

The Horse's Back as Influenced by Saddle Fit

A Senior Project

Presented to

The Faculty of the Agricultural Education and Communication Department
California Polytechnic State University, San Luis Obispo

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science

By
Katie A. Millican

June 2019
© Katie A. Millican

Introduction

Day in and day out horse owners often hear words such as “lameness” or “soreness”, but they are not often enough talking about an extremely important factor that contributes to their horse’s wellbeing; their saddle fit, and the impact it has on their horse’s back (Kemp, 2011). After thorough research, evidence suggests the ill-fit of most saddles contributes to uneven heat patterns in many horses’ backs, which can contribute to the aforementioned lameness and soreness.

Therefore, this project will use devices called the Lameness Locator and a thermal camera along with facilities at the Equine Center in San Luis Obispo, California. The objective of the project is to utilize a population of sound horses and compare the heat detection images of their backs and saddles after being ridden to provide saddle fit data. This project will provide information contributing to closing the gap of equestrians uneducated about the importance of saddle fit.

The reason for researching and conducting a study to prove this point is simple: a horse owner needs to look at the bigger picture when it comes to their horse’s wellbeing. Pain in horses is often overlooked as causes of other issues or injuries and the aim of this study is to bring more attention to the comfort and happiness of riding horses by improving saddle fit. It is the author’s hope, this in turn will have the ability to create happier riders as well as better performing horses. Instead of waiting to address the problem once symptoms arise, this study also aims to help owners avoid saddle fit issues before they cause pain and discomfort.

Background

Many horse owners aren’t even aware that saddle fit was the main cause of back problems in horses (Cocq, P. et al, 2016) 2006). Furthermore, owners are also unaware that saddles (as well as horses) change over time and should be reevaluated at least annually (Dyson, S., Greve, L., 2016). These reasons alone are enough to prove that saddle fit is an extremely important contributing factor to heat distribution and back pain in the horse.

To complete this study, two tools are used to evaluate horses and their saddles. The first of these tools is the Equinosis Lameness Locator. This tool is used is one that “enables a veterinarian to objectively measure lameness in horses with non-invasive inertial sensors” (Equinosis, 2019). Using this tool, all horses in the study were proven to be reasonably sound before continuing on in the study. The second tool used was the FLIR Thermal Camera, which is used to assess heat patterns in both a horse’s back and its saddle. These measurements can be directly related to saddle fit as areas with more pressure from the saddle will display more heat (FLIR, 2019).

Saddles can be made from a multitude of materials. Saddles typically have wooden trees with leather or synthetic leather attached. “A typical saddle includes a base frame or "tree"; a seat for the rider; skirts, panels, and flaps that protect the horse from the rider's legs and vice versa; a girth that fits around the stomach of the horse and keeps the saddle stable; and stirrups for the

rider's feet” (Made How, 2019). Over time, saddle trees can warp or become twisted. Additionally, how a rider sits and moves in the saddle can alter saddle pressure. These factors impact saddle comfort and heat distribution (Dyson, S., Greve, L., 2016).

Methodology

To carry out the proof of this argument, the Lameness Locator and the thermal camera were used. Using these tools, a sample set of ten horses and saddle types including jumping, dressage and western saddles were analyzed.

Before beginning the study, each horse was brought into the barn aisle out of the sun and allowed to stand in the shade and cool down for a few minutes. They were also lightly groomed as evenly as possible across their entire body. The purpose of these steps is to help create the most accurate thermograph reading possible.

All four feet were picked out and cleaned. After this, the Lameness Locator was used first to determine that each horse was considered sound, and therefore able to participate in the study. In addition, while horses were trotted for the Lameness Locator they were simultaneously being lightly warmed up to create a more accurate thermograph reading.

Next, each horse’s back and underside of their saddle were evaluated via thermograph. Saddles were thermographed while sitting on the ground with the pommel of the saddle facing down, and each horse’s back was thermographed using a mirror hanging from the ceiling.

Immediately after this, horse and rider were sent out to ride for approximately fifteen minutes. The riders were asked to do an even amount of work in both directions, and at the walk, trot and canter. Once again immediately after the ride, the horse and saddle were re-evaluated via thermograph. The resulting data was then saved for comparison and evaluation to look at the evenness of heat patterns in both the horses and their saddles.

Results

The overall results of the study confirmed the author’s hypothesis: more often than not, horses do not have properly fitting saddles. What was ultimately found on the thermographs was that most saddles don’t fit horses properly. A sample set of ten horses and saddles of different types were used to assess this. More than 40 images were used to analyze saddle fit. Using the methodology identified above, all but two horses showed different variations of uneven heat patterns in both their backs and saddles after 15 minutes of riding. The two horses with the least amount of unevenness in the heat patterns on their backs and saddles were ones that had been professionally fitted to that horse.

Implications/Moving Forward

From here, it is clear saddle fit plays a critical role in a horse’s comfort and wellbeing. There is evidently a difference between saddles fitted by a professional and those that are not.

Moving forward, it is now evident fitting by a professional is in fact the best way to avoid some of the most common back problems in the horse.

Speaking economically, it might not be feasible to have each saddle a horse owner has fitted annually, but having saddles fitted at least once every few years should be a priority for riders. Having a saddle that reasonably fits the horse is one of the best ways to help keep a horse comfortable and therefore happy throughout its career as a riding horse. This project contributes to research that supports saddle fit is one of the best ways to prevent future back pain and other back problems.

Whether it be a top level competition horse or a trail horse ridden at home for fun, each horse deserves to have a saddle it can be comfortable in. Not only will this create a happier and healthier horse in the long run, but it will save owners vet expenses due to back pain in the years to come. Something as simple as having a saddle that fits properly is a win-win situation for everyone involved.

Citations

“About FLIR.” *About FLIR* | *FLIR Systems*, www.flir.com/about/about-flir/.

“Equinosis Q System | Equine Lameness : Equinosis | Lameness Locator.” *Equinosis*,
equinosis.com/veterinarians/learn-more/.

Greve, L, and S Dyson. “Saddle Fit and Management: An Investigation of the Association with Equine Thoracolumbar Asymmetries, Horse and Rider Health.” *Equine Veterinary Journal*, U.S. National Library of Medicine, July 2015,
www.ncbi.nlm.nih.gov/pubmed/24905610.

Kemp, Lisa. “The Science Of Saddle Fit – The Horse.” *The Horse*, 1 Feb. 2011,
thehorse.com/150724/the-science-of-saddle-fit/.

Kotschwar, A. B., et al. “The Effects of Different Saddle Pads on Forces and Pressure Distribution beneath a Fitting Saddle.” *Equine Veterinary Journal*, American Medical Association (AMA), 9 Feb. 2010,
onlinelibrary.wiley.com/doi/abs/10.2746/042516409X475382.

“Saddle.” *How Products Are Made*, www.madehow.com/Volume-1/Saddle.html.

Technologies, RegStep. “AVCA Annual Conference.” *AVCA Annual Conference*,
avca.regstep.com/.