USING PLIANCE AND A PLIANCE DEVELOPED SADDLE TO OPTIMIZE FIT AND COMFORT FOR A HORSE WITH SEVERE SPINAL ABNORMALITIES

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INTRODUCTION

Basstrup's Disease or kissing spines syndrome is a degenerative condition in equines where the vertical spinous processes make contact and rub together. Inflammatory damage at the bone edges, bony remodeling, and compression of the surrounding soft tissue can result. The disease often causes severe pain and can greatly limit the performance of the affected horse. Correct long frame riding that activates the upper contraction system (Heuschmann, 2006) and pulls the spinous processes up and away from each other can be beneficial. Saddle fit for affected horses is critical as pressure on the horses back increases during the lifting of the spine.

The equine subject in this study suffers from a severe case of Basstrup's disease. Radiographs of the back show grade IV spinous impingment of the thorasic and lumbar vertebrae at the level of T14-L3. During riding, the horse had collapsed on several occasions. Initially it was unclear if the pain was solely due to the disease or if the saddle fit was a factor as well.

METHODS

Pressure testing was performed on the horse's existing saddle using the Pliance saddle test system (Novel, Inc. MN). A new saddle, whose saddle tree has been designed using the Pliance saddle test system, was fit and pressure tested on the subject as well. Pressure data from both tests were then compared.

RESULTS

Results for the existing saddle showed asymmetric loading with substantially higher pressures toward the left and rear of the saddle (figure 1). Maximum average peak pressure at the walk was 19.750 kPa. A study at the University of Zurich associated saddle related damage at the walk at average pressures exceeding 15.3 kPa (von Peinen, 2010). Fit and performance for the existing saddle was assessed as poor.

The saddle with the Pliance designed tree produced a substantially better pressure distribution than did the previous saddle. Loading was symmetric, with very reasonable variations indicated throughout the entire scan (figure 2). The maximum average peak pressure was 12.500 kPa. Also, the new saddle had a significantly larger bearing area than did the existing saddle. Panel contact area for the new saddle was 1471.875 cm^2. Contact area for the existing saddle was 1012.500 cm^2.

The horse's performance improved dramatically when ridden in the new saddle. The horse has been able to lift and flex his spine upward, and carry himself in a biomechanically correct manner. The basic gaits have improved, and the increased muscling in the horse's hindquarters suggests an enhanced ability to push forward. Video of the horse at the trot shows a positive diagonal dissociation between the fore and hind legs. This is an indicator that the trot is of good quality and well balanced (Clayton, 2003).

FIGURES

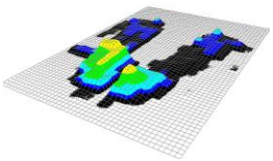

Figure 1: Existing saddle, asymmetric loading.

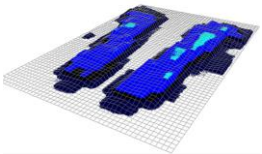

Figure 2: New saddle, symmetric loading.

REFERENCES

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