

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](https://doi.org/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>

Tabor, G., Routine Equine Physiotherapy

1 Routine Equine Physiotherapy

2 Equine Veterinary Education

3 Tabor, Gillian; Hartpury College, Equestrian Performance Research Group

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

8

9 *What is equine physiotherapy?*

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

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

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

46 *Benefits of routine physiotherapy*

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

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

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

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

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

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

104 As well as offering treatments such as manual treatment and electrotherapy, with their knowledge of
105 muscular physiology and principles of cardiovascular, strength and neuromuscular proprioceptive
106 training physiotherapists are also well placed to take part in the design of exercise training
107 programmes for their clients (Crook et al, 2010; Clayton et al., 2011; Stubbs et al, 2011; Kopec et al,
108 2018). Structuring weekly training levels alongside their coach should be part of this process.
109 Recording work levels and even calculating training loads can make this element of the assessment
110 valuable if it prevent either under or over training, which can limit performance development and
111 increase the risk of injury (Castejon-Riber et al., 2016; Gabbett, 2016). A considerable benefit from
112 working with a Chartered Physiotherapist is that they can manage the rider as part of the performance
113 analysis and work with them to reduce any negative impact from their own musculoskeletal injury,
114 weakness or imbalances.

115 How frequently maintenance visits occur would depend on the level of the competition, horses were
116 involved in and the individual characteristics of the horse, such as breed, age and discipline. If the
117 horse is in a stage of training where upward progression of the level of work is expected then less time
118 between assessments would be recommended. In this instance 3 to 6 weekly visits may be required.
119 This is in-line with both cardiovascular and hypertrophic muscle changes expected with a training
120 programme with increasing demands (Rivero, 2007). This is particularly relevant to the ridden horse
121 in terms of changing thoracolumbar epaxial muscle size and subsequent saddle fit (Dyson & Greve,
122 2016). However if the horse is at a lower performance/competitive level and with little history of pre-
123 existing conditions a visit every six months perhaps in the spring and autumn would suffice. Ultimately,
124 visit frequency may be influenced by the financial circumstances of the clients therefore a
125 physiotherapist would be working unethically if they suggested re-visiting more frequently than would
126 be based on sound clinical reasoning.

127 *Recommendations*

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

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

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

144

145 References

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

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

- 150 Chartered Society of Physiotherapy (2017b) *Outcome and experience measures* Available from:
151 <http://www.csp.org.uk/professional-union/practice/evidence-base/outcome-measures-experience->
152 [measures](http://www.csp.org.uk/professional-union/practice/evidence-base/outcome-measures-experience-measures)
- 153 Clayton, H.M., Lavagnino, M., Kaiser, L.J. and Stubbs, N.C., 2011. Evaluation of biomechanical effects
154 of four stimulation devices placed on the hind feet of trotting horses. *American Journal of Veterinary*
155 *Research*, 72(11), pp.1489-1495.
- 156 Crook, T.C., Wilson, A. and Hodson-Tole, E., 2010. The effect of treadmill speed and gradient on
157 equine hindlimb muscle activity. *Equine Veterinary Journal*, 42(s38), pp.412-416
- 158 Djulbegovic, B. and Guyatt, G.H., 2017. Progress in evidence-based medicine: a quarter century
159 on. *The Lancet*, 390(10092), pp.415-423.
- 160 Dyson, S. and Greve, L., 2016. Saddles and girths: what is new? *The Veterinary Journal*, 207, pp.73-
161 79.
- 162 Flanagan, T. and Green, S., 2000. The concept of maintenance physiotherapy. *Australian Journal of*
163 *Physiotherapy*, 46(4), pp.271-278.
- 164 Fuller, C.J., Bladon, B.M., Driver, A.J. and Barr, A.R., 2006. The intra-and inter-assessor reliability of
165 measurement of functional outcome by lameness scoring in horses. *The Veterinary Journal*, 171(2),
166 pp.281-286.
- 167 Gabbett, T.J., 2016. The training-injury prevention paradox: should athletes be training smarter and
168 harder?. *Br J Sports Med*, pp.bjsports-2015.
- 169 Haussler, K.K., Martin, C.E. and Hill, A.E., 2010. Efficacy of spinal manipulation and mobilisation on
170 trunk flexibility and stiffness in horses: a randomised clinical trial. *Equine Veterinary Journal*, 42(s38),
171 pp.695-702.
- 172 Hesse, K.L. and Verheyen, K.L.P., 2010. Associations between physiotherapy findings and subsequent
173 diagnosis of pelvic or hindlimb fracture in racing Thoroughbreds. *Equine Veterinary Journal*, 42(3),
174 pp.234-239.

- 175 Kopec, N.L., Williams, J.M. and Tabor, G.F., 2018. Kinematic analysis of the thoracic limb of healthy
176 dogs during descending stair and ramp exercises. *American Journal of Veterinary Research*, 79(1),
177 pp.33-41.
- 178 de Oliveira, K., Soutello, R.V., da Fonseca, R., Costa, C., Paulo, R.D.L., Fachioli, D.F. and Clayton,
179 H.M., 2015. Gymnastic training and dynamic mobilization exercises improve stride quality and increase
180 epaxial muscle size in therapy horses. *Journal of Equine Veterinary Science*, 35(11), pp.888-893.
- 181 Rivero, J.L., 2007. A scientific background for skeletal muscle conditioning in equine practice.
182 *Transboundary and Emerging Diseases*, 54(6), pp.321-332.
- 183 Stubbs, N.C., Kaiser, L.J., Hauptman, J. and Clayton, H.M., 2011. Dynamic mobilisation exercises
184 increase cross sectional area of musculus multifidus. *Equine Veterinary Journal*, 43(5), pp.522-529.
- 185 Sullivan, K.A., Hill, A.E. and Haussler, K.K., 2008. The effects of chiropractic, massage and
186 phenylbutazone on spinal mechanical nociceptive thresholds in horses without clinical signs. *Equine*
187 *Veterinary Journal*, 40(1), pp.14-20.
- 188 Tabor, G.F., Johansson, C. and Randle, H., 2012. The effects of dynamic mobilization exercises on the
189 multifidus muscle in thoroughbred racehorses. In: Randle, H., Waran, N. and Williams, J. (eds.) The
190 road ahead, proceedings 8th international equitation science conference, Edinburgh, UK, pp. 64.
191 Available at: <http://www.equitationscience.com/documents/Conferences/ISESConferenceProceedings2012.pdf>.
- 193 Tabor, G. (2015) Physiotherapy Management of the Equine Athlete. In: Williams, J. and Evans, D., ed.,
194 (2015) *Training for equestrian performance*. Wageningen: Wageningen Academic Publishers, pp.325-
195 342
- 196 Varcoe-cocks, K., Sagar, K.N., Jeffcott, L.B. and McGowan, C.M., 2006. Pressure algometry to quantify
197 muscle pain in racehorses with suspected sacroiliac dysfunction. *Equine Veterinary Journal*, 38(6),
198 pp.558-562.
- 199 Wakeling, J.M., Barnett, K., Price, S. and Nankervis, K., 2006. Effects of manipulative therapy on the
200 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.