

STANDARD BACK FLEXIBILITY TEST AND ITS RELATIONSHIP TO PERFORMANCE AND SOUNDNESS

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Abstract:

To correlate back flexibility with performance and pain in horses, a standard back flexibility was defined. The flexibility test is made by stimulating the midpoint of the sacrum. This introduces a ventral flexion of the back of the horse, and was measured by video analysis and image analysis. These data were compared with pain in five areas of the horses body, gained by manual palpation. The comparison of these data shows a strong evidence of lack of flexibility in the thoracic vertebrae and/or instability of the lumbar vertebrae of the horse's back and pain in the investigated areas of the horse's body.

Key: words, *back flexibility, Poor performance, Swinging Hip Syndrome, Video Analysis*

INTRODUCTION

Back pain is a common and poorly understood clinical problem.. In my experience as Equine Sport Therapist I found an evident relationship between good performance of horses with spinal flexibility and absence of pain in the horse body. But up to now no this estimation was not scientifically proven by a documented investigation. To improve the knowledge of back flexibility in relationship to performance and soundness a standard back flexibility was defined and the results were correlated with performance and pain in the horses body.

Main objective of this investigation is to define and prove which spinal flexibility patterns in horses are normal and sound and which one lead to soreness and occasionally to a further breakdown. Further to provide an objective testing technique for monitoring the therapy plan and a prophylactic guide for back problems

MATERIALS AND METHODS

Since Sept 1:1999 we have carried out a standard testing procedure on over 100 horses. The flexibility and pain information was gained along with a video assessment of performance, rider comments, age of the horse, sport category, and Veterinary report are incorporated into a database. The test group includes elite show jumpers, elite dressage horses, trotters, hobbyhorses and western performance horses in Germany, Switzerland and Austria. The horses tested in this experiment were sound, without behaviour problems or vices. All were in normal work or in competition. Horses tested for the back flexibility test had also a complete history of show, medical and training problems.

Pain Mapping

The sensitivity in different places of the body was measured by using a pressure gauge. The reaction of the horse was recorded by a scoring system

Manual Palpation for pain points was done in

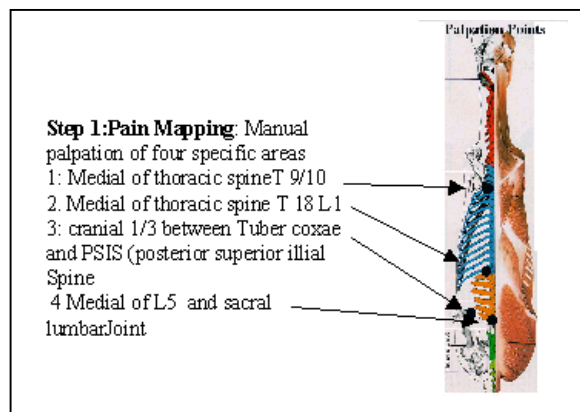
four areas bilaterally:

- 1: Laterally of thoracic spine T 9/10
- 2.: Laterally of thoracic spine T 18 L1
- 3: Laterally of L5 and sacral lumbar Joint
- 4: Dorsally 1/3 between Tuber Coxae

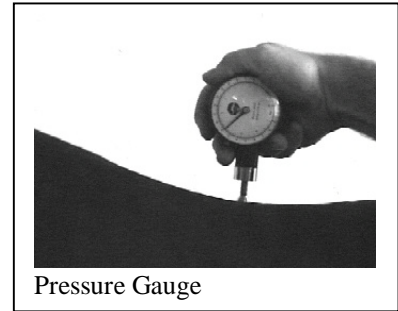
and PSIS (posterior superior illial Spine)

Evaluation

The recording was done by estimation of the response of the horse (hollowing back or dropping hip and muscle spasm) and scored in a range from 1 to 5. The lower the number the more pressure with the pressure gauge the horse could stand without heavy reaction:



- 1 Pressure above 6 Kilo
- 2/3 Pressure with of 4-5 Kilo
- 4/5 Pressure with of 1-3 kilo



Pressure Gauge

Back Flexibility Test:

The test consisted of a handler holding the horse against the wall on the left side with the head in the corner with a 20° side bend and the second hand pressure below C6/7. The Therapist also on the right side stabilizes the hind end by keeping moderate pressure on the tuber coax and with the second hand stimulating the mid point of the sacrum with light to heavy pressure. Between 4-8 kilo.

Evaluation

Because of the different shapes in the horse's back we could find when ventro-flexed, the categorised the most frequent pattern..

Category 1: Evenness of ventro- flexion in relation to the thoracic area (T10-12) and the lumbar area .

Category 2: Unevenness of ventro- flexion in the movement of T10-11 and the lumbar area to L2/3.



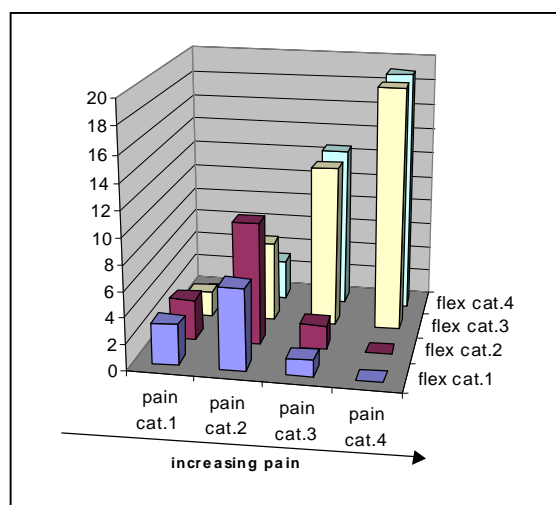
Different categories of Back Flexibility Test. (Cat 1 – Cat. 4)

Category 3: Fixation of the upper movement of T10-11 and excessive ventro-flexion of the lumbar area

Category 4: Abnormal, no change of measurement, side twisting or kicking. (Vertebral Fixation, Muscle asymmetry, Muscle pain,)

RESULTS:

Of the 100 horse tested 10 horses showed a back test of category 1 with pain mapping of 1/2. 25 horses back flexibility test was 2 with a pain scored of 2/3. 55 horses showed the flexibility category 3 with pain mapping points from 2-5. There were 10 horses that were in the category 4 with pain mapping of 3-5.



CONCLUSION

The formulation from this test showed that the more pain points and intensity of the pain correlated with decreasing back flexibility, and spinal instability of the lumbar area. Note: in category 4 it is hard to determine if the poor back flexibility was due improper handling training or truly pain.

This test needs now to further investigate the relationship low back instability, fixation of the thoracic vertebrae with irregular gait movements. In conclusion this testing procedure could be used as an assessment procedure for proofing the effectiveness of the therapy.