

Osteopathy in treating mysterious hindlimb dysfunction

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Osteopathy in treating mysterious hindlimb dysfunction

Hypothesis—Osteopathy is an effective, complementary treatment modality when traditional diagnostic methods cannot pinpoint the source of dysfunction in a horse's hindlimb.

Mysterious hindlimb lameness is the number one cause of equine layup (Clements et al., 2019) (Clements, 2021) (Dyson et al., 2017) (Jeffcott et al., 1982.) A lameness that can neither be diagnosed nor resolved by traditional diagnostic medicine can be a horse owner's most significant frustration and expense.

The earliest documented practitioner of human osteopathy, Andrew Still (1902), believed "that the body had within itself all those things necessary for the maintenance of health and recovery from disease. The role of the physician was to enhance this capacity." (DeStefano, 2011, p.3) These concepts have been carried over to the equine, where the Osteopath has a thorough understanding of the anatomy and connections of soft tissue, viscera, and osseous structures of the equine neck, back, pelvis, and distal limbs.

Through interviews and a survey of existing published works, this review endeavours to:

- 1) develop an understanding of lameness evaluations of different practitioners;
- 2) outline specific systems of the horse that can contribute to hindlimb dysfunction;
- 3) identify how an Osteopath, Farrier or Veterinarian may subsequently treat a hindlimb dysfunction.

Presentation of hindlimb dysfunction

Lameness in a horse presents many ways, often shifting between the front and hind end. Sources suggest that while symptoms can include a gait abnormality, they can be subtle and progressive, including but not limited to changes in behaviour (Dyson et al., 2017, pp.47-57), general irritability, sensitivity to touch, brushing or tacking up, lack of propulsion, difficulty picking up hind feet, dragging hind toes, unwillingness to engage or hold a canter lead, bucking and overall decreased performance. (McDonnell, 2005) (Dyson & Murray, 2010, pp. 240-245) (Dyson & Thomson, 2021)

Hindlimb dysfunction can be caused by overworking a young horse before growth plates are closed; poor training or riding practices that lead to improper muscle development; lack of free movement with little to no turn-out; trauma; conformation faults (Torcia & McDonnell, 2021); ulcers (Lo Feudo et al., 2022); gelding scars, (Bengsdotter et al., 2019) and inadequate farrier work (Dyson et al., 2017).

Individually or in combination, these symptoms can create a scenario where a horse appears intermittently lame in the hindlimb. The horse cannot do what previously had been easy; a definitive diagnosis is unclear.

Understanding lameness evaluations of different practitioners

An owner may receive an initial lameness or dysfunction assessment from one of the many equine bodyworkers available. This review will identify the similarities and differences in assessing hindlimb lameness through examination by a Veterinarian, Osteopath, and Farrier.

Range of Motion (ROM) and articulation are terms standard to all three practices.

All three assessors begin by examining the whole horse to consider the horse's physical, mental, and emotional well-being. It is common for veterinarians and osteopaths to complete a case study with a visual assessment and gait analysis, including the history, presentation, and progression of signs or symptoms. The American Association of Equine Practitioners (AAEP)

Lameness Scale is a standard reference.

Lameness scale		
	LCAO reference	AAEP reference
Grade 0		Lameness is not seen under any circumstances
Grade 1	Lameness is seen trotting but not walking	Lameness is difficult to observe & not consistently apparent
Grade 2	Lameness seen at a walk but no obvious head bobbing	Lameness is difficult to observe at walk/trot but consistently apparent in certain circumstances
Grade 3	Lameness obvious at a walk and obvious head movement	Lameness observable at trot under all circumstances
Grade 4	Horse cannot bear weight on affected limb	Lameness obvious at walk
Grade 5		Unable to bear weight or inability to move

Table 1: Lameness assessment descriptors/grading; Source London College Animal Osteopathy (LCAO) & American Association of Equine Practitioners (AAEP)

While observation, palpation, and movement may uncover a source of lameness, asking questions of the owner will help connect what is a primary source of pain versus a symptom or a compensation pattern. A complete assessment establishes a baseline before treatment.

A Veterinarian with over 20 years of general equine medicine and Chiropractic and Acupuncture training offered, *"It depends on your experience and innate knowledge of the horse and the work it does. A reining horse will present differently than say a jumper, and that determines how I watch the horse move, suggesting what might be primary versus secondary sources of lameness."* (G.Evans, personal communication, 01/15/2025).

Observation, movement, palpation & flexion

Horses are masters at masking a perceived weakness. Evolution prepared horses, even those with an injury, to move an attribute that makes pinpointing hindlimb dysfunction challenging.

Observation is about noting the posture, recognizing breed traits, and acknowledging the horse's primary use, demonstrated behaviours, overall demeanour, and health of body, coat, and feet.

Following a horse's posture and movement involves referencing key anatomical points from nose to tail to foot placement through the stance and swing phase at a walk, trot, and back-up.

Palpation is about knowing the systems and noting areas of tension, sensitivity, swelling, heat, and symmetry or lack thereof.

Assessing Range of Motion (ROM) and stability of joints is familiar to both a Veterinarian and an Osteopath. A Veterinarian may use ROM articulations to evaluate the quality of joint motion, they also use a flexion test to immobilize a joint; the horse immediately trotted off to visually determine the return to function, time, or strides. (B. Wise, personal communication, 01/29/2025)

Osteopathic assessments determine the quality and ease of joint movement, ROM, and evaluate specific soft tissue flexibility and or tension around each joint and how, or if, the movement translates through the body. The Veterinarian and Osteopath consider all the systems involved and how one system might influence, impact or block another.

The assessments provide insight into each joint's range of flexion, extension, and rotation and its biomechanical and neurological features. It then becomes the subjective interpretation of the horse's physical condition and the practitioner's experience.

Joint Range of Motion				
Joint	Flexion	Extension	Abduction	Adduction
Shoulder	52-57°	160-165°	160°	30°
Elbow	31-36°	165-175°		
Knee	5-8°	180°		
Hip	50-55°	160-165°	150°	60°
Stifle	40-41°	162°		
Hock	35-40°	165°		
Hoof ROM ²	35-45°	10 –15°	10 –15°	10 –15°

Table 2: Equine joint range of motion guidelines - source LCAO; 2- (Turner, 2006 p.534)

Following observation, palpation, and flexion tests are where the Veterinarian has the support of diagnostic tools and pharmacology. Along with checking vital signs, they can access nerve blocking, radiographs, ultrasounds, and blood draws to pinpoint exact possibilities or reasons for the dysfunction. Larger centers and clinics may also have access to MIR or CT technologies to further a detailed diagnosis or surgical evaluation plan.

"As a Vet, you miss more by not looking than not knowing." Dr Connie Fancy

(Floyd & Fancy, 2024)

Veterinarian assessment

A horse's body senses pain through nociceptors in the peripheral nervous system. A nociceptor activates a sensory nerve, and then neurons transmit the signal up the spinal column to the thalamus of the brain, which interprets pain.

A Veterinarian can block these nociceptors with perineural injections of a local anesthetic and isolate areas of pain in the distal limb, neck and back (K Haussler, 2022). In the distal limb, nerve blocking begins at the lowest point that might be the source of lameness, typically fetlock joints; it is considered diagnostic with a 70% or more improvement in movement (Yeom et al. 2017). Due to the horse's nature, nerve blocks are easier to administer in the forelimb than the hindlimb without sedation (B. Wise, personal communication, January 29, 2025). Radiographs or ultrasounds are the next step in visualizing joint conditions and determining if a horse might benefit from pharmaceutical injections or alternate forms of treatment. The hock and stifle joints and the high suspensory ligaments (B. Wise, 2025) are the most common locations in the

hindlimb for nerve blocks and pharmaceutical administration. Joint injections can mean a quick return to work, high suspensory issues requiring rest and rehabilitation, regenerative medicine, or surgery, depending on the severity of the injury.

While nerve blocking is highly effective in the lower distal limbs, it is challenging and rarely effective with higher pathologies. The depth and thickness of the sacrum area make a definitive diagnosis even more difficult without specific diagnostics of MRI or CT technologies. The Veterinarian can prescribe ultrasound-guided injections to aid pain relief and relieve inflammation. However, these will have little long-term impact if the area is symptomatic rather than the source of pain.

Farrier assessment

Often the Farrier is the first point of contact with a hindlimb dysfunction or lameness (D. Neal, personal communication, November 23, 2024) and they may ask for a walk and trot assessment. However, many will look at posture and the wear points of the hoof/shoe to assess how the horse moves. Palpating and checking higher areas is common if a horse is lame or off. Farrier and Veterinarian use a hoof tester tool in a basic lameness assessment to determine the sensitivity of the sole and immediate underlying structures. As more veterinary hospitals offer farrier services, additional diagnostic modalities are employed to assess hoof morphology.

Over 2,000 years ago, Xenophon wrote, "No hoof. No horse." This statement has gained new meaning as research confirms the hoof's role in equine biomechanics (Y. Sharp, G., Tabor 2022).

The hoof is critical to posture, as horses now spend less time moving and more standing around. The Farrier can help determine if a hindlimb lameness is due to a dysfunctional posture resulting from poor hoof angles; altering the trim cycle either barefoot or shod, is the most common intervention strategy. The Farrier may recommend a veterinarian assessment for further diagnosis or bodywork to help the horse adapt to a new foundation.

Osteopath assessment

Osteopathy looks at the interconnectedness of structure and function, where a healthy environment, mind, and body are unified. When assessing a horse, the Osteopath asks questions about diet, living and working conditions and assesses mental state along with the physical. After the visual assessment, walk-trot, back-up, and palpation, the Osteopath articulates every joint in the horse's body to determine a ROM. The initial assessment checks the quality of the mobility and where tension or blockages might begin, comparing one joint to the next, one side of the body to the other, and one system after the other. Osteopathic thinking holds that the body has everything within itself to return to health, which means all the body's systems operate efficiently, including the nervous, respiratory, circulatory, digestion, endocrine, muscular, and skeletal systems (Wernham & Littlejohn, 1956., p. 35).

A hindlimb dysfunction, or a lesion, is a lack of physiological physics or the inability of the body to either replenish what it needs or eliminate what it does not (Wernham & Littlejohn, 1956, p. 35). The osteopathic ROM assessment and treatment assists all bodily systems in achieving homeostasis by improving the movement and distribution of fluids and forces of body systems,

eliminating waste and introducing proprioceptive change in the muscles. The body enhances its systems through osteopathy's repetitive and relaxed movement.

Determining the source of dysfunction can be the most significant challenge, and working with the Veterinarian and Farrier and asking good questions of the owner and feeling for what may be going on in the horse's body, the Osteopath is narrowing down the scope or the source of the problem. The goal of the Osteopath is to "find health." (A.T.Still, 1902) Some questions might lead to veterinarian intervention or remedial farrier work complementing the osteopathic work.

The complicated structures of the hindlimb and the integrated nature of all body systems make osteopathy a good tool for assessing and treating the higher pathologies of hindlimb dysfunction.

The integrated nature of the equine body

Osteopathic thinking is that all body systems are connected. Osteopaths study equine anatomy by structures based on function, a combination of structures is then referred to as a system; in an assessment, each system is considered to uncover the trigger system.

Because of the interconnection of body systems, tension or a blockage at the poll can and does influence the sacrum; the hoof angle can impact the angle of the hip, which in turn can influence the sacrum and thoracolumbar junction. The thorough exploration of the whole body brings light to where the dysfunction might begin, not simply address the symptom.

When dealing with a dysfunction in the hind end, one must consider the gross anatomy of the equine, or all the observable points of an animal: the hoof, skeleton, joints, ligaments, tendons, muscles, fascia and skin, providing the points of reference to assess posture, gaits and ability to move joints.

At this point, the focus of this paper will continue with the relationship of the hoof, the fascia, the muscles, ligaments and tendons of the hindlimb in assessing a hindlimb dysfunction.

The anatomy of the hindlimb of the horse

The pelvic girdle is part of both the axial and appendicular structures. Four ligaments suspend the pelvic girdle at the lumbar and sacrum junction, or the sacroiliac joint. Hypaxial and epaxial muscles support it. The hindlimb begins at the acetabulum of the pelvic girdle. With 51 muscles and tendons, 33 ligaments, 19 bones, and six main joints (main joints can also contain numerous smaller joints) per limb and metres of fascia that either originate or terminate at the hoof, the hind end of the horse is a complex structure.

The equine hoof

The equine hoof has evolved to handle constant motion over varied terrain, continually growing to offset wear. A healthy hoof is elastic enough to deform and return to shape, absorbing impact greater than the horse's weight (Weller, 2020,285-287). Modern horse husbandry has interrupted an evolutionary system, with horses now standing for hours daily. Hoof management has become critical to maintaining a healthy hoof and a healthy horse.

The equine hoof can grow up to three times faster in August than in January (Budras, 2009, p. 135), and the toe of the hoof grows faster than the heel (Glade et Salzman. 2007). These two variables can significantly impact the angle of the hoof, in what is typically the highest use time of year for sport or pleasure use of horses (northern hemisphere). These months are also the busiest time of year for a farrier, and though research supports shorter trim intervals of 4 to 6 weeks for optimal performance (Lesniak et al., 2017), the cost of shoeing means horses go for up to 8 weeks or more.

How lack of hoof maintenance can lead to hindlimb dysfunction

Over time, long toes and low heels can lead to Negative Palmer Angles (NPA). NPA is an internal reference to the negative angle of the coffin bone; the planter angle is lower than the palmer relative to the ground surface. Clements et al., (2019) documented NPA as the most common hind hoof pathology (Clements, 2021), and Dyson (2007) linked it to higher pathologies. Sharp (2023) is working on specific diagnostic metrics for the equine hoof to define tolerance for hoof angles before higher pathologies come into play.



Image 1: Trajectory line from coronet band of the hindlimb to determine likelihood of NPA without diagnostics - source author

A simple visual reference of the angle of the hindlimb coronet band can suggest what may be happening inside the hoof wall with the coffin bone. With the horse standing, the cannon bone of the hindlimb is perpendicular to the ground; follow a trajectory line of the coronet band forward; if that line lands below the carpus of the front limb, the foot angle is healthy, above the carpus is a strong indication of NPA.

With an NPA indication, corrective farrier work is important to alleviate further issues that lead to higher hindlimb pathologies. A Veterinarian can confirm NPA with diagnostic imaging. A Farrier can address it two ways: building the hindlimb heel with a wedge and shoe or maintaining the horse barefoot with frequent rasping of the toe and leveling the heel back to achieve a better-balanced foot.

The higher pathologies of the hindlimb inspire the statement "hoof before bodywork, or bodywork before hoof." If a horse cannot bear weight to accomplish a trim, treating the body with osteopathic articulations to relax muscles and joints and release tension is an obvious first step.

The fascial connection to hindlimb dysfunction

"I know of no part of the body that equals the fascia as a hunting-ground. I believe that more rich golden thoughts will appear to the mind's eye as the study of the fascia is pursued than of any other division of the body. Still, one part is just as great and useful as any other in its place. No part can be dispensed with." A.T. Still, The Philosophy and Mechanical Principles of Osteopathy 1902

Fascia connects everything in the hindlimb, and fascia connects everything to the rest of the body. Langevin & Huijing (2009) proposed over 12 specific types of fascia, from delicate spider web-like connections to broad, dense sheets connecting large body areas. An elastic interconnected web of fibrous tissue that surrounds and separates, and connects all other body systems, fascia is one of the largest systems in the body. It is a resilient, robust system that balances stress and strain and creates and maintains the homeostasis the body requires. Myers (2009) further developed a theory of seven myofascial kinetic lines in humans that Elbrond & Schultz (2015) then applied to horses. In 2021, the same team added four deep fascial lines in the equine: the Deep Dorsal Line (DDL), the Deep Ventral Line (DVL), the Forelimb Abduction Line (FABL), and the Forelimb Adduction Line (FADL). Each fascial line connects the spine to groups of muscles, tendons, and ligaments with their corresponding function and basic

locomotion patterns, balance, posture, and body motion. Fascia is a system that makes it understandable how dysfunction at one end can create compensatory outcomes at another.

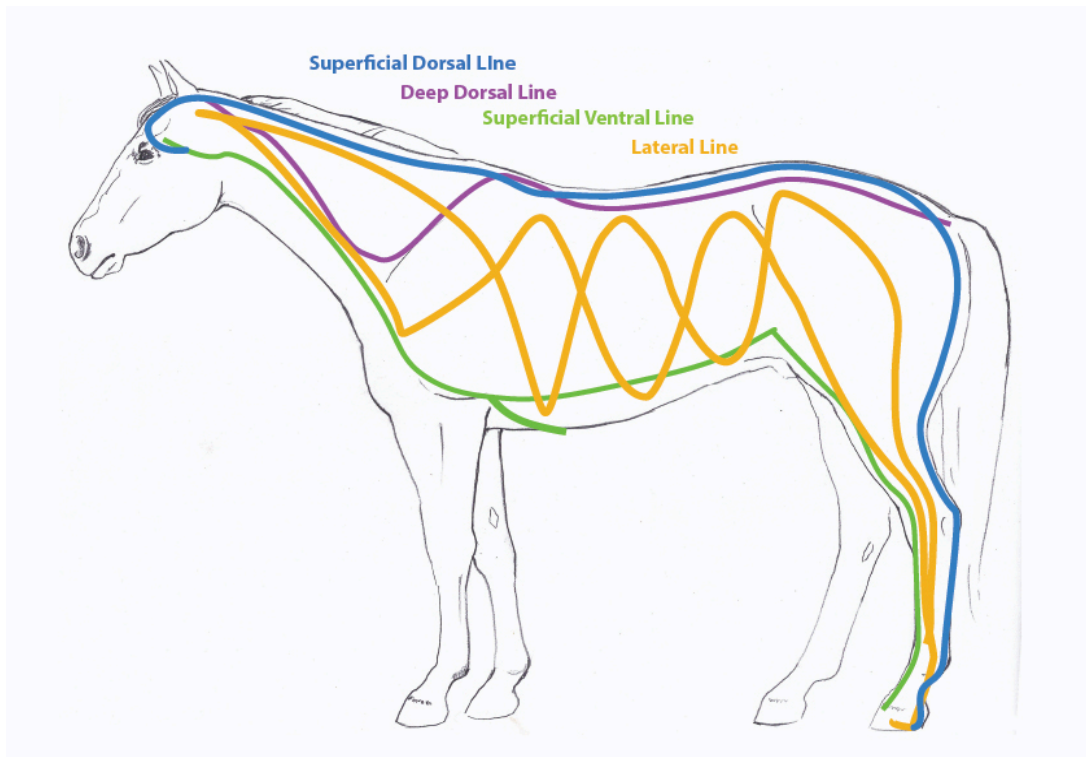


Image 2: 4 of the fascial lines with direct links to the hindlimb - source: author

The many connections the fascia makes with the base of the hindlimb suggest that poor hoof angle can impact higher hindlimb pathologies as the fascia attempts to balance a system out of whack.

Facial lines

Human (Myers, 2009)	Horse (Elbrond & Schultz, 2015) (Elbrond & Schultz, 2021)	Function in horse
Superficial Back Line	Superficial Dorsal Line (SDL)	Extends & stabilizes the spine, flexes the hindlimbs - connects the posterior hindlimb at the phalanx. digital and plantar fascia with the deep hamstring and hindquarters, follows the tarsus, hip, back, and the dorsal aspect of the horse's neck, ending at the poll and temporal mandibular joint
	Deep Dorsal Line (2021) (DDL)	Counterpart to the DVL - originates coccygeal region in the dorsal muscle of the tail extends to the myodural bridge through the spinocostotransversal system: including nuchal ligament proprioception and movement (extension, rotation, lateral flexion) stabilization of the vertebrae
Superficial Front Line	Superficial Ventral Line (SVL)	Flexes the spine and extends the hindlimbs; connects the anterior aspect of the hindlimb from the outer phalanx, front of the hock and stifle through the pelvis to the ventral aspect of the abdomen, sternum, and neck; terminating in lateral parts of the skull. Balances the SDL.
Lateral Line	Lateral Line (LL)	<p>Originates at coffin bone in the same area as the superficial ventral line. By the hock these two lines split and the lateral line goes up by the tensor fascia lata (outside of the thigh) to the tuber coxae (cross state) by gluteus superficialis m.</p> <p>This is where this line is different from the others by splitting itself into a superficial and deep line. Through the core the lateral line extends in a cross pattern on the inside of the shoulder blades. This line merges with cutaneous trunci m., the muscle that "shakes away the flies" on the horse's sides.</p> <p>The line then runs through brachiocephalicus m. (lower neck muscles) up to the temple.</p>
Spiral Line	Spiral Line (SL)	Origin the temples and jaw joint and moves along the neck and thoracic spine, to rhomboids m. front and back part (withers /base of the neck) to move back to the tuber coxae, the line is aimed at the hock and continues through the biceps femoris m., the sacrum (the cross) where the lines on either side cross over the back and then follows the superficial dorsal line up to the temple.
Functional Line	Functional Line (FL)	Connects the humerus of the forelimb on one side through the latissimus dorsi crossing over the dorsal

		midline, lumbar vertebra, to the fascia lata of the diagonal hindlimb; over the quadriceps femoris m. into patella lig lat. et intermedius; onto the tibial tuberosity; attach to gracilis m.; adductor m. and cross over in the ventral aspect of os pubis cranially to the aponeurosis of the fascia sheets of rectus abdominis m.
Deep frontal line	Deep Ventral Line (DVL)	flexion & stabilize thoracolumbar & lumbosacral region through hypaxial muscles - psoas m. & longus colli/capitis m. for the flexion of the cervico-thoracic & the cervico-capital junction. integrates structural connections of the liver, stomach, intestinal tract, spleen, kidneys, ureters, ovarium, testis vesica urinaria, uterus, vas deferens to the somatic body.
Superficial back arm line	Front Limb Protraction Line (FLPL)	Facilitates protraction of the forelimb; arranged as slings in scapular and brachial region where the scapula is the centre of rotation of this line; brachiocephalicus m., omotransversarius m.
Superficial front arm line	Front Limb Retraction Line (FLRL)	Facilitates retraction of the forelimb; arranged as slings where the scapula is the centre of rotation of this line; cervical trapezius m. et rhomboid m.,
	Front Limb Abduction Line (FABL)	slings in the brachial and antebrachial regions. - includes structures for abduction and internal rotation of the proximal part of the front limb. Major function: abduct and internally rotate the front limb during the final phase of retraction and push-off. Starts dorsal trapezius m.; deltoids m.; pectoral ascendens m.; laterally to the latissimus dorsi m.
	Front Limb Adduction Line (FADL)	structures of adduction and external rotation in close proximity to the Front Limb Protraction Line (FLPL) Major function direct the front limb into adduction and external rotation during the last phase of protraction; during landing phase direction changes into internal rotation - connecting to the Front Limb Retraction Line (FLRL) (M. trapezius), MD (M. deltoidus) distally to biceps brachii m.; medially to pectoralis ascendens m. and to the latissimus dorsi m.; dorsal direction rhomboid m.; cranial transverse to origin of the subclavius m.

Table 3 - Overview of the fascial lines of the horse and the body connections - content from reports created by (Elbrond & Schultz, 2015) (Elbrond & Schultz, 2021)

Hoof connection to the higher pathologies of the hindlimb

Without the benefit of science, Xenophon appears to have understood the interconnectedness of the hoof with the rest of the equine body when he wrote, "No hoof. No horse."

Long toes or low heels change the angle of the horse's feet (NPA). A change in hoof angle impacts all the joints of the distal limb and can cause the horse to alter their posture, or camp under, also referred to as goat on a rock posture. In this posture, the horse stands both hind feet forward of the vertical position. Studies have referred to this position as Abnormal Compensatory Posture (ACP) (Sharp, 2022) (Clements et al., 2019). It has previously been referred to as a conformation issue but now is more commonly described as a dysfunctional posture (Sharp, 2022), a posture that will lead to higher pathologies. ACP places additional weight on the heel bulbs' soft tissue and impairs the hemodynamic system of the digital cushion, straining joints, tendons, ligaments and caudal muscles of the hindlimb.

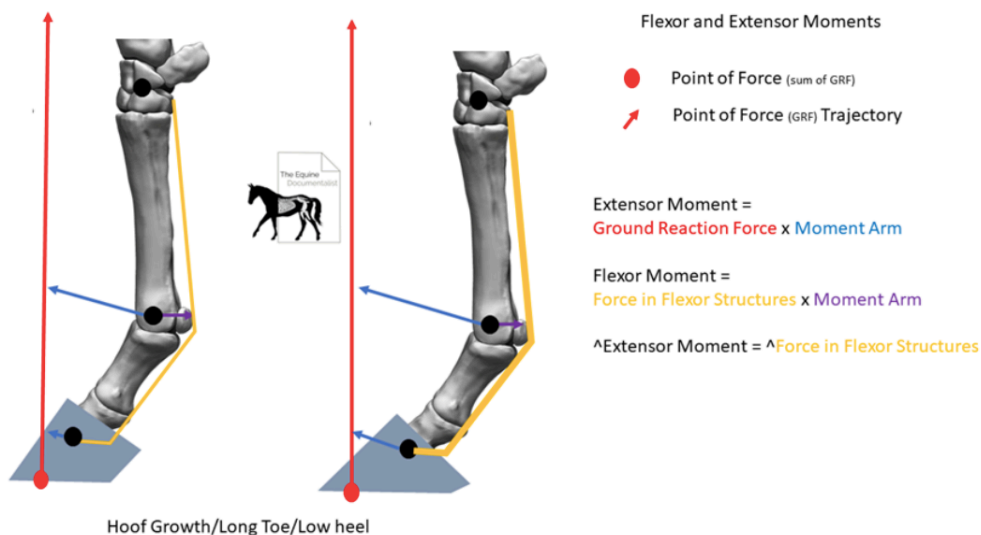


Image 3: illustration linking increased force on distal structures with increased toe length.
Source: Sharp

The hindlimb balance and impact on disfunction

ACP changes how the hindlimb bears weight. With an altered foot angle, the position of the femur at the acetabulum is no longer optimal for the stay mechanism to reduce muscle fatigue efficiently. As each limb tires, the horse will constantly shift their weight. If fascia increases the power of a muscle over a joint up to 40% (Sharp & Neidhart, 2020), it stands to reason that it can also increase tension in a dysfunction.

A study of 77 horses (Mansmann et al., 2010, pp. 720-726) found that long toes could be associated with gluteal pain. Further studies by Mansmann (2011) found that for every 1mm over optimal break over distance, horses demonstrated a 14% increase in gluteal pain.

ACP puts additional strain on the caudal end of the hindlimb and possible hypertonicity in the superficial digital flexor; deep digital flexor tendons, semitendinosus m., semimembranosus m., biceps femoris m., gastrocnemius m. With each of these tendons and muscles extended beyond what would be considered a normal resting posture, the muscles may demonstrate rigidity, tension and decreased range of motion.

Without the contrasting push/pull dynamics of the caudal muscles, the cranial muscles of the hindlimb will not support the hindlimb as intended. The unopposed power of the sub-lumbar muscles: the sacrum: psoas minor m., psoas major m., and iliacus m., the superficial gluteal, m. and middle gluteal m., along with the tensor fasciae latae m., are in a sustained contraction phase. In many hindlimb dysfunctions, a pain response is often noted in the lumbar and gluteal areas (Mannsman et al., 2010), possibly due to the unbalanced muscle dynamic.

Other difficult-to-assess deep muscles are the internal and external obturator m., the gemelli m., and quadratus femoris m., each of these will be impacted by angle changes at the hoof, causing the sacrum to rotate and the hip to drop.

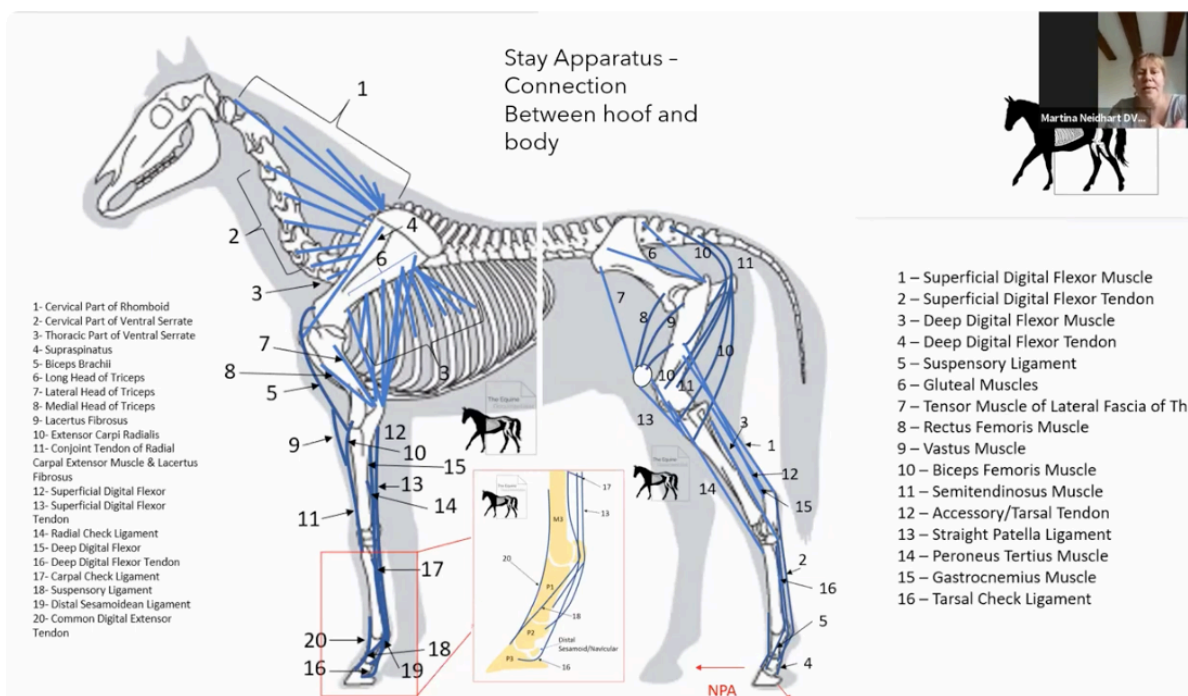


Image 4: The Stay Mechanism of the horse with optimal femur position for proper stay apparatus function - Sharp

Osteopathic treatment for hindlimb dysfunction

The beauty of osteopathic treatment is that nothing happens in isolation. In the initial assessment of articulations, or Osteo Articular Balancing (OAB), the Osteopath may find picking up a hind foot difficult, noting a limited range of motion in numerous areas of the body. The diagnostic technique of oscillating the spine, creating a rhythmic movement through the spinal column will impact other body areas through the fascial connections. The motion transferred through this technique affects more than muscles, skeleton, and fascia; the nervous, respiratory, circulatory,

digestive, reproductive, urinary and endocrine systems also benefit from the movement. While the focus may be on regaining mobility in the hindlimb, the spinal oscillating technique helps relax tissue and muscles at the lumbosacral junction to free up the pelvic girdle. Tense muscles along the dorsal aspect of the thorax, the longissimus dorsi group m., transversospinalis system m., iliocostalis m., receive the benefits of movement and increase blood flow and oxygen to benefit movement in the thoracolumbar junction, often associated with back pain (Jeffcott et al., 1982, pp. 129-133). When the spine and connections to the hindlimb relax, the long lever OAB of the hindlimb may become possible.

In the unloaded or flexed position of the hindlimb, the rhythmic, repetitive motion of long-lever articulations not only releases the deep muscles and ligaments of the sacrum and psoas, often identified as the source of pain (Dyson & Murray, pp. 240-245), it increases mobility to the synovial fluid of the joints, blood flow to the tissues of each joint and surrounding muscles, fascia, ligaments and tendons and organs. So, as the body relaxes, the nerve firing associated with pain is released.

In conclusion: The benefits of creating an integrated approach

A 2020 study (Kynetec Canada, 2020) identified that the number of students graduating each year from veterinary medicine is less than the number retiring. These cyclical shortages of skilled equine veterinarians have increased wait times. With fewer vets servicing wider population areas, horse owners are seeking alternatives via friends and the Internet.

Hausler (2024) recommends *"building a new collaborative culture where a multidisciplinary approach is key."* Working with local Veterinarians, Osteopaths can assist with hindlimb dysfunctions that are proving difficult to pinpoint with traditional diagnostics.

The Osteopath should confirm any contraindications for a horse treated for high suspensory issues, with joint injections or any other pathologies, to determine what an Osteopath can and should not do through rehabilitation. If the hindlimb issues result from long trim cycles, a much shorter trim schedule may be required to balance the hoof and regain healthy posture.

Intervention in the form of shoes with wedges can bring almost immediate changes to posture and possible relief to higher pathologies. Frequent adjustments with barefoot trims can speed up the transition, pulling heels back and shortening toe length.

Osteopathy is an effective modality that complements the Veterinarian and Farrier in providing a holistic approach to solving hindlimb dysfunction. Osteopathic work will relieve hindlimb dysfunction symptoms; however, dysfunction will likely return without the foundation of balanced feet. Osteopathic treatment may be required to trim or shoe the horse so their posture changes from pathological to healthy; once the feet are balanced, osteopathy helps the horse relax, releasing tight joints, tense muscles, fascia, and restricted viscera, increasing fluid distribution and allowing the body to return to homeostasis.

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