



UNDERSTANDING & USING THE RIDDEN HORSE PAIN ETHOGRAM

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The Ridden Horse Pain Ethogram (RHpE) is a list of 24 behaviours, the majority of which are ten or more times more likely to be seen in a horse with musculoskeletal pain. Studies have shown that a horse who shows 8 or more of the 24 behaviours listed in the ridden horse pain ethogram is likely to have musculoskeletal pain.

Of course, you want to know that your horse is not in pain or discomfort!



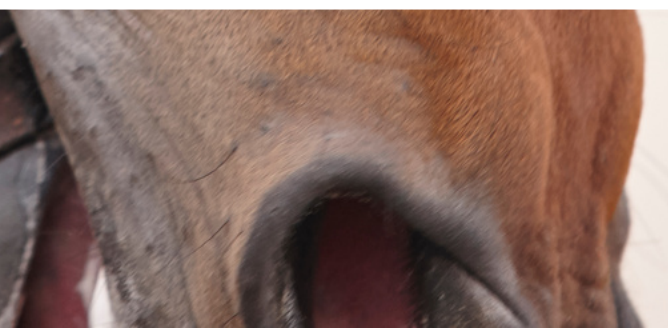
Dr Sue Dyson and I are in the process of writing a book about how to recognise pain in the ridden horse. Specifically, this book will describe and explain the Ridden Horse Pain Ethogram (which was developed by Sue Dyson and colleagues), how you can use it to help monitor your horse's quality of life, and its application in relation to equestrianism's social licence to compete. There will be case studies, contributions from relevant professionals and organisations, and a description of the science that got us to this point.

Whilst chatting to clients, I've realised how few people are aware of the Ridden Horse Pain Ethogram. This article is to help bridge that gap and share some of the basics.

It turns out we're not great at recognising lameness.

We all want to do our best for our horses, and to believe that they are happy and comfortable. In order to know that they are comfortable, we have to get better at recognising when they are uncomfortable. Several studies show that we're not good at recognising lameness. We can all see when a horse is obviously limping. But how about when he's just slightly unlevel, or when he's lame on more than one leg, or when he's just as lame on his right hind as he is on his left hind so he still moves symmetrically?

We know from the research that it can be difficult for even qualified veterinarians to agree upon which leg a horse is lame on, and the milder the lameness, the more difficult it is. We know it's easier to see forelimb lameness than hindlimb lameness. It's clear that the horse will use compensatory movements to avoid putting so much weight through the lame leg(s), and we're starting to understand those compensations better, but they can make it hard to tell where the source of the problem is.



We can use ridden behaviour to recognise pain and discomfort

All of this, and more, means that using behavioural assessments such as the Ridden Horse Pain Ethogram to recognise lameness in the early stages could improve horse welfare. This could be useful, for example, when there's no lameness visible in hand, when it's of such a low level that it's hard to see, or when the compensatory patterns of the horse's movement mask the lameness.

You can assess your own horse

You can use the Ridden Horse Pain Ethogram with your own horse. Ask someone to video you riding him, after warming up, for 5 to 10 minutes. Include walk, trot and canter on both reins, transitions within and between the paces, 10m circles in rising trot in a figure of eight, and any more advanced movements that you and your horse are able to perform as a partnership. Video the horse moving in a straight line towards and away from you from two different corners of the arena. Watch the video as many times as necessary to work your way through the list of 24 behaviours, marking them as 'yes' or 'no'. A 'yes' scores 1, and a 'no' scores 0. You may want to use a stopwatch for some of them, and/or a protractor to measure angles, to get a more accurate score.

How about doing this exercise once a month with a friend, as part of monitoring your horse's well-being? You can video your friend, and they can video you, and you can go through the videos together. Like any skill, it will take practice and it will get easier with time. Keep a record of your horse's score, and contact your vet for further investigation if he scores 8 or more out of 24.

You can be more confident that your horse is comfortable

The earlier that lameness is spotted, in general, the easier it is to resolve it. A study shows a link between higher scores on the Ridden Horse Pain Ethogram and higher dressage penalties, a higher likelihood of elimination or retirement from the cross-country course, and a lower finish place at 5* level. The most common score for horses competing at 9 different World Cup Grand Prix dressage competitions was a comparatively low 3/24. There was a negative correlation between the RHpE score and judges' scores – so the higher the RHpE score, the lower the judges' good marks. The same relationship was observed at the British Grand Prix Championships. Remember that 8/24 is the threshold that suggests underlying musculoskeletal pain. So if you're looking to get better results at competitions, or to be more confident that your horse is comfortable, and you want to proactively monitor his ridden behaviour, try using the Ridden Horse Pain Ethogram.



The Ridden Horse Pain Ethogram (RHpE)

24 behaviours

The majority of the behaviours listed below are ten or more times more likely to be seen in a horse with musculoskeletal pain.

Facial markers

- The ears rotated back behind vertical or flat (both or one only) for five or more seconds, or repeatedly laying the ears flat
- The eyelids are closed or half closed for two to five seconds
- The sclera (white of the eye) is repeatedly exposed
- An intense stare for five or more seconds
- The mouth opens and shuts repeatedly with the separation of teeth, for ten or more seconds
- The tongue exposed, protruding or hanging out, and/or moving in and out
- The bit pulled through the mouth on one side (left or right)

Body markers

- Repeated changes of head position (up/down, but not in rhythm with trot)
- Head tilted, repeated
- Head in front of vertical (more than 30 degrees) for ten or more seconds
- Head behind vertical (more than 10 degrees) for ten or more seconds
- Head position changes regularly, tossed or twisted from side to side, corrected constantly
- Tail clamped tightly to middle or held to one side
- Tail swishing large movements: repeatedly up and down / side to side / circular; during transitions

Gait markers

- A rushed gait (frequency of trot steps greater than 40 in 15 seconds); irregular rhythm in trot or canter; repeated changes of speed in trot or canter
- Gait too slow (frequency of trot steps less than 35 in 15 seconds); passage-like trot
- Hindlimbs do not follow tracks of forelimbs but deviated to left or right; on three tracks in trot or canter
- Canter repeated strike off on the wrong leg; change of leg in front and/or behind (disunited)
- Spontaneous changes of gait (e.g., breaks from canter to trot, or trot to canter)
- Stumbles or trips repeatedly; repeated bilateral hindlimb toe drag
- A sudden change of direction, against the rider's direction; spooking
- Reluctant to move forward (has to be kicked, with or without verbal encouragement), stops spontaneously
- Rearing (both forelimbs off the ground)
- Bucking or kicking backwards (one or both hindlimbs)

Resources

Sue Palmer: <https://www.thehorsephysio.co.uk/> To be the first to hear when the book is available, please sign up for free for my newsletter.

Dr Sue Dyson: <https://www.vetswithhorsepower.com/sue.html>

List of the 24 behaviours in the Ridden Horse Pain Ethogram in picture format: <https://files.constantcontact.com/5053f732801/b9329bf3-b527-4cd7-a204-ea1f8da25d6d.pdf> (courtesy of the Saddle Research Trust)

Saddle Research Trust: <https://www.saddleresearchtrust.com/>

Online course by the Equitopia Center, please also see page XX in this magazine: <https://www.equitopiacenter.com/shop/how-to-recognize-the-24-behaviors-indicating-pain-in-the-ridden-horse-dr-sue-dyson/>

The Supporting Science

If you'd like to look into the science and the studies behind and around the Ridden Horse Pain Ethogram, here are a few of them (in no particular order):

Dyson, Sue. (2021). The Ridden Horse Pain Ethogram. *Equine Veterinary Education*. 10.1111/eve.13468

Dyson, S., Berger, J., Ellis, A., Mullard, J. (2018a) Development of an ethogram for a pain scoring system in ridden horses and its application to determine the presence of musculoskeletal pain. *J. Vet. Behav.: Clin. Appl. Res.* 23, 47-57

Greve L, Dyson SJ. The interrelationship of lameness, saddle slip and back shape in the general sports horse population. *Equine Vet J.* 2014 Nov;46(6):687-94. doi: 10.1111/evj.12222. Epub 2014 Feb 27. PMID: 24372949

Greve, Line & Dyson, Sue. (2018). What can we learn from a visual and objective assessment of non-lame and lame horses in straight lines, on the lunge and rid-den?. *Equine Veterinary Education*. 32. 10.1111/eve.13016

Mullard, Jessica & Berger, Jeannine & Ellis, Andrea & Dyson, Sue. (2016). Development of an ethogram to describe facial expressions in ridden horses (FEReq). *Journal of Veterinary Behavior: Clinical Applications and Research*. 18. 10.1016/j.jveb.2016.11.005

Dyson, S., Berger, J., Ellis, A., Mullard, J. (2017) Can the presence of musculoskeletal pain be determined from the facial expressions of ridden horses (FEReq)? *J. Vet. Behav.: Clin. Appl. Res.* 19,78-89

Dyson, Sue. (2017). Equine performance and equitation science: Clinical issues. *Applied Animal Behaviour Science*. 190. 10.1016/j.applanim.2017.03.001

Dyson, S., Berger, J., Ellis, A., Mullard, J. (2018b) Behavioural observations and comparisons of non-lame horses and lame horses before and after resolution of lameness by diagnostic analgesia. *J. Vet. Behav.: Clin. Appl. Res.* 26, 64-70

Dyson, Sue & Dijk, J.. (2018). Application of a ridden horse ethogram to video recordings of 21 horses before and after diagnostic analgesia: Reduction in behaviour scores. *Equine Veterinary Education*. 32. 10.1111/eve.13029

Dyson, Sue & Thomson, K. & Quiney, Laura & Bondi, Anne & Ellis, Andrea. (2020b). Can veterinarians reliably apply a whole horse ridden ethogram to differentiate non-lame and lame horses based on live horse assessment of behaviour?. *Equine Veterinary Education*. 32. 112-120. 10.1111/eve.13104

Dyson S, Pollard D. Application of a Ridden Horse Pain Ethogram and Its Relationship with Gait in a Convenience Sample of 60 Riding Horses. *Animals (Basel)*. 2020 Jun 17;10(6):1044. doi: 10.3390/ani10061044. PMID: 32560486; PMCID: PMC7341225

Dyson, S., Bondi, A., Routh, J., Pollard, D. (2020c) Gait abnormalities and ridden horse behaviour in a convenience sample of the United Kingdom ridden sports horse and leisure horse population. *Equine Vet. Educ.* doi: 10.1111/eve.13395

Dyson, S. (2019) Application of a ridden horse pain ethogram to horses competing at a 4-star three-day-event; comparison with cross country performance. *Equine Vet. Educ.* 32, Suppl. 10, 92-103

Dyson, S., Ellis, A. (2020) Application of a Ridden Horse Pain Ethogram to horses competing at 5-star three-day-events: comparison with performance. *Equine Vet. Educ.* doi: 10.1111/eve.13415

Dyson, S., Martin, C., Bondi, A., Ellis, A. (2020d) The influence of rider skill on ridden horse behaviour, assessed using the Ridden Horse Pain Ethogram, and gait quality. *Equine Vet. Educ.* 10.1111/eve.13434

Dyson, S., Bondi, A., Routh, J., Pollard, D., Preston, T., McConnell, C., Kydd, J. (2021) An investigation of behaviour during tacking-up and mounting in ridden sports and leisure horses. *Equine Vet. Educ.* doi: 10.1111/eve.13432

Dyson, S., Pollard, D. (2021) Application of the Ridden Horse Pain Ethogram to elite dressage horses competing in World Cup Grand Prix Competitions. *Animals* 11, 1187. doi.org/10.3390/ani11051187

Dyson, S., Pollard, D. (2021) Application of the Ridden Horse Pain Ethogram to horses competing at the Hickstead-Rotterdam Grand Prix Challenge and the British Dressage Grand Prix National Championship 2020 and comparison with World Cup Grand Prix competitions. *Animals* 11, 1820 doi.org/10.3390/ani11061820