stressor is gone. An example is performance stress, such as jumping or racing. Acute stress is common in sensitive horses that worry and overreact as they may experience several types of stressor, triggering both physical and psychological reactions. This can be managed and usually has no long-term effect.

2. **Episodic Acute** When there are frequent triggers of stress, such as daily irregular feeding or daily handling that causes fear or discomfort, it is considered episodic acute stress. The stressors are so frequent that the horse may experience one right after another. For example, a horse who does not get fed on a regular timetable is taken out of his stall when hungry, tacked up, left to stand uncomfortably in cross-ties for 30 minutes, then is ridden with a tight noseband and draw reins and asked to do things he does not understand. This horse will first express emotional distress, but if not allowed to communicate his hunger, discomfort, and lack of understanding, he will have cognitive distress, mental fatigue, compromised learning, muscular tension, soft tissue issues, digestive disorders (ulcers, diarrhea), rapid heart rate, shallow breathing, and a compromised immune system. Therefore, episodic acute stress requires treatment on many levels, both physically and psychologically, but when corrected, it can be managed by eliminating triggers.

3. **Chronic** Horses who become habituated to stressors often become depressed and show

behavioral despair. They anticipate a negative situation because so many triggers have been associated with different kinds of stress. They are often hypersensitive horses with little confidence who have not had a functional upbringing, so they react to many stressors as they have not ever learned how, when, and where to feel safe. An example may be a horse who was abandoned, had many owners, and ended up in a horse rescue. He is a sensitive horse who has experienced long periods of episodic stress, never having stable friends or food and undergoing various forms of stressful environments and training. Both physical and psychological stress many become permanent in these horses, even when the stressors are removed. Horses with chronic stress need lots of support on all levels.

Good Stress vs. Bad Stress

Remember there is "good stress" and "bad stress." Stress helps us adapt and evolve when it is dished out in small quantities, and we can live comfortably through the experience. An example of good stress may be taking a young horse for a trailer ride for the first time with other horses. The stress level should be minimal if the young horse has been introduced to the trailer and is with friends who travel well. But, asking a sensitive young horse with little confidence to undergo this situation *alone* could tip the stress scale, and the "good stress" turns to "bad stress"—or too much, too fast—and you never get the horse in a trailer again.

Horses need to learn adaptation skills to help make their lives more comfortable living with people. Often the super-talented sport horse who can jump higher at home or run faster during training falls apart on show day or race day. Horses have to learn to handle mental and emotional stress with positive overrides of the negative worry. When they feel safe and motivated to learn, you are on your way to producing a happy horse-human partnership, whether for sports or companionship. Emotionally anxious horses may perform out of learned helplessness (p. 253) or because they "try to please," but eventually they will break down, either physically or mentally. Teaching your horse in gradual steps, one at a time, how to deal with various stressors will pay off in the long run.

★ **TIP: / Most horses adapt well to various stressors when they feel safe and are with friends (horses and humans), which is one reason they have evolved to be our partners in so many disciplines. /**

How Stress Affects Your Horse

Stress can affect a horse both physically and psychologically, regardless of origin. Pain and discomfort can cause worry and antisocial behavior. Mental and emotional stress can cause physical problems such as ulcers or muscle tension. They are all related.

Horses respond to stress in various ways, depending upon temperament, personality, and life experiences (see chapter 10, p. 222). Having trained police horses and worked with numerous wild horses, it has always amazed me how adaptable horses really are in the face of extreme stressors, once they have had time to learn. Since most domestic horses have very "sheltered" lives from birth, they do not gain the early experience needed to handle a high level of stress, and thus these horses suffer more than they need to in many performance sports. Some signs are obvious, but many more are often regarded as "bad behavior" or "oversensitivity." The following outlines how stress affects the horse's body. All three reactions can take place at the same time, depending upon the level of stress perceived by the individual horse.

1. **Behavioral** The horse moves away from something perceived as a threat or a stressor. Appears at various levels, from tensing to rearing when a saddle is uncomfortable; from stomping feet to swishing tail to remove flies. When a horse has learned not to communicate the stress he is experiencing with such behaviors (for example, being yelled at to "Quit it!" when stomping due to flies), then the stress often will be internalized and show up as a physical issue (such as ulcers).

2. **Sympathetic Nervous System Activated** A stressor causes involuntary stimulation of the horse's nervous system, creating action in the intestines, glands,

Physiological Impacts of Stress, Regardless of Origin

- Increased gastric acid, causing inflammation, digestive dysfunction, and abdominal pain, leading to weight loss, exhaustion, and colic.
- Increased sweating and diarrhea, resulting in dehydration.
- Muscle tension, leading to soreness and stiffness.
- Interruption of hormone production and distribution, causing reproductive disorders.
- Increased opportunity for injury due to malabsorption of nutrients.
- Weakened immune system, increasing likelihood of becoming sick.
- Decreased ability to focus and learn, leading to poor performance.

heart, respiration, and more. This is what triggers the *fight-or-flight response* (see p. 42).

3. **Neuroendocrine System Activated** Now there is an increase in energy flow so the horse can take further action if needed. This uses up fats, proteins, and carbohydrates, and breaks down energy rather than storing it.

Primary Stressors

Primary stressors are the starting points of the stress process. As stress increases, *secondary stressors* may occur as a result. What follows are examples of typical primary and secondary stressors for horses and their most common causes.

Pain or Discomfort


Learn more

- Ulcers—Studies show between 50 and 90 percent of all sport horses have ulcers.


Learn more

- Back pain—Studies show between 43 and 74 percent of riding horses may have back pain related to poorly fitted saddles. (Note that confinement and not being able to lie down, roll, buck, gallop, or engage in social mutual grooming can all lead to back discomfort, as well.)

- Mouth pain—due to bit, teeth, or gums.


Learn more

- Nose pain—due to tight nosebands.

- Inflammation/arthritis/muscle soreness—often goes unnoticed except for behavioral changes and lack of willingness to work. (Lifestyle, diet, and lack of adequate and appropriate exercise can all contribute to this.)

- Injury—soft tissue injuries often go unnoticed and the horse has limited ways to communicate.

- Disease—Lyme, EPM, viruses, bacterial, fungal, and other infections.

Environmental Stress

- Insufficient time spent in nature; lack of natural sounds, smells, sunshine.
- Inadequate habitat; poor housing quality.
- No place to lie down (dirty stall, mud, dust, hard ground).
- Confinement and inability to move at will.
- Inadequate light or constant light.
- Electromagnetic disturbances.
- Chronic noise or frequencies damaging to physical systems.
- Temperature too hot or too cold.
- Poor air quality (polluted air, presence of ammonia).
- Unfamiliar places or situations (such as horse shows).
- Insects, fungus, bacteria, pests.

Nutritional

- Food is restricted (limited availability and type).
- Poor diet (inadequate nutrients).
- Diet too rich (unable to process level of nutrients, concentrated feeds).
- Toxins in feed.
- Contaminated water.

Brambell's Five Freedoms

There is global consensus now among scientists and humane advocates that all animals should have the basic "Five Freedoms" to ensure both physical and mental welfare. Evolving out of a 1965 Humane Report in the United Kingdom by Professor Roger Brambell on farm animal welfare, the Five Freedoms are now widely accepted standards for the housing and care of all animals. Oddly, many in the horse industry often seem unaware of or overlook these Freedoms, which leads to many of the stressors I've outlined in these pages.

The Five Freedoms are:

1. **Freedom from Hunger and Thirst** by ready access to fresh water and a diet to maintain full health and vigor.
2. **Freedom from Discomfort** by providing an appropriate environment, including shelter and a comfortable resting area.
3. **Freedom from Pain, Injury, or Disease** by prevention or rapid diagnosis and treatment.
4. **Freedom to Express Normal Behavior** by providing sufficient space, proper facilities, and company of the animal's own kind.
5. **Freedom from Fear and Distress** by ensuring conditions and treatment that avoid mental suffering.

The Key to Identifying and Relieving Stress

From a "horse-centric perspective," stressors are usually related to either "safety" or "comfort." If your horse exhibits unusual behavior or misbehaves, then determine how you can make him safer or more comfortable.

- Lack of free-choice salt and water.
- Inability to forage for needed nutrients.

Social Stress

- Separation.
- Lacks ability to make friends.
- Lives alone.
- Lacks confidence to feel safe around other horses.
- Anxious around people.
- Lacks ability to understand and learn.
- Overreacts to stimuli.
- Has negative associations to specific social/training triggers such as: seeing a saddle, feeling the girth, smelling the farrier or vet, and hearing the arena gate close.
- Not allowed to communicate.
- Restricted from making decisions and choices.
- Boredom/monotony.
- Performance anxiety.

Reproductive Stress

- Hormonal swings.
- Painful heat cycles.

↑ **[11.4 A–D]** A horse that is healthy and engaged has a "light" in his eye **(A)**, while a stressed or depressed horse has a "dead" eye **(B)**. An eye that isn't worried is focused on what is going on around with interest **(C)**, as compared to one that shows concern when a horse is in a new environment with no friends around **(D)**. Note the wrinkles above the eyes in the horses with worry or discomfort.

- Breeding stress.
- Human-induced stress related to artificial insemination, embryo collection/transplants, hormonal regulation.
- Weaning of foals.

How Horses Show Stress
_ The Eyes Tell All

You do not have to be an expert to understand when a horse is stressed. You simply need to have awareness and empathy to know if another creature is suffering. The horse's eyes show stress better than any other

assessments. Even though you may have learned that a particular training method will get a desired result, you must always question whether your horse is adapting well to a program. If the eyes look stressed or worried, then rethink what you are doing with your horse. We can borrow an expression often used when evaluating shelter animals that relates to the "light" in the animal's eye. A horse who is socially engaged with you or in what he is doing should have a "light" in his eye. When there is no "light" or the eye becomes "dead"—a term I have illustrated before in this book—then there is most often pain or depression (figs. 11.4 A–D).

★ **TIP: / The eyes show stress better than any other facial feature as they can indicate feelings of worry and pain consistent with other species. /**

Play or Pain? When Horses "Act Out"

What we might identify as "play" or "naughtiness" can be a sign of stress due to pain. The same behavior can have different causes. A horse that is feeling good may gleefully try and nip or take a bite out of his handler in the same fashion he might nip or bite a horse friend as an invitation to run and play. Male horses spend much of their free time engaged in mock fighting and trying to "one up" each other in nature, so when they are confined to domestic life, the behaviors do not always change. Mares may not be as orally playful in the wild, but in domestic life where they do not have to worry about foals and saving energy to eat and get to water, they also will express more social play behaviors.

The best way to determine whether a horse who bites or acts out is playing or is in pain is to look at the horse's facial expression. As mentioned already, the eyes tell us a lot: A playful horse's eyes will be bright and full of energy. His ears will move back and forth, reacting to his handler's reception of the invitation to play. He will often look proud of himself if he is able to grab a "nip" or act out when a handler is not paying attention. In contrast, a horse in pain or worry will show a dull eye, worry lines, tight lips, and tense jaw muscles. His ears are often strongly back and not relaxed.

So, before you reprimand a horse, pay attention to the signs of play versus pain and try to determine the cause of the behavior (figs. 11.5 A & B).

"If you allow horses to be happy and enjoy what they are doing, they are less likely to be injured or ill.

Dr. Scott Swerdlin, DVM,
President of Palm Beach
Equine Clinic


A


B

↙ **[11.5 A & B]** The mare in **(A)** came to the barn labeled "dangerous." She displayed unusual behavior in the paddock. She would spin around, biting herself on her sides. Rather than being indicative of "play" behavior, this symptom, and others (like bolting or rearing for no apparent reason), are often associated with hormonal pain in mares.

In **(B)**, Coco leaps in the air and kicks out as she plays in the paddock with me. I would not let her in my space as she challenged me, and she is expressing her opinion in a joyful way. Safely playing with your horse helps develop a strong social bond as well as allowing you to observe any unusual behaviors.

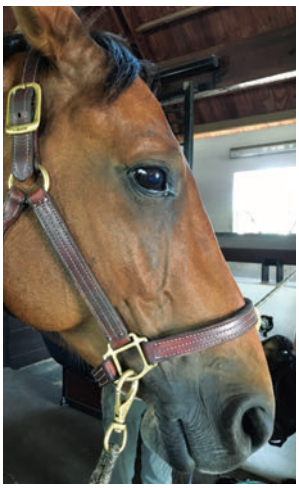
Punishing a horse who is fearful or in pain will only create more worry and pain. If a horse is playing, then using your voice strongly to show disapproval is often all you need to alert your horse that his behavior is not acceptable. By far the best solution is to give your horse ample opportunity to play safely, preferably in a paddock or pasture where he can run, buck, and express himself.

_ Other Signs of Stress in Horses

Common signs of stress observed in horses may vary depending upon breed, temperament, discipline and situation. As we have discussed, it can be individually context-specific. While a little bit of acute (short-term) stress can help a horse learn and adapt, chronic

(long-term) or too much stress can cause harm. For example, a horse becoming slightly stressed before competition may be normal as long as the stress dissipates once the competition begins. Or a horse experiencing new stimuli might spook and run at first, but then learn the object or situation is not going to harm him and relax.

I have indicated that expressions in the eyes and "bad" behavior can be signs of stress. In addition, one or more of the following visible signs may be present:



↓ **[11.6]** This mare is sucking in and tightening her lips as a way to deal with worry. Her eye is focused on what is going on behind her, as are her ears. Her lip-sucking is her way of dealing with stress.

↗ **[11.7]** This horse show signs of stress in his eye, tense neck and head muscles, open mouth, and flared nostril with white discharge.

→↗ **[11.8]** Opening the mouth and grinding the teeth can reflect discomfort or worry. Keep in mind you must look at the whole horse when considering possible stressors—male horses often will be very "mouthy" as a way to deal with insecurity or a lack of confidence, while mares who use their mouths usually are worried or in pain.

- Reduced eye blinking and increased eye flutter.
- Tight lips (bottom lip may be wrinkled—fig. 11.6).
- Open mouth, trying to avoid pressure from the bit, noseband, or reins (fig. 11.7).
- Licking mouth due to dryness caused by stress.
- Grinding teeth (fig. 11.8).
- Tense facial muscles in jaw area.
- Ear muscles tight; ears may be held tensely and slightly back, or flat back.

← **[11.9]** Notice the wrinkles above and below this eye. While this horse is relatively calm, his expression shows worry, which could be from pain or from anxiety. Horses who "internalize" their stress often have wrinkles in their eyelids.

↑ **[11.10]** The whites of the horse's eyes are showing along with flared nostrils and an open mouth. The neck is tight, and the muscles are braced. This horse is experiencing a high degree of stress. People often use tack and training devices in an effort to get a horse to put his head down, but a horse with discomfort and tight resistive muscles cannot physically do what he is asked. This alone can elevate stress.

- Wrinkled eyelids (fig. 11.9).
- Tense poll and neck muscles.
- Tail clamped or swishing quickly as if irritated (mares may do this more).
- Tense muscles throughout body, especially drawn up in abdomen and across ribs.
- Head-tossing or hyperflexing to avoid pressure.
- Rapid, shallow breathing or holding breath, even when not exercising hard.

- Worried sweat (suddenly and profusely in excess of normal exercise).
- Elevated heart rate (in excess of normal exercise).
- Flared nostrils; redness of nasal tissue and around eye (fig. 11.10).
- Increased, frequent defecation or diarrhea.
- Spooking, bolting, running with no regard for safety (fig. 11.11).
- Stomping, rearing, refusing to go forward (fig. 11.12).
- "Freezing" or "shutting down"; unreactive to stimuli.
- Backing up or other repetitive movement of learned behaviors in an effort to avoid.

← **[11.11]** This horse was afraid of just about everything (like this dead palm leaf) because he had never been exposed to new situations or objects growing up. His level of fear caused him to get hurt frequently as he had no awareness of his size or of space. By working with him in a safe place where he was allowed to express his worry, he quickly learned to enjoy exploring new objects.

Tools for Identifying Stress in Horses

As equine welfare gains momentum in the academic world, a number of useful tools are evolving to help identify horse emotions, feelings, and thinking, with practical uses in the area of stress and pain management. As more data is correlated, these tools will become very useful in assisting in

→ **[11.12]** This horse is rearing and refusing to go forward, his eyes, ears, mouth all saying, *I don't want to!* There is always a reason for a horse to refuse to do something, and it is most often associated with a legitimate need.

← **[13.1]** Land restrictions, increased costs related to ownership and care, limited feed, and increased prize monies in competition are all influencing the ethics of owning, riding, and competing horses. Because of horses' cooperative natures, they often do not demonstrate welfare issues until they have a physical problem.

CHAPTER

[13]

THE FUTURE OF HORSES

Generally speaking, the horse industry has resisted national-level horse welfare laws that cover all breeds and disciplines in lieu of a belief it can self-regulate.

[13]

Horses and humans have traveled through history together and been mutually dependent upon each other until modern times. Today, horses are more of a luxury than a necessity, and because they are such willing creatures and want to please their human companions, it has been assumed that horses enjoy what we modern-day humans do with them (primarily sport and recreation). But the tides are changing as the public becomes more knowledgeable about not just the physical, but also the mental welfare of animals. Consider that zoos must now have enrichment activities for their captive occupants, and even the pet world is growing accustomed to requirements for socialization and entertainment—"doggy daycare" and "cat TV" is now common as humans learn more about the cognitive and emotional needs of other animals.

But what about horses? Where do they fit in with these changes?

If you ask people who have horses whether they "love horses," most will say, "Of course." For the average horseperson, keeping a horse is akin to being married to someone you love and plan to care for forever. But on the other side of the horse world spectrum is an economically driven industry germinated partially by the attraction of horses and an equestrian lifestyle and partially by the attraction of money and sport. Although these two sides

are not mutually exclusive, the various equestrian disciplines have primarily, because of the influence of money, often ignored what is good for the horse (fig. 13.1).

While the various equestrian disciplines have never focused predominantly on the horse's welfare, there has been an underlying assumption that horses are generally "well cared for" as companion animals rather than just treated as "livestock," and so the industry has sidestepped public scrutiny for a long time. But because the horse industry is so disjointed when it comes to opinions and accepted training methodologies for the various disciplines, it has done little to research, educate, and communicate—internally and externally—what makes a horse "happy" to partner with humans in our various sports and endeavors.

Effort has been made to grow equestrian competitions into "spectator sports," thus attracting sponsors with prize money and investors interested in the sale of high-performance equine athletes. These factors, unfortunately, tend to emphasize "winning" over what is good for horses. Regulations and what is deemed "acceptable" can vary tremendously from sport to sport and country to country. While the public in many places has pushed for better horse protection laws—and in some countries, they are developing—generally speaking, the horse industry has resisted national-level horse welfare laws that cover all breeds and disciplines in lieu of a belief it can self-regulate.

Today the horse "ping pongs" between the public that wants better welfare for horses and the public that wants to "invest" in horses. Without strides made to better welfare protection, the horse is at risk to be just a "commodity"—as horse prices and competition purses increase, some trainers and owners treat horses like cars that "lose value" when they reach a certain age. Walk into almost any high-performance barn—whether racehorses, jumpers, or reining horses—and if you ask which horses are for sale, they will tell you "everything has a price."

In addition to the rise of the horse as a commodity, the local stables where anyone could once take riding lessons are disappearing into housing subdivisions, increasing the already high cost of horsekeeping. As exclusivity increases, it encourages the development of an affluent lifestyle "brand" around horse ownership and showing, and the trainers and sales agents who can produce top performance horses that "win" became the "gatekeepers" to a life to which others aspire.

So the welfare of the horses has long been left to the whims of trainers, traders, and owners. Organizations do not differentiate between how horses win or what trainers have done to win as long as no one is caught breaking any rules or performing unethical or inhuman actions that people can observe. But thanks to a growing awareness and public question of "social license"—an activity's approval or acceptance by society—horse sports and horse welfare are now very much in the spotlight.

Education, better oversight, establishment of best management practices, collaboration among horse groups, and some form of accreditation to ensure both horses and public are treated fairly will be needed in the future if horses sports are to remain and grow with public support. Better ethics means better welfare, which impacts how people feel about being involved with horses and the horse industry. Regardless of your role or level of involvement with horses—whether you have them for pleasure or sport, whether you are an owner, investor, trainer, coach, or professional—the well-being of the horses who touch your lives should be *your responsibility*. Every one of us should be asking ourselves, "What is the ethical thing to do to ensure the welfare of the horse in this situation?"

And as I have demonstrated in these pages, it is no longer a matter of opinions. As equine and welfare

science continues to conduct research on the emotional lives of horses and their relationships with humans, it is showing that horses who are mentally and emotionally comfortable—what we might call "happy"—perform better. Hopefully the future will bring productive discussions and the adoption of standards with this evidence in mind.

How Do We Best Help the Horse?

_ From "Equestrian Lifestyle" to "Horse Lifestyle"

The horse industry is spread out over a vast landscape. As diverse as the habitats in which horses have flourished, are the disciplines in which humans have engaged with them. With traditions and culture woven into many of the popular disciplines, horse welfare is blurred by human-centric justification. The "equestrian lifestyle," from ranching to fox hunting, savors a memory for simpler times and days gone by when horses and humans spent most of their days together. Our histories are so entwined on many levels that there is hesitancy to give up the cultural components *regardless of how horses fare.*

For some, the development of competition was an excuse to keep training and riding horses over a lifetime. For others, traditions run deep on the human side of sporting events, such as racing at Churchill Downs in Kentucky or the steeplechase course at Ascot in England. Filled with fun, excitement, and socializing, the races are culturally significant, even marking each year with specific times for celebration. Picnics, parties, and affluence blind us to the dark side of the backside and gambling industry interests. Good trainers often don't come out the winners, caring more about a horse's welfare than money. Sadly, I have known several trainers who have lost business when a client wanted them to compete a horse the trainer did not feel was ready or felt would not hold up.

"The future and welfare of horses with humans is not a question of need, money, or space, but rather a question of the heart.

Every equestrian activity will be scrutinized in the future as it is now possible for media to cover and broadcast everything we do with horses. Public perception may, in fact, dictate the future of horses and humans if the various national and international organizations do not come together and establish acceptable welfare practices for promoting the mental and emotional health of horses in all they do with us.

Hopefully, we will evolve a culture that puts the welfare of the horse above the enjoyment and profit of humans. We can have both, but it will require a collaborative effort. Horses need to be seen as equal athletic partners