



Girth Up

Girths may seem a ho-hum subject. So why did the British Olympic team call one design its secret weapon?

BY COLLEEN SCOTT

BINDING ISSUE: *The right girth is comfortable for the horse and allows him to move freely*



Dressage riders pay all kinds of attention to saddles, saddle pads, bridles, and bits. But when was the last time you heard a heated debate over girths?

To many equestrians, a girth is something of an afterthought—a simple strap to keep the saddle on and in place—and they don't sweat the details of design or material too much. But in recent years, girths have been getting more attention. International Grand Prix-level competitor Catherine Haddad Staller, for instance, is an outspoken proponent of the \$35 nylon cord girth. On the flip side, the British Equestrian Federation (BEF) insisted on the use of a nontraditional girth at least ten times that cost for its 2012 Olympic teams. The BEF's choice of girth became known as the teams' "secret weapon"—which might sound like hyperbole had Great Britain not won an unprecedented five medals, including team and individual dressage gold.

How much impact can a girth have on a horse's performance? Can the right girth result in a happier and more willing equine partner? To find answers, we delved into the research. Here's what we learned.

Why Does the Girth Matter?

In a study conducted on Thoroughbred racehorses and subsequently published in the *Australian Veterinary Journal*, researchers determined that both the type of girth and the tension at which it is applied affected the horses' athletic performance. The researchers concluded that lower girth tension and the use of elastic materials may optimize equine performance.

For a more detailed explanation of the racehorse-study findings, we turned to equine-biomechanics expert and *USDF Connection* contributing editor Dr. Hilary Clayton. She says: "The tightness of the girth around the thorax increases as a horse changes gaits from the walk to the trot and then to the canter, which makes sense because the faster they go, the harder they are breathing."

But what about those horses that do not perform at maximum aerobic capacity, including dressage horses? Does the traditional straight, nonelastic girth design allow for maximum comfort and performance?

More than two decades ago, Gene Freeze, president and chief designer at County Saddlery, Lisbon, MD, determined that it does not.

According to Freeze, even girths purported at the time to be "anatomically correct" were inadequate.

"Although they were intended to create clearance for the shoulder, and even though they had curves, they were



ANATOMICAL DESIGN: *County Saddlery's Logic girth*

all virtually straight,” says Freeze. “Unfortunately, however, these types of girths, just like any other straight girth, only lined up with the billets if the saddle was placed too far forward onto the horse’s shoulder, over the ‘girth groove.’



TRIED AND TRUE: *International competitor Catherine Haddad Staller chooses an inexpensive nylon cord girth over newer designs*

Of course, putting the saddle on the shoulder restricted it and negated the ostensible benefit of making room for the shoulder to move freely.”

When Freeze started considering what a girth might look like if it was placed well behind the back edge of the scapula, he discarded conventional designs. To maximize the horse’s freedom of movement, the girth would have to curve rearward and then re-curve forward to meet the billets, he determined.

Although the design might have been “more than 4,000 years in the making,” as County’s first advertising campaign for the new girth put it (a reference to the approximate age of the first known saddle and girth), Freeze’s curved girth, called the Logic, is now the only girth that County sells.

“We tend to focus on specialized products with a purpose,” Freeze says. “Because the benefits are so clear and the reasoning so sound for the Logic girth, we simply don’t offer older, conventional designs, and we continue to improve our existing ones.”

But as the old saying goes, ask 10 horsemen a question and you’ll get 10 different opinions. Staller, while a believer that conventional girths are not particularly comfortable for horses, maintains that a nylon cord girth—a long girth, that is, used with a saddle with short billets—is the optimal choice.

“The string cord girth is one of the most comfortable girths for a horse. It does not interfere with the elbow of the horse in motion, and it secures and stabilizes the saddle better than a short girth,” Staller says.

Proof, Finally?

Surprisingly, little research on the effects of girth design on performance horses had been conducted until British researchers Rachel Murray, Russell Guire, Mark Fisher, and Vanessa Fairfax tested an unconventionally shaped girth developed by Murray, a researcher at the Animal Health Trust in Newmarket, UK; and Fairfax, of Fairfax Saddles Ltd. in Walsall, UK.



THE “SECRET WEAPON”: *The Fairfax Performance Girth*

Girth F, as the prototype was called, was cushioned and curved around the horse’s elbows—a design very similar to that of the County Logic girth. The researchers wanted to compare Girth F to other types of standard girths, in hopes of learning the following:

- Determine the sites of maximum pressure under different girths in horses in trot using a pressure mat
- Design a girth that avoids sites of maximal pressure during movement
- Compare the maximum pressure and gait characteristics of horses wearing the designed girth with those in the same horses wearing their usual girths.

The results of the study, “Girth pressure measurements reveal high peak pressures that can be avoided using an alternative girth design that also results in increased limb protraction and flexion in the swing phase,” were published in the October 2013 issue of the international veterinary-research journal *The Veterinary Journal*.

Fairfax calls the findings “astounding.” When they tested traditional girth designs, “The amount of pressure under the girth was staggering: In many cases, it was higher than we would expect to record under a saddle when landing over a 1.4-meter [4.6 feet] fence. Also, [the pressure] was not on the sternum as expected, but behind the elbows of every horse.”

When the researchers compared the pressure readings of Girth F to standard girths, they found that peak pressure on the right side was 98 percent higher when the horse was in a traditional girth and 76 percent higher on the left side. Maximum force was also higher with the traditional girth.



THE RESULT: *The British Equestrian Federation attributed part of its success at the 2012 Olympics to the then-secret girth design. Pictured are team dressage gold medalists Carl Hester, Laura Bechtolsheimer, and Charlotte Dujardin.*

With the highest pressure point from traditional girths found to be over the muscles behind the elbow, researchers determined that lessening the pressure in that area was optimal.

Besides the reduction in pressure, the study also showed that horses’ gaits improved while wearing Girth F: 6 to 11 percent greater forelimb extension, 10 to 20 percent greater hind-limb protraction, 4 percent greater knee flexion, and 3 percent greater hock flexion.

These findings led Fisher, a master saddler and consultant to the BEF, to mount a campaign to keep Girth F—now known as the Fairfax Performance Girth—under wraps until the conclusion of the 2012 Olympic Games, as he and others affiliated with the British squad felt it might give their teams an advantage. (The study results were kept under wraps, too, with publication withheld until after the London Games, Murray says.) After the Brits left London with team and individual dressage gold medals, individual dressage bronze, team gold in jumping, and team silver in eventing, Britain’s *Horse & Hound* magazine ran a detailed feature story about the Fairfax Performance Girth’s development and dubbed it the British teams’ “secret weapon.” ➔

Fairfax says the nickname was well deserved. “The Fairfax Performance Girth is the only girth which has ever been scientifically proven to give a significant improvement in the elite horse’s freedom of movement. So without a doubt it contributed to the medal-winning performances of our team members. At the Olympic level, we are always looking for anything that gives the team an edge. This is why the British Equestrian Federation went as far as issuing a confidentiality agreement that the riders signed before receiving their girths, in an attempt to keep the advantage secret from the other nations.”

What About the Lookalikes?

Freeze gets a little hot under the collar when he talks about the Fairfax Performance Girth—which, as we’ve mentioned, is shaped almost identically to the older County Logic design. Fairfax herself, in that *Horse & Hound* article, “acknowledges that there are several brands...on the market cut in this sort of anatomical shape.” The article goes on to point out that “almost every manufacturer has a version of the ‘humane’ or ‘comfort’ girth.”

The difference, Fairfax told *H&H*, is that “Our curvature is different, the angle of our buckles is different, and we have the floating leading edge,” referring to the patented design of the front edge of the Fairfax girth, which is “structured to guide the muscles back under the girth, rather than blocking them, which happens in some girths,” the article states.

(Murray elaborates: “For the horse to create the correct posture through its body and move its forelimbs correctly, it needs to contract (and therefore expand) muscles that lie directly beneath the girth. If these muscles are constricted, then the horse finds it difficult to move properly.”)

Which Girth?

The research may be compelling, but Staller is sticking with her cord girth, thank you very much. (She’s also stuck with the traditional long girth/short billet combination, bucking the decades-old trend toward dressage saddles with long billets and short girths.)

“While I have tried several different types of girths in my career, I keep going back to the one that works,” Staller says. “A good nylon cord girth will set you back thirty-five dollars and last for a lifetime if you are using it on one horse per day. Simply put, there is no better mousetrap, although lots of people keep trying.”

There are indeed lots of mousetraps: dressage girths of leather, nylon, string, cotton web, and a host of synthetic

materials. Short girths and long. Girths with elastic ends, or elastic in the body of the girth itself. Girths lined with synthetic fleece. And that’s not including the many types of girth covers designed to increase comfort and protect against rubs and galls. How to choose?

The Dover Saddlery website (DoverSaddlery.com) offers some basic advice about girth selection, including these rules of thumb:

- Consider how your horse moves, any skin sensitivities (including allergies), and how much he sweats in selecting a girth.
- The correct girth length will allow for adjustment to the same billet holes on both sides of the saddle. (This applies to both long and short girths.)
- For long girths, the buckles should not be too high. If the buckles are under your thighs, they will create bulk.
- For short dressage girths, there should be three to four fingers’ width between the top of the girth and the bottom of the saddle pad and flap on both sides. If there is not enough width in that area, the horse’s skin can become pinched. At the same time, the girth buckles shouldn’t rest such that they bump the horse’s elbows as he moves.

Leather is a time-tested choice in girth materials and provides a traditional look. Many saddle manufacturers also produce leather girths whose design, color, and stitching match the saddles. However, like all leather tack, leather girths require regular care and occasional conditioning.

Synthetics are appealing because of the ease of care; they can be wiped off, and some models can even go in the washing machine. However, some horses are allergic to neoprene, a commonly used synthetic. String girths (available in mohair, cotton, nylon, and wool) may require frequent washing. Wool fleece-backed girths may require special care.

Hilary Clayton, who prefers a neoprene girth for ease of cleaning and suppleness, recommends evaluating your horse’s individual needs first, and says the only way to determine what works best for your horse is through trial and error. She suggests borrowing several girths to test—and trying to maintain objectivity in those evaluations. She also recommends looking carefully at where your horse’s girth line is and checking to see how close the girth is to his elbows. Your veterinarian and saddle fitter can help with an assessment, she says.

Strap One On

Research has shown that girth design and material can be important in helping your horse to feel and perform his best. Just as your horse may show a distinct preference for

a particular saddle model or a certain bit, he may demonstrate his like—or dislike—of the way a girth fits and feels. And in a sport that's all about achieving the greatest ease and freedom of movement, riders would do well to find a girth their horses like.

“It is very important that girths are fitted to horses (and with individual saddles) individually in the same way that a saddle should be fitted, but most people just buy them off the shelf. A badly fitted girth can affect the horse's movement and also affect the saddle interaction with the horse,” says Murray.

But “secret weapon” or no, the girth is just one aspect of the entire dressage package. As Clayton puts it, “Chang-

ing your horse's girth may improve his performance, but it's unlikely to turn him into Valegro.” ▲

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