

LONDON COLLEGE OF ANIMAL OSTEOPATHY

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THESIS TITLE:

**Osteopathy for Sport Horses:
Reducing Injuries and Enhancing Performance**

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AIM - This report aims to provide owners of sport horses with an overview of the benefits of regular osteopathic treatments.

Table of Contents

3	What is Osteopathy? History of Osteopathy Osteopathy for Horses
4	Common Types of Injuries
4	Fascia
8	Tendons & Ligaments
10	Sacroiliac Joint
11	Cervical Neck pain
12	Confirmation & Training Issues
13	Gastric Ulcers
14	Temporomandibular Joint Dysfunction
14	Stifle Joint
15	Conclusion
16	References

What is Osteopathy?

Osteopathy is an alternative, holistic, drug-free treatment that focuses on the whole body. It is a non-invasive manual therapy that focuses on releasing pressure or tension in the joints, muscles, tendons, and ligaments. The aim is to improve mobility through the joints, relieve pain and inflammation, and support the body's own repair system. Osteopaths use gentle palpation, manipulation, stretching, and massage to improve joint range of motion, relieve muscle tension, and enhance the body's natural healing ability. An Osteopath will examine the patient's entire health picture, including their past health history, current overall health, diet, and exercise regimen, to identify the **root cause** of the pain or reduced mobility.

History of Osteopathy

A form of osteopathy or manipulative therapy has been used on humans for thousands of years all over the world. Hippocrates, the father of modern medicine, wrote a book on the methodology of manual medicine, which covers chiropractic, osteopathic, and massage therapies. The first osteopath was Dr Andrew Still, who proposed this new approach in 1874. Since then, the practice has been enhanced and studied worldwide and is now used extensively to improve the health of all mammals.

Today's equine osteopath utilizes a range of manual therapies, including myofascial release, deep tissue massage, stretching, articulation, joint manipulation, and adjustment. These methods are employed to address musculoskeletal concerns and promote optimal balance within the equine body. Adopting a holistic perspective, practitioners utilize their in-depth understanding of equine anatomy and biomechanics to identify and treat restrictions and dysfunctions. The primary aim is to enhance mobility, increase flexibility, and support overall performance and well-being.

Osteopathy for Sport Horses

Sport horses (racehorses, barrel racers, reining horses, eventers, show jumpers, and dressage horses) are equine athletes and should be treated as such. These horses are often pushed to their limits physically and mentally, especially at the higher levels of their disciplines.

Sport horses are often subject to increased physical demands, which may lead to inflammation, soft tissue injuries, arthritis, and more severe conditions. These injuries frequently arise when horses are not trained according to systematic protocols that account for their developmental stage and exercise appropriate caution. It is common for injuries and discomfort to go unnoticed by owners, as horses possess a high pain threshold and tend to conceal signs of pain due to their innate stoicism as prey animals. Their nervous system is adapted to tolerate discomfort, with the release of endorphins diminishing pain perception, resulting in subtle or absent behavioral indicators. By the time symptoms become apparent, the injury may have progressed significantly. Therefore, owners and practitioners need to adopt an investigative approach to identify underlying causes affecting performance and to recognize subtle indications of discomfort. Osteopaths are taught how to identify abnormalities in a horse's gait, posture, skin, fascia, muscles, tendons, and ligaments. Osteopaths regularly work closely with veterinarians and farriers to help animals feel comfortable.

Dr Sue Dyson, an internationally recognized equine lameness veterinarian with five decades of experience and research, has identified 24 specific behavioral pain indicators exhibited by ridden horses (Dyson, et al., 2018)

Osteopaths are trained to identify these behaviors and can help owners, riders, and coaches recognize these behaviors as well.

Equine osteopaths can play a crucial role in both preventing and managing injuries in horses. Regular osteopathic assessments can provide valuable insights into a horse's physical condition and contribute to its overall well-being. Through comprehensive palpation examinations and range-of-motion testing, an osteopath can identify areas of inflammation or stiffness at an early stage, potentially mitigating the development of more serious injuries.

Skeletally mature sport horses are still susceptible to overuse injuries just like human athletes. Maintaining a horse's physical fitness, strength, and suppleness, providing optimal nutrition, and scheduling regular osteopathic assessments help support their ability to compete successfully in their discipline and potentially reduce downtime.

Common Types of Injuries

FASCIA

One prevalent concern among sport horses is injury involving the fascia. The fascia serves as an extensive, supportive, connective web-like tissue that envelopes and integrates every muscle, bone, and organ within the body. Composed of strong, white, collagenous fibers, fascia offers substantial strength and resilience to the body. Damage to any portion of the fascia results in increased tension and restricted mobility. The restricted mobility, often accompanied by pain, can happen far from the point of damaged fascia. Due to its continuous nature, injury to the fascia can manifest symptoms across multiple regions of the body, rather than remaining isolated to the initial site of damage.

When horses undergo intense training without adequate recovery, their fascia becomes tight and sore, limiting muscle function. Adhesions or trigger points may also form, further impacting movement and causing pain. If muscles are strained or torn, the fascia can be damaged as well, leading to scar tissue that reduces elasticity. Addressing both fascia and muscle health is crucial for adequate recovery.

A medical research study done by the Department of Clinical Veterinary Animal Science in Denmark (Elbrond & Schultz, 2015) explored the myofascial kinetic lines in horses. This study has formed the basis for practitioners to find the leading cause of impaired mobility. According to Elliott (2025), "A myofascial line refers to a continuous chain of muscles, fascia, and connective tissue that work together to transmit force, coordinate movement, and maintain balance in a horse's body. These lines help distribute tension and support posture, much like in human myofascial lines."

The Elbrond & Schultz study was the first to report myofascial kinetic lines in a non-human mammal, utilizing established anatomical structures. The research provides additional information on fascia and its interconnected role. In comparison to the human lines identified by Myers (2009), the study identified seven myofascial kinetic lines in horses, some of which differ likely due to anatomical distinctions between bipeds and quadrupeds. Awareness regarding the relevance of fascia health in horses remains limited, as research into myofascial chains and related symptoms is relatively recent and not widely recognized.

See Figure 1, describing the horse's myofascial kinetic lines, followed by summarized descriptions of each of the major lines.

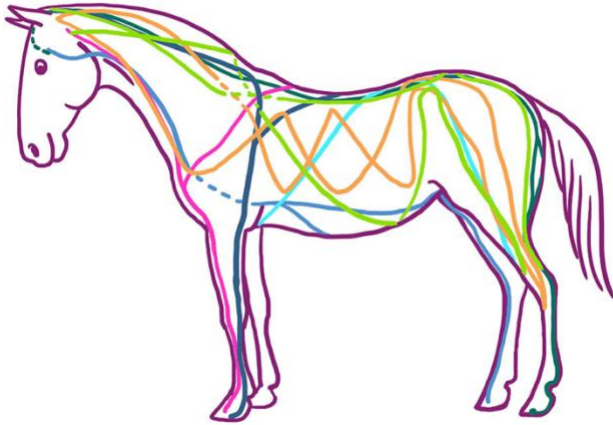


Figure 1

Equine Myofascial Lines (Elbrond & Schultz, 2015)

Due to the structural connections between fascia and the ability of muscle tissue to contract, shorten, and generate force, a biomechanical problem in one area may affect other regions of the body. Figure 1 illustrates seven distinct lines, clearly demonstrating the relationship between the fascia and how it connects distant areas of the horse's body.

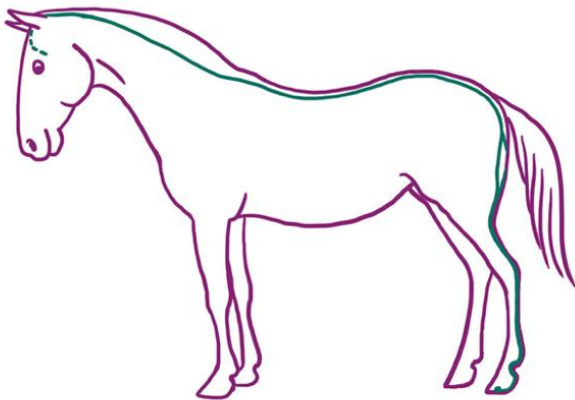


Figure 2

Superficial Dorsal Line (Elbrond & Schultz, 2015)

Figure 2 shows that the superficial dorsal line starts under the hind limb coffin bone, up through the deep hamstring's attachment, following along the vertebrae, and attaching behind the jaw. If an area of fascia is injured along this line, it will often show movement restrictions and tight topline muscles. The back muscles will not be able to function correctly, and atrophy and weakness may follow. The back pain is often accompanied by pain at the horse's poll and/or at the back of the horse's hind leg.

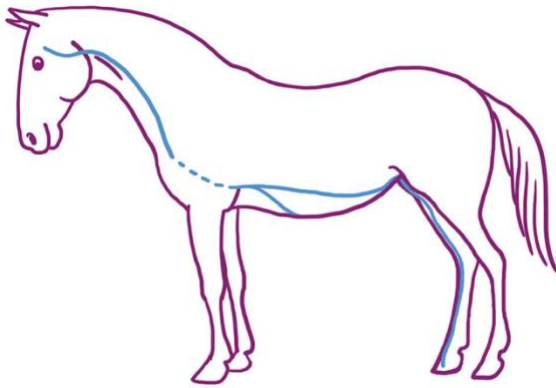


Figure 3

Superficial Ventral Line (Elbrond & Schultz, 2015)

Figure 3 shows the superficial ventral line starts at the front of the hind limb coffin bone and goes up past the front of the hocks to the stifle (knee), through the quadriceps femoris muscle to the hip joint. It then continues through the abdominal and thoracic muscles, through the ventral neck muscles to the mandible and maxilla bones (temporomandibular joint). Injury to this line can result in impaired gait extension, reduced extension of the head and upper cervical region, and increased tension in the ventral neck muscles, which may contribute to temporomandibular joint compression and sensitivity.

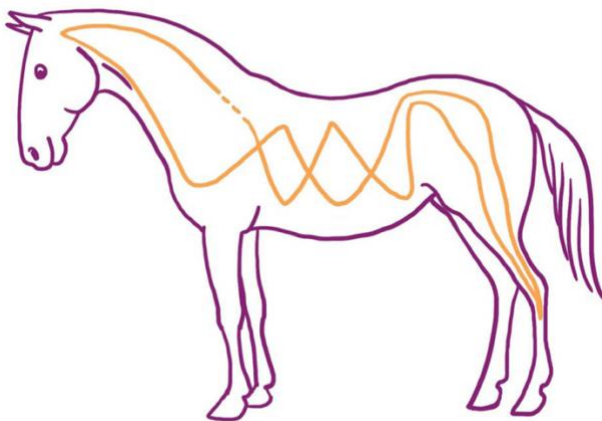


Figure 4

Lateral Line (Elbrond & Schultz, 2015)

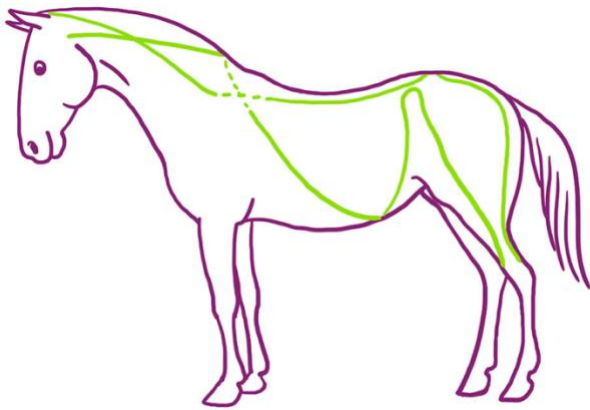
Figure 4 shows the lateral line that originates in the hind limb coffin bone and then splits by the hock joint. One line goes up by the tensor fascia lata muscle to the tuber coxae (Point of hip) by the superficial gluteal muscle. This line is different from the others in that it goes deeper into the muscles as well as into the superficial layers. The line then crisscrosses over the horse's rib cage and then around the neck area of the horse. The lateral line also merges with the cutaneous trunci muscle, which is a thin sheet of

muscle lying just under the skin. It is the muscle responsible for the rapid twitching of the overlying skin, for example, when a fly lands on the skin.

Common indicators of lateral line dysfunction include stiffness on one side, resistance to bending, or challenges with lateral movements. Additional signs may consist of restricted stride length, irregular gait, difficulties initiating or maintaining canter, as well as behavioral changes such as heightened sensitivity around the girth, reluctance to jump, or trouble performing flying lead changes.

Figure 5

Spiral Line (Elbrond & Schultz, 2015)



As seen in Figure 5, the spiral line originates at the temporal bones of the skull and temporomandibular joint (TMJ) and moves along the neck and spine, the rhomboids muscle, base of the cervical spine and then to the tuber coxae. It then continues to the hock via the biceps femoris muscle and the sacrum where the lines cross over the back and then follow the dorsal line up to the temporal bones.

The spiral fascial line plays a role in coordinating oblique, spiral, and rotational movements of the horse's body. Horse riding can contribute to imbalances in the spiral line; therefore, it is important for the rider to maintain proper alignment.

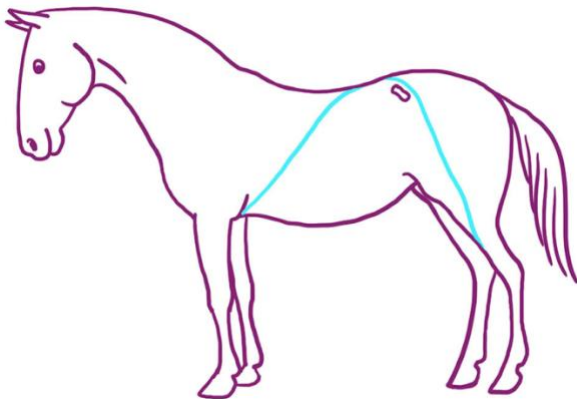


Figure 6

Functional Line (Elbrond & Schultz, 2015)

In Figure 6, the Functional line is shown, which originates in the humerus bone, crosses the horse's barrel over to the opposite side, and down the outside of the quadriceps muscle before it merges with the patellar tendon in the stifle. The functional line follows some of the same pathways as the spiral line.

The functional line and the spiral line share some of the same problems when they are damaged.

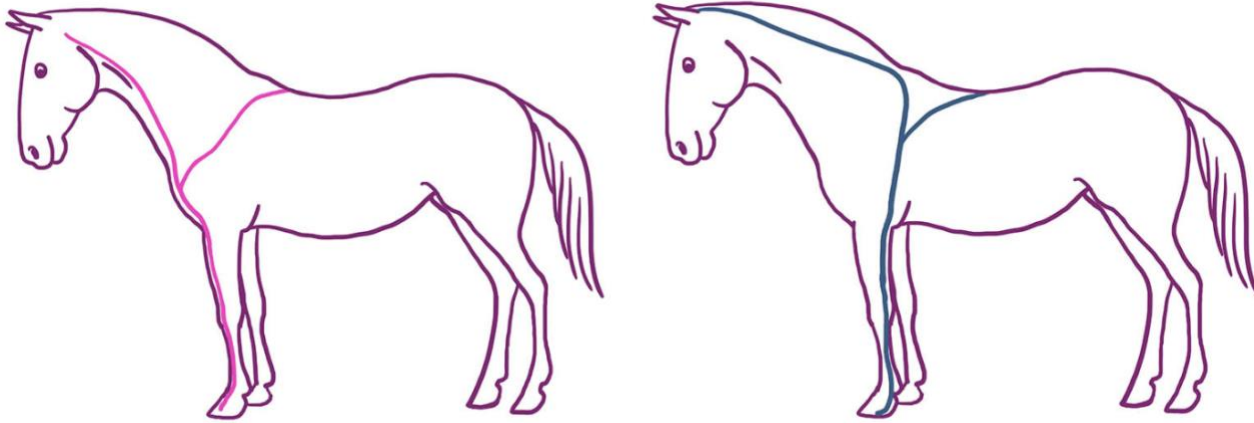


Figure 7

Front Limb Lines (Elbrond & Schultz, 2015)

Figure 7 shows the two front limb fascia lines starting deep in the skull fascia. One travels down the brachiocephalic and pectoralis muscles along the front of the forelimb, while the other passes dorsally through the rhomboids, trapezius, around the scapula, through the triceps, and down the back of the horse's forelimb.

Osteopathic practitioners address fascia injuries by finding the underlying cause and employing techniques such as myofascial release, cupping/myofascial decompression, soft tissue massage and targeted stretching. These interventions aim to reduce adhesions, restore optimal mobility, and enhance hydration of both the fascia and adjacent musculature.

In summary, current evidence indicates that myofascial release may provide benefits for horses; however, additional well-designed studies are necessary to determine its effectiveness for specific conditions and to support evidence-based application. For instance, larger trials including control groups and comparisons with various therapies would be beneficial.

TENDONS & LIGAMENTS

Another common injury in sport horses involves the tendons and ligaments of the horses' legs. The superficial and deep digital flexor tendons and the suspensory ligament are subject to stress, strain, and injury due to repetitive loading. Through regular palpatory examinations, an osteopath can detect early signs of inflammation, enabling owners to modify or adjust their training routines and consult with a veterinarian as needed.

The hunter/jumper discipline involves horses navigating obstacles, adjusting their stride length, executing turns, and withstanding repeated ground impact, often at high speeds. Additionally, instances may arise where a horse collides with or knocks down an obstacle, which can result in limb trauma. In the discipline of dressage, particularly at higher levels of competition, horses must shift their weight and gait in a highly collected position,

which puts a lot of strain on the soft tissue. These horses are prone to injuries in their back and hind end. Event horses engage in three disciplines held over two or three days. The Dressage phase is first followed by the cross-country jumping phase, which involves the horse and rider navigating a course of fixed jumps over hilly terrain and over long distances. The final stage is the stadium jumping phase, which consists of navigating jumps on a level stadium setting. The repetitive nature of takeoff and landing places significant strain on their tendons and ligaments. Proper conditioning and the ability to clear large obstacles are essential for reducing the risk of injury. The physical demands of eventing make these horses particularly susceptible to overuse injuries, highlighting the importance of ongoing attention to their musculoskeletal health.

Figure 8 shows the tendons and ligaments that are most often injured: the superficial digital flexor tendon, the deep digital flexor tendon, the suspensory ligament, and its branches. The suspensory ligament can frequently become inflamed and/or injured by hoof imbalances, repetitive stress from the horse's discipline, and sometimes from a freak accident in the paddock or on a trail ride. If the ligament is not treated at the first sign of lameness with rest, cold therapy, anti-inflammatory medication, and sometimes supportive bandages, it can progress to the point where it is no longer possible to return to competition. Osteopaths are trained to palpate every tendon, ligament, muscle attachment point, bone, and joint to detect signs of inflammation early and treat them accordingly.

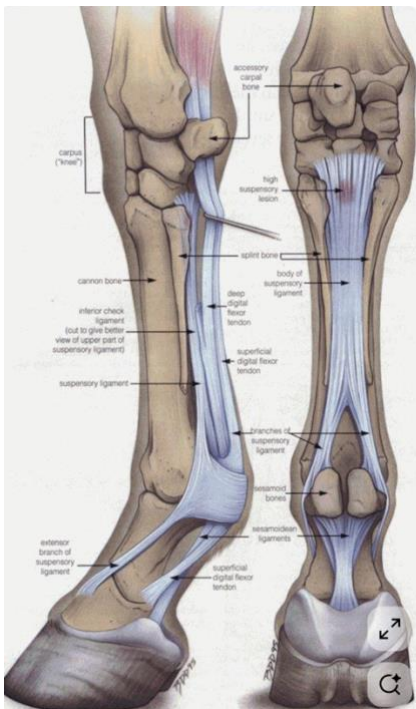


Figure 8

Equine Tendon and Ligament Injuries in the Horse and Recovery – Second Vet/ by Dr Schell www.secondvet.com

Osteopathy is most effective for improving horses' musculoskeletal health, which can support recovery from tendon and ligament injuries. When a horse compensates for a lower-limb injury, it often develops muscle tension and restricted mobility; osteopathy helps restore movement in joints like the spine and hips to correct these patterns. While it doesn't directly repair tendon or ligament damage, evidence suggests that osteopathy can reduce pain, inflammation, and abnormal movement, making it a valuable component of a holistic rehabilitation program.

THE SACROILIAC JOINT

Sacroiliac (SI) joint injuries constitute a commonly under-recognized concern in sport horses. Many equine athletes suffer from some degree of sacroiliac dysfunction, whether it be from an accident out in the pasture playing, getting cast in a stable, hitting a doorway hard when entering or exiting at speed, or being worked too strenuously before the vertebrae had fully formed, for example. Damage to this area of the equine vertebrae frequently causes inflammation at the tuber sacrale—a prominent anatomical feature located at the highest point on either side of the horse's croup (often termed Hunter's bump when inflamed). This area can be seen clearly in underweight and/or under-muscled horses. Along with inflammation, there will usually be localized muscle atrophy, subtle lameness, reduced stride length, changes in gait rhythm, "bunny hopping" at the canter, reluctance to jump, resistance to forward movement, and observable behavioral changes, for example, pinned ears, swishing tail, and/or bared teeth. SI inflammation and injury may arise from trauma, excessive workload, arthritis, or suboptimal conformation. It is important to note that horses are susceptible to SI joint injuries when they move rapidly into or out of a stable or gate at an improper angle, as hard contact with the doorway or gate post can result in bone misalignment due to the force of impact.

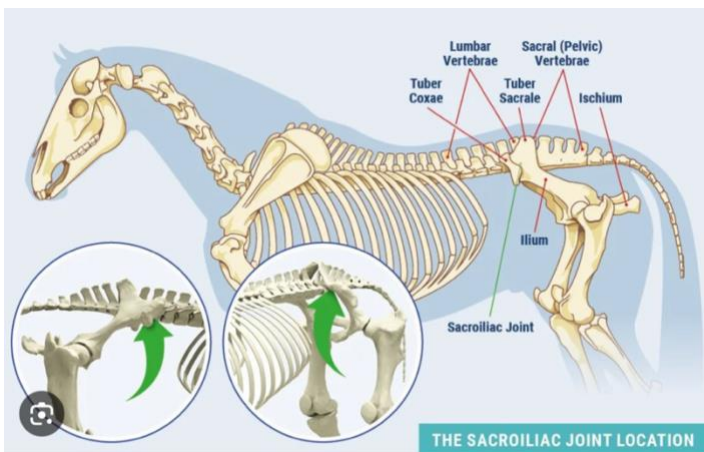


Figure 9

The Sacroiliac Joint Location – The Often Overlooked Equine Sacroiliac Joint by Annie Lambert, Veterinary Nat 23 Oct – www.trainermagazine.com

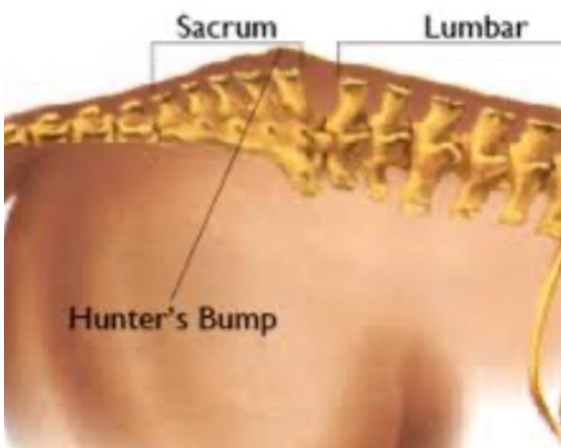


Figure 10

Sacroiliac disease in the horse by Clyde Vet Group 2023 – www.clydevetgroup.co.uk

Importantly, osteopathic intervention may provide a valuable tool for mitigating sacroiliac joint injuries. Recently, a study showed that a single sacroiliac osteopathic manipulation and treatment was associated with reduced dysfunction and pain for 15 days in sport horses with poor performance (Ramon et al., 2025). The study found that not only was pain and inflammation reduced at the sacroiliac joint but also in the longissimus and gluteal muscles. The biomechanical improvements were during canter, with normalized hind limb protraction-retraction patterns. The findings from this study suggest that further research is needed to evaluate the effects of repeated treatments, extended follow-up periods, and interventions for more severe cases.

CERVICAL PAIN

Another frequent cause of discomfort in horses is cervical (neck) pain. Diagnosis of cervical pain must take a multitude of factors into account, with the myofascial examination providing the most critical information (Story, et al., 2021). Horses exhibiting cervical pain often demonstrate discomfort upon palpation or during active neck movements, stretching exercises, and some routine activities. Cervical pain can also stem from muscle strain from ill-fitting bits and bridles or saddles, dental issues, arthritis, trapped nerves and cervical vertebral malformation (Wobbler's Syndrome). Horses experiencing cervical dysfunction without pronounced pain may present more subtle avoidance behaviors. They may have a history of diminished performance, poll and neck discomfort and stiffness, reluctance to work on the bit or bend in one or both directions, minor hind limb gait irregularities, reduced impulsion, and potential forelimb lameness. Osteopaths work directly with the horse's cervical range of motion using Osteopathic Articular Balancing (OAB) techniques with great success. A recent study examined the impact of a single session of osteopathic manipulation on dysfunctional caudal cervical vertebrae in non-lame sport horses (Ramon, et al., 20215). The results indicated improvements lasting for 15 days. Biomechanical changes were most notable in circular movement, with increased limb flexibility observed after the manipulation.

Figures 11 and 12, below, show the difference between a neck with muscle spasm and tension lines and a healthy neck.



Figure 11

Photo courtesy of Neck Pain in Horses by Springhill Equine Veterinary Clinic, Florida June 25th, 2025



Figure 12

Photo of a Horse with a Healthy Muscular Neck courtesy of Hygain Nutrition (www.horsesandpeople.com.au)

Recent controlled clinical trials have indicated that osteopathic treatment may assist horses with cervical neck pain by decreasing muscle tension and enhancing neck mobility and gait. Additionally, a study involving 51 horses with chronic lameness found osteopathic spinal manipulation to be an effective treatment, particularly in cases where neck and back issues had not been previously identified (Colles, C.M., et al., 2014).

CONFIRMATION & TRAINING ISSUES

Inadequate conformation or improper training can cause significant discomfort for horses. Observable changes in a horse's topline, such as muscle atrophy that accentuates the spine or hip bones, are often attributed to insufficient nutrition, inadequate conditioning, or compensatory behaviors due to pain. Horses may experience tension and soreness from maintaining certain postures to alleviate underlying discomfort. Like humans, equine lower back pain can result from weak abdominal musculature or tightness in the hamstring complex, including the biceps femoris, semitendinosus, and semimembranosus muscles. An osteopath possesses specialized training to assess muscle development, identify deviations, and evaluate areas for pain, weakness, or fascial restriction.

Uneven shoulders (Figure 13) in a horse may indicate underlying pain or discomfort, which can result from factors such as improper saddle fit, an unbalanced rider, or issues affecting the forelimbs or hooves. Additionally, high heel–low heel syndrome—characterized by one upright foot and one flatter foot—can contribute to the development of uneven shoulders. This is where the osteopath will work with a farrier to help even out the height differences in the hooves with corrective shoeing. The osteopath will work with a veterinarian to identify the exact source of pain in the forelimbs, using nerve blocks, x-rays, and/or ultrasound.



Figure 13

Photo showing a horse with uneven shoulders courtesy of Saddlefit 4 Life, March 20, 2020

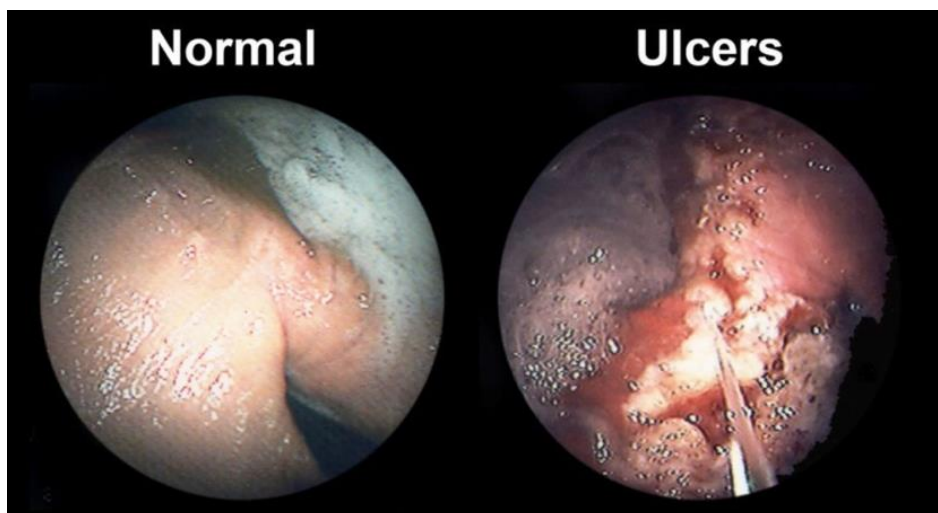
Additional indicators of equine discomfort that osteopaths are trained to recognize include the horse not being able to stand square or adopting atypical postures during examination. Persistent weight shifting is a strong indicator of discomfort, potentially originating from musculoskeletal structures in the body, limbs, or feet. If a horse consistently refuses to lift the same hoof for cleaning, this may suggest soreness in the contralateral limb on which the animal is reluctant to bear weight. Alterations in hoof shape are also noteworthy clinical findings. An asymmetrical pelvis can signal underlying pain, even in the absence of overt lameness. Furthermore, a tucked tail may indicate pelvic or sacral discomfort, while a roached lumbar spine often points to pain in the lower lumbar or sacroiliac region.

GASTRIC ULCERS

Gastric ulcers represent a significant source of discomfort in horses. These conditions are prevalent, and clinical manifestations can often be subtle. Horse owners must know that, as prey animals, horses typically conceal signs of pain, which underscores the importance of vigilant management to ensure their well-being. While only veterinarians are qualified to diagnose gastric ulcers—typically through gastroscopy—osteopaths may recommend that owners seek veterinary evaluation if common clinical indicators are observed during examination. There are several approaches available for supporting horses with gastric ulcers, including homeopathic therapies and dietary supplements designed to protect the stomach lining and alleviate discomfort.

Ulcers are a frequent health concern in horses, particularly among sport horses. Factors contributing to ulcer development include psychological stress, constant pain from injury or training techniques, diets high in grain and low in roughage, prolonged stable confinement, intense physical activity, administration of non-steroidal anti-inflammatory drugs (NSAIDs), and limited access to grazing. These conditions can compromise the gastric mucosa, as the absence of frequent grazing reduces saliva production and roughage intake—both of which are essential for buffering stomach acid. Consequently, the erosion of the stomach lining by gastric acid becomes more likely under such circumstances.

As part of their training, osteopaths learn to recognize the behavioral signs suggestive of gastric ulcers. Unfortunately, some horses show none of these signs even if the ulcers are severe. The clinical signs include atypical behavior or a reluctance to train, a change in attitude, reduced appetite, colic symptoms



following feeding, progressive weight, and muscle loss, teeth grinding during work, resistance to saddling or girthing, and the occurrence of diarrhea.

Figure 14

Gastroscope images of the stomach linings of two horses. Left: healthy horse with no ulcers. Right: Thoroughbred racehorse with severe gastric ulceration. Images provided by the University of California Veterinary Medicine Center for Equine Health (2019). Copyright 2019 by the University of California Veterinary Medicine Center for Equine Health.

According to Dr Mark De Paolo, a specialist in integrative veterinary medicine, there are several acupuncture points that can assist in identifying ulcers in horses. The most assessed area is where the girth lies—on the rib cage just behind the front leg, at the elbow. Horses with ulcers may exhibit stress, reluctance to stand still, or even aggressive behaviors such as biting and or snapping when their saddle is fitted or the girth is tightened. A second frequently sensitive location is found in the center of the sternum, immediately behind the front legs. A third region is where the scapula contacts the rib cage just below the start of the thoracic vertebrae. In cases of chronic ulcers or hindgut involvement, sensitivity may also be present in the lower lumbar region. It can occasionally be challenging to determine whether discomfort originates from hindgut ulcers, poor saddle fit, or weakness in the longissimus or gluteal muscles.

Equine osteopaths employ a holistic approach to ulcer management, addressing musculoskeletal imbalances that contribute to the condition along with associated pain and immobility. Through osteopathic manipulation, practitioners aim to restore mobility, enhance nerve and blood supply, and alleviate discomfort in the stomach and intestinal regions. This intervention can reduce stress factors associated with ulcer formation, facilitate recovery, and help prevent recurrence, particularly in cases where ulceration leads to scar tissue that restricts gastrointestinal movement.

TEMPEROMANDIBULAR JOINT DYSFUNCTION

The temporomandibular joint (TMJ) is essential for the overall health and movement of horses. Positioned bilaterally where the jaw articulates with the skull, the TMJ can have a significant impact on the equine musculoskeletal system, as recognized by osteopaths. Misalignment or stress of the TMJ, which may result from dental irregularities, ill-fitting bridles or bits, or inadequate dietary chewing opportunities, can lead to observable clinical signs. These may include abnormal positioning of the head or neck, back pain, muscular imbalances resulting in gait abnormalities, and reduced stride length.

Equine osteopaths can play a vital role in diagnosing and treating TMJ dysfunction. Using manual osteopathic balancing treatment, they can relieve tension and restore proper function to the TMJ, alleviating pain and improving overall movement.

THE STIFLE JOINT

Another frequently encountered and sometimes overlooked source of pain in sport horses is the stifle joint, which is the “knee” joint located on the horse’s hind leg. Like humans, this joint is complex and susceptible to stress or injury without appropriate care and strengthening. Equine osteopaths can assess indications of stifle pain using various methods. As stated in Adams and Stashak’s *Lameness in Horses* (Baxter,2020), horses generally display more pronounced lameness with hock pain compared to stifle pain, hence the often-overlooked stifle issues. While symptoms can overlap, horses experiencing hock pain may exhibit a toe-first

gait, whereas those with stifle pain often show a “bunny hop” movement in the hind legs, especially during canter or when walking downhill. After stifle pain is identified, treatment decisions are made by a veterinarian, while an osteopath can help maintain muscle and fascia health and suggest exercises to strengthen the stifle joint.

CONCLUSION

Equine osteopaths employ a holistic, manual approach to enhance joint range of motion and restore balance within the musculoskeletal system by identifying the underlying cause of pain or movement difficulties. Osteopathic techniques like joint mobilization and myofascial release help to improve the horse’s range of motion and relax tight muscles. By restoring balance to the spine and joints, movement patterns such as shortened stride, reluctance to canter on one lead, or a lack of impulsion can be corrected. By using hands-on methods to correct misalignments and restricted movement, osteopathy helps the horse achieve better posture and natural biomechanics, which is essential for high-level performance. Osteopaths can accelerate recovery from injury by enhancing circulation and reducing inflammation. Osteopathy also addresses compensatory issues where the horse might overwork one area to protect an injury, preventing secondary problems from developing.

Horses often express pain and discomfort through behavioral issues like bucking, rearing, refusing to jump, or sensitivity to being saddled or bridled. By addressing the source of pain, osteopathy can help resolve these behavioral issues and create a relaxed and happy horse.

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