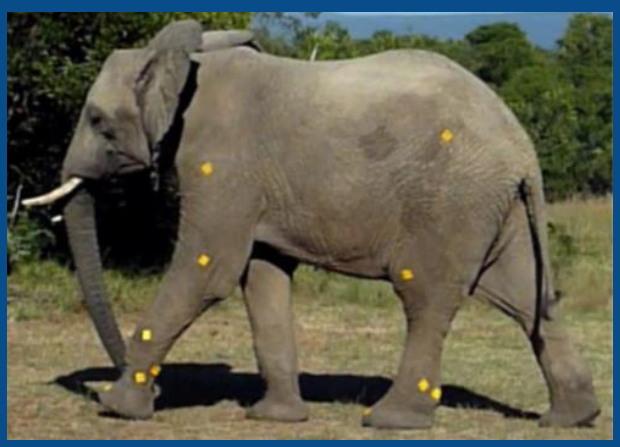

"Promoting Excellence in animal chiropractic techniques"

RESEARCH AND PRACTICE: A REVIEW

Issue 02. 2022


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Photography: Kindly provided by MAA members,
Editors: Sally Charlton & Jan Selfridge

Welcome

The McTimoney Animal Association is very proud to be able to share with you a selection of our research that we have been invited to present at a range of conferences in the UK and worldwide, with 25 abstracts peer reviewed and presented in the last 10 years. As an association we support evidence-based practice where the benefits are observable and measurable. Our practitioners learn to make clinical decisions according to their professional judgement, based on the best available evidence at the time and what is right for the individual animal and client. All members have completed an MSc, via the McTimoney College of Chiropractic, comply with Continuing Professional Development requirements and hold appropriate insurance as required by the wider industry.

McTimoney Animal Chiropractic Practitioners aim to address the commonly seen relationship between biomechanical and neurological dysfunction, which can result in a vast array of clinical presentations. Our aim is to contribute to the optimisation of an animal's musculoskeletal function, overall wellbeing and physical performance, through the application of a combination of stimulating, mobilising and manipulative techniques. These techniques are designed to facilitate the natural release of joint and soft-tissue dysfunction, and also optimise neurological activity.

The MAA committee is comprised of active McTimoney Animal Practitioners and McTimoney College of Chiropractic tutors who also practise as well as managing and writing educational programmes. The MAA committee supports its members and advocates the importance of maintaining and improving standards to ensure the highest quality of work once qualified. It is also dedicated to furthering the presentation of evidence-based research to promote the benefits of the McTimoney technique.

Every therapist registered with the McTimoney Animal Association (MAA) must hold:

- Current professional and public liability insurance
- Either a PGDip or MSc Animal Manipulation (Chiropractic) from the McTimoney College of Chiropractic
- Fulfil 25hrs of continuing professional development per year
- Comply with the Veterinary Exemptions Order (2015) Legal information

All members must uphold and adhere to the MAA Code of Ethics and Standards of Proficiency summarised below.

A member's clients are entitled to expect that a therapist on the MAA register:

1. Has a high-level of training in animal chiropractic techniques, and competence, to assess and treat animals safely and effectively
2. Make animal welfare their first consideration in seeking to provide the most appropriate attention for animals committed to their care. This includes referring back to the treating vet as appropriate.
3. Ensure that all animals under their care are treated humanely and with respect
4. Understand and comply with their legal obligations in relation to The Veterinary Exemptions Order (2015) seeking permission of a veterinary surgeon prior to any treatment being given.
5. Foster and maintain a good relationship with their clients, earning their trust, respecting their views and protecting client confidentiality
6. Foster and endeavour to maintain good relationships with their professional colleagues, working as part of a vet-led team
7. Maintain and continue to develop their professional knowledge and skills
8. Uphold the good reputation of the McTimoney profession
9. Are recognised by several leading insurance companies in the event of a claim
10. Respond promptly, fully, and courteously to complaints and criticism

McTimoney Explained

WHAT IS IT?

McTimoney is a chiropractic technique used to treat pain and dysfunction of the neuro-musculoskeletal system. It predominantly focuses on joint dysfunction in the spine and pelvis restoring, where possible optimal function of the skeletal system, nervous system and surrounding soft tissue. The technique is holistic, non-invasive, gentle, and is readily accepted by animals.

HOW DID IT DEVELOP?

McTimoney was named for its creator John McTimoney, a chiropractor who developed the technique on humans in the 1950's and later adapted it for use on animals. The **technique aims to rebalance the musculoskeletal system and restore optimal nerve and muscle function.**

HOW DOES IT WORK?

The vertebrae in the spine have a natural range of motion, able to move to the right and left in order to facilitate normal locomotion. If you were to watch a horse or dog move from above, you'd be able to see the spine almost swing as the limbs hit the ground. When dysfunction occurs between vertebrae, the range of motion at the site can become limited. Whilst this doesn't necessarily prohibit the animal moving at all, it does create a pattern of locomotion which is not optimal and can lead to muscular discomfort and nerve impingement.

Horses and dogs have a very advanced compensatory mechanism; if something goes wrong they need to keep moving. As the pattern of movement changes, the body itself experiences change to help support this. Joint dysfunction is part of that compensatory mechanism.

Joint dysfunction can be caused by a number of different things, both acute (short term) and chronic (long term) influences may lead to associated soft tissue dysfunction. In horses for example, it could be an injury or accident, or a more long term issue such as foot balance or poorly fitting tack. Once the problem is sorted, or injury healed, the dysfunction may remain. The animal can move and function normally, but may still show signs of discomfort and stiffness.

Some experience changes in behaviour, which is when some owners ask for investigation as performance and everyday comfort is still not resolved.

WHAT IS A MCTIMONEY TREATMENT?

The McTimoney approach begins by taking a detailed case history, whole body static and dynamic assessment of the patient which enables a complete analysis of what may be occurring in that animal. The assessment process is essential to distinguish areas of weakness, asymmetry and patterns of movement. Palpation analysis of the musculoskeletal system is also key and is used to determine areas of joint dysfunction.

McTimoney therapists treat using their hands in a specific hand position, performing **high velocity and low amplitude adjustments** at specific anatomical landmarks along the spine and pelvis, inducing a **therapeutic response in joint structures, muscle function and nerve reflexes.** Once applied, muscle tension dissipates, discomfort can be resolved, nerve impingement is released and optimal function restored. The body has an innate ability to continue to heal, and the treatment helps to facilitate this ability so the body continues to respond after the treatment has taken place.

Finally, therapists put an aftercare plan in place with the owner in order to ensure that the animal is supported during the immediate weeks post treatment. This changes depending on what the animal is doing. Whether it's competing for instance, and can involve doing a lesser degree of training for a few days, or introducing new exercises into the regimen or doing a bit less for a few days before gradually building back up to normal work load.

Depending on how the animal presents at the initial treatment, affects when subsequent treatments are advised. If the animal has been experiencing discomfort for an extended period, it can take longer for the body to adjust and a course of treatment may be required. Therapists work closely with vets and other musculoskeletal therapists, in order to continue providing the best care for animals and best results for owners.

McTimoney Research
Treatment Effects

McTimoney therapy has been practised since its inception in 1950, however, data to support how it can bring about physiological improvements for animals is limited. As previously explained in this publication, McTimoney therapists use short lever, high velocity, low amplitude thrusts using the hands to induce a therapeutic response in joint structures, muscle function and nerve reflexes.

Research specifically using McTimoney techniques include a published paper (2006) and 20 peer reviewed abstracts/conference presentations 2012-2022. Full abstracts and posters are available online at www.mctimoneyanimal.co.uk (MAA RESEARCH)

SCAN ME
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Knowledge of how individual muscles operate and understanding their involvement in locomotion can aid development of therapy to maintain optimal function. It's this desire to keep improving performance which drives the study of how the body works and in so doing, how best to keep it achieving. With this in mind, a more thorough understanding of the effect that musculoskeletal therapy may have on the animal specific areas can be a useful way of determining exactly what it can do.

Wakeling et al. (2006) studied the **effects of manipulative therapy on muscle tone in the longissimus dorsi muscle during standing and walk activity.** The McTimoney treatment group showed significant decreases in muscle tone and walking EMG activity compared to no change in tone or EMG activity for control group (no treatment).

POTENTIAL RELEVANCE:

- *The longissimus muscle (an important muscle in the equine back) responds immediately following (McTimoney) chiropractic treatment.*

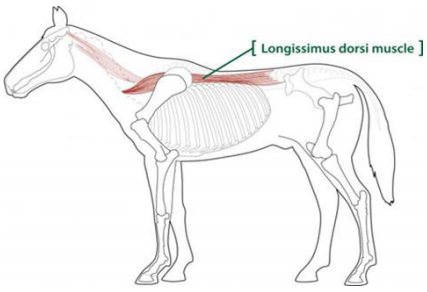


Figure 1: Position of longissimus dorsi muscle

Langstone et al (2015) studied the **effect of chiropractic treatment on the splenius muscle in horses when measured by surface electromyography.** The neck and its musculature are important in balance and overall biomechanical performance. Given the debate and increasing knowledge on the effects of correct head and neck position, knowledge of the activity of a stabilising muscle within the cervical spine (splenius) may better equip therapist, rider, and trainer to help the horse perform optimally whilst maintaining musculoskeletal well-being.

The aim of the study was to determine if a relationship existed between objective measurable muscle parameters, vertebral misalignments, and muscle tension in the cervical spine of the horse. Fourteen horses, 5-25 years were split into two groups; the first received (McTimoney) chiropractic treatment for the neck, back and pelvis following palpation, the second received palpation only. Surface electromyography was used to detect muscle activity; a Delys 4 sensor system was used.

The probes were positioned, using recommendations from previous study, at a halfway point between the first and second cervical vertebrae, and the crest of the neck on the left and right sides between the tendon insertion and motor point so to maximise the signals. Readings were taken from the splenius muscle at time zero (prior to palpation) immediately post palpation(PP), and 30 minutes' post palpation.

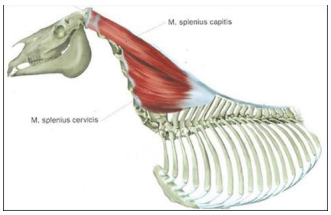


Figure 2: The splenius capitis & cervices muscle

RESULTS:

There was a significant reduction ($p<0.01$) in splenius muscle activity 0-30mins and PP to 30mins following manual chiropractic treatment, however the benefit to the horse is unknown. The reduction in activity that was shown post palpation could be due to therapeutic touch, or the horse habituating to the sensation of the palpation itself.

POTENTIAL RELEVANCE:

- *Evidence of a statistically significant reduction in splenius muscle activity following (McTimoney) chiropractic treatment.*
- *Further research recommended to establish measurable effects in relation to performance parameters.*

McTimoney Research **Treatment Effects**

Studies have identified the extent of changes in dimension of the thoracolumbar region of the horse's back after a thirty minute period of exercise and over the course of one year. There is, however, no information on the influence of manual therapy on changes in thoracolumbar dimensions of the equine back.

Dalton et al. (2017) investigated the **effect of McTimoney chiropratic treatment on equine back dimensions.** The aim of this study was to determine whether a single (McTimoney) chiropractic treatment influences equine back width dimensions typically measured in the assessment of saddle fit. A controlled, paired, randomised and double-blinded study was conducted using twelve riding horses (geldings=4; mares=8), with mean±s.d age 4.8±1.2 years and height 140.9±6.6 cm. The treatment group (n=6) received a single manual chiropractic treatment following palpation. The control group received palpation only.

Thoracolumbar dimensions were measured in triplicate using a flexicurve ruler (FCR) at predetermined sites T8, T13, T18 and three fingers behind the scapulae (3f), the day before (Pre-Tx), immediately post-treatment (Post-Tx) and three consecutive days(D1, D2, D3) after treatment. Horses were not ridden during this period.

At each site, paraspinal trunk width was measured at set distances lateroventral to the dorsal midline (3.5cm, 7cm and 10.5cm at T8 and 3f, and 3cm and 6cm at T13 and T18).

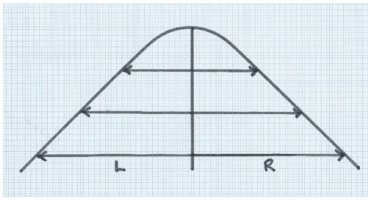


Figure 3: Paraspinal truck width measure sites

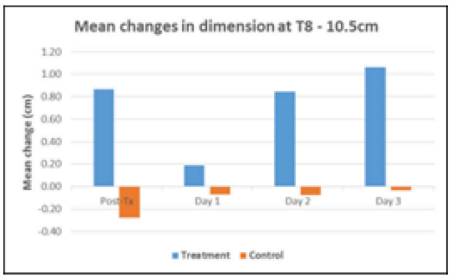
RESULTS:

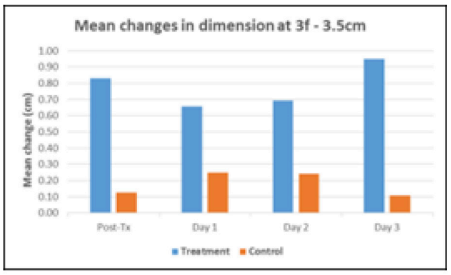
In the treatment group, positive mean changes in width dimensions were significant ($p<0.05$) at the 10.5cm distance lateroventral to the dorsal midline at T8 ($p=0.049$) and at all three distances at 3f (3.5cm $p=0.016$, 7cm $p=0.009$ and 10.5cm $p=0.006$). Peak changes occurred immediately post-treatment and on Day 3. There were no significant changes ($p>0.05$) in dimension at any measurement location for the control group.

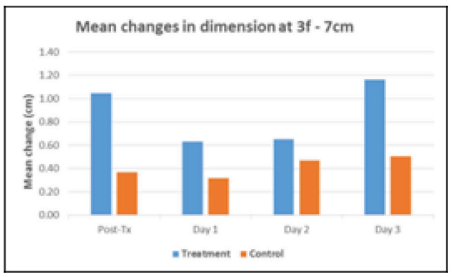
POTENTIAL RELEVANCE:

- *This study suggests that (McTimoney) chiropractic treatment can have a quantifiable effect on back dimensions immediately post-treatment , and up to 3 days after treatment.*
- *This may have implications on saddle-fit assessment during this time period*

Figure 4: Flexicurve Ruler measure sites







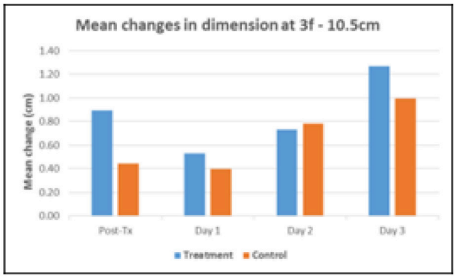


Figure 5: Bar charts showing mean changes in back dimensions

McTimoney Research
Therapeutic Effects

Equine back pathologies present an ongoing concern within the equine industry, impacting negatively on performance and welfare (De Heus et al., 2010). Pressure algometry is an established measure of mechanical nociceptive thresholds (MNTs) with increased MNT values suggesting a reduction in sensitivity to musculoskeletal tenderness (Haussler and Erb, 2006).

Figure 6: Digital pressure algometer

Rossa et al (2015) studied the **effects of McTimoney chiropractic and instrument assisted chiropractic on spinal mechanical nociceptive thresholds (MNTs) of thoracolumbar and lumbosacral musculature of thoroughbred flat racehorses without clinical signs.** The aim of this study was to assess the influence of a manual chiropractic technique (McTimoney) compared to the instrument assisted chiropractic using an Integrator. The Integrator reproduces the thrust and movement components of the toggle recoil classic hand adjustment. Pressure algometry (PA) provided an established and repeatable method for assessing mechanical nociceptive thresholds (MNT's) to indicate pain perception levels.

24 horses were selected with no signs of lameness or back pain. Horses were randomly assigned into 3 equal groups; a control group with no treatment intervention, and two treatment groups, one receiving McTimoney treatment and the other instrument assisted chiropractic using an Integrator. Triplicate MNT's were measured 8-10cm lateral to the dorsal midline at five bilateral anatomical sites along the thoracic and lumbar musculature using a digital pressure algometer by a single examiner blinded to the groups.

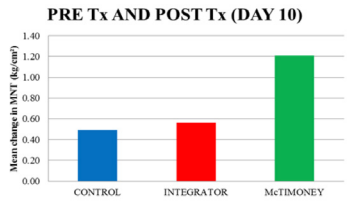


Figure 7: Mean Changes in MNT's from Pre-Treatment to Day 10

RESULTS:

Horses treated by McTimoney and instrument assisted chiropractic using an Integrator showed a statistically significant reduction in sensitivity to pain (indicated by increased MNTs) across measurement sites compared with the control group on Days 1, 3, 7 and 10 post treatment. McTimoney treatment appeared to have a longer lasting effect (day 10) on increasing MNTs compared to treatment with the Integrator.

POTENTIAL RELEVANCE:

- *Both treatments had a positive effect on horses in reducing sensitivity to pain over a 10 day period compared to no treatment.*
- *McTimoney Chiropractic appears to have a longer lasting effect (day 10) on increasing MNTs compared to treatment with the Integrator.*

Knowledge of effects of specific muscle tenderness on the equine gait may expand understanding of causes of equine gait abnormalities and lameness. Purchas et al (2017) studied **the potential effect of equine brachiocephalicus (EBc) muscle tenderness on forelimb (FL) kinematics.** Within this study, muscle tenderness refers to an increased sensitivity to pain quantified by pressure algometry, an established method for the measurement of mechanical nociceptive thresholds (MNTs). A single-blinded, controlled, randomised study with 14 horses assessed unridden in trot was conducted. Skin markers were applied bilaterally to four anatomical forelimb landmarks; (scapula spine, point of shoulder, point of elbow, centre to the pedal bone). Stride length (SL) and maximum shoulder extension angles (MAXANGLE) measurements were collected via 2D video analysis (Kinovea) in trot. A pressure algometer measured MNTs at the origin (wing of atlas), belly (between C6 & C7), and insertion (deltoid tuberosity) sites on the left and right EBc. Symmetry Indices (SI's), were calculated.

Figure 8: Brachiocephalicus muscle – MNT measurement sites

RESULTS:

There was no significant difference between left and right MNTs for all EBc sites. There was a negative correlation between the EBc insertion site MNT SI and SL SI ($r=-0.56$, $p= 0.04$). There was no correlation between origin and belly MNT SI's, SL SI's and MAXANGLE.

POTENTIAL RELEVANCE:

- *Evidence that asymmetrical muscle tenderness in a FL protractor muscle (EBc) may influence forelimb kinematics.*
- *The insertion of the EBc was the only MNT site to correlate with forelimb kinematics.*
- *When evaluating muscle tenderness by Pressure Algometry, site within the muscle is important.*

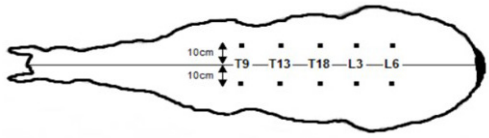
McTimoney Research **Therapeutic Effects**

McTimoney Chiropractic techniques focus on correction of joint dysfunction of the spine and pelvis to restore optimal nerve and muscle function and symmetry. Limited research on McTimoney Chiropractic influencing Mechanical Nociceptive Thresholds (MNTs) provided an opportunity for this to be quantified with further research.

Goodright et al (2018) conducted **a Preliminary Study Of The Effect Of Manual Chiropractic Treatment On Laterality Of Mechanical Nociceptive Thresholds (MNTs) In Thoroughbred Racehorses**

A sample of 16 sound healthy point-to-point racehorses from the same yard and training schedule, were randomly assigned into two groups of eight. The treatment group received manual chiropractic by an experienced McTimoney animal practitioner; the control group received no intervention.

Triplicate MNTs were measured by a single examiner using a pressure algometer at five bilateral anatomical sites along the spine immediately pre-treatment, 2hr post treatment and at 2-, 7- and 14-days post-treatment.



RESULTS:

Combining left/right datasets, significant difference between treatment and control groups at T13, L6 only pre-treatment and L6 on d7. Right side only, significant difference between treatment and control groups at T13, T18, L3, L6 from post treatment to d7, significant difference *(P<0.05) ** (P<0.001). Left side only, significant difference(p=0.04) between control and treatment groups at T13 post treatment only

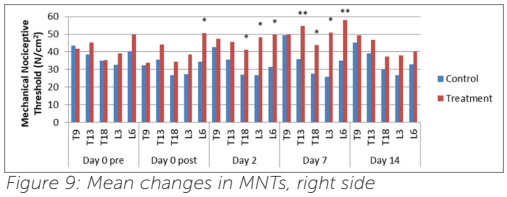


Figure 9: Mean changes in MNTs, right side

POTENTIAL RELEVANCE:

- *Evidence to support reduced sensitivity to pain in thoracolumbar musculature following manual chiropractic treatment*
- *Differences in left and right MNT measures of the back musculature following chiropractic should be assessed independently and are important to consider*
- *Further research is warranted with larger cohorts*

McTimoney chiropractic treatment (MCT) and pulsed electromagnetic field therapy (PEMF) and static magnetic therapy (SMT) are used in therapeutic protocols in animals. MCT is a high velocity low amplitude spinal manipulation therapy, produces profound but transient attenuation of motor neurone activity. PEMF reduces muscle and fascial tension, providing perceived pain-relief. SMT claim to be beneficial in prevention and treatment of musculoskeletal injuries, increasing blood flow, reducing muscle tension and tenderness but are supported by subjective evidence only. Evidence to support the duration of these therapeutic effects and the effect of combined use could provide enhanced treatment protocols and improve welfare.

Vorster et al (2018) investigated **the effects of McTimoney chiropractic treatment, Static Magnetic therapy and a combined treatment intervention on the Mechanical Nociceptive Threshold (MNT) values in Thoroughbred Racehorses.**

A sample of 40, sound healthy 2-year-old Thoroughbred racehorses from the same yard and training schedule were randomly assigned into four groups of 10. The control group received no intervention, the McTimoney group(MCT) received chiropractic treatment, the rug-only group wore a static magnetic rug(20 fixed uni-polar magnets(1000 gauss) for 60 minutes per day and the combined group received both chiropractic and rug treatment.

Triplicate MNTs were measured by a single examiner using a pressure algometer at five bilateral anatomical sites along the spine immediately pre and post treatment and at 1,7- and 14-days post treatment.

RESULTS:

Significant (p<0.001) increase in mean MNTs Pre-Tx to Day 14 for ALL Treatment Groups. Significant (p<0.05) decrease in mean MNTs Pre-Tx to Day 14 for Control Group. Significant (P<0.05) difference in mean MNTs between control and all treatment groups post treatment. Post-Tx significant change in MNTs d7 & d14 for McT and combined but only d14 for Magnetic group.

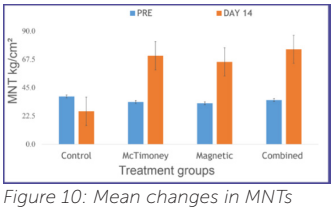


Figure 10: Mean changes in MNTs

POTENTIAL RELEVANCE:

- *Evidence of a positive effect of McTimoney Chiropractic and 1000gauss Static Magnetic Rug on back muscle sensitivity to pain in horses*
- *Implications for welfare and performance*

Similarly, Davey et al (2021) carried out a preliminary investigation into **the effects of chiropractic treatment (CT) and combined with PEMF therapy on MNTs of horses.** The effect on sensitivity to pain was investigated at 3 specific muscular trigger points of the equine back muscles. [TP45: junction between spinalis, longissimus thoracis and trapezius thoracis; TP47: Longissimus thoracis et lumborum; TP62: Gluteus medius] (Equinology™).
12 sound cob-type horses from the same yard and training schedule was randomly assigned into three groups (n=4). The control group (No intervention), the MCT group (Chiropractic treatment only), the combined group (Chiropractic treatment plus PEMF therapy. Biomag 2TM mat-200Hz placed cranial to T18, 5mins per side). Triplicate MNTs were measured on both sides by a single examiner using a pressure algometer at the 3 muscular junction trigger points(TP) over 4 time points: 0 (pre-treatment), 30mins (post MCT), 60mins (post PEMF), 150mins.

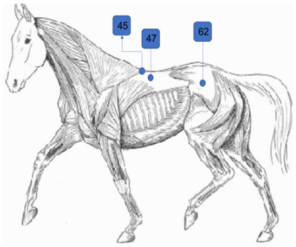


Figure 11: Location of muscular trigger points

RESULTS:

No significant changes in mean MNTs at all TPs for control group over time. Significant increase in mean MNTs for both treatment groups pre-treatment to 150 mins. Significant changes in MNTs for both treatment groups at each TP.

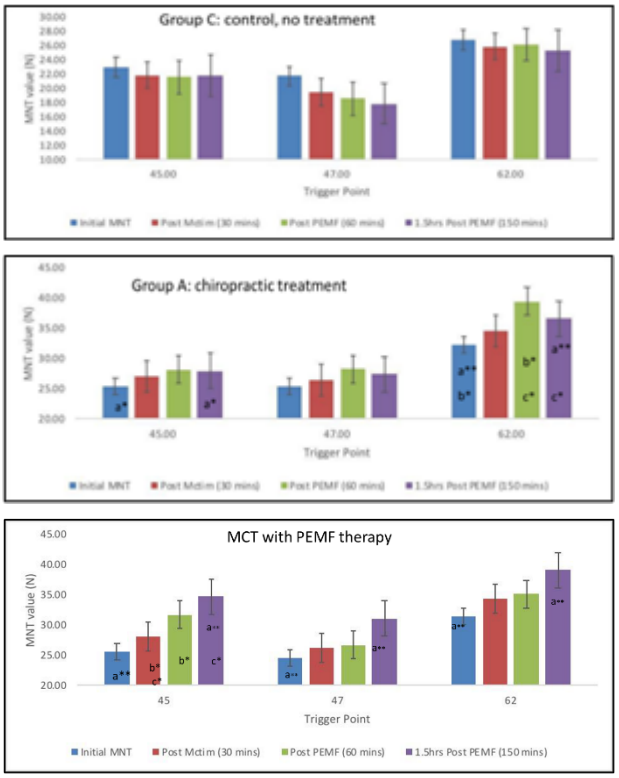


Figure 12: Mean MNTs for groups (letters denote siginficant differences between time points)

Credible evidence now supports that chiropractic treatment(CT) of the equine spinal misalignments helps restore joint range of motion(ROM) improving soft tissue function whilst diminishing pain. Correspondingly myofascial release(MFR) acts by reducing myofascial constrictions, increasing spinal vertebrae joint ROM.

Wenman et al (2022) investigated **the effects of chiropractic treatment (CT), myofascial release (MFR), and a combined treatment on mechanical nociceptive thresholds of horses.** The study aim was to objectively investigate the effect of CT and MFR treatments over time, and to ascertain if combining these two therapeutic modalities produced a synergistic effect. The established method of Pressure Algometry (PA) was again used.

20 riding school horses with no known back pathologies, aged between 5 and 15 years were randomly allocated to four groups(n=5), control group (no intervention), CT, MFR, and combined(MFR+CT) treatment groups. Treatments were undertaken by a single qualified McTimoney animal practitioner. PA measures were taken blinded to groups. Triplicate MNTs were measured bilaterally on the epaxial muscles 10 cm ventral to the spine at T9, T13, L3 and L6, pre-treatment, post-treatment, Day 1, and Day 7 post treatment.

RESULTS:

There was no significant difference (p>0.05) pre-treatment to Day 7 for neither the control nor MFR group. There was a significant increase in mean MNTs pre-treatment to Day 7 for both the CT and combined MFR & CT treatment groups, of 9.25% and 32.34% respectively.

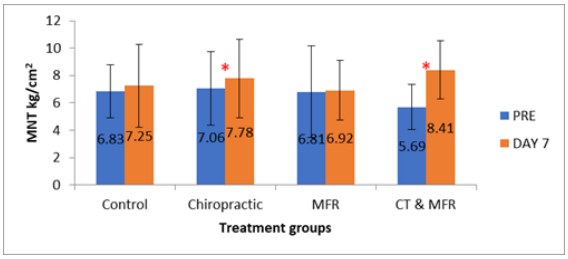


Figure 13: Mean MNTs pre-treatment and Day 7 for all groups.
** indicates significance (p<0.05)*

POTENTIAL RELEVANCE:

- *Evidence of a positive effect of a single CT and with PEMF treatment on back muscle sensitivity to pain in horses. PEMF only was not investigated.*
- *Positive evidence that a single CT and combined treatment of MFR and CT illicit statistically significant reductions in musculoskeletal tenderness of equine thoracolumbar musculature, for up to 7 days, when compared to no treatment and MFR alone.*
- *Further investigation is warranted with larger cohorts and over a longer time periods.*

McTimoney Research
Pelvic Effects

Straightness and symmetry are increasingly recognised as important factors to consider in animals for improving performance. Asymmetry between the left-right tuber coxae (L-R TC) height may or can indicate restriction in the range of rotation of the pelvis around the axis.

Trott et al. (2012) **investigated the effect of (McTimoney) chiropractic treatment on the axial rotation of the equine pelvis.** Fourteen riding horses (mean age 12.6yrs, mean height 165cm) were measured at the dorsal aspect of the left and right Tuber coxae to level floor, before, immediately after a single McTimoney treatment, and 2, 10, 21 days post.

RESULTS:

There was a significant reduction in L-R TC height difference and this was maintained throughout the 3 week assessment period following treatment. Mean L-R TC height differences compared to pre-treatment revealed an immediate significant decrease ($p<0.001$) which was maintained for at least 21 days post treatment ($p<0.05$).

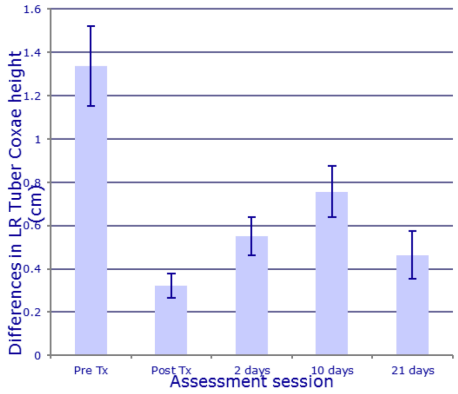


Figure 14: A bar chart showing the mean left-right tuber coxae

POTENTIAL RELEVANCE:

- *Asymmetry in the pelvis is often noted in riding horses.*
- *Positive evidence that postural pelvic symmetry can be improved with (McTimoney) chiropractic treatment for at least a 3 week period.*
- *With increased postural symmetry of the pelvis, movement and muscle development will be potentially more symmetrical, improving performance.*

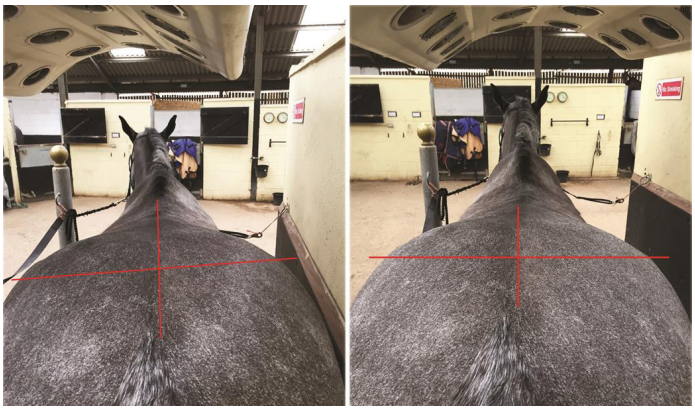


Figure 15: Examples of asymmetry of pelvis before and straighter pelvis after McTimoney treatment.

The importance of symmetrical development and skeletal alignment in the adult equine athlete, and its relationship with career success and longevity is widely acknowledged. The effect on skeletal alignment and how it could influence the maturation from foal to adult requires equal consideration. The act of parturition has the potential to have a subtle effect on the musculoskeletal system of the foal, without the foal necessarily showing external symptoms. This lack of external symptoms could lead to issues as the musculoskeletal system begins to develop and mature.

A study by Stroud et al (2016) investigated **the prevalence and progression of pelvic axial rotations among neonate foals.** 10 healthy foals were used (4 colts, 6 fillies) in the study, and triplicate measurements of the left and right tuber coxae heights were taken vertically from the dorsal aspect to level ground. Measures were taken at three time periods: 0-1 week, 4-5 weeks, and 8-9 weeks of age. A novel method of measurement was used in the form of two laser measures applied simultaneously that had been tested for and demonstrated acceptable repeatability of measurement.

Foals had their first turnout between the first and second data collections, and a questionnaire provided qualitative data in order to analyse potentially influential variables. Symmetry indices were calculated from raw data and were statistically analysed using appropriate inferential tests.

RESULTS:

There was a significant presence of axial rotation of the pelvis (asymmetry) compared to pelvic symmetry within 0-1 week of age (mean SI = 0.337 $\pm$ 0.25, $p<0.01$). These asymmetries did not change significantly between week 0-1 and week 8-9. There was no significant difference of asymmetry between week 0-1 and week 4-5 suggesting that turnout did not influence the prevalence of pelvic axial rotation in foals. Gender had no significant effect on pelvic asymmetry and foals of mares that gave birth standing up displayed significant greater asymmetry of the pelvis during week 0-1 when compared to foals of mares that gave birth in a recumbent position (mean SI $\pm$ SD: recumbent 0.25 $\pm$ 0.66; standing 0.69 $\pm$ 0.48; $p< 0.05$).

POTENTIAL RELEVANCE:

- *Indication that pelvic asymmetries may be present in new born foals or develop very early on.*
- *Whether it's because of birth itself or as a result of the attempts to stand and the consequent locomotor efforts is an area that requires further study.*

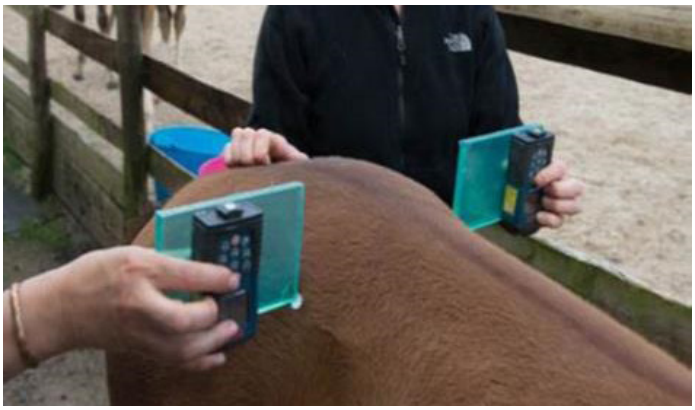


Figure 16: Tuber coxae heights using modified laser measures

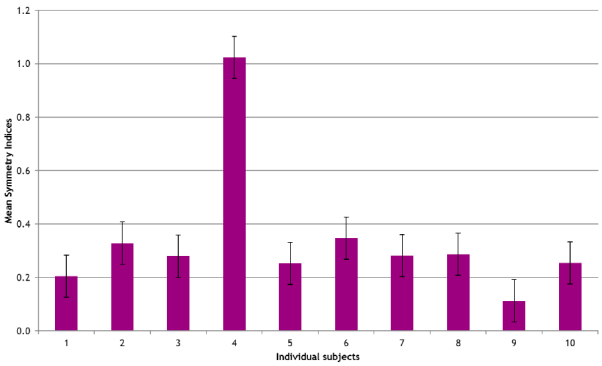


Figure 17: Mean symmetry indices of individual foals during week 0-1

McTimoney Research **Pelvic Effects**

Previous studies support McTimoney Chiropractic techniques in improving pelvic axial symmetry. Gait analysis, however, often focuses on movement in the sagittal plane. Coronal plane movement (adduction/abduction) of the limbs may provide further information when assessing pelvic asymmetry as part of an objective lameness assessment and the lateral gait movement of equine limbs may be sensitive to the correction of pelvic axial symmetry.

Collis et al (2021) **conducted a preliminary investigation of the coronal range of limb movement in horses and its relationship to pelvic symmetry** in a group of 13 sound, healthy riding horses from the same yard and routine.

Prior to data collection, the horses were acclimatised to wearing boots daily for 1 week to facilitate the attachment of a Pegasus triaxial accelerometer/data logger.

With the horses standing square, triplicate tuber coxae (TC) heights were measured from the dorsal aspect to level ground using a plumb line. The difference between the mean for each horse indicated direction and value of asymmetry relative to zero as symmetry.

The Pegasus device measured sagittal and coronal limb movement of each metatarsal and metacarpal at trot on level ground over 10 strides. Data was collected before and after each horse received manual McTimoney chiropractic treatment to the pelvis relative to assessed rotation and tilt. Assessment and treatment was carried out by a qualified McTimoney animal practitioner.

RESULTS:

Before treatment:
77% of horses had right ventral pelvic rotation.
Significant correlation (p=0.03) between pelvic TC height asymmetry and left hind CRM.
No significant difference between left and right CRM for hindlimbs or forelimbs (p=0.26)

After treatment:
Significant reduction in mean TC height discrepancy (p=0.002). Mean TC height discrepancy: 1.69cm ± 0.99 before; 0.42cm ± 0.61 after. CRM for right forelimb was significantly less than left forelimb (p=0.005). CRM for left hindlimb was significantly less than right hind limb(p=0.03). No associations between TC height asymmetry and CRM of forelimb or hindlimb (p>0.05). No significant difference between saggital ROM of left or right hock, fore and hind cannon before or after treatment (p>0.05).

	Mean± s.d CRM (*significant difference)			
	Hind limb		Fore limb	
	left	right	left	right
Before	12.77±2.53	13.83±3.8	16.17±6.41	18.36±8.25
After treatment	10.82±2.05*	12.98±2.84*	22.22±9.73**	15.40±7.37**

POTENTIAL RELEVANCE:

- *Correction of pelvic axial asymmetry by chiropractic method has an immediate effect on coronal movement range symmetry of hind and fore limbs that was not associated with saggital ROM.*
- *The sensitivity of lateral gait movement of limbs to the symmetry correction of the pelvis may have implications when assessing and improving horse gait and performance*
- *Further study would be required with larger cohorts and effects over time to establish a relationship between pelvic symmetry and coronal movement range.*

McTimoney Research
Kinematic Effects

Signs of back pain and spinal dysfunction can affect limb kinematics including asymmetric or restricted joint motion. Guest et al (2014) studied the **effects of chiropractic treatment on the range of motion of the carpus and tarsus of horses.**

Joint range of motion (ROM) is the degrees difference between joint flexion and extension. Hemispherical 35mm markers were applied to 7 anatomical landmarks of both forelimbs and both hindlimbs of 10 sound, healthy horses from the same riding school with similar workload. The treatment group (n=5) received (McTimoney) chiropractic treatment. 2-D kinematic data at walk and trot, 1 day before treatment, day of treatment and 7 days post treatment, was collected for all horses using two digital video recorders, filming both sides concurrently. Data was analysed using Kinovea software, minimum and maximum joint angles were measured and ROM calculated.

RESULTS:

Post treatment, significant increases in joint ROM occurred for the control and treatment groups on left side at walk and trot. However, only the treatment group significantly increased ROM on the right side for the carpus at walk ($p=0.04$) and trot ($p=0.02$). For the treatment group, there was a significant change in carpus ROM asymmetry from left towards neutral at walk ($p=0.004$) and trot ($p=0.04$). Also, tarsus ROM asymmetry change from left towards neutral was significant ($p=0.02$) at trot. There were no such significant effects for the control group.

POTENTIAL RELEVANCE:

- *Positive evidence that (McTimoney) chiropractic treatment may help to improve the symmetry of tarsus and carpus ROM of horses.*

Figure 18: Markers and carpus joint extension and flexion ROM measures

Trott et al. (2012) investigated **the effects of (McTimoney) chiropractic treatment on stride parameters during trot.** Seventeen sound horses were randomised into treatment (n=12, mean age=11 years, mean height=160.6cm) and control (n=5, mean age=10 years, mean height=160.5cm) groups. Horses were trotted in hand at self-selected speed immediately before and two days following a single McTimoney treatment.

Data were obtained using 2D gait analysis software. Average stride velocity (SV) and stride length (SL) were calculated from 4-6 left and right trot strides per horse.

RESULTS:

Prior to treatment, there was no significant differences ($p>0.05$) between the population data and average stride parameters for the 2 groups. There were significant increases in SL (mean SL (Day 0)= 2.25 ± 0.06 m, mean SL (Day 2)= 2.32 ± 0.04 m; $p<0.01$) and SV (mean SV (Day 0)= 3.21 ± 0.09 m/s, mean SV (Day 2)= 3.30 ± 0.07 m/s; $p<0.01$). There was no significant differences shown for the control group ($p>0.05$).

POTENTIAL RELEVANCE:

- *Positive evidence that McTimoney treatment may influence equine stride length and speed (forwardness) of the horse during trot.*
- *Further evidence is required to fully understand the impact in improving performance.*

McTimoney Research **Kinematic Effects**

When it comes to back care, size really doesn't matter. Little or nothing is known about musculoskeletal impact on elephants of bearing riders. Combined weight and multi-directional forces of multiple riders is likely to increase potential for musculoskeletal impact. Previous research has produced a database of 'normal' limb segment and joint angles for zoo elephants, a potentially useful benchmark for the identification of unusual limb movements in working elephants.

Selfridge et al (2016) chose to study a much larger mammal; the elephant. Size does not render the ridden elephant free from musculoskeletal compensation and thus risk of compromise. To further the knowledge of rider/saddle/animal interaction, she aimed to **determine whether African elephants carrying riders, with or without saddles, resulted in a change in mid stance (MS) angles and range of motion in the limb segments and joints.**

Five sound working safari elephants completed walking trials on firm level ground under eight different rider conditions; no rider, one, two and three riders, all with and without saddle. Self-adhesive retro-reflective markers were attached at ten anatomical locations; five on the left forelimb and five on the left hind limb. Digital video cameras recorded and data was analysed using 2D motion-analysis software. Forelimb and hind limb segment angles (relative to vertical) and joint angles (degrees) were measured at mid stance(MS); range of motion (ROM, degrees) from touch down to toe off was calculated for each valid (n=970) stride.

RESULTS:

The presence of rider(s) significantly influenced ($P<0.01$) a greater number of limb segments and joint angles in MS than the presence of a saddle. Rider(s) or saddle had no significant effect ($P>0.05$) on MS angles of forefoot, wrist joint, hindfoot or knee joint. At MS, upper arm angle of retraction increased with rider number; ankle joint angle reduced as rider number increased with no saddle; with saddle, there was no significant effect. Wrist joint ROM reductions were significant ($p<0.001$) for 3 riders with and without a saddle.

POTENTIAL RELEVANCE:

- *Presence of rider(s) influences limb kinematics in elephants indicating compensation for weight-bearing and the potential for musculoskeletal compromise.*
- *The use of a saddle may modify/reduce the level of risk for musculoskeletal compromise.*

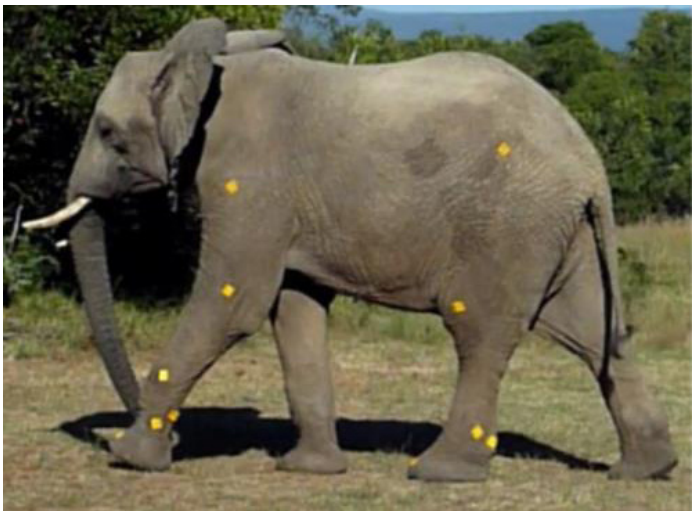
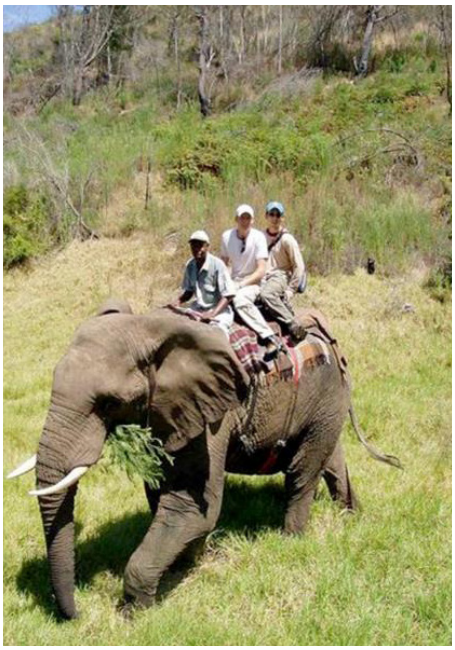


Figure 19: Position of anatomical markers on moving elephant



McTimoney Research

Joint Range of Motion

Hip dysplasia (HD) continues to be one of the most common orthopaedic diseases in dogs. HD is identified as a malformation of the coxofemoral (hip) joint. This can be due to malformation of the structure of the joint and/or from laxity of the muscles, connective tissue and ligaments that support the joint. It is a developmental disease attributed to genetic factors that may be modified by environmental factors. Dogs afflicted with HD can often show minimal to no clinical signs but it can progress to a highly debilitating condition.

Currently, prediction of measurement of hip dysplasia is only available through orthopaedic examination and pelvic radiographs. The BVA/KC uses radiographic abnormalities of the coxofemoral joint as well as joint laxity, from one clinical assessment, to suggest whether a dog may be more or less susceptible to degenerative joint disease and development of osteoarthritis (OA). It could be beneficial to be able to assess any progression of the disease on a more regular basis.

A study by Charlton et al. (2014) investigated how joint range of motion might be used to provide a method of monitoring the progression of hip dysplasia in dogs. Joint range of motion (ROM) describes the limits of which a particular joint can move in its physiological places of motion either actively or passively. Passive range of motion demonstrates the integrity of the joint capsule, ligaments, fascia and articular surfaces of the joint without the influence of muscle activity. The study aimed to provide **data on passive joint range of motion of the shoulder, elbow, hip, and stifle joints and to investigate whether any relationship existed between joint range of motion and to British Veterinary Association/Kennel Club hip scores.**

16 Kennel Club registered, healthy, and sound Siberian Husky dogs of mixed gender that lived and worked together were used in the study. Goniometry was used to measure passive joint ROM, as it's been shown to provide reliable and repeatable data in previous studies. Dogs were conscious, placed in lateral recumbency, and the specific bony landmarks were identified. Triplicate measures of joint flexion and extension on both side were taken. Wither height and body weight were also measured. Mean values of the measures were computed for each dog, and data was statistically analysed.

RESULTS:

There were significant differences between the left and right side ROM measurements of the hip ($p<0.01$), stifle($p<0.01$), shoulder($p<0.001$), and elbow($p<0.05$) joints. Joint flexion was the dominant effect. There was a significant correlation between both total and right side* BVA/KC hip score and joint ROM means for left elbow extension ($r=0.606$, $p<0.05$*) and right hip extension ($r=0.703$,$p<0.01$*). There was no significant laterality effect for neither hip nor elbow extension range of motion.

This study provides preliminary data on joint ROM and suggests that bilateral range of motion measurement is important to consider. Dogs tested radiographically to have a higher hip score on a particular side, may predispose to an increased extension range of that hip joint and the contralateral forelimb elbow extension.

POTENTIAL RELEVANCE:

- *This study could have implications in monitoring limb joint function of dogs with and without a hip score test as an indicator of sub clinical changes related to movement dysfunction.*

Figure 20: Elbow joint range of motion measured using a goniometer

McTimoney Research **Joint Range of Motion**

Research into musculoskeletal imbalance and differences between left and right side joint ROM in canines is limited. Relationships between thoracic and pelvic limb structure and function have been observed, however, there is little peer reviewed research.

Using passive joint ROM measures, Soper et al. (2022) investigated **the laterality differences of range of motion during flexion and extension of canine proximal limb joints** with the aim to assess and compare left and right-side flexion and extension of the shoulder, elbow, hip and stifle joints and for laterality ROM differences.

Siberian husky dogs(n=18) from a single kennel who live and work together were selected to minimise genetic and environmental effects. Dogs were age (mean±S.D.(range)):5.1±3.2(1.4-11.8) years. Passive joint ROM was measured using goniometry by the same investigator previously tested for acceptable repeatability of measurement. Dogs were conscious and placed in a standing position. Specific bony landmarks were identified. Triplicate measures of joint flexion and extension were taken on both sides of each dog for shoulder, elbow, hip and stifle joints. Mean values of measures were computed and statistically analysed for laterality of joint ROM, gender, age (<6yrs vs >6yrs) effects.

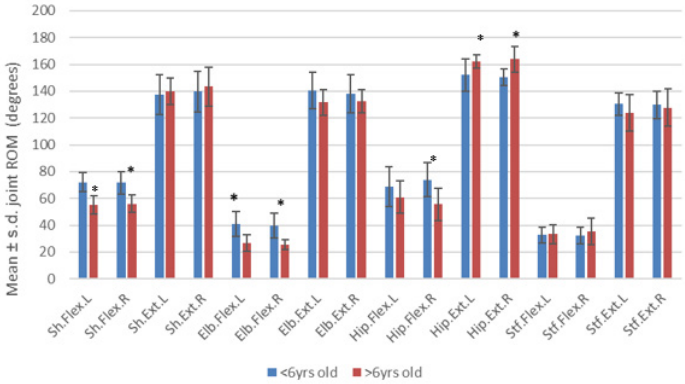


Figure 21. Bar chart of mean joint flexion and extension ROM for age groups
**denotes significance difference between groups*

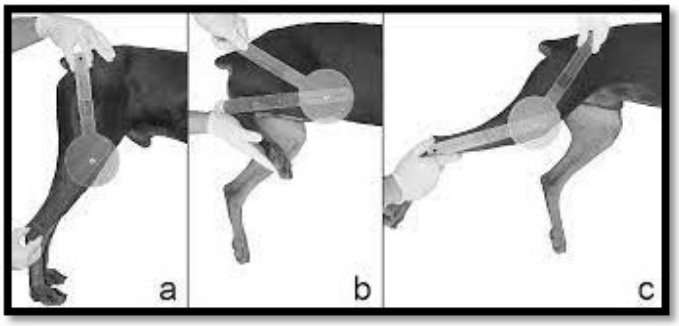


Figure 22. Example of goniometer placement (stifle) in a standing dog

RESULTS:

Flexion and extension measures for all joints: there was no significant difference (p>0.05) between left and right-side and no significant effect (p>0.05) of gender.

Age (<6yrs vs >6yrs) had a significant effect on right hip flexion(p=0.0009) and for both left and right sides for shoulder flexion(p=0.0002 and p=0.0004), elbow flexion(p=0.001 and p=0.0006), hip extension(p=0.02 and p=0.009)(figure1).

The shoulder joint showed greatest ROM asymmetry (SI=3.63%). Joint asymmetry was minimal for elbow (SI=0.1%), stifle (SI=0.63%) and hip (SI=1%) joints.

POTENTIAL RELEVANCE:

- *This further supports that bilateral ROM measures are important to consider in joint movement assessment and particularly for older dogs.*
- *Joints can show difference preference in asymmetry of passive ROM.*
- *This warrants further investigation with larger cohorts of defined age groups and could have implications in monitoring limb joint function of dogs.*

Injury in the thoroughbred (TB) racehorse is the greatest source of lost training days and time off the racetrack, with Repetitive Strain Injury (RSI) identified as the most common cause of musculoskeletal failure (Reed et al 2013). Joint dysfunction and asymmetry are strong indicators for the uneven loading of bones and joints and consequent RSI yet, to date, there has been limited research in support of symmetrical horses being less likely to develop RSI.

O'Brien et al (2018) investigated **the relationship between the age at which training the National Hunt Thoroughbred Racehorse commences and skeletal symmetry.**

In a controlled study using 16 sound TB racehorses in a similar training routine at a single racing stable, horses were assessed manually for symmetry of the neck, spine and pelvis by a qualified McTimoney Animal Practitioner. The horses were assigned into two groups by age; four year olds (4yo) that began training at three years and five year olds (5yo) that began training at four years. Each group contained six geldings and two mares. Assessments took place on the same day at the same location on a level concrete floor and misalignments (MAs) at specific anatomical locations noted.

The mean numbers of MAs were calculated by group according to age and anatomical location and expressed as a percentage of the total number of possible MAs in a horse.

RESULTS:

Comparison of the percentage of possible MAs for each group at each location indicated a difference between the two groups.

Table 1 Percentage of MA from possible MA by Anatomical Area and Age

Anatomical Area	% MA from possible MA		Mean	SD	Range	Mean	SD	Range
	4yo	5yo	4yo			5yo		
Cervical	32.14	39.29	2.25	0.71	1 – 3	2.75	1.58	0 – 5
Thoracic	35.00	38.33	5.25	2.87	0 – 8	5.75	3.11	1 – 10
Lumbar	14.58	31.25	0.88	0.99	0 – 2	1.88	1.89	0 – 5
Pelvis	12.50	25.00	0.38	0.52	0 – 1	0.75	1.04	0 – 2

Mean number of MA's in the cervical spine of the 4yo's was statistically different to the 5yo's (p=0.049).

Mean number of horses with misalignment of pelvis was statistically significance (p=0.0004) between groups.

POTENTIAL RELEVANCE:

- *Positive support for the commencement of training of racehorses at 3, rather than 4 years of age*
- *Further research into the relationship between training and skeletal symmetry with a larger cohort of participants is warranted and recommended*

The effect that vertebral alignment, as measured by chiropractic palpation, may have on a horses' performance is an area of research that could improve understanding of its importance and inform training regimes. Research has shown the positive effects of McTimoney chiropractic in relation to muscle tone (Wakeling et al, 2006, Langstone et al, 2015) and horse kinematics (Guest et al, 2014).

Keay et al (2018) investigated **the effect of the relationship between spinal vertebrae alignment and the performance of FEI international 1* event horses at a British Eventing competition.**

This cross-section observational study used 19 randomly selected sound horses competing at a British Eventing (BE) FEI 1* event. The aim to determine whether a relationship exists between the number of vertebral misalignments (MAs) and/or the pelvic symmetry index (SI) and the overall placings of the selected horses.

The day before competition, each horse, standing square on a level surface, was assessed by palpation for cervical, thoracic and lumbar MAs and pelvic asymmetry was measured using a plumb line technique. After each phase of the competition (dressage, cross country, show jumping), Spearman's Rank correlation was applied to test for association between placings (each phase and overall) and the number of spinal misalignments and pelvic SI.

RESULTS:

Horses with a lower total number of misalignments were more likely to be placed higher in a FEI 1* eventing competition (r=0.636,p=0.002).

Horses with a lower number of MA's in cervical, thoracic and lumbar regions were more likely to have a higher placing after the cross country phase (r=0.715, p=0.0005) and those with a more symmetrical pelvis tended to be placed higher in dressage (r=-0.539, p=0.01) and overall (r=-0.477, p=0.038).

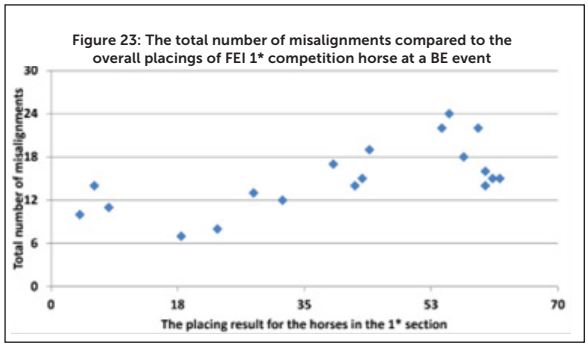


Figure 23: The total number of misalignments compared to the overall placings of FEI 1* competition horse at a BE event

POTENTIAL RELEVANCE:

- *Reducing the number of misalignments, potentially by manipulative therapy, could improve performance at eventing competitions.*
- *Further research of the effect of the presence and correction of MAs related to performance is recommended.*

McTimoney Research
Equine Feeding

Knowledge of how the environment may influence the musculoskeletal system is vital when it comes to limiting the prevalence of future issues but also when designing an appropriate rehabilitation programme. It allows practitioners to specify certain limitations during the process of returning to optimal movement and function, and further develops our holistic understanding of the underlying processes leading to dysfunction of the neuro-musculoskeletal system.

There have been numerous studies on how exercise regimes, schooling surfaces, and tack influence the horse, but very little has been done on the stable management practises of domestic horses. Modern stabling systems often offer quite the opposite to what a horse would be doing in the wild. This could lead to questions on how this may influence the horses' musculoskeletal system.

Evidence on the subject of how feeding could affect overall musculoskeletal health is largely anecdotal with very little scientific research. In modern stabling routines, the use of a hay net or similar container to feed forage is common, due to the desire to reduce wastage found when feeding from the floor. The influence of head and neck position has been studied in regard to its biomechanical effect during locomotion, but quantifiable data on the horse at rest is very limited. A study conducted by Speaight et al (2016) investigated the **possible effects of head and neck position during feeding on the alignment of the cervical vertebrae in horses.**

Using a crossover study twelve horses (4-14 years, mixed sex, at a similar work level) were fed hay from three different sources (haynet, Hay Bar, floor) spending 14 days in each condition. All horses were fed hay from the same source (similar quality) and all had been examined by a veterinarian or equine dental technician within six months of the study starting. All horses received four (McTimoney) chiropractic treatments by a qualified therapist blinded to treatments at time periods 0, 14, 28 and 42 days each at the start of a new condition.

Duplicate palpations for vertebral asymmetries and soft tissue tension (poll, neck, shoulder, pectoral, thoracic, lumbar and gluteal regions) were noted and recorded by the investigator. Behavioural reactions were also taken into account. Frequency data were analysed using chi-squared tests using a two-way contingency table.

RESULTS:

There was no significant association between forage feeding method and frequency of atlas rotation misalignment, atlas tilt or cervical vertebrae misalignment. There was a significant association between muscle tension frequency in fore and hind quarters and feeding method ($p<0.05$).

There was a higher frequency of horses with neck muscle tension following the hay net (36%) and hay bar (41%) condition but lower frequency following the floor condition (17%).

Following the haynet condition, all horses showed muscular tension in noted areas of the body compared to the floor and hay bar conditions where a percentage of participants (33% and 16% respectively) had no muscular tension noted.

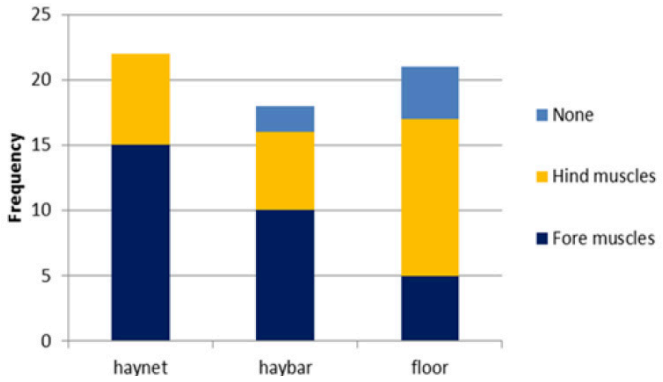


Figure 24: Bar chart showing the frequency of palpable muscle ten-sion in different regions of the body following each test condition

POTENTIAL RELEVANCE:

- *This study suggests that the method of feeding forage to horses may have an effect on the musculoskeletal system, with notable differences in areas of muscle tension.*
- *Further research is needed to develop a more thorough understanding of the effects of feeding position on musculoskeletal health, as well as implications to rehabilitation.*

McTimoney Research

Horse-Saddle-Rider interaction

In terms of managing ridden performance, the saddle is one of the most important factors. Exactly how the horse's back interacts with the saddle has been studied quite extensively, in an effort to better understand the biomechanical implications of how a saddle fits the horse.

Back problems in the horse are recognised as an important factor in performance impairment and research has shown that saddle fit is often key in the development of these issues. Increasing our knowledge of how the body moves; understanding the forces acting on the body and how each component interacts with the other, studies have discovered that saddle fit significantly influences the forces acting on the horse's back during locomotion.

Increasingly, a more holistic and integrative approach when understanding and treating these issues is required to truly rehabilitate the horse, and complementary therapies have a large part to play.

Crosby-Jones et al (2015) provided **quantifiable scientific research of relationships between the effects of (McTimoney) chiropractic treatment and pressure measurements beneath the saddle.**

Twelve horses of various breeds and ages (4-16 years; 8 geldings and 4 mares 15.1hh-16.3hh) were ridden in their own saddles by the same rider (61kg) along a straight 30m track. The treatment group received (McTimoney) chiropractic treatment, and the control group received an assessment but no treatment was given. Mean overall pressure (MOP) and mean peak pressure (MPP) were measured at walk, rising trot, and sitting trot using a TekScan CONFORMat pressure sensing system. Readings were taken before and one day post treatment or post assessment for the control group. Pressure differentials (KPa) were calculated by comparing pre and post pressure values.

Figure 25: 30m straight ridden track

RESULTS:

Mean overall pressure differentials were greatest at rising trot (15%), sitting trot (12.5%), and then walk (9.5%), and the same pattern was seen in mean peak pressures. McTimoney chiropractic treatment significantly reduced mean overall pressures ($p<0.001$) and mean peak pressures ($p<0.001$) at all gaits but no significant difference was detected in the pre or post pressures for the control group. Pressure differentials were not affected by changing gait.

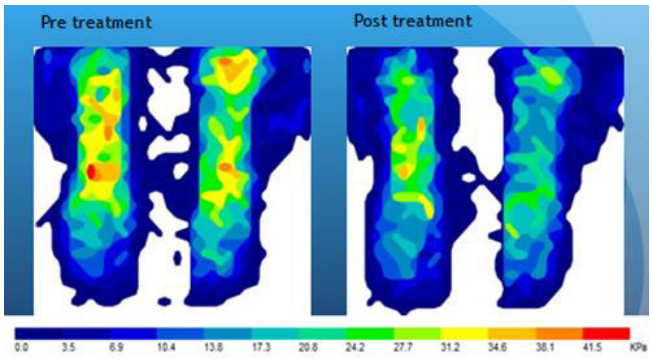


Figure 26: Mean overal pressure maps

This presents a question about the appropriate sequence when it comes to back treatment and saddle fitting; due to the fact we know that treatment can reduce pressures, is it therefore better to treat following a saddle fit, or does treating provide a more accurate picture of what the back would be doing normally without discomfort? Further research is required on longevity of the effects.

POTENTIAL RELEVANCE:

- *Positive evidence that (McTimoney) chiropractic treatment has an effect on the equine back and reduces mean pressure beneath the saddle up to one day following treatment.*

McTimoney Research **Horse-Saddle-Rider interaction**

The interaction between horse and rider is something which has been under increased scrutiny in recent years. How the rider and equipment influences the horse is a challenging and complex area. Areas of research to provide further understanding and so improve the performance of both will be beneficial.

Previous research has investigated effects such as axial rotation of the pelvis in horses with clinically diagnosed back problems, similarly in humans asymmetry of the pelvis has been thought to contribute to back pain. Study into the possible link between misalignment in the human and equine spine has been limited, but given the fact spinal alignment has been shown to cause pain in both species, further study in this area would be beneficial to the growing body of knowledge on the interaction between horse and rider.

Figure 27: example of rider/horse pelvic asymmetry

Browne et al. (2014) investigated **asymmetry of single horse and rider combinations focusing on pelvic asymmetry.** 14 single horse/rider combinations who had been together for at least 6 months, kept on the same routine and yard, were included in the study. Both the horse and rider were assessed for misalignment in the pelvis, spine and neck on the same day by a human/animal McTimoney practitioner.

Triplicate measurements were taken of rider pelvic asymmetry (mean values for distance between iliac crests and degrees of tilt) sitting and standing using a PALM palpation meter. Triplicate tuber coxae height of the horse's pelvis was measured using a plumb line. The difference between the two means gave a measurement for rotation of the pelvis.

RESULTS:

The degree of asymmetry of the horse pelvis with tuber coxae height discrepancy ranged from 0.2cm to 6.6.cm. 64% of horses showed asymmetry of the pelvis to the left and 36% to the right.

Riders mean IC height discrepancy, standing was 0.89 $\pm$ 0.64cm and sitting, 1.00 $\pm$ 0.66cm. There was no significant difference between sitting and standing measures.

Pelvis asymmetry occurred in..

-93% horse/rider combinations
-85% occurred in the same direction
-15% occurred in the opposite direction

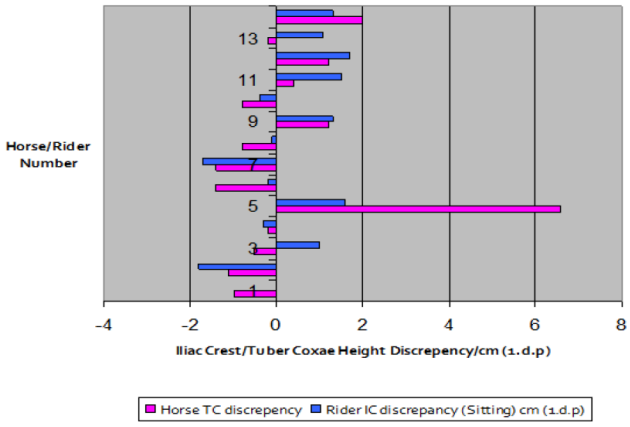


Figure 28: Bar chart showing individual horse TC vs rider IC height discrepancy

There was a significant positive correlation (R=0.4, F=8.24, p=0.014) between horse tuber coxae and rider iliac crest height discrepancies. No significant trends were discovered between misalignments of the spine and neck of the horse or rider when compared to pelvis asymmetry.

POTENTIAL RELEVANCE:

- *Positive evidence of a relationship between horse and rider pelvis asymmetry.*
- *Further reinforcement of the need for further understanding and recognition of the rider and horse interaction and implications for physical therapy treatment of both horse and rider.*

Whilst force measurements under the saddle have been well researched, other force contact point measures, such as the stirrups, have been considered briefly using a strain gauge between the iron and the leather. Knowledge of the effect of interactive forces between horse and rider on equine movement patterns may provide further understanding of the horse-saddle-rider interaction.

Rowe et al. (2017) investigated **the relationship between asymmetrical loading of the stirrups by the rider and hind-limb kinematics of the horse during rising trot.**

A controlled, randomised study using 20 sound horses with single horse/rider combinations. Rider stirrup force (SF) was assessed at rising trot on a riding simulator using riders' own saddles, with custom stirrups incorporating a force sensor. Force data (kg) was directly transcribed to a hardwired laptop. Horses were trotted up and ridden during a separate session in a controlled environment. Skin markers were applied to the dorsolateral hoof of both hind-limbs of the horse. 2D video analysis recorded three trials of trot step cycles in each direction in ridden (R), unridden with tack (UT), and unridden without tack (U) conditions. Peak flight arc (PFA) was assessed using Kinovea software. Symmetry indices (SI) were calculated from means.

RESULTS:

There were no significant differences between left and right mean, minimum or maximum SF. There were significant differences in PFA between left and right hind-limbs for all three conditions (p=0.01), but there was no significant difference between conditions.

Most horses (85% (R), 90% (UT) and 75% (U)) achieved a consistently greater left hind-limb PFA. There was a positive correlation between horse PFA SI and rider SF SI (r=0.5; p<0.05).

POTENTIAL RELEVANCE:

- *An increased asymmetry in hindlimb PFA correlated with a greater rider SF asymmetry.*
- *As PFA does not change when ridden or unridden, it may be suggested that the horse has some influence on the rider rather than the other way around.*

Figure 29:Peak flight arc measures using software

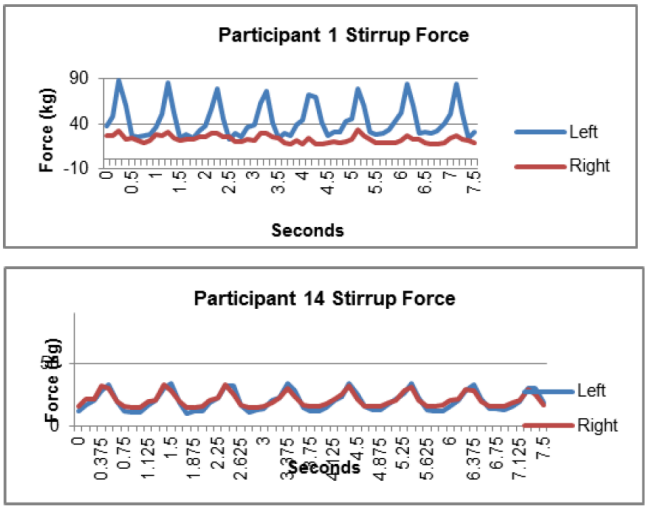


Figure 30: Examples of individual stirrup force data

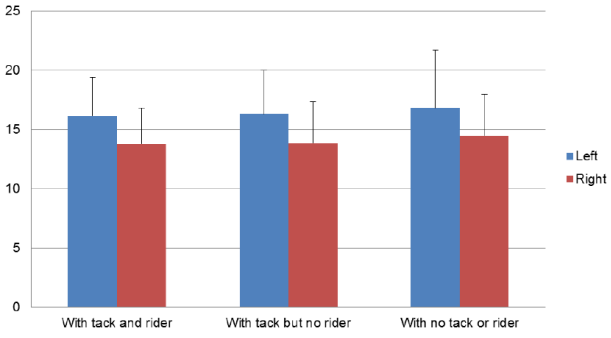


Figure 31: Horse PFA over all three conditions (mean+ 1 S.D) (p=0.01)

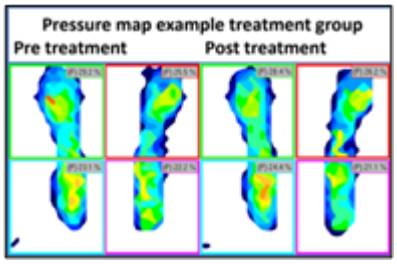
McTimoney Research **Horse-Saddle-Rider interaction**

The horse-saddle-rider interaction is recognised as an important factor in performance impairment (Greve and Dyson, 2012). The effects of rider and horse asymmetries on saddle force distribution have been identified (Gunst et al 2019) but understanding the effects of correcting rider asymmetries may provide further insight into horse-saddle-rider interaction.

With the aim of collecting data **on the effects of correcting rider asymmetries**, Ceccatelli et al (2021) investigated **the effect of chiropractic treatment for horse riders on pressure distribution beneath the saddle.**

Forty experienced horse-riders, with no major back issues, were assessed for leg length and pelvic rotation, tilt, torsion by the same McTimoney chiropractor.

Seated pressure distribution was measured for each rider using a static saddle horse with Tekscan Conformat pressure sensing system under a single close contact saddle at 'normal' stirrup length.



Mean overall pressure (MOP) was measured over a period of 10 seconds for front-back-left-right quadrants.

The riders were randomly allocated into two groups of 10; the treatment group received chiropractic treatment delivered by the same McTimoney chiropractor, the control group did not. Seated pressure distribution and MOP were recorded again for both groups and symmetry indices (SI) calculated from raw data

RESULTS:

Significant difference ($p<0.0001$) between anterior and posterior pressure symmetry identified for all riders. 80% of riders had a longer left leg with 90% association with inferior pelvic left tilt. MOP was highest on the anterior left quadrant. Treatment Group: There was a significant reduction in anterior MOP asymmetry. (Mean SI$\pm$SD: before treatment 11.2$\pm$6.1, post treatment 5.4$\pm$3.8, $p=0.003$) but not for posterior quadrants. Control Group: no significant change in asymmetry for the anterior or posterior quadrants.

POTENTIAL RELEVANCE:

- *Positive evidence that chiropractic treatment improves the weight distribution symmetry of the rider under the saddle immediately following treatment.*
- *Further research is required to understand the longer term effect of chiropractic treatment and repeated treatments on rider weight distribution on the saddle and its effect on the horse.*

With increasing use of physical therapy for both horse and rider, yet limited scientific research linking the horse, the rider and their symmetry together, Holmes et al (2021) investigated **the relationship between rider pelvic asymmetry and equine pelvic asymmetry in relation to the use of physical therapy.**

Two groups of 25 individual horse(age:6-14yrs) and rider(age:18-45yrs) combinations (minimum 6-month partners) were selected with inclusion/exclusion criteria. Treatment group, both horse and rider had received regular physical therapy (chiropractic, osteopathy, physiotherapy or sports massage therapy, four or more times per year). Control group, neither horse nor rider had received physical therapy treatment for at least 12 months prior to the study.

On level ground, triplicate measurements of horse tuber coxae (TC) heights (standing square) and rider anterior superior iliac spine (ASIS) (feet@30cm) to floor were taken using a plumb line. All measurements for both horses and riders were taken by the same person, blinded to the groups and symmetry indices (SI) calculated from raw data.

RESULTS:

- A significant difference was identified between treatment and control groups in pelvic symmetry of both horses ($p=0.00001$) and riders ($p=0.00003$)
- No significant correlation was identified between horse TC and rider ASIS asymmetry in treatment group ($p=0.34$) or control group ($p=0.6$)

POTENTIAL RELEVANCE:

- *Positive evidence that regular physical therapy for both horses and riders may improve pelvic symmetry measures of the horse and rider individually.*
- *Further research is warranted of the effects of individual physical therapy modalities on pelvic symmetry for both horse and riders individually and as a pair and in relation to performance parameters*

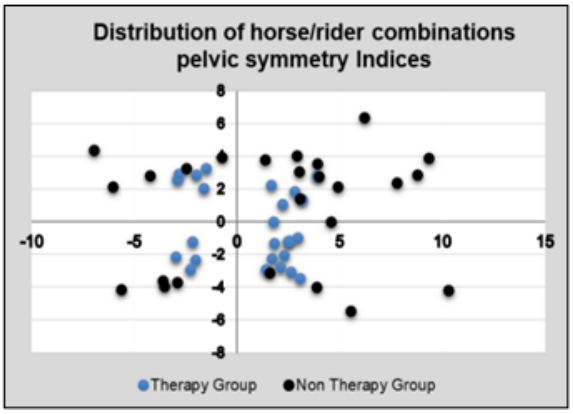


Figure 32: Distribution of horse/rider combinations pelvic symmetry Indices

McTimoney Research

References & Keyword Summary

Abstract	Scan for abstract	Published in:	Horse	Dog	Rider	Saddle	Chiropractic	Symmetry	Kinematics	Pelvis	Muscle	Performance
Browne, L., Hedderly, S., Charlton, S., Cunliffe, C. (2014) An investigation into relationships of horse and rider pelvic asymmetry		Advances in Animal Biosciences Vol 5 (1) March 2014; EVJ supplement, June 2014; International Conference on Equine Exercise Physiology, 2014.	■		■			■		■		
Ceccatelli G., Davidson V., Charlton S., Hunnisett A. (2021) The effect of chiropractic treatment for horse riders on the saddle pressure distribution beneath the saddle		Saddle Research Trust Conference,2021.			■	■	■					
Charlton, S., Ellis, J., Cunliffe, C. (2014) A preliminary study to investigate the range of motion of the proximal limb joints and relationships to BVA/KC hip score in dogs		Advances in Animal Biosciences Vol 5 (1) 2014; BSAVA congress proceedings, 2014.		■					■			
Collis N., Routledge N., Charlton S., Hunnisett A. (2021) A preliminary investigation of limb coronal movement range in horses and relationship to pelvic symmetry		British Society Animal Science congress 2021	■					■	■	■		
Crosby-Jones A., Routledge, N., Cunliffe, C. (2015) The effect of manual chiropractic (McTimoney) treatment on pressure measurements beneath the saddle		Saddle Research Trust conference, Cambridge, 2014.; Advances in Animal Biosciences Vol 6 (2) April 2015	■			■	■					
Dalton, J., Ellis, J., Routledge, N., Hunnisett, A (2017). A preliminary study of the effect of McTimoney chiropractic treatment on equine back dimensions typically evaluated in saddle fit in ridden horses.		Alltech-Hartpury Equine Student Conference, 2017	■			■	■					
Davey L., Davidson V., Charlton S., Hunnisett A. (2021) Preliminary investigation into the effects of chiropractic treatment and combined with pulsed electromagnetic field therapy on mechanical nociceptive thresholds of horses		Equine Science Society Symposium 2021 International Society Equitation Science 2021 Saddle Research Trust conference 2021	■				■				■	
Goodright, L., Charlton, S., Trott, S., Hunnisett, A. (2018) A preliminary study of the effect of manual chiropractic treatment on laterality of mechanical nociceptive thresholds (MNTs) in Thoroughbred racehorses		Saddle Research Trust conference 2018	■				■	■			■	
Guest, J., Hedderly, S., Charlton, S., Cunliffe, C. (2014) The effects of chiropractic treatment on the range of motion of the carpus and tarsus of horses		Advances in Animal Biosciences Vol 5 (1) March 2014; EVJ supplement, June 2014; International Conference on Equine Exercise Physiology, 2014.	■				■		■			

McTimoney Research **References & Keyword Summary**

Abstract	Scan for abstract	Published in:	Horse	Dog	Rider	Saddle	Chiropractic	Symmetry	Kinematics	Pelvis	Muscle	Performance
Holmes K., Punt E., Charlton S., Hunnisett A. (2021) An investigation into the relationship between rider pelvic asymmetry and equine pelvic asymmetry in relation to the use of physical therapy		Equine Science Society Symposium 2021 International Society Equitation Science 2021 Saddle Research Trust conference 2021	■		■			■		■		
Ireson, A., Ellis, J., Charlton, S., Cunliffe, C. (2014) An investigation into the relationship of pelvic misalignment on forelimb hoof size'		Advances in Animal Biosciences Vol 5 (1) March 2014; EVJ supplement, June 2014; International Conference on Equine Exercise Physiology, Chester, 2014	■					■		■		
Keay, R., Hedderly, S., Hunnisett, A. (2018) An investigation into the effect of the relationship between spinal vertebrae alignment and the performance of FEI international 1* event horses at a British Eventing		Alltech-Hartpury Equine Student Conference, 2018	■				■					■
Langstone, J., Ellis, J., Cunliffe, C. (2015) A preliminary study of the effect of manual chiropractic treatment on the splenius muscle in horses when measured by surface electromyography		Advances in Animal Biosciences Vol 6 (2) 2015; Equine Veterinary Journal, Vol 47, S48, Sept 2015	■				■				■	
O'Brien, R., Davidson,V., Hunnisett, A.(2018) Is there a relationship between the age at which training the National Hunt Thoroughbred Racehorse commences and chiropractic assessment of skeletal symmetry?		British Society Animal Science congress 2018	■				■	■				■
Purchas, A., Hedderly, S., Hunnisett, A (2017) A study investigating the potential effect of equine brachiocephalicus muscle tenderness on forelimb kinematics		Alltech-Hartpury Equine Student Conference, 2017	■						■		■	
Rossa, N., Charlton, S., Cunliffe, C. (2015) The effects of manual chiropractic (McTimoney) and instrument assisted chiropractic on spinal mechanical nociceptive thresholds (MNTs) in flat racehorses without clinical signs		Advances in Animal Biosciences Vol 6 (2) 2015; ISAMP conference, Warwick, 2014.	■				■				■	
Rowe, L.J., Lowes, T., Hunnisett, A (2017) An investigation into the relationship between asymmetrical loading of the stirrups by the rider and hind-limb kinematics of the horse during rising trot		Alltech-Hartpury Equine Student Conference, 2017	■		■			■	■			

McTimoney Research **References & Keyword Summary**

Abstract	Scan for abstract	Published in:	Horse	Dog	Rider	Saddle	Chiropractic	Symmetry	Kinematics	Pelvis	Muscle	Performance
Selfridge,J., Hedderley,S., Cunliffe, C. (2016) When it comes to back care, size really doesn't matter. In African safari elephants, does carrying a rider - or multiple riders - impact on musculoskeletal integrity?		Journal of Veterinary Science & Technology. 2016 7(5)			■	■			■			
Soper S., Charlton, S., Hunnisett, A. (2022) A preliminary investigation into laterality differences of range of motion during flexion and extension of canine proximal limb joints		International Association Veterinary Rehabilitation Therapy conference, Cambridge, 2022		■					■			
Speaight, E., Routledge, N., Charlton, S., Cunliffe, C. (2016) A preliminary study on the effects of head and neck position during feeding on the alignment of the cervical vertebrae in horses		Journal of Veterinary Behaviour: Clinical Applications and Research Sept/Oct 2016; International Society for Equitation Science conference, France, June 2016	■					■			■	
Stroud, R., Ellis, J., Hunnisett, A., Cunliffe, C. (2016) A preliminary study to investigate the prevalence and progression of pelvic axial rotations among neonate foals		Journal of Veterinary Behaviour: Clinical Applications and Research Sept/Oct 2016; Journal of Veterinary Science & Technology. 2016 7(5)	■					■		■		
Trott, S., Carey, T., Cunliffe, C. (2012) An investigation into the effects of McTimoney chiropractic treatment on the stride parameters of the horse during trot		ISES conference, Edinburgh, 2012; IAVRPT conference, Vienna, 2012.	■				■		■			
Trott, S., Ellis, J., Cunliffe, C. (2012) 'An investigation into the effects of McTimoney chiropractic treatment on axial rotation of the equine pelvis'		ISES conference, Edinburgh, 2012; IAVRPT conference, Vienna, 2012	■				■			■		
Vorster, N., Hedderly, S., Charlton, S., Hunnisett, A. (2018). Investigation of effects of chiropractic treatment, Static Magnetic therapy and a combined treatment intervention on the Mechanical Nociceptive Threshold values in Thoroughbred Racehorses		Alltech Hartpury conference 2018 Equine Performance Conference, Bishop Burton College, 2018	■				■				■	
Wenman, E., Routledge, N., Hunnisett, A. (2022) Preliminary investigation into the effects of chiropractic treatment, myofascial release and a combined treatment on mechanical nociceptive thresholds of horses		International Association Veterinary Rehabilitation Therapy (IAVRPT) conference, Cambridge, 2022	■				■				■	

McTimoney
Case Studies

CS1 - Direct Trauma
Henry - 5 years old

History - Henry is a family pet and during his usual play with a tennis ball he jumped up and twisted through his body landing hard on his hind legs. At first he seemed Ok but the following day he was in significant pain and unable to move freely. A trip to the vet confirmed that there were no fractures but he had severely strained his lower back and his muscles were in spasm. Painkillers and anti-inflammatory drugs were administered. These helped but he still had an unbalanced, stiff gait and wasn't his usually bouncy self.

With veterinary approval, McTimoney therapist Lucy Bounden's initial assessment concluded that there was a large rotation and tilt in Henry's pelvis to the right which was likely caused by the impact through the hindlimbs when Henry landed awkwardly when catching the ball. In compensation, his lumbar spine were rotated to the right, upper thoracic vertebrae rotated left, lower cervicals to the left, and upper cervicals to the right. Such misalignments along his spine caused the soft tissue structures to become tight and sore, resulting in restricted movement and an unhappy dog. McTimoney adjustments to the relevant areas of the spine and pelvis alongside soft tissue massage were used to treat Henry's condition. Henry had a total of 3 McTimoney treatments over a period of 5 weeks which improved his skeletal alignment and restored him back to his normal self.

CS2 - Compensatory Lameness
Ellie 17 years old

Ellie injured her suspensory ligament in the right fore. Despite following an advised rest period, she was still lame in trot, although sound in walk. Ellie was currently walking out with short periods of trot under the vet's advice to start with some work to strengthen it.

The lameness was worse on the right rein in the school but after ten minutes she moved a lot better. Her rider had also noticed that when bringing Ellie out of the stable, her backend was really stiff too.

Gait analysis revealed that Ellie was moving with her right hip much lower than left side when observing the pelvis. Treatment focused on rebalancing the pelvis which was found to be markedly rotated down on the right side with the lumbar spine L2-5 also curved right and upper back T7-9 curved left in a compensatory pattern. Ellie was tighter through the paravertebral long back muscles and gluteal region of hindquarters on right side compared to left. Within two days of treatment, Ellie was sound in trot, as reported by the her owner (who is herself a trained Equine Massage Therapist).

In these cases, where asymmetry and imbalance of the whole body affects the presentation of lameness symptoms in areas of previous injury, the McTimoney treatment is invaluable in reinstating correct spinal mobility and comfort, enabling a rehabilitation programme to progress properly without continued compensatory movement patterns, thereby improving the long term prognosis.

CS3 - All creatures great and small

McTimoney Animal Practitioner, Dianne Bradshaw, was called to assist an unfortunate three-week old lamb who had been squashed by a metal gate. Young lambs are a common sight at spring time, but this was an unusual patient for Dianne.

Dianne, who is based in Stroud, received a phone call from an anxious lady who was hand rearing a small lamb for the farmer next door. "It was soon after I qualified and I had only treated a few horses but she asked for my help and as I was going to that area to treat horses, I agreed to call in to see what I could do", explained Dianne. When she arrived, the lamb had done the splits on its rear hind legs as a metal gate had fallen onto him.

One leg was triple its regular size and the other was obviously numb and lifeless. The vet had already been and assessed the lamb and had given him steroids to help the swelling in the leg go down but there was no change to the other leg."

McTimoney Animal Practitioners use gentle light chiropractic techniques to help rebalance the skeletal system and restore normal functionality to the animal. The gentle application of the adjustments means that animals readily accept the treatment. "He was only too happy to let me use McTimoney manipulation to see if it would help", said Dianne. "As the lamb couldn't stand on his own, the lady and I had to support him so that I could palpate and assess him. I could then apply the adjustments he needed after which we sat him back down in his sitting position he had been.".

After the treatment, the lamb was watched closely by his carer as she eagerly awaited him to regain the spring in his step.

Dianne followed up with the client a few days later, "She reported that by the next day she saw him manage to get to his feet and was standing up. The following day the farmer brought his mum to join him and by day three they were put back out together in a small paddock." The familiar sight of lambs skipping across the fields at spring time is a privilege to witness and thanks to a McTimoney practitioner, this little lamb was able to race around the field, in true lamb style, once again.

McTimoney **Case Studies**

CS4 - My Special Cat
Frankie - 21 years old

Registered veterinary nurse, Emma Leaver, has owned her 21 year old cat, Frankie for fifteen years. Frankie didn't have the best start in life, Emma said, "Frankie was mistreated by her former owners and so went to the Faith Animal Rescue Centre in Hickling. When she first arrived she could be grumpy and didn't seem to really like people, which was of course totally understandable".

Soon, Frankie became an important member of Emma's family, Emma continued, "I was living at home when we first got Frankie. She was however very much my cat and was soon sleeping on my bed. Frankie has been very adaptable as I have moved house a couple of times since then and she has made the transition into new territories very easily. Very little phases her and she combines this with her wonderful fiery nature!"

However, as Frankie has got older, she has been suffering from arthritis and a digestive problem. Emma said, "I was starting to get worried about her as she was having prednisolone for her digestive problems and Tramadol for her arthritis. This was no life for her as she was starting to really resent having tablets twice a day. She had also started to get quite immobile and was sleeping a lot and generally being inactive".

Through her job as a veterinary nurse at the Old Golf House, Emma had spent time speaking to registered McTimoney Animal Practitioner, Claire Lawrence. Emma continued, "Claire mainly treats horses and dogs with McTimoney and I had heard lots of really positive feedback about the effect of the treatment. I discussed Frankie with Claire and we decided that Claire should give her a treatment and we would see how it went. Frankie can be quite fiery and so I was delighted to see that she enjoyed the treatment".

Claire found that Frankie had misalignments of her cervical vertebrae, lumbar vertebrae, and a tilted pelvis. Emma said, "Claire worked her way down Frankie's spine, gently realigning the vertebrae and helping her spine return to its full range of movement".

Further to her first McTimoney treatment, Emma was able to reduce Frankie's pain relief and following two subsequent treatments Frankie is no longer on any medication. Emma said, "It is great that Frankie's standard of life is so improved. She is back to her normal self and she is so much more active and friendly. In the last couple of weeks she has started sitting in front of me and lifting a paw to tap me with which she has never done before".

CS5 - Restoring Health and Performance

Fern - 7 years old

A seven-year-old horse, based in Droitwich, is now back to full health after McTimoney Animal Association Practitioner Jenna Churchill helped to identify a serious spinal condition. Fern, a home bred mare, use to be full of attitude but when owner Eve Wood noticed she wasn't herself she called Jenna to come and investigate.

Jenna treats all of Eve's horses regularly, "Jenna knows my horses well by personality as well as physically and always picks up on changes when she visits," explains Eve. McTimoney Practitioners are trained to realign the musculoskeletal system by use of their hands on very specific bony landmarks of the animals' skeleton. The speed of the adjustments to the skeleton releases the muscle spasm which is holding the skeletal system out of alignment therefore releasing the muscle spasm and allowing the skeletal system to realign.

In January last year Eve began to notice that Fern was not feeling herself, "She kept on dropping her hind leg when ridden, so we called Jenna" said Eve, who is yard manager at Rednall Farm & Stables. "All four of my horses accept Jenna's treatment happily and trust her, but this time there was something really wrong with Fern." During her treatment Jenna noticed that Fern was very unhappy "I suspected something more sinister was going on so referred her to the vet," explains Jenna. The vet later diagnosed Fern with kissing spine and she underwent surgery.

Fern made a full recovery and is being ridden by Rednall Farm & Stables' yard supervisor, Carla Pope. She said "Fern hunted last season and is continuing her training with some riding club activities through the summer." Eve is thrilled to see Fern fully functional again, "I trust Jenna implicitly with my horses and find her extremely professional. The horses work very hard in the winter, often working for six hours once or even twice a week if they are out hunting. Jenna's visits are vital to keep all four supple and sound and able cope with their work.

CS6 - Improving muscle function

Poppy - 9 months old

Poppy, was diagnosed with Legg Perthes disease of her left hind limb in early 2013 after having lameness issues. Natalie her owner describes how "at around 9 months old she stopped using one of her back legs and would just hold it up. X rays showed Poppy's hip joint hadn't formed properly and she needed an operation to correct it. The operation went fine, but for weeks afterwards Poppy still refused to use her leg. There was barely any muscle on it and I was starting to get worried, so my vet put me in touch with McTimoney Animal Practitioner, Jessica Guest." In fact Poppy was only weight bearing on the limb a maximum of 5% of the time.

Jessica says, "On my first visit to see Poppy it was apparent that she was very guarded around her left hind, and along with muscle atrophy she also had a lot of spinal misalignments and muscle tension due to persistently not using her body properly, to the extent that her whole body appeared to be twisted.

We took our first visit very slowly so that Poppy learnt to trust what I was doing and along with McTimoney manipulation techniques, I also used massage and stretching exercises. I left her owner Natalie with some exercises that she could do daily with Poppy in order to make her more comfortable and encourage her to start using her leg more."

Natalie continues, "After just one half hour session with Jess stretching and massaging her leg Poppy started to put her leg down, although it was only now and again. I continued with the exercises Jess had shown me and Poppy started to use the leg more and more. Poppy had another session with Jess with the same stretches and exercises and Jess had noticed Poppy's muscle starting to build, by the third time Jess came to see poppy she was running around on all four legs, she had piled weight on and her leg muscle was much stronger.

Poppy keeps improving, she's back to her normal happy self finally and I honestly think this would never have been the case had it not been for Jess. I'm amazed and delighted and would recommend her to anyone!"

McTimoney **Case Studies**

CS7 - Improving balance and power

Carnaval Gem II - 6 years old

Carnaval Gem II is a 6 year old British bred gelding who show jumps successfully at top level. He is being ridden and competed by Rosie Moss who produces show jumping horses to all levels. Rosie has ridden Carnaval Gem since he was a 4 year old and competed with him at the FEI World Breeding Jumping Championships for Young Horses in 2012 and 2013.

Towards the end of summer 2014, Carnaval Gem was becoming increasingly one sided to ride, resisting flexion to the right. He would occasionally strike off disunited when asked for canter on the right rein and he was reticent to work through from behind, resulting in decreased propulsion.

On examination Gudrun Wallis, McTimoney practitioner and vet, found a subtle rotational and marked tilt discrepancy in Carnaval Gem's pelvis and some misaligned vertebrae in his lumbar and cervical spine. Carnaval Gem had three consecutive McTimoney treatments to which he responded very well.

Rosie reports that Gudrun's work on Carnaval Gem's back and quarters helped enormously, making him feel more level to ride and more powerful from behind. She indicates that this improvement helped them achieve their exceptionally good result of being placed 16th out of 263 competitors on the first day of the World Breeding Championships at Zangersheide. Carnaval Gem then also qualified for the Blue Chip Championships and for the National Foxhunter regional finals for 2014. He will be receiving maintenance treatments according to his requirements and competition schedule to ensure he keeps working at his best comfortably and at ease.

Rosie comments: "I am beginning to understand that optimum function of the spine is so important to help horses jump to the best of their abilities. Any horses which feel unlevel or are not working as I would like, I will now get checked having had such good results."

CS8 - Improving post-operative neurological deficit

Tilly - 1 year old

Tilly, a 6 week old kitten, born from an 'escaped' Egyptian Mau cat had behaved normally from birth but then started wobbling a little. This worsened over time until Tilly was dragging her hind legs and became incontinent. Tilly was taken to her vet where she was unable to make any meaningful or co-ordinated movements with her hind legs, generally failing to thrive, underweight, agitated, and exhausted. Radiographic imaging indicated malformation of the 10th thoracic spinal vertebra causing instability and pressure on the spinal column. This was confirmed when the imaging was sent to a regional referral centre, the team there advising they would be willing to operate when Tilly reached a year old.

Tilly was seen weekly at the local vet and at 22 weeks Mo, her owner, felt interventions were still worthwhile but questioned waiting a year for surgery. She initiated referral to Fitzpatrick's Referrals, a state-of-the-art centre specialising in the treatment of orthopaedic, neurological, oncological, and soft tissue conditions. Two weeks later Tilly had CT and MRI scans that confirmed kyphosis associated with T10 cuneate vertebra, noting spinal pressures were very high. The options given were watch-and-wait, surgery or euthanasia.

Mo said "With the full facts available to me and under no pressure, I opted for surgery to stabilise the vertebra from T7 to T13 with T8 to T10 laminectomy". Tilly had her operation in Aug 2020, aged 26 weeks and weighing-in at 2kg.

The post-op regime was strict crate rest for 4-6 weeks, with physio and hydrotherapy thereafter. Although Tilly's strength and capability continued to increase - routinely completing 38 lengths of the hydro pool plus strengthening exercises, walking in her frame and harness, climbing on the sofa, and negotiating the stairs with ease - Mo said "I felt she was 'missing' something more localised as her intermittent hind leg spasms/contractions weren't improving".

"Having benefited myself from chiropractic treatment following a severe shoulder injury, I was aware of McTimoney for Animals and wanted to understand if this could help Tilly in a similar way. That is when I found Sheri Pinkey, McTimoney Animal Chiropractitioner".

Sheri told us "After Mo got in touch, I contacted her vet to ask permission to treat Tilly who, by that time, was not on any medication. This is usual practice for McTimoney Animal Practitioners. Although the stabilisation surgery was successful, in Tilly's case the remaining neurological deficit was still apparent many months down the line. This is not uncommon".

Sheri treated Tilly every three weeks from May 2021. During each treatment session, her neurological responses to pain, paw awareness and foot placement were assessed. After only two or three sessions there was a positive improvement to each test a huge improvement to her hind limb strength and co-ordination. This improvement was also noted by the specialist practice, who shared the same progress observations.

"I couldn't be happier about the progress Tilly is making in response to Sheri's treatment. Her general health and well-being have significantly improved too. She has turned into an exceptionally happy young lady, getting up to lots of mischief."

McTimoney **Case Studies**

CS9 - Supporting skeletal imbalance

Pepper - 18 years old Western riding

Pepper, an 18-year-old 15.2hh American Quarter Horse mare used for Western riding, was diagnosed with 'kissing spine' aged 6 and had surgery to remove one spinous process. Pepper recovered from the op but it soon became apparent that this was not her only issue. Further investigation revealed Pepper's right foreleg was shorter than her left, with signs of early onset arthritis in her right hock.

Seven years on and owner Catherine was struggling to keep Pepper comfortable, "Having had various physiotherapists and osteopaths work with Pepper over the years, I felt I had reached the end of the road when a friend suggested I try McTimoney. I had never heard of McTimoney but read up and found a knowledgeable, qualified practitioner near me and gave it a try".

When McTimoney Animal Practitioner Liz Harris first saw Pepper, the mare had been out of work for 11 months as she was very resistant to being tacked up and mounted. Having previously worn a raised shoe on the shorter right fore for several years, Pepper's hoof quality had deteriorated and she was now barefoot; the farrier was working on correcting her flat, cracked and flared front hooves. Liz also noted that radiographs taken a year previously showed vertebral crowding at the caudal wither and lumbar area, and some degeneration of the right hock.

Liz explained, "Such issues cause ongoing compensations throughout the body, resulting in reduced joint mobility along with general discomfort. At the first session I identified and adjusted ventrocaudal pelvic and cranioventral scapula misalignments plus further misalignments throughout the cervical and thoracolumbar spine. Bilateral muscle tension in the neck and shoulder area was more evident on the right, with bilateral latissimus dorsi tension evident when adjusting the lumbar area. I left Pepper's owner with an exercise plan and instructions to carry out a range of stretching exercises."

"I told Liz all about Pepper's issues, '' confirmed Catherine, "The treatment wasn't invasive and although Pepper was guarded to start, she soon relaxed and seemed to enjoy it. Liz advised a day or so rest, then to start things slowly again and see how she went and felt".

Catherine noticed an immediate improvement , "Saddling up and mounting seemed calmer - although not without some tension as experience had told Pepper that this usually hurt. She then walked off with no issues - I couldn't quite believe it. We took Liz's advice, building things up very slowly over many weeks and Pepper went from strength to strength. I knew that I had found a treatment that worked."

Over the next year, Liz treated Pepper every three to six months. When Pepper again became reluctant to go forward and developed intermittent right hind lameness, Liz identified increased soreness in the pelvic area, hamstrings, gracilis, transverse abdominals and longissimus dorsi which did not fit in Pepper's usual "pattern", so advised a vet consult. The vet confirmed arthritis in the right hock had advanced and the joint was medicated.

Where a new pattern of compensation and asymmetry is identified, McTimoney Animal Practitioners may refer to another paraprofessional such as the vet, saddler, dentist or other, depending on individual case requirements. This multidisciplinary approach is key to ensuring optimal animal welfare may also reduce cost to the owner in the long term.

Liz also stresses the importance of owner involvement, " Catherine is very attentive, following all advice - strengthening, stretches and ROM exercises - which has clearly been beneficial. By maintaining a regular treatment schedule and encouraging Pepper to work correctly over her back, we have been able to avoid further back surgery and extend the interval for repeat medication of the hock to over three years."

Catherine is delighted, "Pepper is now 18 and still going strong. Liz has worked with my vet and farrier and Pepper has gone from strength to strength. Had I not found Liz and McTimoney, I know it would have been a very different story."

Given her underlying conditions, Pepper continues to receive treatment from Liz every three to six months.

McTimoney
A Veterinarian Viewpoint

Gudrun Wallis is a McTimoney Animal Practitioner and qualified Veterinarian, working in the South of England. Gudrun is one of a growing number of veterinarians choosing to develop their skills and incorporate the McTimoney technique into their practical veterinary work.

We asked Gudrun for her thoughts on how the McTimoney approach benefits her clients.

As a qualified vet, how do you decide whether veterinary intervention or McTimoney treatment is required by a client?

"If a horse is obviously lame, in pain or suffering from a condition with a contraindication to manipulation, a prompt veterinary diagnosis is a must. If the symptoms are less severe and more performance related, McTimoney treatment is a great place to start as the treatment is happily accepted by most horses, there are no side effects and it often works wonders."

How do the two methods of treatment work together?

"Veterinary treatment usually focuses on the area going through a disease process. Additional McTimoney treatment assures that compensations due to the initial injury are also dealt with. As an example, an injury of a hindlimb may lead to dysfunction in the horse's pelvis due to the hindlimbs pushing off the ground unevenly. When veterinary treatment has been completed, McTimoney treatment will ensure that the rest of the horse's body is also in the best possible shape, allowing return to full fitness."

Please describe your training and career path before you did your current work.

I was a work rider in professional dressage yard in Austria and although I loved the job, decided to study Veterinary Medicine. I obtained my degree from the University of Vienna in 2003 and then moved to the UK. After a short spell in mixed practice I decided to specialise in horses which is what I have been doing ever since. Through my work with horses, I became increasingly interested in spinal and poor performance issues in horses which can be challenging to treat. This led to me completing a Master's degree from the McTimoney College in 2012.

How does McTimoney combine with your job as a vet?

As mentioned before, it is usually obvious if a horse needs prompt veterinary treatment due to pain or contraindications. If this is not the case, integration of chiropractic skills into the veterinary treatment can be very rewarding with regards to treating both initial complaints and also areas of compensation.

Can you tell us what a typical day is like?

I drive to client's yards to examine and work with their horses. This includes routine veterinary work such as vaccinations and teeth rasps, stud work, lameness examinations and vettings as well as McTimoney treatments. The most challenging thing about this is trying to combine a busy day's work with having enough quality time for each patient without running late. Traffic jams are my enemy!

What do you like most about your job?

Caring for horses and meeting like-minded people

And least?

The delightful British weather

Do you have horses, and is it difficult to combine with your job?

I absolutely love Eventing, but currently have a dressage project on the go. This is also fun and somewhat less time consuming, but I can't wait to take on another youngster for Eventing in the spring.

What advice would you give someone wanting to do the same job?

A genuine love for horses is imperative and a lot of patience also helps. Obviously a certain dedication is needed in order to complete university/college degrees. Personally, I think that riding and competing gives me a genuine interest in helping to solve other people's issues with their horses.

What is your favourite piece of horsey kit?

My pink wheelbarrow which keeps my spirits up when poo-picking

What couldn't you get through the working day without?

A cup of tea in the morning

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