

# **Osteopathy and its role in equine rehabilitation**

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## **Introduction**

Osteopathy is very interesting as it looks at an individual from a completely different perspective than most other therapies. The most commonly used therapy forms today concentrate on e.g. that a shoulder problem can be solved by only treating of the shoulder and surrounding structures. However, osteopathic therapy sees the person or animal as a connected and integrated whole, and that the origin of the shoulder problem may originate from a different place in the body and should be treated thereafter.

The thesis will seek to investigate osteopathy and its role in animal rehabilitation. The topic of rehabilitation of horses is very interesting as most owners want to do the best for their horse and both provide pain relief and perhaps speed up the rehabilitation time.

## **Osteopathy and its role in equine rehabilitation**

Can osteopathy be a positive contribution in rehabilitation of horses?

Not many years ago it was quite common to put down an injured horse or horses which suffered from various problems as back pain, tendon injuries etc., The horse was no longer suitable for competition and the decision to end its life was most likely done due to a combination of reasons. Many owners did not have sufficient knowledge of rehabilitation, did not have time for it or simply did not see the value of keeping the horse.

Today knowledge of rehabilitation of the horse has increased and it has become common amongst both owners of hobby horses and competition horses to support the horse's healing process.

Individuals taken out of training due to injuries or illness become easily stiff as they do not move as much or not at all if box rest is the case.

The use of physical therapy techniques has a positive effect on flexibility of the joints, proprioception and core musculature. Mobilisation techniques targeting the nervous system is used postoperatively for back pain. Osteopathic techniques and joint mobilisation are used to improve dysfunction of the musculoskeletal system. These techniques are applied in order to address problems of articular, lymphatic, vascular and the nervous systems. Pilot studies using chiropractic have shown positive effect on the movement of the horse's back.

Two randomised studies have shown that manipulation of the spine can reduce pain. Dysfunctions of the spine and pelvis have a substantial improvement after use of manipulation, which may have a profitable impact on pain relief. Chiropractic and osteopathy have many similar techniques, and the same results is likely to apply for the use of osteopathic methods.

One study has compared mobilisation to adjustment of the equine spine, which shows a 15% improved movement than by only using mobilisation techniques. The dorsoventral movement improved and pressure resilience.

Mechanical stimulation may have an impact of the lymphatic system, the vascular system and the synovial fluid. A good structural function is crucial in order to maintain normal tissue repair.

Many back problems may be caused by not optimal functional joints or muscles with subsequently soft tissue issues. Stiff soft tissues should be avoided and stretching and mobilisation techniques may be preventively as it makes the soft tissue more flexible and therefore encourage a better range of motion. In order for the soft tissue to work optimal the blood flow must be good and the vascular and lymphatic system must be functioning. If there are restrictions, and these systems are being blocked, issues may occur around the area.

Manipulation and mobilisation of joints can help to dissolve blockages and therefore improving the before mentioned circulation systems.

Mobilisation and manipulation may affect the nervous system and can help to reduce scar tissue after injuries or surgeries and prevent fluid retention. Therapy contributes to a healthier movement of the body and therefore directly help the body overcome compensatory bearing, patterns that often continue over a long period post injury.

Compensatory patterns may lead to other injuries of the musculature and joints. When manipulating joints, you may influence the mechanoreceptors of which leads to muscle relaxation and correction of compensatory bearing of the body.

A therapist can be able to locate the cause of injury or problem, and an examination of the spine can point out areas with acute or chronic pain and perhaps dissolve the issue. To look at the horse's posture and asymmetry in musculature is a key to locate where the pain is or cause of pain in addition to observe the horse's gait.

74% of horses with back problems have lameness of limbs in addition which indicates a clear connection. The saddle should always be checked and perhaps referred to a saddle fitter when the horse is presented with back problems and lameness. Palpation of the musculature of the back may indicate if the saddle is ill-fitted or if there is an ongoing inflammation, soreness, swelling or hypersensitivity. A good indication of a not fitting saddle could be if the musculature alongside the spine or withers is hollow. Various stretching techniques can be used to increase the range of motion of the trunk, neck and legs. These techniques can also better the horse's proprioception. When checking the range of motion of the horse's joints with passive techniques, it is performed in order to assess the quality of the joint, find restrictions, pain or identify possible hypermobility. These techniques may simultaneously lead to dissolve restrictions of joints and connecting tissues.

Not optimal performance of athletes is very often caused by issues of the back, and veterinary medicine has limited tools to solve the condition. However, manual therapy has the capacity to better identify and aid the affected horse.

Conditions none-responsive of veterinary treatment may indicate that manual therapy should be applied if contraindications of such therapy are ruled out.

Comparison of the use of mobilisation techniques and manual manipulation, the latter is most likely more effective to regain normal range of motion in cases of neck and back pain and limit potential new injuries. If performed correctly, and depending on an experienced therapist, it is very often safe to apply. Contraindications exist and must be taken into account such as fractures, acute inflammatory or infectious joint disease, osteomyelitis, joint ankylosis, bleeding disorders, progressive neurological signs and primary or metastatic tumors. Other conditions that should be handled with caution by the therapist, as they often fall into the category of contraindications of treatment, are acute osteoarthritis, impinged dorsal processus spinosus, severe articular instability such as subluxation and luxation, and sometimes horses with neurological disorders.

Difficulties after manipulation are rare about 1 in 200,000 to 1,000,000 in humans, but the numbers are not known in horses.

Stretching techniques performed correctly are very beneficial for joint mobilisation and it is recommended to hold the stretch for 30 seconds and do four to five rounds. If not done correctly it could irritate tissue connected to the area of stretching.

## **Chronic lameness**

A study from 2014 by C. M. Colles et al, included 51 horses suffering from chronic lameness or gait abnormalities, not responding to veterinarian approach, were referred to further osteopathic research. All the individuals were either undiagnosed or did not have a sufficient response to treatment. The horses included in the study group all presented neck or back problems, but the cause was not obvious.

The initial complaints were many: stiff, hindlimb lameness, intermittent forelimb lameness, will not move forward, not working from behind, will not jump or erratic jumping, difficulty turning one way, difficulty getting outline, loss of performance, back painful/tight, disunited in canter, panic attack whilst being ridden, neck spasm/locked, bucking when ridden, skip in upward transition to trot, roach back, napping, sensitive around poll, head tilt, ears back when worked, kicking out when ridden, pacing. A full osteopathic examination was performed including anamnesis provided by the owner.

The horses were followed up over a long period of time. However, 19 only participated only for a short time study. The participants in the cohort were all sedated before treatment was conducted. 46 cases or 90,2 % responded over a period of 6 months. 17 cases or 53,1% worked at the same level or better a year later. 10 cases or 31,2% worked at reduced level between 1,5-10 years post treatment.

The results were divided into short-term results and long-term results. Short-termed 46 cases or 90,2% had started working again 6-12 weeks post treatment. 10 cases or 19,6% gained a better performance than prior to treatment. 9 had a response to treatment but could not work at the same level as before, 2 of these was in work after more than 3 years and 5 for about 2 years receiving continuous therapy. 5 horses did not respond as hoped, 3 of these achieved restored good movement of the back but was set back when started working again.

Among the long-term studied 10 horses were performing better than ever. 2 horses were sold. 8 worked between 1-4 years post treatment. 1 of these participated in the Olympic games 7 years before retired from competition at such level.

The study indicates that neck and back problems may not be considered as much as the cause of lameness as it should. The cause is neuromuscular stemming from a stiff back or neck which leads to altered gait and change of posture. According to the study thermography is a useful aid in order to come to a conclusion on diagnosis as the participants all had thermographic abnormalities. The study also points to osteopathic treatment as a valuable contribution to ease lameness in horses when conventional veterinary treatment does not bring the desired outcome.

### **The dysfunctional spine**

According to Dominique Giniaux writings a dysfunctional C7 is commonly causing issues connected to the shoulder and forelimb. When C7 is the origin of a lesion the horse presents brachio-cervical neuralgia as the nerve in the forelimb has an irritation and inflammation influenced by the dysfunction of C7 as the area is partially affected due to disruption of the circulation of blood. If the horse has a low graded tendinitis of the flexor tendon, which in the long run will lead to a rupture, it is a good indication of a dysfunctional C7. Manipulation and a restored function of C7 will resolve the tendon issue before it escalates into a more serious injury.

A Horse which clips the tendons of its front legs with his rear toe may contract a dysfunction of C7 over time. With this in mind, it is crucial to manipulate C7 and restore normal function in both cases in order to treat the affected tendon. A blockage of C7 is the most common cause of the peripheral limb.

Sprained tendons of the front leg can also be caused by a dysfunction of pisiformes.

Pain caused by the horse's shoe can also lead to malfunction of C7, and the same is true for osteitis of the third phalange and navicular disease. When C7 is blocked it causes the horse, which is lame in a front leg, to hold the neck towards the same side of the malfunction. The horse is leaning away from the lame leg, as it is prevented from easily turn his head to the side of the C7 problem.

With regards to Wobbler disease, which turns up in horses between 12 to 30 months old, C3 and C4 are linked to this condition. The disease causes the horse to stumble usually with the rear end or even paralysis of the same part. Giniaux's theory of this is that some horses are born with a malformation of the articular process in C4, which is possible to find by x-ray. A fall or other accidents affecting C3 and C4 leads to the swift occurrence of Wobbler as the trauma brings the malformation closer to the medullary canal and compressing the area. As the issue is palpable, manipulation can be performed. Adjustment may not always be successful if there has been a destruction of nerve fibers of the spinal cord caused by the compression. Giniaux writes that he has observed twelve cases where the horses fully recovered after manipulation, and one of these horses had suffered of this condition for three months, causing him to lose his balance easily. Three days after manipulation he was much better and even won a race later on.

If the horse has a bit problem as refusing to take the bit etc. C2 this is linked to a dysfunctional C2. This dysfunction and pain in the jaw muscles are interlinked.

Horses with toothache of the upper teeth often have blocked C2 as the pain causes the horse to chew uneven.

When the neck is blocked by a dysfunctional joint, blood flow to the brain is subsequently blocked. This can disrupt the oxygen flow to the brain causing headaches. As the horse cannot

Speak up about this, the owner must observe change of behavior, e.g. the horse prefers to be left alone instead of interacting in play with friends.

Interrupted circulation to the brain may also lead to impaired vision or other organ of senses.

Impaired vision may cause the horse to be spooked by a leaf blowing in the wind. Even behavior problems as being aggressive, fear or depressive mood may be caused by malfunctioning neck.

Moving further down the spine to the thoracic vertebrae, there are many conditions which could be caused by malfunction of this area. According to Giniaux, repeated colic is often linked to TH18, and manipulation may solve the colic permanently. When TH18 is blocked it irritates the nervous fibers connected to the colon and digestion of food.

Dysfunctional TH16 and TH17 causes the horse to be unable to side bend.

TH12 and TH13 and sometimes TH11 may cause stomach problems, and wind sucking.

Blocked TH3-TH10 is connected to a short stride of the front limbs. Blocked wither can be caused by a fall or ill-fitted saddle. Pulmonary conditions are linked to ThH10.

TH1 and TH2 may affect the nerves of the front legs.

When the lumbar back is dysfunctional the horse has a crooked gait. L6 is linked to the bladder and a malfunction may hinder the horse of urinating well. It may also make a horse cross canter.

Blocked L3 is linked to locomotion problems, the patellar ligaments and chronic diarrhea

L2 is linked to the kidneys, and a dysfunction can cause lumbar myositis.

L1 is linked to the reproductive organs, and manipulation has a good effect on ovarian conditions

Issues to the SI joint causes problems in the locomotor system. It may also strain the sacro-iliac ligaments causing one side appear higher up. If the tail is not carried correctly the sacrum joint is always involved, with a problem caused by trauma.

## **Rehabilitation of the geriatric horse**

It is not so unusual to see elderly horses still competing in dressage or other arenas in their twenties. This group of horses should be mentioned even if they do no longer compete at the same level as younger horses.

Osteopathic mobilisation techniques are considered as safe to perform also on senior horses in order to keep them flexible and maintain their performance and general comfort. Osteopathy is acknowledged as a treatment including to prevent health issues.

The treatment method may contribute to increase circulation, release muscular tension, reduce inflammation, increase range of motion of the joints and help the body heal.

There are often changes appearing as the horse ages varies from change in performance, atrophy of musculature and other changes of the body. Osteopathy may meet the need for pain relief, and manipulation and mobilisation techniques are crucial and effective to support good range of motion of joints. Additionally, the treatment may correct discomfort and elasticity of the body's various tissues. It is used to locate stiffness of joints or pain and may be effective in order to restore such issues.

About 51% of horses 15 years old or more has a tendency of lameness and 77% of horses 30 years of age and older (Rakas 2024). Approximately 60% of these individuals is likely to have osteoarthritis as the cause of lameness. Osteoarthritis may be detected by swelling of the area or increased temperature and the mobility of the joint may decline. The condition most

commonly appear in the limbs. However, it may lead to issues elsewhere in the body in the long run. Osteoarthritis will often affect the joints of which is most in use and strained in the specific sport. E.g. jumping horses very commonly have problems with their fetlocks due to the repetitive movements and the weight and force at landing. It is vital to understand why this condition occurs in order to prevent the development. The condition displays as cartilage degeneration, increase in cartilage cell metabolism, synovial inflammation, hyperplasia and hypertrophy and bone changes (Baccarin et al 2022), and the degeneration of cartilage cannot be reversed. Manual adjustment and mobilisation of joints are recommended in combination with veterinary medicine as the disease reduces the range of motion.

Restrictions of the cervical joints can be observed as change in posture e.g. the neck is side bend or that the horse is unable to do certain movement. It can also present as coordination problems, instability or changes in gait irregularities. Lack of musculature, more musculature on one side or spasms may be present as well. How the trunk moves may change and lameness of the restrictions of the neck may lead to lameness of the forelegs. It can affect the horse's ability to eat from the ground or difficulties getting up after lying. Whatever signs are present they usually appear gradually.

The osteopath must always perform a thorough examination of the horse's soft tissue and joints looking for abnormalities and pinpoint the restricted area in order to find the best treatment for the patient. Release of the connecting tissue can be a valuable contribution to restore good mobility of the affected area. Restricted neck is seldom present as the only issue and therefore it is important to examine the whole horse. When examination of the neck is performed each individual cervical joint is checked by side bending which is in itself a mobilisation technique that can lead to revive normal mobility.

Dorsal pain or weakness may occur later in life and can be caused by a wide range of reasons such as muscle atrophy, incorrect training etc. Back pain can be seen e.g. as irregularities in

gait, unable to lift the back or bucking under saddle. It could often be of good use to combine veterinary care with osteopathic treatment and strengthening of the back in general. Kissing spine may also be present, and according to dr. Courtnee Morton (veterinary) about 40% of all horses suffer from the condition.

OAB (osteopathic articular balancing) is a useful approach to improve the range of motion and restore a healthy movement of the joints of the spine. Side endings are beneficial for elderly horses with lordosis or kissing spine as it stretches a lot of tissue and subsequently increases the blood flow and general circulation.

Kissing spines cannot be dissolved by therapy, but tensions of the surrounding tissue may be relaxed. Relaxation of the psoas and the supraspinous ligaments encourages the horse to lift its sacrum leading to improved mobility of the sacroiliac joint.

The intercostals plays a part in stabilisation of the ribcage and it is therefore important to search for tension in this area as the lungs cannot expand properly if restrictions of the chest area hinders their movement.

As the fascia is connecting everything in the equine body it is obvious that it must be in good condition, and craniosacral therapy is a useful tool to release tensions and restrictions of this important and vital tissue.

## **Conclusion**

Osteopathic treatment is indeed a good contribution to rehabilitation of injuries as it offers pain relief and is scientifically proven to help more horses back to work, some only at a reduced level, yet others perform at the same level as before or even better. Osteopathic treatment is additionally useful in order to find lesion patterns and subsequently the cause of a

number of conditions in the equine body. The latter is crucial to a therapist as the horse cannot be vocal about where the pain is and where and how it started. A skilled and experienced osteopathic therapist may be able to identify and solve various conditions and stimulate the horse heal during the rehabilitation period.

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