

Investigating Poor Performance: Part 1
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Investigation of poor performance in horses comprises a large part of my caseload. This rather nebulous concern can have many root problems involving virtually any of the body systems. The key is to ensure you look at the 'big picture' while bearing in mind that the 'devil is often in the details'! A detailed history is the perfect starting point. Initial questions should focus on what the rider is noticing, how long the problem has been occurring and whether it was a sudden onset or a more gradual problem. Attention should also be given to the horses management including training schedule, riding surface, any cross training as well as nutrition and supplements.

Part one of this series will focus on musculoskeletal problems (i.e. common lameness in sport horses, hoof balance and conformation). In part 2 we will delve into cardio-respiratory problems, GI issues and general nutrition/management.

Soundness evaluations are more than observing limbs and flexion tests. Often soundness evaluations involve both an exam in hand and on the lunge, as well as under saddle. Including a ridden portion in the exam is particularly useful for more subtle problems that only occur in certain movements or landing off a jump (for example). Looking at behaviours (tail swishing, avoiding contact on the bit, stiffening the back or neck), saddle fit, muscling (top line development, muscle atrophy) and observing all 3 gaits on the lunge and while ridden provides a clear picture of what the rider/trainer is concerned about.

Occasionally, I hear from clients that they weren't sure what we would accomplish because "the horse wasn't lame enough to block". The reality is that we can accomplish quite a bit. For example, if a horse is "short/stabby" behind, he may be lame in both hind limbs and strategic use of nerve blocking could make a significant improvement in his gait and point us toward the problem. Strategic nerve blocking, coupled with a good working knowledge of common problems with each sport and level of competition can make the process of diagnosis more streamlined.

Conformation and hoof balance play a vital role not only in the horses' ability to perform but also in the likelihood of particular injuries. For example, horses that are 'post legged' in the hind limbs are more likely to suffer from degeneration of the suspensory ligament (SL) and lower hock joints. These horses are more likely to experience lameness problems if pushed to a higher level of work. A horse with a long back/high croup will struggle with collection and thrust making them more susceptible to back/sacro-iliac pain. Having said that, there is more to a successful athlete than a well-balanced body – management, genetics and 'heart' are also key players in the athletic success of horses.

The role of foot balance cannot be understated in any horse, but particularly those actively working. The foot is the landing surface for the entire horse – it seeks out the ground and is central to skeletal support, energy absorption and traction. Imbalances in the hoof place abnormal strain on structures of the lower limb (i.e. collateral ligaments, cartilages of the foot) that will ultimately lead to lameness

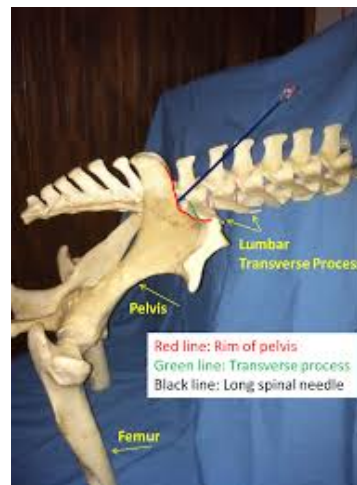
issues either within the hoof or higher up in the limb. The force on a horse's hoof when landing from a jump can range from 3000-4500 lbs on one foot! If a foot imbalance is causing this force to be concentrated on structures not designed for repeated concussion, it is no wonder that injury becomes a reality. One of the most problematic imbalances is the "long toe, low heel" which predisposes the horse to suspensory ligament injury. The long toe increases the length of the lever arm and slows break over. In doing so, it creates a "snapping" motion of the suspensory ligament and places extra strain on the coffin and pastern joints ('broken back hoof angle'). Imagine running in flipper fins versus running shoes! Having a professional, experienced farrier on your horse's "team" is of monumental importance in preventing lameness and improving the longevity of the horse's career.



The role of the equine back plays a large part in the freedom of movement of a horse. Just as in humans, strong core muscles are vital to a healthy back. In a recent study, 25% of British Dressage horses had a history of a back-related issue that limited their performance (Murray, 2010). Dr. Hilary Clayton from Michigan State University has thoroughly explored the role of the saddle, rider and strength of core and back muscles in horses. In 2015 they published a study proving that mobilization exercises (belly lifts, cat stretches, carrot stretches, backing up) and gymnastics (trot poles on the ground and elevated) significantly improved stride length and back (and core) muscle strength. I encourage all of my clients to make these exercises a regular part of their horse's routine to maintain and improve back and core strength and prevent overuse injuries.

Sacro-iliac disease/pain has become increasingly recognized amongst sport horses as a source of poor performance. Horses with SI pain are often reported to be reluctant to go forward, struggle with lateral work and collection or frequently cross canter or become resistant in the canter. It is important to note that horses with SI pain can be relatively 'normal' on the lunge line (without a rider).

If we think of the hindquarter as the 'engine' of the horse then the sacro-iliac (SI) region is the 'transmission'. The SI joint is the point at which energy created from the hind limbs is transferred to the horses back allowing the push of the hind limbs to create forward motion. Repetitive strain or traumatic injury can be the cause of pain. Dr. Sue Dyson of the Animal Health Trust in Newmarket, England examined 74 horses for SI pain at the Centre for Equine Studies. Of the 74 horses examined, 60% were competitive dressage or show jumping horses. With a diagnosis of SI pain we are often left with a 'chicken or egg' scenario – Is the SI pain the primary problem or secondary to a lameness or arthritis elsewhere in the horse? In another study completed by Dr. Dyson, 25% of horses with SI pain had a concurrent lameness in a front or hind limb, leading us to believe that the SI pain was a compensatory injury.



Once a diagnosis is made, a suitable treatment plan can be established to control the inflammation and rehabilitate the injury. This may involve an injection of steroid into the SI joints or a period of oral NSAIDs. Regardless of the manner in which the inflammation is managed, the rehabilitation program is vital to preventing re-injury. A period of rest and turnout in a small paddock with good footing is typically the starting point; Allowing the horse to move naturally and stretch their top line while grazing. The following 2-4 weeks involves carefully planned lunge work (in side reins or a Pessoa) to strengthen muscle weaknesses without re-aggravating the injury. I often encourage the use of trotting poles and low cavaletti work to introduce the concept of 'cross training' and aid in strengthening the muscles around the SI joint. Once the horse is working well from the ground and there is no sign of recurring SI pain, the slow introduction of ridden work can begin. Maintaining elements of cross training within the regular schedule of the horse is a key to success. I have written on the benefits of cross training before and the value it brings to not only the physical development but also the psychological benefits to equine athletes (and their riders!).

Stay tuned for the next instalment in our "Poor Performance" series where we focus on the heart, lungs and management of a healthy athlete!

