The Healthy Horse

Training the young horse—balancing short-term gains and long-range goals

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I recently did a prepurchase exam on a lovely 5-year-old gelding who epitomizes this month's topic. Despite having healthy joints, tendons, and ligaments, and decent feet, he moved very poorly for a horse with such good conformation. He was not lame, but he was stiff and even a little ungainly, slip-sliding around some corners on the longe and even stumbling occasionally. Neurologically, he was normal.

When I questioned his owner, she admitted that she had been working him more than usual in preparation for his sale, including some pretty serious hill work and some (what I can only describe as) cranking on the bit. But I actually didn't need her to tell me that; the horse's body had already told on her. He was muscle-sore in several places, most notably just behind his poll (over the first 3 vertebrae in his neck), at the base of his neck (just above the point of his shoulder), along the front of his shoulder blade, all along his saddle area, over his loins, and in his rump muscles and thigh. He also had some areas of sensitivity where the points of the saddle tree rest (just behind and below the wither). With all that muscle soreness and tension, no wonder he moved so poorly!

This guy was a bright, confident, and sweet-natured horse with no conformational limitations. And despite his body soreness, he had an energy about him—an engagement and enthusiasm—that is one of the delights of working with young horses. Yet he was barely able to do what was being asked of him, which was simply to trot in a big, lazy circle on the longe line. He just wasn't comfortable enough to do it well.

So, how does one work a young or otherwise inexperienced horse in training such that progress is made without damage being done to the horse's body, mind, or spirit?

It's all about balance

Training the young horse takes considerable skill and sensitivity if you are to meet your training goals and realize the horse's full potential without causing injury to the horse (or to yourself). In fact, training any horse is quite an art. You must pay attention to today's tasks or challenges, while keeping one eye on the long-range goal. You must also be content with small advances, practicing the patience of a saint while the horse *gradually* becomes all that you know he can be.

Training is all about *balance*—finding it, sustaining it, and restoring it whenever it's temporarily lost. And by balance I'm talking about everything from the horse's physical balance (one of the aspects of what the Masters called "self carriage") to the balance of short-term gains and long-range goals. For example, by being too heavy-handed with a nervous young horse, you may win the battle (e.g. force the horse into the trailer) but lose the war (e.g. end up with a horse who is forever-after difficult to load).

The goals of training

Regardless of the sport or discipline for which the horse is to be used, training has two basic aspects—physical and mental—each with its own goals. (Of course, most of the time you'll be working on both aspects at the same time.)

Some general *physical* goals are these:

- self carriage (i.e. balance, poise, energy, fluidity, and regularity) in all gaits
- ability to maintain self-carriage while carrying a rider
- stamina (i.e. endurance)
- strength (i.e. power)
- suppleness (i.e. flexibility)
- mastery of tasks or movements specific to the sport (e.g. gauging distances for jump takeoffs, performing lateral work in dressage)

Mastery simply means to practice a particular thing until it becomes second nature. If we were to distill these physical goals into a single word, the one I'd choose would be *competence*.

Some general *mental* goals are these:

- self confidence
- trust in the rider (or the handler for nonridden activities)
- focus and discipline during work
- steady behavior under varying circumstances (e.g. transport, competition, new experiences)

If we were to distill these mental goals into a single word, the one I'd choose would be *confidence*. So, a well-trained horse is one who is confident and competent in her particular job. The art of training involves reaching these general goals, and any other specific goals for the particular horse, without causing damage to the body or mind along the way.

Making progress safely

Whether training primarily the body or the mind, making progress safely involves adequately loading the system while avoiding overload.

(A quick aside about terminology: In exercise physiology and biomechanics circles, the terms "stress" and "strain" are commonly used to describe the application of various physical forces to a structure. However, I find these terms confusing, because to me they both have negative connotations. [Who wants to be put under stress or strain?!] So, for clarity I prefer to use the word "load" for a physical force applied to a structure, and "overload" when that load exceeds the physical limits of the structure.)

When talking about living systems such as the horse's musculoskeletal system, one must apply a load or physical stimulus of some sort in order to induce an adaptive response—an increase in the structure's physical capacity. When you repeatedly load a muscle or bone at just below its physical limits, you stimulate it to increase its capacity (strength, resistance to fatigue, etc.). Load it beyond its physical limits, however, and it's likely to be damaged in some way.

That sounds simple enough. However, in most cases if the load is only slightly above the structure's capacity to handle it, there may be only microscopic damage. For example, only a few muscle fibers may have been torn, or only a few microscopic bone trabeculae may have been cracked. It usually takes massive overload to cause gross damage, such as a complete muscle tear or fracture. (How much it takes to cause this sort of damage depends on the structure's current loading capacity and on how well the various protective mechanisms that are built in to the system were functioning at the time.) But even microdamage is a problem because it weakens the structure, making it more vulnerable to breakdown during even normal loads. It also causes pain which alters movement patterns, making movement less efficient. (More on that later.)

The good news is that our systems are designed to be *self-protecting* as well as self-repairing. Even slight damage causes pain, or at least discomfort, which makes us modify our movement or behavior in order to protect the injured area from further damage. Remember back to the last time you overdid it with yard work or a hike or some unaccustomed activity (e.g. unloading the hay truck, mucking out stalls when someone else usually does it). Your body sent you signals that you were overdoing it at the time, yet you pressed on; and even though you didn't do any serious damage to yourself, you felt twinges of pain and you moved with a little less enthusiasm and grace for the next 3 or 4 days. Had you stopped at the first mutterings of complaint from your muscles, you'd have spared yourself that unpleasant aftermath.

The challenge for riders and trainers lies in knowing when a structure has been damaged when it's not *your body* that you're dealing with. If you've ever taken a yoga class or tried to learn yoga at home on your own, you'll know how easy it is to accidentally overload your own body and cause yourself pain. How much easier it must be, then, to inadvertently overload a body which doesn't belong to you (e.g. you're demonstrating a particular movement on a friend); and even moreso if the body in question—in this case, your horse—cannot voice its discomfort verbally!

One way in which you can get a better sense of how your horse's body is doing with the current level of work is to palpate the horse's body each day, looking for areas of discomfort or excessive muscle tension. (See the diagrams below for common trouble spots.) The horse's response may be subtle, so feel and look for things like the horse tensing up when you palpate a particular area, leaning or moving away from your hand, or turning his head toward the painful area.

(If you're not sure what normal muscle tone feels like, have your veterinarian or a trained massage therapist show you on your horse. And right now, have a feel

of your forearm while your hand is relaxed. [If you're right-handed, palpate your left forearm while your left hand is relaxed; vice versa if you're left-handed.] Feel how pliable the muscle is, despite its bulk and resting tone. Now make a fist with that hand [the left hand if you're palpating with your right hand] and feel that muscle again. Note how much more taut it feels. That's an appropriate amount of muscle tension when you're making a fist; but if your hand was relaxed, it would be an excessive amount of tension and would probably be accompanied by some degree of discomfort when you pressed on the muscle.)

Before we go on, I want to make a brief comment about tendons, ligaments, and joints. Unlike muscle and bone, the other structures that comprise the musculoskeletal system (tendons, ligaments, joint cartilage, joint capsules and their membranes) have *very little adaptive capacity* once the horse reaches 2 or 3 years of age. In other words, once the horse approaches skeletal maturity, these structures cannot significantly increase their loading capacity in response to exercise. Their structural integrity is largely dependent on the efficient and co-ordinated action and power of the muscles, which should protect these structures from potentially damaging loads.

These various soft tissues, and bones for that matter, are most vulnerable to damage *when muscles fatigue*. Lack of fitness, whether general conditioning or task-specific fitness, and poor movement habits (i.e. *inefficient* or poorly co-ordinated muscle function) are two common reasons for early muscle fatigue. Adequate fitness for the task being performed, as well as the establishment of optimal movement habits are an essential component of training for any horse.

So, the art of training also involves knowing what the horse's current limits are and working within them to stimulate the system sufficiently for positive change without overloading individual structures. That takes close attention to the horse's body and to his physical and behavioral responses. Sometimes a resistant horse is not misbehaving; rather, he's telling you he *physically can't* do what you're asking without considerable effort or discomfort, neither of which is conducive to a positive outcome.

Signs of overload

There is a wide variety of ways in which the horse may communicate to you that you're pushing too hard or asking for too much, too soon. Many of these ways are quite subtle, however, particularly with a good-natured or very subservient horse, so you really need to be paying attention for these little red flags.

Behavioral signals of physical or mental overload include these:

- sourness (e.g. the horse puts her ears back when you approach the stall or lift the saddle onto her back)
- baulking or shying at the entrance to the arena, at jumps, etc.
- the horse resists being bridled or saddled
- the horse is "cold backed" or "girthy"—i.e. expresses displeasure at being saddled or mounted
- the horse doesn't want to be caught
- other avoidance behavior
- bucking or rearing*
- reluctance to go forward
- the horse seems unhappy (I know this one is vague, but if you know the horse, you'll know when s/he's unhappy)
- the horse is "hard mouthed" *or* overly sensitive to the reins/bit
- reluctance to perform certain maneuvers when you know the horse understands the aids and can ably perform the particular task

* Re: bucking or rearing. Give the young horse the benefit of the doubt and assume that these behaviors are an indication of *discomfort or anxiety,* rather than simply an "I don't wanna do it" attitude. These dangerous behaviors are completely unacceptable and cannot be tolerated, but look for a physical or mental explanation before punishing the horse. (At least consider the possibility that you may have been ignoring or overlooking more subtle cues of physical or mental overload, so in desperation the horse has had to resort to "shouting" at you in this way.)

Abnormalities of gait or movement that can signal physical or mental overload include these:

- stiffness, especially the morning after a training session or competition
- the horse lacks energy; no impulsion
- resistance to turning or circling in one direction
- reluctance or inability to pick up a certain lead at the canter
- disunited canter
- shortened stride; the horse seems "tied in" at the shoulder or does not "track up" (i.e. the hoof prints

of the hind feet land well short of those made by the fore feet on the same side)
- "crabbing" (moving like a crab)—inadvertently working on two tracks (i.e. the hoof prints of the hind feet are significantly to one side of those made by the fore feet on the same side)
- the horse doesn't move as well as he did before training began (e.g. not as "free" in his movement as he was when you saw him as a yearling)
- the horse is not straight (e.g. holds the head or the head and neck to one side, curves the spine to one side, and/or swings the hindquarters to one side when on a straight line)
- vague, low-grade lameness which may be hard to pin down to one particular limb or which comes and goes
- obvious lameness

Other indicators of physical or mental overload:
- the horse's feet change in some way, e.g. hoof wall quality deteriorates, the horse starts losing shoes, one or more shoes show uneven wear, one or more hooves are no longer in good medial-lateral balance (i.e. the hoof is no longer symmetrical when seen from the front or rear)
- interference marks appear on the inside of the lower legs or feet (e.g. small cuts or abrasions on the cannon, fetlock, pastern, heel bulbs, or coronet; scuff marks on the hoof wall; ruffed-up hair on the knee or fetlock [although this can also be caused by knee boots or exercise boots])
- palpable areas of excessive muscle tension and discomfort, particularly at the poll, base of the neck, front or sides of the shoulder, saddle area, loins, rump, or thigh (see diagrams below)
- swelling, heat, or pain anywhere on the body
- roach back—slight upward curvature (hump) to the horse's spine that wasn't there before training began**
- lying down more than usual; seems tired
- decrease in appetite, especially for grain***
- soft or loose manure for which no explanation is apparent
- low-grade colic

** Re: roach back. This conformational change often indicates that psoas (the long, strap-like muscle which supports the lumbar spine from beneath) is abnormally tight. A shortened, tight psoas is very common in horses early in their training, particularly in dressage horses asked to do collected work before they're physically ready.

*** Re: decreased appetite for grain. A loss of interest in grain or other concentrates, while still having a good appetite for pasture and hay, can be a sign of gastric ulceration (stomach ulcers). Diagnosis requires further evaluation, as does complete loss of appetite for all foods.

Note: Many of these behaviors, gait abnormalities, and other findings can be a sign of *poor saddle fit or placement* in any horse. Saddle comfort is essential in the young horse, as an uncomfortable saddle can set a horse up for a lifetime of habitual tension in the back and, by extension, elsewhere in the spine and beyond. Young or unconditioned horses' backs change in contour quite a bit with training, so have your saddle checked for correct fit before and periodically throughout training (e.g. every 6 months, unless problems arise earlier). And get yourself a copy of "The Horse's Pain-Free Back and Saddle-Fit Book" by Dr. Joyce Harman.

No pain, no gain?

And now for a few words on the "No pain, no gain" philosophy. This common credo is utter nonsense!! Whenever I hear it, I want to add "No brain!" There is absolutely no physiological foundation for it (which is the faulty rationale used by its proponents). A muscle does not gain in strength because you exceeded its limits (and made yourself hurt for the next 3+ days as a result); it gains in strength *despite* you exceeding its limits and creating mini-trauma. It's not the trauma which induces the gains, it's the simple act of loading the structure to near its physical limits. You could have made the same gains in muscle strength by working at 90% of capacity, and you'd have saved yourself the painful aftermath in the process!

This macho approach is stupid when applied to humans, and it's just plain cruel when applied to animals, who don't have a choice in whether or not they want to subject themselves to it. Horses, especially those just beginning training, should not be expected to "soldier on," "suck it up and keep going," or any other training strategy a human athletic trainer or coach might use to "motivate" (i.e. *bully*) his athletes. Bear in mind that, for the most part, human athletes have *chosen* to participate in that sport and to subject themselves to the rigors of training or to a particular training method. Horses have no such choice or luxury.

In closing

So, balancing short-term gains and long-range goals involves paying careful attention to the horse's body and behavior for signs of overload. The earlier you can identify signs of physical or mental overload, the sooner you can make adjustments to the horse's training program that are aimed at avoiding injury and the formation of bad habits of movement or behavior. While that may mean easing off for a few days or even a few weeks, the payoff is that you'll achieve your long-range goals for the horse sooner, because you haven't had to wait through a long lay-up while your horse—or yourself—recovers from the injury sustained by pressing on when it would have been wiser to have pulled back. You'll also have laid a solid foundation for a long and successful athletic career. Sometimes by asking for less, you ultimately achieve more.

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[Scroll down for diagrams.]

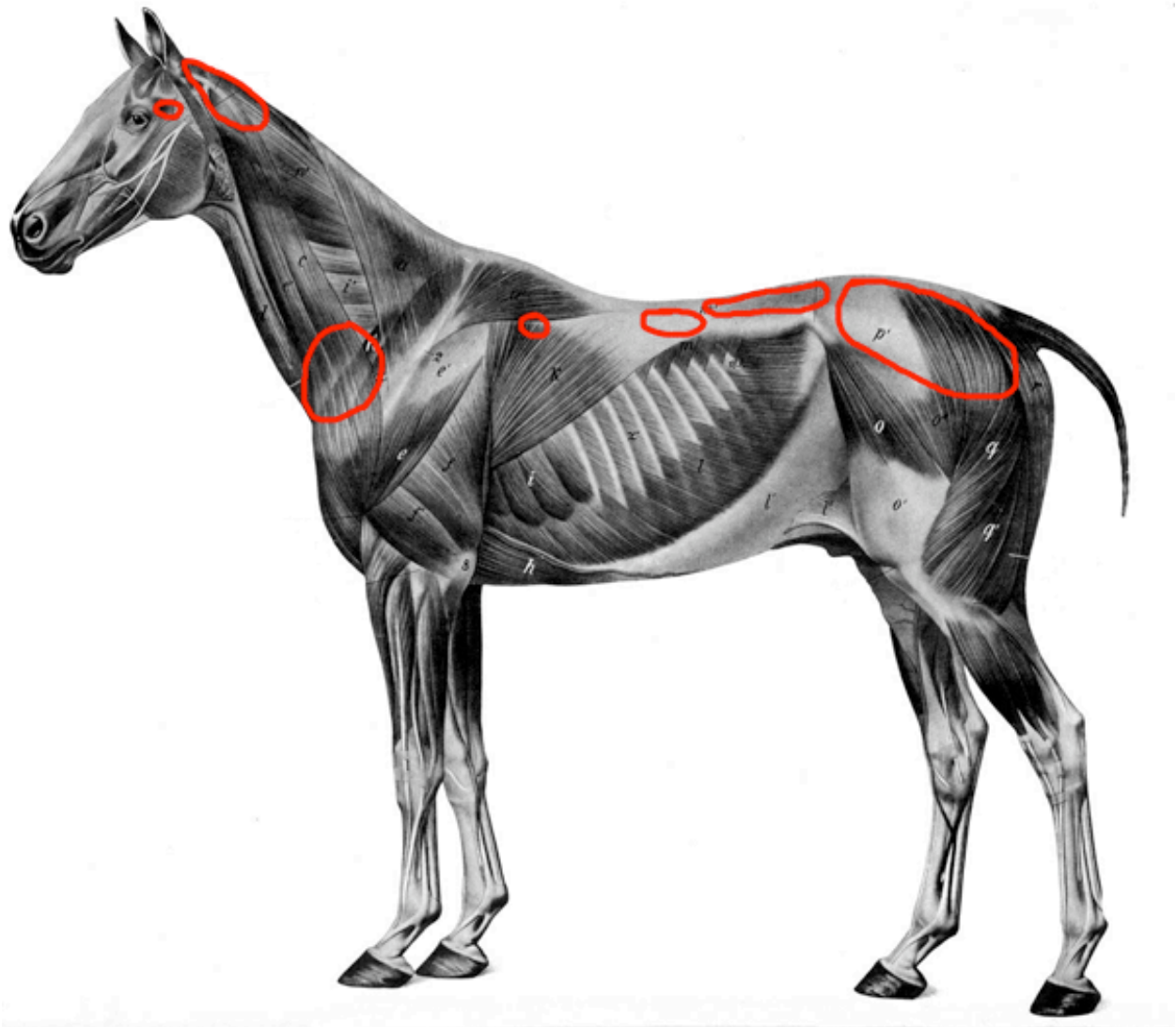

Figure 1. Common areas of discomfort and/or excessive muscle tension in riding horses. (The small area just behind the eye represents the temporomandibular joint. The small area below the wither represents where the point of the saddle tree lies.)

[Scroll down for Fig. 2]

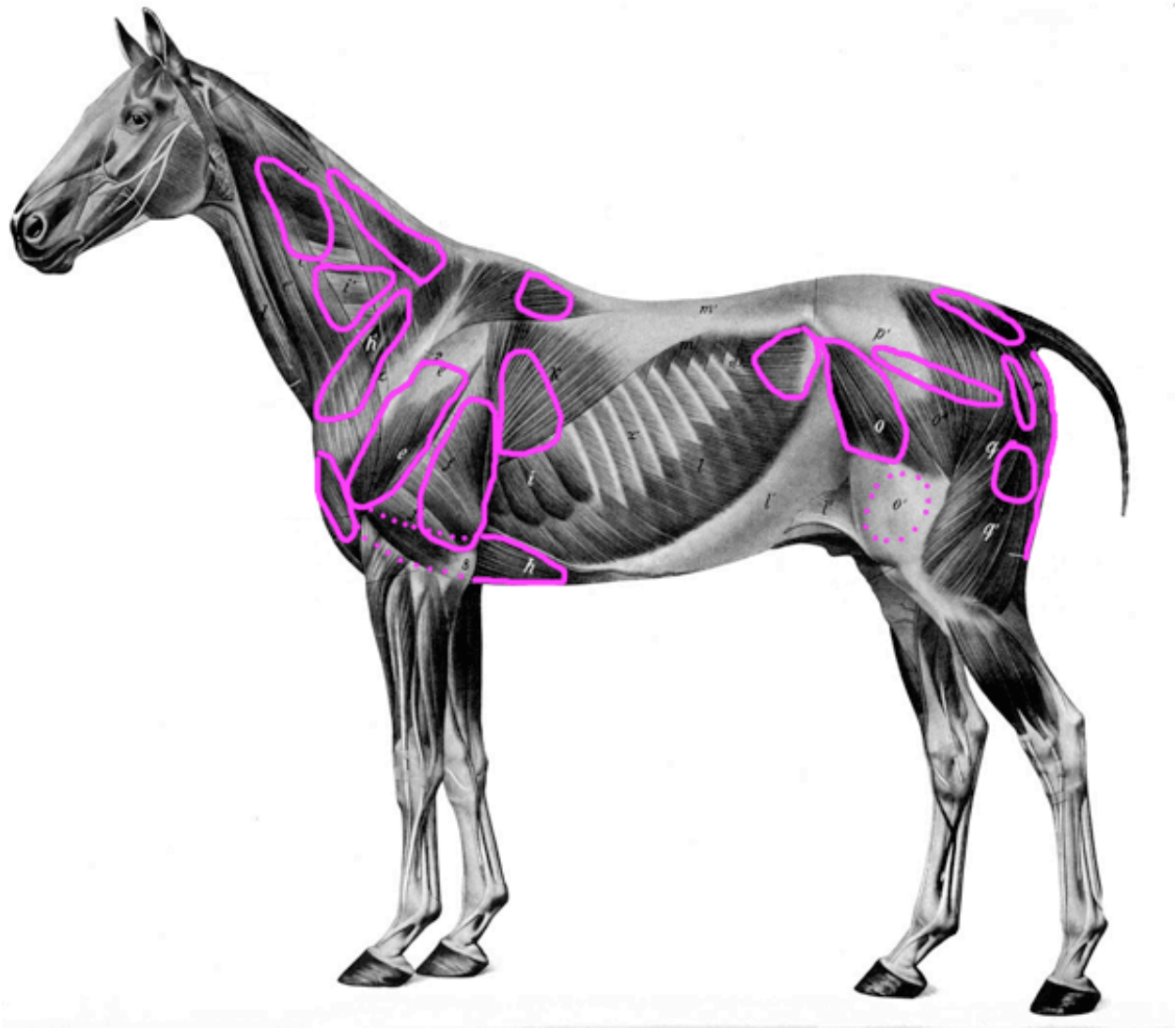

Figure 2. Other areas of discomfort and/or excessive muscle tension that may be found in riding horses, depending on the stage or intensity of training and on the particular sport or discipline. Individual horses may also develop problems in other areas as a result of injury, conformational faults, or poor movement habits. (Note: While the horse may have developed poor movement habits on his own, in many cases there's a human element such as improper shoeing, inadequate dental care, poor saddle fit or placement, and rider interference.)