Routine Equine Physiotherapy

Tabor, Gillian

Published in:
Equine Veterinary Education

Publication date:
2018

The re-use license for this item is:
CC BY-NC-ND

This document version is the:
Peer reviewed version

The final published version is available direct from the publisher website at:
10.1111/eve.12940

Find this output at Hartpury Pure

Citation for published version (APA):
Tabor, G. (2018). Routine Equine Physiotherapy. *Equine Veterinary Education*.
https://doi.org/10.1111/eve.12940

Download date: 10. Dec. 2023

Routine Equine Physiotherapy

Equine Veterinary Education

Tabor, Gillian; Hartpury College, Equestrian Performance Research Group

This is the peer reviewed version of the following article: Tabor, G. (2018), Routine Equine Physiotherapy. Equine Veterinary Education, which will be published in final form at https://onlinelibrary.wiley.com/journal/20423292. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Self-Archiving.

What is equine physiotherapy?

Physiotherapists work with the patient to help those affected by injury or illness through movement and exercise, manual therapy, electrotherapy, education and advice. As a science based profession they take a holistic approach to health, helping patients manage pain and prevent disease (Chartered Society of Physiotherapy (CSP), 2017a). Training to become a Chartered Physiotherapist requires a three year undergraduate degree and to become a veterinary physiotherapist and category A member of the Association of Chartered Physiotherapists in Animal Therapy (ACPAT), a minimum of two years post graduate training at UK Higher Education level 7 (Masters degree) is required. The title 'Chartered Physiotherapist' is protected by law and can only be used by physiotherapists who are members of the Chartered Society of Physiotherapy. However in the UK, the term physiotherapist is not a protected title in relation to the treatment of animals, therefore currently 'physiotherapy' for horses can be provided by any member of the public regardless of their level of training. As a consequence a multitude of courses have been developed, with standards varying from minimal to those providing 'day 1 competencies' equivalent to human practice at completion. To ascertain the standard of training of an individual it is recommended to refer to an independent voluntary register such as the Register of Animal Musculoskeletal Practitioners (RAMP).

Equine Physiotherapists work within the team of professionals supporting horses at both the national and international level of competition. In the non-elite equine population, physiotherapists are also commonly involved in the management of musculoskeletal injuries in partnership with veterinary team as well as advising owners on regular assessment and treatment schedules for their horses. Working with the direction of a veterinary surgeon on a client's horse fulfils the requirements of the Veterinary Act (1966) Exemptions order (2015) and whilst there may be a practical difference in the treatment by physiotherapy for injury or for maintenance, the physiotherapist should always work within the scope of this legal framework. Communication between the physiotherapist and veterinary surgeon is crucial to delivering the best possible care to the equine athlete.

Horses with diagnosed injuries are likely to benefit from a programme of physiotherapy at all stages of rehabilitation (Tabor, 2015). However, unfortunately there is no evidence to support either the frequency of physiotherapy treatments or specific protocols for particular diagnoses. Evidence is emerging for the effectiveness of individual treatment approaches, for instance, the use of spinal manipulation to reduce epaxial muscle tone (Wakeling et al., 2006), to reduce epaxial muscle pain (Sullivan et al., 2008) and to increase spinal range of motion (Haussler et al., 2010). More recently evidence that supports the use of physiotherapy exercises to develop the muscles that provide intervertebral stability to the spine, called dynamic mobilisation exercises, has been published (Oliveria et al., 2015; Tabor et al., 2012; Stubbs et al., 2011). Anecdotal reports from owners reporting the improved outcomes after treatment are suggestive that, as in human sports medicine, teamwork between veterinary surgeons and physiotherapists ultimately can be key to treatment selection and achieving rehabilitation goals.

Benefits of routine physiotherapy

Routine or maintenance physiotherapy has yet to be defined fully for the management of horses but translation from human rehabilitation would suggest the aims are to prevent objectively measureable deterioration in a patient's quality of life and or to optimise the patients' functional capacity (Flanagan

and Green, 2000). Examples of maintenance physiotherapy interventions range from ongoing muscle strengthening programmes in elderly human patients at risk of falls and pain management for osteoarthritis to the other end of the spectrum when assisting management of the elite athlete during competition. Continuing treatment using the above definition refers to ongoing conditions that by their nature will not be fully resolved with a course of physiotherapy. Therefore in the non-injured sport horse or those with more chronic pathology such as osteoarthritis there may be a case for the adoption of maintenance physiotherapy. For a horse in full work, demands on the musculoskeletal system may predispose the horse to minor tissue injury that left unchecked, could affect quality of life, welfare and performance capacity. Some veterinary surgeons are starting to advocate maintenance physiotherapy to manage conditions and prevent deterioration and ultimately promote the welfare of the horse. The importance of a good working relationship between the veterinary surgeon and physiotherapist, as well as the coach, performance analyst, farrier and saddler is critical to the success of this team approach to ongoing management of the sport horse.

Regular visits by a physiotherapist, under the direction of a veterinary surgeon, could be included in the veterinary practice's health plan for equine clients. A physiotherapist would likely be able to spend a considerable amount of time with the client and have very confident knowledge of the particular horse's normal behaviour, movement pattern and reaction to palpation. Assessment would be less geared towards previous history, as this would be known, but focused on assessing and reassessing key metrics of the health of the musculoskeletal system. Clinically reasoning the ongoing approach to the patient by monitoring and evaluating the outcomes of treatments, is crucial to physiotherapy practice as an evidence informed profession. Taking into account current workload and any recent changes to behaviour, observations of gait and function should be included in the assessment. Modern technology can be used to record and measure movement patterns either in-hand, on the lunge or performing ridden functional tasks required within their chosen discipline. Whilst inter-rater reliability of gait analysis by eye is low, reliability of repeated assessment by a single (experienced) observer is higher (Fuller et al, 2006). Systems to objectively measure gait symmetry, for instance inertial

measurement units, are becoming more affordable and practical and have become available for routine clinical use. A mild asymmetrical pelvic movement pattern may be present at each physiotherapy assessment, however it is important to note that the threshold or the use of a threshold at which the asymmetry is considered lameness is under debate (Weeran, 2017).. A subtle gait asymmetry, when monitored regularly, may be unchanging. However it may, on subsequent assessment, have become more apparent to the physiotherapist even if at this stage not felt by the rider. The presence of asymmetry would be an indication for the physiotherapist to speak to the veterinary surgeon so a decision can be made whether to further investigate or monitor this finding. This enables all parties to adhere to BEVA guidelines for working with musculoskeletal therapists, which state maintenance physiotherapy is appropriate so long as the therapist is sufficiently well trained to recognise when veterinary intervention is required.

Palpation assessment forms an essential element of the physiotherapy assessment procedure and is a core skill of a physiotherapist. With the advent of scoring systems for muscular assessment, this section of the examination can be made more objective than perhaps considered initially. Varcoe-Cocks et al. (2006) and Walker et al. (2016) have used objective grading of pain reaction and muscle tone within groups of horses with and without suspected back pain. The first study demonstrated changes in pain and muscle stiffness in horse with sacro-iliac dysfunction and that palpation scores were correlated with objective measures of mechanical nociceptive threshold and the grade of the dysfunction. The second study used an in depth composite grading system to score muscle in dressage horses and moderate to good agreement was found between scores of five assessors using this grading system on ten horses. Using standardised, validated outcome measures in clinical practice is an explicit requirement of the CSP's standards (CSP, 2017b). Whilst muscle soreness can be as a result of training at loads pushing the threshold of muscular strength, certain patterns of pain in the tissues could be indicative of an underlying sub-clinical issue that could progress to compromise performance (Hesse et al., 2010). If training soreness does occur, treatment approaches can be used to prevent mild tension becoming problematic and compensatory movement patterns being adopted by the

horse. Therefore the physiotherapist, working closely with the veterinary surgeon, can help manage in effect not only welfare but performance of the horse.

As well as offering treatments such as manual treatment and electrotherapy, with their knowledge of muscular physiology and principles of cardiovascular, strength and neuromuscular proprioceptive training physiotherapists are also well placed to take part in the design of exercise training programmes for their clients (Crook et al, 2010; Clayton et al., 2011; Stubbs et al, 2011; Kopec et al, 2018). Structuring weekly training levels alongside their coach should be part of this process. Recording work levels and even calculating training loads can make this element of the assessment valuable if it prevent either under or over training, which can limit performance development and increase the risk of injury (Castejon-Riber et al., 2016; Gabbett, 2016). A considerable benefit from working with a Chartered Physiotherapist is that they can manage the rider as part of the performance analysis and work with them to reduce any negative impact from their own musculoskeletal injury, weakness or imbalances.

How frequently maintenance visits occur would depend on the level of the competition, horses were involved in and the individual characteristics of the horse, such as breed, age and discipline. If the horse is in a stage of training where upward progression of the level of work is expected then less time between assessments would be recommended. In this instance 3 to 6 weekly visits may be required. This is in-line with both cardiovascular and hypertrophic muscle changes expected with a training programme with increasing demands (Rivero, 2007). This is particularly relevant to the ridden horse in terms of changing thoracolumbar epaxial muscle size and subsequent saddle fit (Dyson & Greve, 2016). However if the horse is at a lower performance/competitive level and with little history of pre-existing conditions a visit every six months perhaps in the spring and autumn would suffice. Ultimately, visit frequency may be influenced by the financial circumstances of the clients therefore a physiotherapist would be working unethically if they suggested re-visiting more frequently than would be based on sound clinical reasoning.

Recommendations

Adopting good practice from contemporary musculoskeletal injury management in human medicine is crucial to the development of physiotherapy for the equine athlete. Being able to select treatment choices based on good quality research is the ideal for the evidence based practitioner. Clinicians need to draw ideas together and discuss best practice with the consideration that evidence based practice is not only about clinical trials but about the clinical experience and the patient (Djulbegovic & Guyatt, 2017).

One major difficulty is that the process of evaluating effect is currently limited due to limited validated and reliable outcome measures, which are able to report on the success or failures of physiotherapy intervention beyond anecdote. Consideration to the knowledge and understanding of the owner / trainer / rider as well as their judgement and emotion surrounding the expectation of physiotherapy would also have to be taken into account to limit false reporting of outcome.

To support the increasing demands of equine clients to manage their horse's health and welfare, as well as supporting rehabilitation cases a close working relationship between the veterinary surgeon and physiotherapist can be recommended. Successful management of the performance horse requires input from a range of professionals, working as an inter-disciplinary team. This is ultimately beneficial to the horse.

References

Castejon-Riber, C., Riber, C., Rubio, M.D., Agüera, E. and Muñoz, A., 2017. Objectives, Principles, and Methods of Strength Training for Horses. *Journal of Equine Veterinary Science*, *56*, pp.93-103.

Chartered Society of Physiotherapy (2017a) *What is Physiotherapy?* Available from: http://www.csp.org.uk/your-health/what-physiotherapy

Chartered Society of Physiotherapy (2017b) *Outcome and experience measures* Available from: http://www.csp.org.uk/professional-union/practice/evidence-base/outcome-measures-experience-measures

Clayton, H.M., Lavagnino, M., Kaiser, L.J. and Stubbs, N.C., 2011. Evaluation of biomechanical effects of four stimulation devices placed on the hind feet of trotting horses. *American Journal of Veterinary Research*, *72*(11), pp.1489-1495.

Crook, T.C., Wilson, A. and Hodson-Tole, E., 2010. The effect of treadmill speed and gradient on equine hindlimb muscle activity. *Equine Veterinary Journal*, *42*(s38), pp.412-416

Djulbegovic, B. and Guyatt, G.H., 2017. Progress in evidence-based medicine: a quarter century on. *The Lancet*, *390*(10092), pp.415-423.

Dyson, S. and Greve, L., 2016. Saddles and girths: what is new? *The Veterinary Journal*, *207*, pp.73-79.

Flanagan, T. and Green, S., 2000. The concept of maintenance physiotherapy. *Australian Journal of Physiotherapy*, *46*(4), pp.271-278.

Fuller, C.J., Bladon, B.M., Driver, A.J. and Barr, A.R., 2006. The intra-and inter-assessor reliability of measurement of functional outcome by lameness scoring in horses. *The Veterinary Journal*, *171*(2), pp.281-286.

Gabbett, T.J., 2016. The training-injury prevention paradox: should athletes be training smarter and harder?. *Br J Sports Med*, pp.bjsports-2015.

Haussler, K.K., Martin, C.E. and Hill, A.E., 2010. Efficacy of spinal manipulation and mobilisation on trunk flexibility and stiffness in horses: a randomised clinical trial. *Equine Veterinary Journal*, *42*(s38), pp.695-702.

Hesse, K.L. and Verheyen, K.L.P., 2010. Associations between physiotherapy findings and subsequent diagnosis of pelvic or hindlimb fracture in racing Thoroughbreds. *Equine Veterinary Journal*, *42*(3), pp.234-239.

Kopec, N.L., Williams, J.M. and Tabor, G.F., 2018. Kinematic analysis of the thoracic limb of healthy dogs during descending stair and ramp exercises. *American Journal of Veterinary Research, 79*(1), pp.33-41.

de Oliveira, K., Soutello, R.V., da Fonseca, R., Costa, C., Paulo, R.D.L., Fachiolli, D.F. and Clayton, H.M., 2015. Gymnastic training and dynamic mobilization exercises improve stride quality and increase epaxial muscle size in therapy horses. *Journal of Equine Veterinary Science*, *35*(11), pp.888-893.

Rivero, J.L., 2007. A scientific background for skeletal muscle conditioning in equine practice. *Transboundary and Emerging Diseases*, *54*(6), pp.321-332.

Stubbs, N.C., Kaiser, L.J., Hauptman, J. and Clayton, H.M., 2011. Dynamic mobilisation exercises increase cross sectional area of musculus multifidus. *Equine Veterinary Journal*, *43*(5), pp.522-529.

Sullivan, K.A., Hill, A.E. and Haussler, K.K., 2008. The effects of chiropractic, massage and phenylbutazone on spinal mechanical nociceptive thresholds in horses without clinical signs. *Equine Veterinary Journal*, *40*(1), pp.14-20.

Tabor, G.F., Johansson, C. and Randle, H., 2012. The effects of dynamic mobilization exercises on the multifidus muscle in thoroughbred racehorses. In: Randle, H., Waran, N. and Williams, J. (eds.) The road ahead, proceedings 8th international equitation science conference, Edinburgh, UK, pp. 64. Available at: http://www.equitationscience.com/documents/Conferences/ISESConferenceProceedings2012.pdf.

Tabor, G. (2015) Physiotherapy Management of the Equine Athlete. In: Williams, J. and Evans, D., ed., (2015) *Training for equestrian performance.* Wageningen: Wageningen Academic Publishers, pp.325-342

Varcoe-cocks, K., Sagar, K.N., Jeffcott, L.B. and McGowan, C.M., 2006. Pressure algometry to quantify muscle pain in racehorses with suspected sacroiliac dysfunction. *Equine Veterinary Journal*, *38*(6), pp.558-562.

Wakeling, J.M., Barnett, K., Price, S. and Nankervis, K., 2006. Effects of manipulative therapy on the longissimus dorsi in the equine back. *Equine and Comparative Exercise Physiology*, *3*(3), pp.153-160.

201 Walker, V.A., Tranquille, C.A., Dyson, S.J., Spear, J. and Murray, R.C., 2016. Association of a
202 subjective muscle score with increased angles of flexion during sitting trot in dressage horses. *Journal*
203 *of Equine Veterinary Science*, *40*, pp.6-15.

204 Weeren, P.R., Pfau, T., Rhodin, M., Roepstorff, L., Serra Bragança, F. and Weishaupt, M.A., 2017. Do
205 we have to redefine lameness in the era of quantitative gait analysis? *Equine Veterinary Journal*, *49*(5),
206 pp.567-569.