



Walking your horse up a gentle hill in a long frame while he maintains correct, positive contact with the bit (as Terrance Watkins's Blue Mezzo is doing here) is a relaxing, double exercise to strengthen his stifles.

ARE HIS STIFLES STRONG ENOUGH?

A top sports therapist explains how to spot possible stifle weakness—and how to correct it with simple exercises.

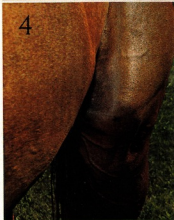
By Jo-Ann Wilson

Photos By J. Stanley Edwards

I AM OFTEN CALLED to work on horses for problems including one or more of the following: difficulty in tracking up and collection, resisting lateral movement, buckling (a sudden feeling that a hind leg is "catching" or giving way) in downward transitions, switching behind in the canter, breaking at the canter, and/or hollowing the back and throwing the head up. If a veterinary exam doesn't turn up a medical cause for the complaint, I look at the whole

horse for clues. What I may find is tightness in the muscles of the chest (the anterior pectorals), lower back (the *longissimus dorsi*), the rump (the *gluteals*), the hamstrings, and the muscles that extend the hocks (*gastrocnemius*).

Why are these muscles tight? If one muscle lacks proper strength for the work it's asked to do, other muscles around it may tighten to carry the extra load. And one of the chief problems I find associated with the complaints I just described is lack



of strength in the hind end, particularly in the *stifle*, a joint comparable to the human knee. That is, the tightness of these other muscles may be associated with weak quadriceps muscles, located above and to the side of the stifle.

A horse's quadriceps are important muscles that carry much of the load in work such as cantering, collection, tracking up, and lateral movement. If his quadriceps are weak, many tasks become difficult for him to do—just as, if your quadriceps (your thigh muscles) are weak, you'll find it difficult and tiring to do squats, to bicycle, to hike downhill, or to engage in other activities that require bending your knees and carrying your body through the swing phase of a stride. In this article, I'll explain why stifle strength can be an issue even when your horse appears strong, describe some signs of stifle weakness, and suggest exercises to help him get stronger.

Stifles: The Last to Strengthen

When your horse is in a conditioning program, the first hind-end muscles that will develop are the gluteal muscles of his rump. Next, the hamstrings, running along the back of his rump and hind legs, grow more powerful. The quadri-

ceps muscles, in the stifle area, are last in line for the benefits of conditioning. They're also the first to weaken if he's laid up with an injury, or if he gets time off from his regular program for other reasons.

Therefore, the fact that your horse's gluteal muscles and hamstrings are strong doesn't necessarily mean that his stifle area is strong as well. One possible under-saddle sign that he lacks stifle strength is difficulty stepping underneath himself, or tracking up, as he propels his body forward. Another is a lack of muscle definition on the side of his leg behind the stifle. Yet another is excess mobility in the stifle joint itself: something that you may be able to see as an unusual degree of outward (lateral) movement if you look at the stifle area as a helper or friend jogs your horse directly toward you.

If you have any questions about your horse's level of fitness or think he's showing signs of stifle weakness, first ask your veterinarian to assess him. If the diagnosis is that his stifles need to be stronger, you don't have to stop working him. Rather, you can both adjust his current work level to his current ability and gradually (with your vet's approval) help him strengthen those stifles so he'll be able to do more, as I'll explain.

1. Take a close-up look at the difference between a strong, well-developed quadriceps muscle like this, and ...
2. ... an under-developed quadriceps muscle like this. When you stand back ...
3. ... you can see how the quadriceps muscle above and to the side of this second horse's stifle needs building up.
4. One sign of stifle weakness is too much outward (lateral) mobility in the joint itself; notice how this stifle has rotated out to the side.

Massage By Compression

Sportsmassage is now a recognized method for increasing horses' comfort and boosting performance. I practice and teach the specific techniques developed by Jack Meagher, author of *Beating Muscle Injuries for Horses*.

One of the most basic of these techniques, so basic that I recommend and teach it to amateurs who want to work on their own horses, is compression. This is simply a rhythmic pumping motion or kneading action, directed into your horse's muscles over his entire body with the heel of your hand or a loose fist. As a research project on the Meagher method indicated, compression loosens and separates fibers in the muscles, admitting more blood, while increasing range of motion. For detailed, illustrated directions on how to massage your horse safely and effectively, see my article "Sportsmassage: Help for Your Horse" in the June 2003 issue of *Practical Horseman*.

Building Hind-End Strength

If you've learned that your horse's stifles are weak, avoid schooling a lot of downward transitions, such as canter/halt and trot/halt. Limit longeing and ridden work on small circles. All of these exercises put pressure on the stifle joint and may overload it, leading to problems.

Additionally, whenever you are working him ...

■ Think slow and make every step count. If your horse's muscles are weak, moving slowly is harder for him. That's why he's much readier to trot or even canter up a hill than to walk up it, which demands more from his muscles. But slow work is what builds muscle strength. In conditioning, going slowly gets you there faster—remember, the tortoise won the race!

■ Work him on contact, stretching forward and down but with accept-



As Judy Rossi walks Night's Legacy over a series of raised cavalletti, he exercises his stifles by raising each hind leg, then reaching it forward. The slower he walks, the more muscle he'll use.

ance of the bit, rather than on a loose rein. When your horse's head is down and his mouth is in correct contact with the bit, his back comes up and his hind legs step underneath his body, which requires him to use and therefore strengthen his stifles.

■ Focus on doing the stifle-strengthening exercises I'll describe every other day, allowing those muscles to rest and strengthen during the off days.

Keep these principles in mind as you read about three of the techniques that I've found useful to strengthen stifles. Additionally, before you try them, review them with your trainer or sports therapist as well as your veterinarian. When you begin, take it slowly and monitor your horse carefully for signs of fatigue and stress.

Hill work. Choose a gently sloping hill, rather than a steep one: a choice similar to the lighter weights/many repetitions combination that gives better strengthening results in human weight training. Strength-building is simply the result of a muscle contraction against a force. A steep hill for your horse would be the equivalent of a heavy weight for you; in the beginning of legging up for him, or conditioning for you, it would create too much force. Walk him straight up the

gentle hill on a nice steady contact, then traverse (zigzag) back down; repeat the work five to fifteen times, depending on the level of stifle weakness you're trying to correct. Do this exercise every other day; in other words, three or four times a week. If he does not appear to be making any gains in stifle strength (such as becoming more balanced and stronger in his other work) after three weeks, check with your veterinarian.

Trotting in straight lines. This is an exercise you can do in a ring (using the long side) or on trails that are fairly level with good footing. Again, be sure to keep your horse in contact with the bit and trotting actively forward, rather than allowing him to flop on his forehead. The more correctly he tracks up (swings his hind legs forward to step well under his body with each stride), the stronger his stifles and his lower back (which works in concert with his stifles) will become.

Cavalletti at the walk. Even if you don't have hills or trails available for strength training, cavalletti can be the equivalent of building a gym for your horse in the ring, or wherever your schooling space is. I recommend using a total of five cavalletti, raised 6 to 8 inches high, on level ground with



AYHC Horse Industry Handbook

*A Guide to Equine Care and
Management*

This book, from American Youth Horse Council, is a tremendous resource book written by experts and professionals nationwide. Contains information from selecting your first horse through care and training and management of an equine business. Used widely for youth competitions and a "must have" for the adult horseman.

#ZAYH1 \$59.95

(AYHC Member Price \$49.95)



THE
EQUINE
COLLECTION

Order online at
www.TheEquineCollection.com
Or Call 1-800-952-5813

By mail to: **PRIMEDIA Equine**,
PO Box 420426, Palm Coast, FL 32142

Please call for shipping & handling charges
and states with applicable sales tax.

Strong Stifles Take Time

Of the horses I'm called to treat for tightness caused by weak quadriceps, a large number are from the warmblood breeds—in all likelihood because warmbloods take longer to grow and mature overall. My observations suggest that, on average, warmbloods finish their muscular/skeletal growth at approximately age seven, somewhat later than other breeds.

Weak stifles are normal for any young horse while he is growing and developing. Performance-related and/or veterinary problems resulting from such weakness tend to occur only when a youngster is pushed beyond what he is physically strong enough to do. Therefore, giving him adequate time to grow, mature, and strengthen is critical to his training, soundness, and longevity.

For either a young horse or a weak mature horse, I think trail-riding or hacking at the walk for a bare minimum of one

month is a great foundation to build strength. This kind of legging up at the walk, combined with turnout, prepares him for the trot and canter.

Unfortunately, many owners of young horses, especially young warmbloods, tend to overlook the stifles in assessing their horses' muscular development and readiness for work. Warmbloods, in particular, appear big and strong because of their inherent size and "presence." When they've had some work and their patellas and hamstrings are getting stronger, they look strong enough to do the job of a mature horse.

However, until they've completely finished the work of strengthening (see my indications of stifle strength on page 83), you're wise to avoid pushing them by asking for upper-level dressage movements and high jumps. There's time enough for that work when they really are mature.

footing that's neither slippery nor too deep. Space them from 2 feet 9 inches to 3 feet 4 inches apart, depending on his height and length of stride (a shorter distance than you'd set for the usual trotting exercises over cavalletti because he'll only be walking over them). The raised cavalletti will require him to lift and bend his stifles in a motion similar to the one your legs make when you ride a bicycle. The more slowly he walks, the more muscle he'll use, and the more he'll build a foundation of strength and fitness.

Begin with just one or two cavalletti to help your horse understand that you want him to walk them, not jump them as a spread. Ride him on a long rein so he can stretch his head and neck for balance, but keep a feel of his mouth so he's connected from back to front and won't try to rush. Once he understands the exercise, walk five cavalletti one way, then turn around and walk back over them, for one full lap of ten cavalletti.

Start with ten cavalletti, or one lap, every other day for the first

week. Depending on your horse's tolerance, the second week you can increase to fifteen cavalletti, or a lap and a half, every other day. (The exercise takes very little time and can be done in conjunction with regular training.) Continue to include cavalletti work in his program for one to three months, depending on how weak his stifles are to begin with. (For details on a more comprehensive program using cavalletti, I highly recommend *Cavalletti: The Schooling of Horse and Rider Over Ground Poles*, written by Reiner Klimke and Ingrid Klimke.)

These three types of exercises—hill work, trotting straight lines, and walking over cavalletti—will build strength in your horse's lower back,

To purchase a copy of
*Cavalletti: The Schooling of
Horse and Rider Over Ground
Poles*, by Reiner Klimke and
Ingrid Klimke, go to the The
Equine Collection's Web site:
www.theequinecollection.com.

hindquarters, and stifles. As he strengthens, he'll gradually cease breaking from the canter, switching behind, or buckling in downward transitions. If his previous stifle weakness caused him to hollow his back and raise his head, these symptoms will also go away.

How Massage Can Help

Sportsmassage can play a role in strengthening your horse's muscles, including his quadriceps. This is because, in order to strengthen, muscles must be able to contract and release fully. And to keep contracting and releasing properly, those muscles need to be loose.

Tight muscles are shortened muscles that lack the ability to release fully. So a tight muscle is a weak muscle—and it cannot get any stronger until it can release. Massage doesn't strengthen muscles, but it *allows* a muscle to be strengthened by keeping it loose. Massage initiates the release process of the muscle.

As an example, let's look at the sequence of problems that can result when your horse's stifles are not strong enough for the work you ask him to do. The weak muscles themselves (the quadriceps in this case) tighten; so do the surrounding muscles that are trying to compensate for the weakness. As a result, he has difficulty making his hind feet track up under his body to propel him forward.

Because your horse's hind legs and lower back work together, this weakness and difficulty may create lower-back tightness—and that compounds the problem. To allow his hind legs to track up freely, as they need to do to strengthen, his back must be loose; a tight lower back makes tracking up even harder. A kind of Catch-22 situ-



Trail Ride in Costa Rica

Gallop along 17 beaches, swim with your horse, stuff yourself with fresh seafood. Special departures for solo travelers.



CROSS COUNTRY INTERNATIONAL

800-828-8768

www.equestrianvacations.com

TheEquineCollection.com

FOR THE LATEST BOOKS, VIDEOS AND MORE



DOWN TO EARTH DRESSAGE

Carl Hester and Bernadette Faurie

For riders at all levels, the authors aim to make dressage training accessible with step-by-step guides for improving the horse's paces, riding dressage movements, and competing. It describes how to ride dressage movements, from simple circles to flying changes, pointing out common mistakes and how to correct them. More than 100 photographs of Carl Hester schooling his horses at home, bringing on youngsters and fine-tuning the more experienced animals. 112 pp. Paperback. #ZF359 \$26.95



REAL LIFE DRESSAGE

Carl Hester and Polly Ellison

"The aim of the book is not to describe ideal training scenarios but to look at what we can do with the horses we have," says British National Champion and Olympian Carl Hester on his new book. He uses horses with differing conformations and mental attitudes to illustrate the factors that need to be taken into account in training. 150 color photos. 120 pp., Paperback. #ZF341 \$39.95

Order set of 2 Carl Hester books and Save \$14.00, #ZFCHS, \$53.00

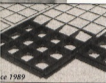
Order online at www.TheEquineCollection.com

Or Call 1-800-952-5813

By mail to: PRIMEDIA Equine, PO Box 420426, Palm Coast, FL 32142

Please call for shipping & handling charges and states with applicable sales tax.

Good night's rest.



QUUSTALL®

Those unsanitary holes left from old stall mats mean extra costs, less maintenance means spending your weekends riding? Poor System, visit us on the web 1-888-535-3636. VISA / MasterCard / AMERICAN EXPRESS



For Horses

Bedding Journal

25 Fork

mat with 30 lines spaced at 5/16" holds twice the "JR's" volume

25 Junior Fork

mat with 22 lines spaced at 3/8" design, makes for lighter picking

Stall Flooring Systems

- Top cover is attached to walls with heavy duty plastic strips
- Water pooling on the waterproof top cover
- One piece wall-to-wall waterproof, non-slip top cover
- StableComfort filled with rubber shavings from recycled tires



FIND A DEALER or
BECOME A DEALER at

woodypet.com

1-888-535-9816

Email: sales@woodypet.com



A nationally certified and licensed human massage therapist, **Jo-Ann Wilson** is the director of Wilson and Meagher Sportstherapy. (Its Web site is www.sportsmassageinc.com.) Her clinical practice includes both equine and human athletes.

ation occurs: Your horse isn't as strong as he needs to be, and the effects of his weakness limit his ability to get stronger.

This is where sportsmassage comes in. Massage, such as the Meagher (pronounced "Mar") system of sportsmassage that I use (see details in the box on page 84), may aid in the complete strengthening of the horse because it loosens muscle groups, allowing them to contract and release fully. Strong muscles should feel soft like cotton; they should have flexibility. Muscles that feel hard like rocks act like rocks—they don't move.

A horse with weak stifles tries to lighten the load by shifting some of his weight to his front end. So when I work on a horse with weak stifles, I expect to also find tightness in the muscles of his shoulder girdle, in the chest (as I mentioned at the beginning of this article), and in the long thick muscle of the neck where it comes out of the point of the shoulder.

Even if stifle weakness is the reason I've been asked to work on a horse, however, I don't focus the sportsmassage on just

Jo-Ann was the sports therapist for the US Equestrian Team's 2000 Olympics three-day-event squad, winners of individual gold and team bronze medals at the Games in Sydney, Australia. She's also worked with Grand Prix dressage horses representing the US at World Cup competitions, and with horses and riders competing in the 2003 Pan American Games three-day competition at the Fair Hill International Festival. Her daily work includes horses of all sorts, from international athletes to pleasure horses, in all disciplines of riding, driving, and racing. She also teaches workshops for horse owners and a specialized program for licensed massage professionals worldwide.

those muscle groups. His body must function as a unit, synchronized in all its motion—and muscle tightness transmits from one muscle group to another. Therefore, I always work on the whole horse.

Quadriceps at Work

A simple way to understand how important the strength of your horse's quadriceps muscles are to his work is with comparisons from the human activities of skiing and tennis.

In a downhill-skiing turn called the stem Christie, the skier must bend her inside knee and use her quadriceps to pick up the inside ski, match it and place it parallel to the outside ski, and carry her hips in the direction of the turn as her body rotates toward the mountain to make the turn. A comparable action for your horse is the canter pirouette: He has to bend his stifles, using his quadriceps and hocks to carry his hips and body as he turns or rotates, creating the pirouette. Both activities require strong quadriceps and knees to carry the body through the turn.

Tra
in A



"Wo
Co
And
Vacuu



Vac
High-Efficient

1
www.
Metro
One Ramo



Only
\$4.99

ication in
leepstakes!

der today by
arch.com.

alls, Trailers, Alley Ways,
ng Areas and Wash Racks.

Soft Stall" Mats e Horse Sense

ng and disposal cost to 75% and
aintenance and dust. Soft Stall
de secure natural footing to
our horses' health and safety.
illed over any surface, these
s rubber mats have a 10-year
Made in USA.

CK FOR IMMEDIATE DELIVERY!
0x12' 12x12' 12x14' 12x16'
Other Sizes Available
CHARGE For Custom Trimming

ACTORY-DIRECT PRICING

10-558-4040



UBBER PRODUCTS, INC.
St., Kenosha, WI 53144
(652-3912) Fax (262) 657-6705
bermats.com



Trotting in a straight line on level ground, on a light but definite rein contact, is a good workout for stifles—in or out of the ring.

Another simple human move requiring strong quadriceps is the backhand stroke in tennis. If a right-handed tennis player wants to hit a backhand stroke, she faces the net and thrusts her right leg forward, bending her knee in a 90-degree angle. Her hips remain straight, parallel to the net, while her shoulders and torso (rib cage) move toward the left no more than 45 degrees. Her left leg must carry her body forward and bend at the knee to support her shoulders as she executes the swing. Producing this combination of forward movement and a powerful swing requires strong quadriceps. For the horse, a movement with similar requirements is the shoulder-in (which is the foundation of other lateral movements): He must maintain forward motion while bending at the rib cage, moving his shoulders off the track and keeping his hindquarters straight. As his outside hind leg comes forward, his inside hind must bend at the stifle, staying straight on the track propelling his body forward. ■

For their help, the editors thank Olympic eventer Torrance Watkins, who demonstrated exercises at her Morningfield Farm in Hardwick, Massachusetts, and Judy Rossi, who demonstrated cavalletti work at The Ark in Harvard, Massachusetts.

gene

For advertising information in Ge
at 301-977-3900, ext. 175, or

APPAREL & ACCESSORIES



www.waybest.biz
stepJack
for Tight Boots
also:
Dressage Arenas,
Cavaletti,
and Jump Cups.

BARN, STALLS & FOOTING

Aluminum - No Rust No Painting Required

Sliding Doors • Stall Fronts • Dutch Doors
Gates • Shutters • Window Grilles
Dividers • End Barn Doors



Renovations are Our Specialty
ARMOUR GATES

800-876-7706 • info@armourgates.com
www.armourgates.com

Fully Assembled • No Loose Pieces • Ready to Install • Hardware Included



KENTUCKY
STEEL BUILDINGS®

FREE CATALOGUE

1-859-745-0606

www.kstbuild.com

Now Robust 005 SMT 2/12
H-Panel & Super Ribbed Trims

20'00	\$4,595
24x36x8	\$5,595
36x36x8	\$5,595
40x48x10	\$9,295
50x60x12	\$14,495
60x80x12	\$20,695
75x90x14	\$27,595

AMERICA'S
BEST
BUY

since 1965



FARM • CHURCH • SPORTS • HORSE • CAR • PLANE
ALL STEEL • ALL COLOR • 25-30 WARRANTY

BARN, STALLS & FOOTING

12



STA
"Warm
Electric
warm h
whole h
foaling
www.k

GIFTS, A

