International diploma of Equine Osteopathy

The influence of asymmetry on the biomechanics of horses and the effectiveness of osteopathic interventions.

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Date: March 2025

Abstract

This paper explores the influence of asymmetry on the biomechanics of horses and the effectiveness of osteopathic interventions in addressing these imbalances. Asymmetry, whether congenital or acquired, can lead to uneven strain, movement issues, and long-term health problems in horses. The study aims to identify the biomechanical consequences of asymmetry and evaluate the effectiveness of osteopathic treatments in minimalizing these effects. Through a comprehensive literature review, the paper examines various types of asymmetries, their impact on locomotion, and the role of osteopathic techniques in restoring balance and improving performance. The findings suggest that osteopathic interventions can effectively reduce pain, improve mobility, and enhance overall well-being in horses. However, further scientific research is needed to fully understand the mechanisms and long-term benefits of these treatments.

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1. Introduction

No animal is 100% symmetrical and balanced. Asymmetry can lead to uneven strain, unequal hoof shapes, and movement issues. Osteopathic interventions are often used to correct these asymmetries and improve the horse's overall functionality. In this paper, the impact of asymmetry on equine biomechanics and the effectiveness of osteopathic treatments is examined, with references to relevant scientific sources.

When we aim to train animals, in this case horses, to achieve athletic performance, it is important to address their natural asymmetry as much as possible so they can meet the required demands. Trainers and riders work on this systematically and over the long term. The question is whether treating horses with osteopathic manual therapy is effective in reducing asymmetry. If this question can be answered positively, equine osteopathy could contribute to the training progression and athletic performance of horses.

1.1 Research objectives

The aim of this study is to identify the biomechanical consequences of asymmetry in horses and the effect of osteopathic therapy on it. To achieve this aim, the specific objectives are:

a) Defining asymmetry in horses.
b) Identifying biomechanical and locomotion issues caused by asymmetry.
c) Investigating whether osteopathic treatment is effective for biomechanical and locomotion issues caused by asymmetry.
d) Investigating which osteopathic techniques are most effective in treating biomechanical issues in horses caused by asymmetry.

These objectives will provide valuable insights for owners, trainers and riders and helps keep the horses healthy and maintain good athletic performance. This knowledge contributes to animal welfare.

1.2 Equine osteopathy

Osteopathy is a holistic, manual therapy that focuses on treating and preventing neurological, respiratory, circulatory, metabolic, behavioral and biomechanical disorders by restoring balance and mobility to the body by working on the musculoskelet. Originally developed in the late 19th century by Dr. Andrew Taylor Still in the United States, osteopathy was initially applied to humans. His principles, emphasizing the interconnection between the body's structure and function, laid the foundation for osteopathic treatments for human and animals.

In equine osteopathy, the therapy is tailored to address the unique anatomy and biomechanics of horses. By using gentle, precise techniques, osteopaths aim to enhance circulation, relieve tension, and promote the body’s natural healing processes.

The results of osteopathic treatment in horses can include improved movement, reduced pain, enhanced performance, and overall well-being. Osteopathic techniques for horses include joint mobilization, muscle relaxation, and soft tissue manipulation, aimed at addressing issues like stiffness, lameness, and imbalances. It contributes both to the physical and behavioral health of horses, particularly in competitive sports where peak performance is essential. (LCAO 2024/ 2025)

1.3 Methodology

For this paper, the author has made use of a literature review. An overview of the consulted sources is included in the references. These primarily consist of scientific publications by

veterinarians from around the world, accessible on platforms such as Google Scholar, PubMed, Science-Equipe, and individual universities. A few books have also been used. Finally, less scientifically grounded websites were consulted. No conclusions have been drawn from that information.

2. Asymmetry

Horses often show a preference for movement toward one side, which can be compared to human hand preference. This phenomenon, known as motor lateralization, was studied by Murphy and Arkins. They found that male horses predominantly preferred the left side, while female horses more often favored the right side. (Murphy, J., Arkins, S., 2007)

Asymmetry refers to the inherent imbalance in a horse's body, often caused by a dominant side that influences their posture, movement, and muscle development. This asymmetry can lead to uneven weight distribution, stiffness, and compensatory movement patterns. Over time, it may cause strain on joints, muscles, and ligaments, potentially resulting in performance issues, lameness, or behavioral problems. Addressing this imbalance is essential to maintain the horse's long-term health and performance. (McGreevy, P. D., & Thomson, P. C., 2006)

2.1 Different types of asymmetries

First, we make a distinction between congenital or acquired asymmetry.

2.1.1 Congenital asymmetry

Congenital asymmetry in horses refers to structural and functional differences between the left and right sides of the body that are present from birth. This already starts in the embryonic phase.

Congenital asymmetry in horses results from a combination of genetic predisposition and early development in the womb. Key factors are:

a) Genetic influence: Research by McGreevy and Rogers suggests that asymmetry is partly genetically determined. Some horses are born with a natural preference for a certain side. (Rogers, P., McGreevy, P.D., 2005)
b) Nodal gene and embryonic development: The nodal gene has an important role in left-right differentiation during early embryonic development. This gene influences the asymmetrical development of organs such as the heart and may also contribute to structural asymmetries in the musculoskeletal system. This process is essential for the correct positioning of internal organs and has been observed in various species, including horses. In the early embryonic stage, nodal is asymmetrically activated, primarily on the left side of the lateral mesoderm. Disruptions in the nodal gene can result in conditions like situs inversus (where internal organs are mirrored) or heterotaxy (abnormal organ positioning). (Nakamura, T., 2012)
c) Breeding: Breeders seem to unknowingly breed asymmetry into breeds by selecting for traits that match the intended use, according to McGreevy and Thomson. Their study examines motor laterality in horses bred for different types of work, specifically Thoroughbreds (TB), Standardbreds (SB), and Quarter Horses (QH). It finds that TBs and SBs show a left foreleg preference during grazing, suggesting a significant left-side bias in motor laterality, while QH did not show this bias. The preference for the left side increased with age and varied between breeds. The study also highlights that selection for heightened flight responses in racing breeds (TB and SB) might influence motor bias. Differences in emotionality and reactivity are observed across breeds, which could affect their motor laterality and suitability for certain tasks, such as racing versus other equestrian disciplines. (McGreevy, P. D., & Thomson, P. C., 2006)

d) Position in the womb: The foal's position in the womb can impact its development. If a foal remains in a certain position for an extended period during gestation, it may develop muscle and skeletal asymmetries. (Van de Wier, F., 2017)

Regarding to locomotion About 90% of horses are right bent, which is genetically determined. When a group of wild horses is threatened and needs to flee, the fastest and most effective way to do so as a herd is if each member starts galloping in the same direction; otherwise, part of the group will fall behind. (Koldijk, M., 2020)

2.1.2 Acquired asymmetry

Acquired asymmetry in horses refers to imbalances that develop due to external factors throughout the horse's life. Important causes are:

a) Management and riding techniques: It is common to approach, saddle, and mount horses from the left side. This naturally creates a left-side orientation. And further inconsistent or unbalanced training can lead to asymmetric muscle development and movement patterns. (Den Hoed, M., year unknown)
b) Training: Some horses experience more unilateral strain due to their discipline. For example, showjumpers endure more impact on the forehand, while racehorses run counterclockwise on the track, putting more stress on one side of their body.
c) Injuries, pain and compensation behavior: An injury in a specific area may cause the horse to overuse other parts of its body as compensation, leading to asymmetry. Horses with incorrectly shod or trimmed hooves, dental problems, gastrointestinal diseases, or other conditions can develop asymmetry as compensation. We can also include consequences from deformities and malformations, although malformations are already present at birth, the signs and signals may show (much) later.

"Premortem examination confirmed that the horses exhibited proprioceptive and neurological dysfunction, such as abnormal posture, ataxia, paresis, paralysis, and reduced limb tone and reflexes. This raises concerns about the balance of the affected horses and, therefore, the safety when handling and riding such horses, as found in this study." Sharon May-Davis, after dissecting horses with lower neck malformations. Certain medical conditions in horses can lead to asymmetry. One example is ECVM (Equine Craniocervical Malformation and Caudal Occipital Malformation Syndrome), where asymmetry in the spine can occur. This can lead to balance and proprioception issues. However, there is variation in the clinical outcomes. (May-Davis, S., Walker, C., 2015).

d) Hoof care and hoof balance: Uneven hoof care can result in imbalanced hoof angles, affecting the horse's balance and movement.
e) Saddle fit and rider balance: A poorly fitting saddle or an unbalanced rider can create pressure points, leading to asymmetric muscle development and posture changes.
f) Environmental factors: An asymmetrical living environment, such as a stable with limited space or an uneven pasture, can contribute to the development of asymmetry.

Recognizing and addressing these factors is essential for optimizing the horse's health and performance. (Fick, M., 2025, Koldijk, M., 2020, De Rijk, M., 2024)

2.1.3 Distinction in nine types

We distinguish nine types of asymmetries. (Fick, M., 2025, Koldijk, M., 2020, Van der Ploeg, A., 2025, Prof. McGregor, S., 2025) Basically, these are the results of the congenital of acquired asymmetry.

1. Lateral scoliosis

   Left or right bending means that one side of the body is concave and the other side is convex. A left-bend horse is concave on the left side and convex on the right.

2. Vertical scoliosis

   A horse carries more weight on one of its front legs than on the other, causing it not to form a perfect 90° angle with the ground.

3. Horizontal scoliosis

   The horse naturally carries more weight on the front end (60%) than on the hind end (40%).

4. Forelimb scoliosis

   Every horse is left- or right-handed. One leg is stronger and has better coordination. It is generally assumed that right-bent horses are more skilled with the left forelimb, while left-bent horses are more skilled with the right forelimb. "Several studies have focused on non-pathological sources of asymmetry at trot, in which the vertical excursions of head, withers and/or pelvis are commonly used for symmetry evaluation. Withers symmetry has been shown to be the most direct indication of asymmetry in the forelimbs that is least prone to confounding influences. However, the walk has been largely neglected and relatively little is known about inherent asymmetries in this gait." (Byström, A., 2018)

5. Hindlimb scoliosis

   One hind leg is more to the side of the body, pushes more, is steeper and stiffer. The other hind leg is more behind and under the body, carries more weight, is more bent, and more flexible. "Asymmetry can also occur in the hindquarters. A horse often has a propelling and a supporting hind leg. The propelling leg is stiffer and steeper, while the supporting leg is more supple. This asymmetry can lead to a

higher pelvis on the side of the stiff leg and difficulties in striking off into the canter on that side. The horse may also grab the bit on the side opposite to the stiff leg and step under less with that leg." (Dyson, S., Tranquille, C., Walker, V., 2016)

6. Fore / hind scoliosis

   The horse is narrower in the shoulders than in the hips. If you always make your horse walk closely along the edge of the arena, it won't track correctly, as the shoulders are placed too far outward in this case.

7. Diagonal scoliosis

   When the horse is truly straight in its body, it carries an equal amount of weight on each leg. If the horse is crooked, one forelimb carries too much weight, and the diagonal balance shifts toward that side.

8. Underline - topline

   When a horse is out of balance, it reflexively tightens its back muscles, raises its head, and its hind legs cannot step under properly. The topline becomes short. In this situation, the abdominal muscles cannot engage, causing the horse to develop a sagging belly. The underline becomes too long in this manner.

9. Type 1 scoliosis – double curvature

   The forehand has a different curvature than the hindquarters, causing the muscles in the neck region on one side to be shorter and the muscles in the lumbar region on the other side.

2.2 Influence on biomechanics and locomotion

Biomechanics is the study of the forces and movements that affect living organisms. In horses, this includes the analysis of their gait patterns, muscle activity, and joint movements.

A good understanding of equine biomechanics is essential for optimizing their performance and preventing injuries.

Asymmetries can lead to various issues in the horse's movement and performance. Symptoms such as stumbling, lameness, tension, and difficulties in executing certain exercises may occur. These problems can negatively impact the horse's training and well-being.

It is assumed that horses with significant asymmetry in their gait have a higher risk of injury. This highlights the importance of early identification and intervention.

A relevant study by Wiggers, N., 2015, investigated the functional locomotor effects of uneven forefeet in dressage horses. The study showed that horses with uneven forefeet exhibited significant differences in forces and movement, which contributes to a higher risk of injury and early retirement of elite level competition.

Asymmetry has a direct impact on the horse's biomechanics. Uneven limb loading can lead to differences in hoof shape, such as flat or steep hooves. Flat hooves have low heels and a broad sole, while steep hooves have a steep profile and high heels. These differences affect pressure distribution, hoof mechanics, and movement dynamics. For example, a flat hoof bears more weight on the sole, which can lead to overloading, whereas a steep hoof is less flexible, potentially hindering circulation. (Dr. Oosterlinck, M., 2017)

Each type of asymmetry has its own characteristic effect on the biomechanics and locomotion of horses:

1. <u>Lateral scoliosis</u>

   Left- or right-bentness, causing one side of the body to be shorter, stronger, and stiffer, while the other side is longer, softer, and more flexible. A right-bend horse is concave on the right side and convex on the left. The right hindleg may be steeper and the pelvis may be higher. The left frontleg is the more dominant leg.

This one often has a flatter hoof and, because of the angles in all the joints of this leg, the shoulder may appear more developed. The right frontleg is placed more under the body, for instance during grazing, and may and often have a steeper hoove. In stand this horse will tend to place both legs on the right side closer together. This horse can find it difficult to walk straight lines, to stand square or canter to the concave side. The tail can be worn to the concave side. Sometimes we see these horses tilt their heads or stick their tongues out of their mouths. (Van der Ploeg, A., 2025, Blijdenstein, E., 2017)

2. Vertical scoliosis

   This horse has difficulties with lateral movements or collection. Signs of poor vertical balance include collapsing in the neck, leaning through turns, racing, or falling over the outside shoulder. This horse will shift its weight to the inside shoulder in turns and bends and bring its head/neck position to the outside to compensate. This horse holds his head high and exhibits rein lameness, a lameness that we only see when the horse is being ridden.

3. Horizontal scoliosis

   The horse moves with a heavier and less springy forehand.
   The shoulders may have limited mobility, affecting maneuverability. The hindquarters push more than they carry, resulting in a flat movement.
   The horse has difficulties with collection and engaging the hind legs. The horse may push off strongly with the forelegs instead of generating power from the hindquarters. The neck is often raised to maintain balance, causing tension in the back. This horse tends to stumble.

4. Forelimb scoliosis

   Unequal stride length between the forelimbs, causing an asymmetric gait,

increased tension in the back and neck muscles as the horse tries to compensate for balance, and a tendency to stumble. The hoove on the more dominant side will be flatter. The horse is more agile and quicker with this leg.

5. Hindlimb scoliosis

   The tuber coxae on this side can be higher on this side. It will be more difficult to move sideways in the other direction.

6. Fore / hind scoliosis

   These horses have an imbalance between the stride length of the front and hind legs. This usually means that the hind legs take shorter strides than the front legs. The horse gets shorter in the neck during lateral movements and/or collection.

7. Diagonal scoliosis

   One shoulder us usually more developed and the hooves of the front feet are uneven. When ridden this horse falls onto the shoulder.

8. Underline - topline

   The top line of this horse is lacking in muscle, it seems a bit hollow. We also call this topline syndrome. The underside of the horse's neck is more muscled than the top. The horse's croup appears somewhat pointy. This horse finds neck stretching difficult. These horses often have a sore back.

9. Type 1 scoliosis – double curvature

   This horse does not have one easier side. When the right front and left hind are concave this horse will find it easier to walk and trot to the right but canter will be easier on the left hand. In some horses you can see the curvature in te body when looking from above.

(Rogers, P., McGreevy, P.D. 2005, Fick, M., 2025, Koldijk, M., 2020, Van der Ploeg, A., 2025, Prof. McGregor, S., 2025)

3. Osteopathic treatment

An osteopathic treatment in horses is a holistic therapy in which the osteopath uses hands-on techniques to detect and treat movement restrictions in the horse's body. This involves gentle manipulations of the musculoskeletal system (muscles, joints, fascia), the nervous system, and the organs. The intention is to restore natural balance, enhance self-healing abilities, and improve mobility. Or as Haussler says: "The goal of all manual therapies is to influence reparative or healing processes within the neuromusculoskeletal system, which often includes pain relief. The challenge for practitioners is in selecting the most appropriate and effective form of manual therapy to produce the desired physiologic effect within an individual patient, such as increasing joint range of motion, reducing pain, or promoting general body relaxation. Anecdotally, all forms of manual therapy have varying reported levels of effectiveness in humans and horses. Unfortunately, most claims are not supported by high levels of evidence from randomized, controlled trials or systematic reviews of the literature."

Osteopathy focuses on restoring balance and symmetry in the horse's body. Through the manipulation of muscles, joints, and connective tissue, the osteopath aims for even weight distribution and movement. Regular treatments can help identify and resolve compensations, contributing to better weight distribution. It is advisable to consult a professional with knowledge of the skeleton, muscles, and connective tissue, such as an osteopath, to support the horse in achieving greater symmetry. (Dr. Oosterlinck, M., 2017)

3.1 Osteopatic techniques

The most commonly used manual techniques within equine osteopathy are: touch therapy, massage, stretching, soft tissue mobilization, joint mobilization, and joint manipulation. The techniques are used for several indications. (Haussler, K. K. 2010)

Table 1
Potential indications for application of various equine manual therapy techniques

Manual Therapy Technique	Indications
Touch therapies	Pain
Massage	Muscle hypertonicity, soft tissue restriction, pain
Stretching	Soft tissue restriction, joint stiffness
Soft tissue mobilization	Soft tissue restriction, pain
Joint mobilization	Joint stiffness, pain
Joint manipulation	Joint stiffness, pain, muscle hypertonicity

Asymmetry is not an indication for manual therapy. However, we can prevent or treat the consequences of asymmetry.

Touch therapy

This technique involves using gentle touches, often with the hands, to detect and influence energy within the horse's body. The goal is to promote relaxation, improve circulation, and restore balance within the body. The result is reduced muscle tension, improved blood circulation, and overall relaxation of the horse.

Massage

Haussler (2009) explains: “Massage therapy is defined as the manipulation of the skin and underlying soft tissues either manually (e.g., rubbing, kneading, or tapping) or with an instrument or machine (e.g., mechanical vibration) for therapeutic purposes. Massage techniques include many well-known methods such as Swedish massage, sports massage, triggerpoint therapy, cross-fiber friction massage, myofascial release, lymphatic drainage, and acupressure. Clinically, massage and soft-tissue mobilization are believed to increase blood flow, promote relaxation, relax muscles, increase tissue extensibility, reduce pain, and speed return to normal function; however, few controlled studies exist to support these claims.”

Stretching

Gently stretching the horse's muscles and joints to increase flexibility. These are passive stretches. They improve muscle elasticity and joint range of motion. As a result, there's more flexibility, improved range of motion, and reduced risk of injury. We can also use active stretches. According to Higgins, stretching and targeted exercises can improve core stability, posture, and muscle strength in horses, resulting in better balance and performance.

Soft tissue mobilization

With this technique we manipulate the soft tissues (muscles, tendons, ligaments) through gentle, controlled movements. It helps reducing adhesions (scar tissue) and improve soft tissue mobility and leads to improved tissue structure, increased flexibility, and pain relief. "Tissue manipulation has the additional effect of stimulating regional or systemic changes in neurologic signaling related to pain processing and motor control." According to Haussler, (2010).

Joint mobilization

Applying gentle, controlled movements within the joint's range of motion to improve mobility to enhance joint function and reduce stiffness. It improves joint mobility, reduces pain and stiffness, and overall enhanced joint function. "Joint mobilization is characterized as non-impulsive, repetitive joint movements induced within the passive range of joint motion with the purpose of restoring normal and symmetric joint range of motion, to stretch connective tissues, and to restore normal joint end-feel." According to Haussler, (2009).

Joint manipulation

Applying a quick, controlled movements, also called high velocity trust, to a joint, usually with the specific goal of resolving a blockage or restriction. This restores normal joint

function and relieves pain by unlocking restrictions. As a result, there's restoration of normal joint movement, pain reduction, and improved mobility. "Manipulation is a manual procedure that involves a directed impulse which moves a joint or vertebral segment beyond its physiological range of motion but does not exceed the anatomical limit of the articulation". According to Haussler, (2009).

Each technique has specific applications depending on the horse's needs, but they all aim to enhance overall health, mobility, and comfort for the animal.

On top of the above Craniosacral therapy is often considered part of the broader approach of osteopathy for horses. It focuses on restoring the balance between the skull and the sacral area through gentle touch. This therapy is based on the idea that the craniosacral rhythm (the rhythmic movement of cerebrospinal fluid) influences the overall well-being of the horse. It is often used for horses with neurological issues, tension in the head or neck, or even emotional blockages.
Andrew Taylor Still, the founder of osteopathy, used techniques that are like what we now call craniosacral therapy.

The principles of craniosacral therapy (including the idea that the craniosacral rhythm influences health) were later further developed by John Upledger, who systematized this therapy as a distinct treatment method in the 1970s.

3.2 Osteopathic techniques in relation to asymmetry

In most asymmetries, there is pain, stiffness, weakness or a lack of flexibility in a specific part of the body.

If we bring everything together, we cannot simply say that there is an osteopathic technique for every type of asymmetry. However, the wide range of techniques offers enough tools to treat horses and most likely prevent asymmetric load on the body, or, if asymmetry already exists, to prevent injuries resulting from it.

In addition to prevention, osteopathic therapy can also be incorporated into the rehabilitation of sport horses. Haussler (2018) describes five steps in rehabilitation: (1) pain management, (2) proprioceptive deficits, (3) stiffness, (4) weakness or fatigue, and (5) neuromuscular control. In step 1, the veterinarian plays a key role by administering pain relief. After the inflammatory phase, osteopathy can assist in step 2 by applying primarily joint mobilization, initially aiming for 50% of the normal range of motion. In step 3, addressing stiffness, osteopathy can be beneficial through joint mobilization, soft tissue mobilization, and massage. This phase can last up to eight weeks. In step 4, osteopathic techniques can support training, with positive results still being observed up to 12 months after the start of treatment. In step 5, soft tissue mobilization, limb circumduction, and passive retraction and protraction stretches are particularly valuable.

Although there is much anecdotal evidence for the effectiveness of osteopathy in horses, more scientific research is needed to fully understand its benefits and mechanisms. It is important to use both subjective observations and objective measurements to evaluate the effectiveness of osteopathic interventions. One of the few available research projects is research by Van Weeren, P.R., 2016 that has shown that osteopathic interventions can help reduce pain and improve mobility in horses with musculoskeletal issues.
More research can contribute to a better understanding of how these treatments impact the biomechanics and well-being of horses. A stronger scientific foundation also contributes to the acceptance of the profession.

"In recent years, there has been considerable controversy surrounding osteopathy in horses. Several in vivo studies have been conducted on the movements of the back during different gaits, including by Denoix (1999), Faber (2000, 2001), Licka (2001), Wennerstrand (2004), Dyson (2004), and Keegan (2004). Van Weeren et al. (2002) conducted a long-term follow-up on manipulative treatments for horses with back problems. Wakeling et al. (2006) looked into the effect of spinal manipulation and reflex inhibition techniques. Haussler treated horses using chiropractic methods. However, the effectiveness of osteopathic treatment in horses is not well understood due to the lack of independent studies published in this field. Therefore, further research is necessary on these treatments for horses. This study showed that the movements of the pelvis and lower back were more symmetrical and fluid after an osteopathic treatment. The quantitative and qualitative analysis showed improvement half an hour after the treatment. Five weeks after the treatment, even greater improvement was noticeable. The subjective analysis, based on scores from the owners/riders of the horses, requested five weeks after the treatment, also indicated an improvement. Based on the quantitative, qualitative, and subjective analysis, it can be concluded that an osteopathic treatment improves the movements of the pelvis and lower back of the horse." De Wispelaere, A., Rydant, H., (2007).

Finally, I would like to make two important remarks. First, with osteopathy, we do not only influence asymmetrical biomechanics, but we probably also prevent the consequences of this asymmetry, namely injuries. Osteopathy, therefore, plays an important preventive role.

Second, the osteopath also plays an important role in educating riders about asymmetries and how they can either cause or resolve them. (Veen, A., MSc. Sport Science, 2018, Persson – Sjodin, E., 2018)

“The effects of gravity, inertia, and turning have predictable effects on the horse, but these may be modified by the rider’s symmetry, balance, and posture.” (Clayton, H. M., 2023)

4. Conclusions

In conclusion, asymmetry is a naturally occurring phenomenon in horses that can significantly impact their biomechanics and overall performance. Both congenital and acquired asymmetries can lead to uneven weight distribution, compensatory movement patterns, and increased risk of injury. Osteopathic interventions offer promising solutions for addressing these imbalances. The treatments aim to restore natural balance, enhance mobility, and promote the horse's self-healing processes. While anecdotal evidence and preliminary studies support the effectiveness of osteopathy, more comprehensive scientific research is necessary to validate these findings and optimize treatment protocols. By integrating osteopathic care with proper management and training strategies, horse owners and trainers can improve the health, performance, and welfare of their horses. This holistic approach not only addresses existing asymmetries but also plays a preventive role in preventing future biomechanical issues and injuries.

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