INFLUENCE OF SADDLE PADS ON THE PRESSURE DISTRIBUTION OF A WELL FITTED EQUINE SADDLE: A PILOT STUDY

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The importance of saddle fit is a topic that has gained gained a great deal of prominence in the last two decades. There is a high correlation between poor saddle fit and poor equine performance (Harman, 2004). The modern English style saddle is technically designed to be used without any additional padding. In practice, though, the vast majority of riders and trainers note that horses usually perform better when some type of saddle pad is placed between the horse's back and the saddle. The purpose of this study was to investigate the influence of saddle pads on the pressure distribution of a well fitted saddle.

METHODS

A modern U.K. manufactured jumping saddle was fit to a 6 year old Thoroughbred cross mare. The saddle was manufactured on a preformed flexible saddle tree. The saddle fit was assessed as excellent by a U.K. Society of Master Saddlers, Qualified Saddle Fitter. The saddle was then pressure tested with no pad so a baseline assessment could be made. Next, pressure testing was done with the addition of various saddle pads to see if any changes in the pressure distribution occurred. Pressure testing was performed using the Pliance saddle test system (Novel, Inc. MN). All measurements were made with the horse at the walk.The rider was a 30 year old female of advanced riding ability, and a weight of 59 kg. The rider's ability to maintain a stable core and load the saddle evenly was assessed as excellent.

RESULTS

In all, a total of 12 different commercially available saddle pads were tested. In every case but one, the saddle pads cause a reduction in the average peak pressure (table 1). The dyed soft pile sheepskin pad produced the best overall reduction in the avg. peak pressure (% diff= -40.0). The only pad that failed to reduce the avg. peak pressure was a pad that had 4 raised gel additions attached to a foam base. This pad raised the average peak pressure by 10.0%. Visual inspection of the pressure map produced by this pad shows a spatial correlation between the location of the gel additions and areas of higher pressure (figure 2). Also, this pad reduced the contact area between the horse's back and the saddle from 1556.250 cm^2 to 1415.625cm^2. It was the only pad tested that reduced the contact area.

FIGURES

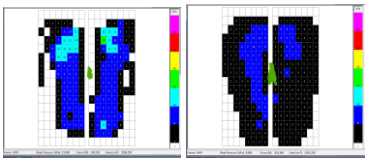

Figure 1:Baseline scan is shown on the left: saddle at the walk with no pad. Scan on the right shows the saddle tested at the walk with a dyed soft pile sheepskin pad. The pad reduced the avg. peak pressure by 40.0%. Contact area increased from 1556.250 $cm^2$to 1931.250 cm^2.

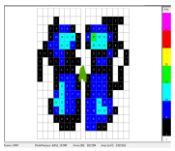

Figure 2: Avg pressure map of pad with raised gel points. High pressure areas are located along the gel points.

Pad Type	Peak avg pressure (kPa)	% Diff
None	15.00	0
Sheepskin, dyed	9.00	-40.0
Sheepskin, undyed	9.50	-36.7
Memory foam	9.50	-36.7
Gel pad, high shear	9.75	-35.0
CC foam, thick *	10.00	-33.3
Quilted cotton	10.25	-31.7
HW quilted cotton**	11.25	-25.0
Nonslip CC foam*	11.50	-23.3
OC Foam***	12.00	-20.0
CC foam, thin	12.25	-18.3
CC foam, w/1shim	13.25	-11.7
Foam with gel points	16.50	+10.0

*Table 1: Lists pad type tested, maximum average peak pressure, and the % diffence in peak pressures compare with the baseline. *CC=closed cell, ** HW=high withered, ***OC=open cell.*

REFERENCES

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