

International Diploma

Animal Osteopathy

Equine & Canine Streams

“Osteopathic Treatment of Animals in Rehabilitation”

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Introduction

This paper will discuss the effect of osteopathic treatment of animals in rehabilitation. Furthermore, it will be demonstrated that Manual Osteopathy can effectively speed up recovery time in patients undergoing rehabilitation. The basis for this thesis is that the author has a vested interest in osteopathy and its role in animal rehabilitation, as the author intends to pursue this area of specialisation within the author's own animal osteopathic practice. A comparison will be made between animals undergoing traditional rehabilitation methods and those receiving manual osteopathy interventions. In addition, it will be investigated how osteopathy differentiates from other forms of complimentary therapies studied and practiced on animals by the author. Two case studies, one canine and one equine, will be described showing observed improvements, recovery times, and overall rehabilitation outcomes of osteopathic treatment. The potential techniques through which manual osteopathy expedites recovery in animals will be explored. Moreover, it will be investigated how the techniques of osteopathy positively impact musculoskeletal, respiratory, circulatory, lymphatic, nervous, and other general body systems, providing a scientific foundation for understanding the biomechanical and physiological changes contributing to accelerated healing and rehabilitation. In addition, the impacts diet, exercise, mental and emotional wellbeing has on expedited healing of animals undergoing rehabilitation, will also be articulated. Lastly, some limitations of osteopathy in rehabilitation will be discussed.

Traditional Rehabilitation Methods

In 2007 it was noted by a Chartered Physiotherapist for the horse and rider in the United Kingdom (UK) that most horses are still turned-out following injury, some straight away and some following a period of stable rest. Even in a stable these horses will have changed their

weight bearing and movements to avoid discomfort. Furthermore, the horse will retain incorrect biomechanical patterns and not move correctly when turned out. She further points out that effective rehabilitation before the horse is turned out will ensure that when it is brought back into work, the horse will progress, having been re-educated to move correctly before resting up (Bromiley 2007, p. 132). It is asserted that this is still, with some exceptions, often the case today. Conversely, canine rehabilitation is a fast-growing area of the dog world, with one of the key driving factors for growth being that companion animals are increasingly viewed as family members. If a family member has been injured or had surgery their next stage of care would be physical rehabilitation. So why would it be any different for the family dog? (Hydroworx 2024).

Traditionally when a dog or horse has suffered a musculoskeletal injury, unless the veterinarian has an interest in complimentary therapies, is most likely to prescribe anti-inflammatory drugs and/or a nerve block and recommend rest. Therefore, the osteopath will ideally need to work with the vet to be in a position to gain a more relevant extensive osteopathic case history. The case history taken by the animal's vet is often traditionally only based on inoculations, annual checkups, routine surgical matters, and prescribed medications (Nevin et al. 2020, p. 21). In the UK if a vet is not open to a complimentary approach like osteopathy this adds another layer of complexity as osteopaths can only treat animals that are referred by a veterinary surgeon vide the Veterinary Surgeons Act 1966 (Bromiley 2007, pp. 185-186; Emmett 2020, p. 20; Nevin et al. 2020, p. 6). Osteopaths can be very useful to veterinarians (McGregor 2024). It is therefore concluded that ongoing professionalism of animal osteopaths and relationship building with veterinary surgeons is essential to ensure the continued credibility of osteopathy - and is asserted not just in the United Kingdom but worldwide (Nevin et al. 2020, pp. 3-6).

Differentiation between Osteopathy and other Complimentary Therapies

Having established that osteopathy provides a different focus from the traditional approach to rehabilitation by veterinarians and then assuming that this modality is more accepted by vets today as complimentary to the field of veterinary science, what specialty does osteopathy offer to the rehabilitation area that differentiates it from other forms of complimentary therapies studied and practiced by the author? Bowen Therapy is a system of applied myofascial stimulation to various soft tissues of the body (Smart 2008, p. 4). The Emmett Technique is a neuromuscular therapy that involves light finger pressure at specific points to address discomfort and improve movement (Emmett 2024). Myofunctional therapy involves various remedial and sports massage techniques (CMT 2022). Kinesiology taping is the application of adhesive bandage to a segment of the body which can influence the area in different manners (Mikail 2022, p. 12). In the field of farriery, the maxim “no foot, no horse” has become equine lore and probably warrants no further explanation for the purposes of this paper (Williams & Deacon 2002, p. 11). Traditional Chinese Medicine (TCM) is established on the Yin Yang theory with Qi described as the life energy within all things. Also, the Five Element Theory of wood, fire, water, metal, and earth which represents five phases describing a system of correspondences and patterns that incorporates events and things, especially in relationship to their dynamics (Kaptchuk 2000, pp. 7-15 & 437; Maciocia 2015, pp. 3-8 & 19-22). The relevance of each these modalities is recognised, however aside from acupuncture, none of the foregoing modalities posits a comprehensive holistic model of practice. That said, the traditional explanations for acupuncture are the subject of debate and the bio-medical model of clinical reasoning seems to be the most promising development in the field of acupuncture (White et al. 2018, pp. 3-4).

Osteopathy on the other hand defines five osteopathic models of health which considers five bodily functions which are interdependent on one another (Seffinger 2017, p. 4). The five models are:

1. Biomechanical Model
2. Respiratory/Circulatory Model
3. Neurological Model
4. Metabolic/Energy Model
5. Behavioural Model.

In classical osteopathy the musculoskeletal system (Biomechanical Model) is used as a window into the body's overall health. It advances that a negative influence on any of the five body functions will be indicated in the musculoskeletal system in some form (Chilla et al. 2011, p. 410; Seffinger 2017, p. 4). In addition, osteopathy proposes a way of diagnosing, treating, and preventing health issues through movement of the musculoskeletal system (American Osteopathic Association 2021). The biomechanical model of health becomes compromised if a somatic dysfunction is present (Seffinger 2017, p. 4). A somatic dysfunction is the impaired function of the framework of the body, including joints, fascia, and their related vascular, lymphatic, and neurological elements (Chilla et al. 2011, pp. 118-119). Somatic dysfunction is caused by trauma, recurring mechanical stress, emotional stress, visceral disturbances, and disease (DeStefano 2011, p. 5). Osteopaths treat somatic dysfunction by restoring full range of motion in every joint, restore length, balance, and strength of all muscles, ligaments, and fascia throughout the body (DeStefano 2011, p. 46; Seffinger 2017, p. 12).

Professionals Providing Animal Manual Therapy

Professionals offering animal manual therapy mostly fall under the titles physiotherapist, chiropractor, and osteopath. Physiotherapists concentrate on identifying specific functional problems on assessment, providing continued treatment using instruments like shock wave, ultrasound, laser therapies, and prescribe exercise programs (Bromiley 2007, pp. 134-159; Ettl 2016, pp. 94-95; Veenman 2024). Chiropractors traditionally focused exclusively on the spine by applying thrust techniques to it, believing that vertebral subluxations interfered with the body's "innate intelligence" and exposing it to disease (Warrington Chiropractic Clinic 2018). Osteopaths developed a reputation for restoring motion to the spine and all joints using gentle techniques, plus also restoring function to muscles, tendons, ligaments, fascia, and organs (Chilla et al. 2011; McGregor 2024). Different styles of osteopathy have developed over time. Namely, classical, structural, cranial, and visceral. However, as emphasised by Professor McGregor (2024) these exist better together rather than separate from one another. Osteopaths influence function by improving structure. There is no differentiation between the two, structure governs function and function is governed by structure. If poor structure exists, then poor function will also exist. The inverse is also real, a loss of function results in distortion of structure (Chilla et al. 2011, pp. 14 & 17). Structure is described as the shape and function as how it works (McGregor 2024). Chilla et al. (2011) comment that the osteopathic philosophy focuses on the interrelationship and unity of structure (anatomy) and function (physiology) Osteopathy is a very complete form of manual therapy that focuses on total body health, including other systems such as the circulatory, nervous, and lymphatic systems that can be restored (Felman 2017; McGregor 2024).

It is therefore asserted that it is reasonable to contend that when seeking a professional therapist for an animal, the osteopath might be the first professional called in many instances (Ettl 2016, pp. 94-95). Excluding of course, where pathology exists where the veterinarian

would be the first port of call, and in the UK, this is a legal requirement in any instance (Nevin et al. 2020, p. 6). This reason being twofold. First, a structural issue could exist that has been affecting function, either acutely, sub chronically, or chronically (Hadjiliads & Harron 2020). This structural issue could have been misdiagnosed as something more complex. It has been reported that misdiagnosis of musculoskeletal pain can lead to a domino effect of wrong treatments, prolonged pain, potential inappropriate surgeries, chronic symptoms, and disability (Virtual Physical Therapists 2024). Furthermore, it is asserted this structural issue might be quickly resolved without continually just treating functional (symptomatic) issues, as symptomatic treatment alone will not guarantee the return to health (Chilla et al. 2011). Second, Osteopathic Articular Balancing (OAB), invented and described by Professor McGregor, is the coat hanger that all other osteopathic techniques hang on. Professor McGregor has taken classical osteopathic techniques and specialised them to treat animals, with a number of physical issues, including behavioural problems, and pre- and post-surgical intervention (McGregor 2024). As outlined in the foregoing, the author practises other techniques that perhaps could also earn a place on this hanger. So osteopathic care involves many techniques that potentially could speed up recovery in patients undergoing rehabilitation. This is not to say osteopaths do not work with other professionals and paraprofessionals. Vets, farriers, physios, dentists, animal trainers, saddle fitters, are often also required (McGregor 2024; Nevin et al. 2020, pp. 5-6). The osteopath relies heavily on the diagnostic and differential diagnosis skills of veterinarians at times due to being unable to communicate directly with animal patients (Nevin et al. 2020, p. 6).

Osteopathic Treatment Approach

The founder of osteopathy, Dr. Andrew Taylor Still proclaimed circa 1874, “osteopathy is the law of mind, matter and motion”. He concluded that each tissue, organ and structure is designed for motion, as life is a matter of motion. In contrast, lack of motion is indicative of

a diseased state. He identified normal nerve activity and flow of body fluids as the major resources within the body that maintain health. Without their complete function, the body would not function properly (Seffinger 2017, p. 11).

The osteopathic treatment approach considers certain principles to facilitate healing. By regulating what is happening in the body, we are enhancing what the body already has (McGregor 2024). The body is able to self-regulate through homeostasis, which is the self-regulation of the body to maintain or restore health to its systems. When disease or injury is present, other parts of the body compensate for the loss of function and leave their normal regulated state and enter into dysfunction. What is happening in one part of the body may be adversely influencing other parts (Chilla et al. 2011, p. 16). What osteopaths can do is remove some of the elements that are preventing healing from occurring. For example, pathology, biomechanical issues, injury, illness, infection, or inflammation. Some or all causing pain and discomfort.

Professor McGregor (2024) has outlined the principles of osteopathy which are:

- Body unity
- Interrelationship between structure and function
- Self-regulatory and self-healing mechanisms.

When a somatic dysfunction is present osteopaths consider the whole body in lesion and not just simply a lesion on the body, and when developing an osteopathic diagnosis, a holistic perspective is developed using the principles of osteopathy as a base of reason. This enhances the patient's self-healing by understanding the disease experience and treating the body as a whole (Chilla 2011, p. 371; Premier Sports & Spinal Medicine 2024; Seffinger 2017, p. 8). Littlejohn (1901) describes osteopathy as a holistic form of manual therapy and is an application of the therapeutics of nature. Furthermore, osteopaths are looking to remove

the cause and dysfunction producing a somatic dysfunction (DeStefano 2011, p. 11). Also, the way osteopaths think and view a case separates osteopaths apart from other therapists. That is, osteopathic thinking is always looking for the cause (Seffinger 2017, pp. 14-15). By considering the foregoing and that osteopaths involve other professionals and paraprofessionals where appropriate; it is therefore contended that readily observable improvements, overall rehabilitation outcomes, together with expedited recovery times would likely become a natural course of events (Nevin et al. 2020, pp. 3-6; Seffinger 2017, p. 4).

Canine Case Study

Axel a 12-year-old male German shepherd dog underwent a veterinary neurological evaluation in May 2014 showing impaired proprioception in the hind limbs together with general atrophy of related muscles, decreased patellar reflexes, and a complete loss of perineal reflexes. Consequently, Axel was diagnosed with cauda equina infection and degenerative joint and disc disease, cataracts, and reduced hearing. Veterinary treatment involved a course of antibiotics, anti-inflammatory drugs, and chondroprotectors. This treatment produced a remission of symptoms that lasted several months. In October 2014 Axel returned with the same clinical presentation he had five months prior (Nevin et al. 2020, p. 98).

Following an osteopathic evaluation, osteopathic treatment was commenced on a regular basis together with magnetotherapy, laser therapy and water treadmill sessions. After three weeks of treatment Axel showed an even distribution of weight when standing, an increase in gluteal muscle bulk, regained urinary continence, and hindlimbs were sometimes raised to pass urine. Manual testing showed the range of movement of both hip and sacrococcygeal joints was considerably improved. However, bowel incontinence was still present. A visceral osteopathic examination was then performed, and these findings were discussed with

the vet. Veterinary evaluation determined that this issue was related to dysfunctional peristalsis only and subsequently treated with medication to stimulate evacuation. Further visceral osteopathic manipulation was conducted following this veterinary treatment. After three days Axel passed hard stools and never suffered from this problem again, however he never regained full control of bowel continence. His temperament was much better, with higher energy levels and improved appetite (Nevin et al. 2020, pp. 99-100).

Equine Case Study

An 18-year-old cob hack had been owned by his current owner for 13 years and did not have a history of back or neck-related issues. He was out of work for one year and on returning to work the owner reported that there was a gradual onset of the horse not feeling right when ridden but could not pinpoint anything. The horse was examined by a vet who could not find any pathology indicating a specific problem. The horse was then turned out for a week and at the end of that week he was extremely lame in his left forelimb and had difficulty walking. The vet re-examined the horse and a diagnosis of left forelimb lameness was confirmed however no cause was found. The horse was recommended stable rest. A farrier checked the foot and no laminitis, or a hoof abscess was present (Nevin et al. 2020, p. 243).

There was some improvement with stable rest and the horse was symptom free the morning following rest. However, within an hour of being ridden the lameness returned and he began to stumble on his left foreleg and fell several times when turned out in a paddock. He appeared low in mood and became increasingly head shy and apprehensive toward other horses. A second veterinary opinion revealed a diagnosis of likely arthritis. This vet offered to perform a full neurological and orthopaedic workup. The owner instead however decided to seek osteopathic assistance. This diagnosis revealed occiput-atlas or osteoarthritic and

atlas-axis restriction with secondary caudal cervical and cranial thoracic dysfunction with compensatory lumbar and pelvic dysfunction (Nevin et al. 2020, pp. 243 & 244).

Osteopathic treatment was performed with veterinary approval. After two days of stiffness following treatment, the horse exhibited dramatic improvement physically and mentally. He was much more alert, there were no signs of lameness, and he was moving much more freely. When examined, occipitoatlantal and cervical mobility was good with no poll sensitivity or pain through the lumbar spine. Pelvic mobility was now well balanced, and he was engaging his hindquarters. A further two weeks off work was prescribed before gradually returning to work. When returned to work no further problems were evident and good progress was made after two weeks rest. All this was achieved with one osteopathic treatment (Nevin et al. 2020, p. 244).

Osteopathic Techniques and Improved Recovery

Irvin Korr is a considered person in osteopathy, known for his research on somatic dysfunction and the facilitated segment theory – exploring how spinal segments, when sensitized can affect organ function and general health through exaggerated responses to stimuli. He also studied the neurological and reflex mechanisms behind osteopathic treatment, showing how it can influence the autonomic nervous system to reduce pain and promote healing. Korr's work significantly advanced osteopathic research and education, providing a scientific basis for many osteopathic techniques used today (King 1997).

The osteopathic approach of hands-on examination and techniques sets osteopathy apart from other therapies. Osteopathic palpation is a well-developed sense of touch that enables the osteopath to feel restrictions in the body, searching for, tenderness, asymmetry, restriction of motion, tissue texture changes (TART), and rhythms of the body (Chilla et al. 2011, p. 430). When an osteopathic assessment and diagnosis reveals an issue that requires osteopathic

treatment, how are problems resolved once they have been uncovered? The anatomical area principle considers which anatomical structure is the primary area of dysfunction and the nature of restriction. Is it muscle or joint related? To determine if a muscle dysfunction is primary the osteopath may use soft tissue or muscle energy techniques. If its joint related, the practitioner may use mobility testing and articulation instead (DeStefano 2011, pp. 5-7).

Professor McGregor believes that by keeping the techniques and principles of animal osteopathy simple and not complicated it is easier to identify the primary cause (McGregor 2023). Moreover, the techniques of osteopathy generally work better on the pronograde posture of quadrupeds with a horizontal body, than they do on humans as the biomechanics are completely different (McGregor 2023).

An active motion test is performed by the animal itself, but not usually used in animal osteopathy as the patient needs to follow the osteopath's instruction which requires participation of the patient, such as conscious respiration, muscle contraction, or resistance to energy applied by the practitioner. A passive motion test is carried out by the osteopath for the patient and the animal should not actively contract any muscles during this technique (DeStefano 2011, p. 46).

This leads to the barrier concept which describes the limits on motion in one plane or several planes of motion. It further illustrates that the quality and amount of motion on both sides of a neutral position is equal in the absence of a somatic dysfunction. Active range of motion (ROM) engages the physiological barrier (soft tissue restrictions). Passive ROM engages the anatomical barrier (bony restrictions) (DeStefano 2011, pp. 42-46). This principle decrees that most manual osteopathic techniques can be classified as direct or indirect (DeStefano 2011, p. 51).

Direct: a technique engaging the most restrictive barrier. There are two types of direct techniques. One that occurs quickly, taking the joint or tissue beyond the restrictive barrier instantly. The second involves increasing range of motion gradually.

Indirect: a technique engaging the least restrictive barrier, moving toward pathological neutral, and away from the restriction. These techniques cause neural signalling and fascial tension adjustments, resulting in improved joint motion (DeStefano 2011, p.51).

Direct and passive techniques applicable to animals are OAB, high velocity-low amplitude (HVLA) techniques, soft tissue techniques, and lymphatic drainage. Indirect and passive techniques are strain & counter-strain, positional release technique, and balance ligamentous tension – all collectively known as functional technique (FT). Myofascial release, craniosacral, and Still techniques are both direct and indirect (combination) and passive techniques. Combination techniques usually begin with an indirect technique and end with a direct technique. They can sometimes start with a direct technique and end with an indirect technique (Joy 2020; McGregor 2024).

Impacts on Bodily Systems

A somatic dysfunction triggered by biomechanical deviations can be caused by sudden unexpected movements, postural abnormalities, and changes in posture. For example, riding posture and dog show positions (Marsden 2010). Biomechanical realignment achieved by osteopathic techniques helps restore proper alignment and movement patterns in the musculoskeletal system. This reduces abnormal strain on muscles, tendons, and ligaments, preventing injury and enhancing function, which in turn reduces pain through the modulation of nociceptive signals. This is achieved by decreasing mechanical pressure on pain-sensitive structures and improving joint mobility (Chaitlow & DeLany 2011). The appropriate amount of exercise plays a crucial role in maintaining the integrity and function of the

musculoskeletal system, improving strength, flexibility and endurance (DiGiovanna et al. 2005). Recent studies involving quadrupeds have indicated that myofascial kinetic lines in conjunction with the locomotor system, are a delicate and well organised structure, with a high-conforming plasticity in close collaboration with the nervous system and viscera. Fascia was found to be the element that integrates the body's function (Nevin et al. 2020, p. 16). Furthermore, fascia has been described as a "body-wide mechanosensitive signalling system" that has distinct regional functions that are relevant to osteopathic practice (DeStefano 2011, p. 155).

Manual osteopathy impacts the respiratory system of quadrupeds through biomechanical and physiological changes that enhance thoracic mobility, diaphragmatic function, and overall respiratory efficiency. These changes lead to improved oxygenation of tissues supporting cellular metabolism, reduced respiratory effort, enhanced immune function, and better fluid dynamics, all of which contribute to accelerated healing (Johnston & Tobias 2018; King 2004; Williams 2009). Horses have a respiratory-locomotor coupling and do not breathe via contraction of muscles at the canter and gallop. The abdominal organs push forward as the lumbosacral joint flexes, which creates a piston action on the diaphragm (National Library of Medicine 1992). Hence it is concluded that due to the connection between ventilation and locomotion; by treating the musculoskeletal system we are creating healthy ventilation which optimises metabolic efficiency. Dogs are somewhat different and primarily rely on the contraction of the diaphragm and intercostal muscles at faster paces to meet higher oxygen demands. Dogs also use panting as a thermoregulatory mechanism and involves the movement of air mostly in the upper airways without significant gas exchange in the alveoli (Evans & de Lahunta 2013).

The circulatory system is enhanced by improving arterial and venous blood flow using muscle energy and soft tissue techniques. Manipulative treatments can reduce congestion,

improve circulation, and vasodilate blood vessels, which facilitates venous return, reduces oedema, and improves the removal of metabolic waste products from tissues. Improved circulation brings more oxygen and nutrients to tissues, promoting healing and reducing recovery time (Guillaud et al. 2018).

Improved lymphatic drainage reduces inflammation by removing inflammatory mediators and excess interstitial fluids in conditions like oedema and soft tissue injuries (Jackson et al. 2011). Lymphatic drainage techniques stimulate the lymphatic system by breaking down adhesions and fascial restrictions, enhancing the removal of toxins and metabolic waste products from tissues (Seffinger & Hruby 2007). Furthermore, manual techniques can influence the sympathetic and parasympathetic branches of the autonomic nervous system which can regulate lymphatic vessel tone and function, improving vessel contraction and flow (Korr 1979). This reduces swelling and supports the immune response, facilitating faster recovery from injuries and infections, by helping the body to better combat pathogens, environmental and other toxins, and heal tissues (Hodge & King 2007).

Neural pathways can be modulated by osteopathy, reducing the hyperactivity of pain pathways and enhance the function of the nervous system. Craniosacral therapy can influence the autonomic nervous system by the rhythmic movement of cerebrospinal fluid, promoting relaxation and reducing stress related physiological responses. The endocrine system is affected by poor neural signalling. Stress hormones like cortisol can impede the healing processes. Proprioceptive feedback can be enhanced by improving joint and muscle function which is essential for coordination and balance and contributes to better movement patterns and reduced injury risk (Cerritelli et al. 2020; Zhao et al. 2012). A proper functioning nervous system involves the efficient functioning of the central nervous system, the peripheral nervous system - including sensation, integration, somatic motor signals, and autonomic signals (Seffinger 2017, p. 14).

Osteopathy focuses on the musculoskeletal system. However, its holistic approach improves the wellness across multiple body systems. It does this by restoring structural and functional balance which leads to improved health across various body systems, including the digestive, urinary, endocrine, excretory and reproductive systems. By addressing the interconnectedness of these systems, osteopathy supports the animal's natural healing processes, improving rehabilitation (Lane 2013).

Impacts of Diet, Exercise, and Psychological Balance

Proper nutrition is essential for health and energy balance, without appropriate food the body cannot produce a sufficient amount of energy to fight off pathogens and heal wounds. If the rest of the body is not working properly, there will be no energy to fight infection and healing will be slow and possibly unsuccessful. Dysfunction in the body causes loss of energy as the body has to compensate for this, which decreases the body's overall energy efficiency.

Therefore, proper energy balance equates to better immune function (Seffinger 2017, p. 6).

After food enters the body, it goes through a succession of metabolic processes to produce energy. This energy is then used to power cellular processes to keep the body alive and strong, which includes microscopic processes like protein synthesis, and macroscopic processes like neurological activity and muscular contraction. Good nutrition also ensures the endocrine system functions optimally by supporting hormone production and maintaining the health of glands (Seffinger 2017, p. 6 & 14). Conversely, if a dog is overfed whilst rehabilitating this can lead to obesity - putting additional strain on joints, inflammation, gastrointestinal issues, pancreatitis, diabetes, decreased mobility, and cardiovascular strain (Catchpole et al. 2005; Freeman et al. 2008; German et al. 2012; Kealy et al. 2002; Mansfield & Jones 2001; Simpson 1996). If a horse is overfed, especially with high carbohydrates, similar issues can occur. But also including laminitis and equine metabolic syndrome which includes insulin resistance which can also lead to laminitis. Digestive issues in horses

include colic, diarrhoea and gastric ulcers (Andrews et al. 1999; Frank et al. 2010; Hudson et al. 2001; Pollitt 2004).

The environment, social relationships, personality, genetics and many other factors contribute to an animal's mental and emotional wellbeing. Negative thought patterns which cause firing of the same neural routes over and over again makes these neurological pathways hypersensitive and then normal for that animal, ultimately resulting in physical dysfunction (Chilla 2011). Therefore, good health is not only defined by physical wellbeing but also involves the mental and emotional side (Seffinger 2017, p. 7). Chilla et al. (2011) therefore indicated that long term patterns of dysfunction require neural re-programming via physical rehabilitation. Osteopathy can contribute to the mental and emotional health of animals in several ways: pain relief, improved mobility, relaxation, bonding and trust, better nervous system function, and behavioural improvements (Cooney 2020; Ferrell 2010; Haussler 2006; Lamm & Lund 1999; Mills et al. 2003; Serpell 1996). Professor McGregor has pointed out that horses are simple animals with simple biomechanics, so if the osteopath knows how to control the horse and understands its nature, then it is quite easy to treat horses. Dogs can be more challenging due to their higher intellect and how they communicate. So, osteopaths should match their behaviour and approach to what the dog is exhibiting (McGregor 2023).

Where the osteopath is encountered with dietary, mental and emotional issues adversely affecting healing and rehabilitation and not qualified and/or competent to deal with these, referral should be made to appropriate professionals or paraprofessionals. For instance, animal behaviourists, trainers, nutritionists, and veterinarians (Haussler 2009).

Limitations of Osteopathy in Rehabilitation

To determine if an animal's condition is treatable using osteopathic techniques or if the patient needs to be referred to another specialist, it is important to consider the severity of the

complaint. A flag system described by Zanoli (2018) defines what can and cannot be treated with osteopathy. For example, fractures, cancer and infection are red flags and cannot be treated. Orange and yellow flags also exist which describe less severe conditions.

With dogs extensive knowledge of breed-specific issues is required to tailor approaches to rehabilitation as there is significant variation in size and anatomy of dog breeds.

Furthermore, dogs can exhibit anxiety or fear during sessions that can hinder the effectiveness of the therapy and pose safety risks to the animal and the osteopath. Moreover, many dogs suffer from chronic conditions like arthritis and hip dysplasia, which may not be fully addressed by osteopathy alone. Care must also be taken to not aggravate any of these conditions. Also, dogs cannot voice their pain and discomfort which can make it difficult to monitor effectiveness and adjust approaches when needed (Fossum et al. 2019; Marsolais & Dvorak 2003; Millis & Levine 2014).

Horses are prone to lower leg injuries to tendons and ligaments that may not respond to osteopathic care. Furthermore, lameness can be subtle and difficult to diagnose accurately without advanced imaging, which is not always available in the field. Horses used in competitive sports have high performance demands, so care must be taken to ensure that any conditions are not aggravated. Horses too cannot voice their pain and discomfort (Hausler 1999; King & Mansmann 2017; Walker & Dyson 2011).

It is therefore asserted that the effectiveness of osteopathy in both horses and dogs is optimised when it is overseen by veterinarians combined with appropriate diagnostics and medication, and integration with other therapies, including physiotherapy with exercise programs.

Conclusion

Animal osteopathy provides a different focus from the traditional approach to rehabilitation by veterinarians. Animal osteopathy differentiates from other forms of complimentary therapies practiced on animals by the author, as these could be defined as function related only, whereas osteopathy is functional and structural. Farriery, however, can be described as structural. Moreover, osteopathy defines five osteopathic models of health which considers five bodily functions which are interdependent on one another. In classical osteopathy the musculoskeletal system (Biomechanical Model) is used as a window into the body's overall health. When seeking a professional therapist for an animal, the osteopath might be the first professional called in many instances, except where pathology exists that requires a veterinarian. There are three bases of reason for this. First, the issue could be simply structural in nature affecting function that can be resolved easily. Second, osteopathy involves many techniques that potentially could speed up recovery of animals undergoing rehabilitation. Third, osteopaths involve other professionals and paraprofessionals when required, including veterinarians. Osteopathy considers the principles of body unity, interrelationship between structure and function, and self-regulatory and self-healing mechanisms in its approach to rehabilitation. Osteopathic treatment regulates what is happening in the body, so the body is able to self-regulate by homeostasis. Furthermore, osteopaths look to remove the cause and dysfunction causing a somatic dysfunction, this reasoning setting osteopaths apart from other therapists. A scientific foundation was provided showing how the techniques used in animal osteopathy positively influence the musculoskeletal, respiratory, circulatory, lymphatic, nervous, and other general body systems. The aspects of diet, appropriate exercise, mental and emotional wellbeing were also shown to contribute. All these changes contribute to accelerated healing and rehabilitation by optimising tissue repair, reducing inflammation, enhancing immune function, reducing pain

and discomfort, and promoting overall physiological and psychological balance, thereby restoring health and preventing disease. Some limitations of osteopathy in rehabilitation were also discussed, concluding that the effectiveness of osteopathy is optimised when it includes veterinary oversight and integration of other therapies like physiotherapy with exercise programs.

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