



Direct Comparison of Pliance and Thermography re Saddle Fit

Testing Team:

Pliance pressure mat testing -

The Society of Master Saddlers

Qualified Society of Master Saddlers

Saddle Fitters -

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Thermology -

Equiscan now SyncThermology & their veterinary team

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Biomechanics -

Centaur Biomechanics, Russell Guire

Introduction:

The Society of Master Saddlers (SMS) and SyncThermology, previously known as Equiscan, joined forces to undertake ground-breaking research to see if thermography can be used to assess saddle fit. Thermography is proven as a very useful tool for assessing the health of horses' backs, but how do thermographic images compare to the results produced by the SMS' Pliance pressure mapping system? This was a study that SyncThermology were very keen to take part in as an increased amount of horse owners are enquiring about saddle tests and, although offered as part of a full body evaluation, they do not provide standalone saddle tests.

SyncThermology were selected for the study as they provide medical grade thermography that is registered as the medical screening device, just like x-ray, ultrasound, MRI. The team's Thermographers do not evaluate the scan themselves; all results are provided by their team of vets who are trained to read thermography. When trying to interpret images by eye the wrong conclusion is often found. In order to draw conclusions from this type of screening specialist veterinary interpretation is needed.

Procedure:

Six horses were assessed by a vet, physiotherapist and biomechanics specialists to see if there were any underlying issues which may affect saddle fit or the horse's performance. A strict test protocol was followed with each horse to ensure accuracy of results. The horses had a full body thermography scan pre and post exercise along with a timed lunging session to assess any conditions that were exercise induced rather than saddle related. They were then ridden for a set period and then screened again to assess the fit of the saddle. Finally, the horses were ridden for the same period again, but this time the Pliance pressure mat was used to assess the fit of the saddle. We have included brief results of three of the horses below to give an insight into the study.

The Horses:

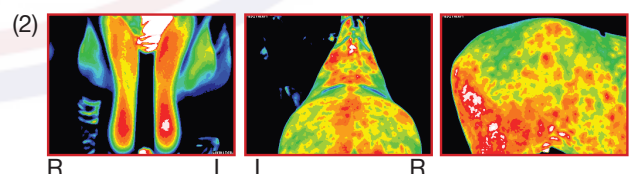
Horse 1- Skippy

Saddle details - Made to template saddle which fitted well when stationary, but moved left when ridden

- Pliance showed higher pressure at both sides of the wither and at the back of the panel on the right side which correlates with a saddle moving left (1)
- Thermographic imaging showed increased temperatures on the left side of the saddle panel (2)
- Visually thermographic imaging was misleading as heat did not reflect the pressure

Non saddle related thermography results:

On lateral views of the hindquarters, there is bilateral inflammation in the hamstrings region, indicative of musculoskeletal dysfunction (tightness). This condition needed to be reviewed by vet.



The Horses:

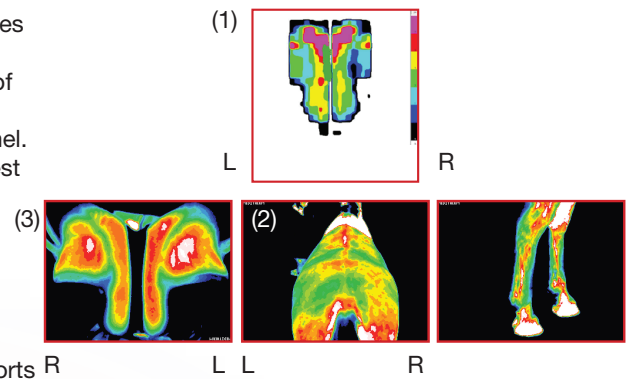
Horse 2 - Buster

Saddle Details - Very old monoflap several widths too narrow

- Pliance showed very high pressures either side of the withers, which indicates the saddle is far too narrow (1)
- There was no thermal evidence to suggest the saddle was tight either side of the wither (2)
- Thermographic images of the saddle show a slight imbalance to the left panel. The image of the saddle panels are visually misleading as they would suggest good saddle contact (3)

Non saddle related thermography results:

Although thermography was inaccurate in the assessment of the saddle fit, it detected a number of other dysfunctions specific to the right hind limb, which were worthy of further investigation. This correlated with other professional reports on the day.



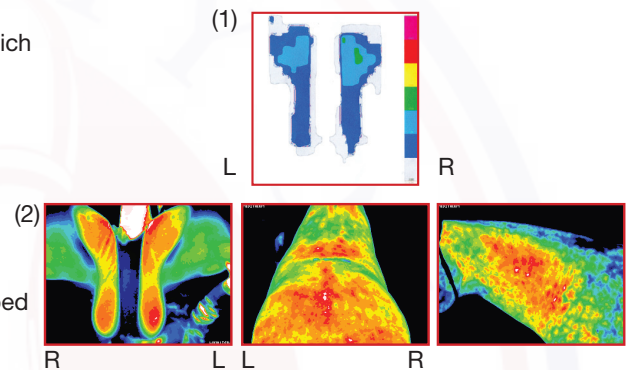
Horse 6 - Stan

Saddle Details - Saddle fitted well when stationary but the horse has a large right shoulder which pushed the saddle left when the horse moved

- Pliance detected increased pressure on the right panel towards the front which tallies with the interference caused by the large right shoulder (1)
- Thermographic imaging detected a slight imbalance to the left panel (2)
- Visually the thermographic images appear to detect 4 point panel contact (which there was not), if this were reviewed by an untrained professional, findings could be interpreted incorrectly (2)

Non saddle related thermography results:

Thermography detected muscular tightness in the neck and cold areas developed in the back post lungeing.



Key Points:

- Thermographically there is no indication that heat equals pressure
- Thermograms of the underside of the saddle are misleading and in most cases would lead to incorrect interpretation. If thermograms were followed without a professional saddler's evaluation, interpretation could detect issues on the opposite side to where the problem actually lies
- Thermographic images of the saddle panels are too misleading to be given to an owner, saddler or saddle fitter without first assessing the saddle on the horse
- Thermography cannot be used in the assessment of brand new saddles as the body was not responding like it would if the horse had been ridden in the saddle for three months. There was no way to detect what effects the saddle may have had on the horse's back after an extended period of work.
- Thermography doesn't show a "bad fit" when the saddle is used for the first time, see point above
- The use of pads blocks the metabolic heat reflected onto the surface of the saddle therefore if thermography was used to assess the fit of a saddle with pads attached results would be misleading. The same statement applies if pads are removed for testing when the saddle has been specifically fitted with pads.
- The thermographic results provided by the qualified veterinary thermologist correlated well with the veterinary, physiotherapy and gait analysis findings
- Thermography was able to assess conditions that were exercise induced rather than saddle related by screening the horses pre and post lunging and after ridden work

The Conclusion:

Results indicate that Thermography cannot be used in the assessment of saddle fit at this stage. Standalone saddle testing with thermography is (in most cases) providing misleading results. However, if during a full body scan thermography detected a condition that was possibly saddle related the best course of action would be to immediately involve a saddle fitter to assess the fit of the saddle.