Does your breastplate restrict your horse's performance?

We've probably all spent time and money trying lots of different bits in an attempt to improve our horse's performance, but how often do we swap breastplates to find out what difference they might make?

Vanessa Fairfax of Fairfax Saddles thinks we should be paying much more attention to every piece of tack we use. She very much believes in the aggregation of marginal gains and has spent the last seven years researching, testing and developing products which derestrict the horse, allowing him to perform better (see panel). So far, three peer-reviewed papers have been published in veterinary journals, scientifically proving the benefits of Fairfax Performance products, and now Vanessa has turned her attention to investigating breastplates.

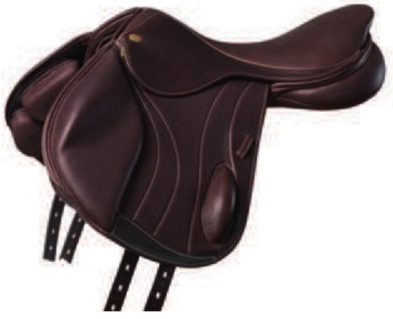
BREASTPLATE RESEARCH

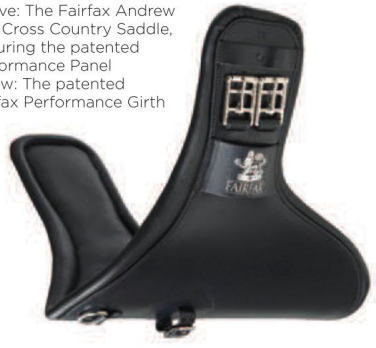
She has discovered that using a breastplate has a significant negative effect on the horse's action as he jumps. The results of her research have led her to develop a new style of breastplate – one which prevents the saddle slipping back when needed, but that works without restricting the horse's movement or breathing. Indeed, scientific trials have proved that the Fairfax Performance Breastplate does not interfere with the horse's natural jumping action or shape over the fence.

"When a breastplate is attached to a saddle and then the girth, it forms, in effect, a 'cage' around the horse's shoulder apparatus that restricts his movement over a jump," explains Vanessa. "Our design removes that restriction completely and allows the horse to move just as freely as he would without one."

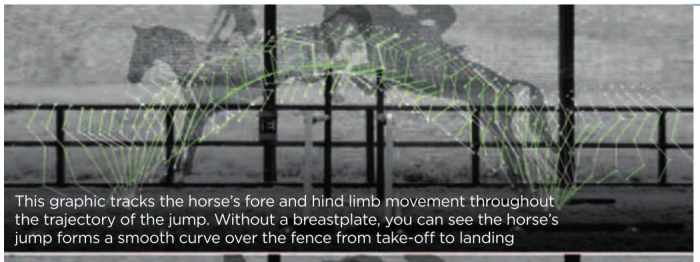
SCIENTIFIC TRIALS

The scientific trials involved 10 elite eventers jumping the same oxer, first without a breastplate and then wearing a variety of popular designs. The results were analysed using Centaur Biomechanics' gait analysis and

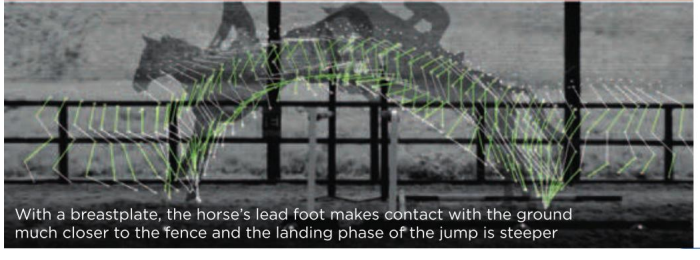




Above: The Fairfax Andrew Hoy Cross Country Saddle, featuring the patented Performance Panel
Below: The patented Fairfax Performance Girth



This graphic tracks the horse's fore and hind limb movement throughout the trajectory of the jump. Without a breastplate, you can see the horse's jump forms a smooth curve over the fence from take-off to landing



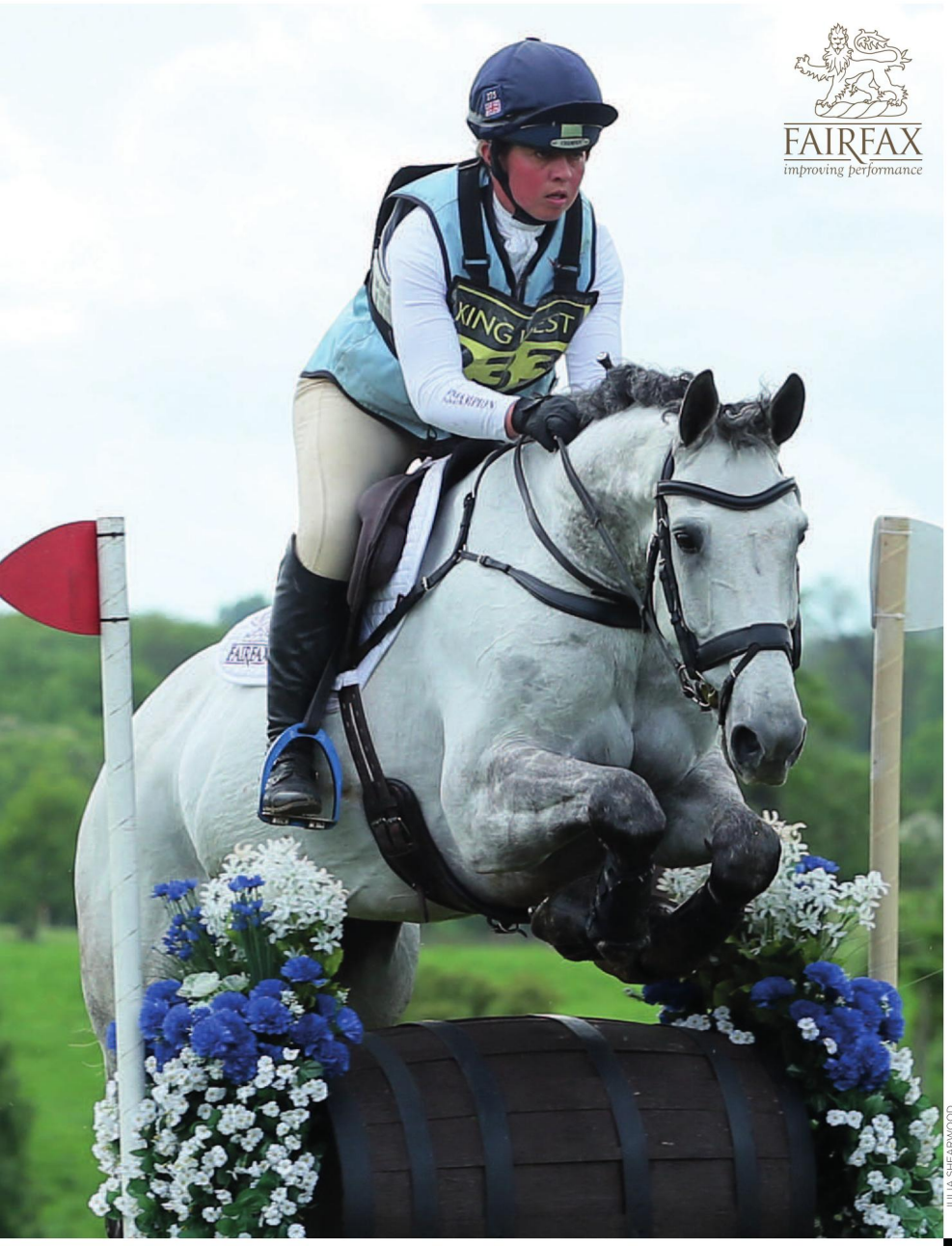
With a breastplate, the horse's lead foot makes contact with the ground much closer to the fence and the landing phase of the jump is steeper

MARGINAL GAIN

In elite equestrian sport, the difference between gold and fourth can be the tiniest degrees of performance.

The aggregation of marginal gains is the practice of making small improvements in every area of equipment, training and management that all add up to a significant overall benefit. Fairfax Saddles employs scientific testing and innovative design to develop everyday pieces of tack that are now recognised by Olympic team managers and scientists alike as performance-improving equipment.

Since the Fairfax Performance Girth burst on to the scene following the 2012 Olympics, when it was dubbed team GBR's secret weapon, Fairfax has gone on to produce pressure-reducing bridles and saddles, which have also been scientifically proven to enhance the horse's way of going. When added together, these individual gains can combine to improve the horse's overall performance, while also helping preserve his physical and mental well-being.



JULIA SHEARWOOD

COMPETITION IMPLICATIONS

This pattern was scientifically recorded over one fence under controlled conditions in an indoor school, but consider the negative impact your breastplate might be having when you ask your horse to jump something more demanding, such as a steep drop into water? Or what about when you find yourself in a slightly tricky situation and you are hoping your horse will find his 'fifth leg'? This research suggests he will handle these situations less well if he is wearing a restrictive breastplate.

SAFETY BELT

Previous research has shown that saddle and rider stability is essential for optimum performance, so the last thing anyone wants is for their saddle to slip while they're out on course.

"A well-fitting saddle shouldn't move noticeably when you are jumping," explains Vanessa. "In my view, a breastplate should act like a safety belt which only comes into play when it's really needed. It's not something that should be used to constantly keep the saddle in place."

Vanessa's findings show breastplates can negatively affect the horse's jump and this new understanding has led her to question whether they should be necessary for show jumping. "You are not faced with the same safety risks as a cross country round, such as catching the girth on a brush and dragging the saddle back, so a breastplate shouldn't really be needed for show jumping if the saddle fits correctly. Its potentially restrictive effect could be even more influential if the horse is tired and the cross country has taken a lot out of him, or show jumping isn't his best phase."

The Performance Breastplate was trialled by Fairfax team riders at three and four star events throughout 2017 and will be available from Fairfax retailers from January 2018. Find your local stockist at www.fairfaxsaddles.com

Pliance pressure mapping technologies. Russell Guire of Centaur Biomechanics uses cameras which capture movement at 300 frames per second (25 times faster than the human eye), allowing the software to examine and compare the action of each horse in take-off, flight and landing.

PEAK PRESSURES

For every breastplate in the test, regardless of design, the highest pressures were consistently seen at the moment when the horse is at the peak of take-off and its shoulder is in its most forward position. However, Russell's analysis showed that the whole jump is adversely affected by the breastplate from this point onwards:

- The shape of the jump from take-off to landing (the trajectory) is shortened (see pictures left).
- The horse's landing is steeper.
- The horse's hind legs are 'cramped' in the landing phase, with the joints flexing more in an attempt to clear the fence.

Furthermore, both over-flexing and landing more steeply cause increased wear and tear on the horse's limbs and joints. Any negative effects on the horse's natural action, such as these, mean he has to put more effort into every jump and, particularly over a long course, will increase fatigue.