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CHAPTER 2

How Chiropractic Works

Subluxation

Before I attempt to explain how chiropractic works, I need to discuss the term “subluxation.” Most importantly, you should know that a *medical* subluxation is not the same as a *chiropractic* subluxation. The word means one thing to a medical doctor and another to a chiropractor; consequently, there is some confusion about the word’s usage.

MEDICAL SUBLUXATION

I’ll explain the common use of the term in traditional medicine first. I’m sure you are familiar with a dislocated shoulder, for example, where the arm is completely out of the shoulder joint. A *medical* subluxation, simply put, is a dislocation that is *not* all the way out of the joint, and unlike the chiropractic condition, it can be seen by your doctor on X-ray.

CHIROPRACTIC SUBLUXATION

The practical *chiropractic* definition of a subluxation is that a joint is not working properly. It also may hurt the patient when you try to move the affected joint through its normal range of motion. This includes back joints as well as leg joints. A chiro-

practic subluxation is rarely visible on X-ray. A chiropractic subluxation actually has an even longer name, the *vertebral subluxation complex (VSC)*. The VSC includes the vertebra involved, plus a number of “behind-the-scenes” players such as pain; neural transmission dysfunction (i.e. nerves sending or receiving incorrect or slow signals); edema (swelling); adhesions (early scar tissue); and biochemical abnormalities.

So there is a lot going on underneath the surface of a subluxation. Because of the complexity involved, subluxated joints have a variety of symptoms. Some joints are completely “stuck” and don’t move at all. Or, they only move in one direction but not another. Others are so stuck in one direction that the muscles have tightened around them and appear “rock hard.” Or, joints appear to be fine, but as soon as you try to move them, the muscles “splint” around them to keep them from moving and to avoid pain. Whatever the signs are, if joints are not moving properly through their normal range of motion, they are “subluxated,” in chiropractic terms.

Because “subluxation” is a very long word and “vertebral subluxation complex” even longer to say, instead many chiropractors use shorthand termi-

nology and just say something is “out.” (If you’ve been to a chiropractor, you know when your back is “out,” and you know how much happier you are when it’s back “in!”) However, I generally use “subluxation” or “VSC” in this book, because they are the correct terms.

Okay. So far you know:

- 1) Chiropractic subluxations are *not* medical subluxations.
- 2) Chiropractic subluxations are officially called vertebral subluxation complexes (VSCs), which include the vertebra plus a number of “behind-the-scenes” players.
- 3) When a joint is not working properly through its entire range of motion, and/or there is pain (it “hurts”) when you try to move the joint, it’s likely a subluxation is causing the problem.

A subluxated joint means it is not working properly, and it may hurt the horse when you try to move the joint through its normal range of motion.

Joint Fluid Renewal System

Joint supplements are wonderful things. But allow me to let you in on a little secret—chiropractic care helps all of your horse’s joints. Here’s why: A joint needs to move in order to have healthy joint fluid; the old joint fluid is flushed out and new joint fluid brought in *only* when the joint moves.

As a human example, take someone with a broken ankle. Studies have shown that joints start to deteriorate after 12 hours in a cast. When the cast is removed, the ankle is extremely stiff. A lot of times physical therapy is needed to start getting the ankle to move again.

So when your horse’s joints—whether they are leg or back joints—are subluxated, and therefore not moving properly, they are not getting all the joint fluid they need. Chiropractic care enables the joints to move through their entire range of motion, naturally regenerating joint fluid.

In the plainest words I can find, when you have a chiropractically subluxated joint, you have a joint that is not moving right, and it may hurt. This is something you want to fix. “Fixing” a VSC is called an “adjustment.”

Adjustments

When a chiropractor comes out to “adjust” your horse, he or she will first perform an exam. During the exam, the chiropractor moves every joint through its normal range of motion to see if it is working properly.

Once a chiropractor has found a subluxation, the process of returning that joint to its normal ability to move is called an “adjustment.” The American Veterinary Chiropractic Association definition of a chiropractic adjustment is: “A short-lever, high velocity, controlled thrust by hand or instrument that is directed at specific articulations to correct vertebral subluxations.”

This description sounds very scientific, and it is. But what’s really happening?

The chiropractor sends a signal—via the adjustment—to the body’s innate healing mechanisms. This signal contains what is needed to fix the VSC. Because of the neural dysfunction involved, it’s like the body’s healing mechanisms have only been able to see the VSC in a fog, and therefore have been unable to correct it. The adjustment is like a sudden lightning flash whereby the body gets a glimpse of exactly what it needs to do to eliminate the VSC—which it does immediately.

The adjustment itself is simply a super-quick movement of the subluxated bone (spinal vertebra or

leg bone) through its normal range of motion. This movement is so fast that it must be dead-on accurate with regards to angle, timing, and force. Sometimes a vertebra or leg bone is unable to be moved through its entire range of motion during the adjustment. Nevertheless the “flash signal” that the adjustment sends is still sufficient for the body to begin the healing process.

I’ll quote here a paragraph about VSMT (Veterinary Spinal Manipulative Therapy) from the book *Recognizing the Horse in Pain...and What You Can Do about It* by Joanna L. Robson, DVM. I think it is an excellent explanation of what chiropractic achieves: “There are highways along the body (nerve pathways, meridians). When everything is going well, traffic can get from point A to point B without a hitch. But sometimes there’s an accident on the highway and traffic piles up (nerve signals cannot get to the brain or the spinal cord, things don’t flow the way they should). As traffic piles up, inflammation occurs because of the blockage. The work in the office doesn’t get done (areas in the brain that control the

highways begin to shut off because they aren’t receiving correct signals). VSMT and acupuncture act like ambulances to restore normal traffic flow by clearing the traffic jams to allow cars to get from point A to point B once again.”

In summary, chiropractic works by finding joint subluxations or VSCs—joints that are not moving through their normal range of motion and/or that hurt when you push on them—and then correcting them with an adjustment. The adjustment allows the body to fully correct the VSC and enables the joint to function as it was meant to.

How Does Chiropractic Work on a 1,000-Pound Horse?

When I first considered doing equine chiropractic work, I was concerned I wasn’t big or strong enough. Even if I worked out and bulked up a lot of muscle, I’m only 5 feet, 2 inches tall.

But, here’s an odd fact: A horse is easier to adjust than a person because of the horse’s biomechanical

“Customized” Chiropractic Technique

There are many types of chiropractic techniques used for adjusting. The techniques vary in their focus and methods. Some chiropractors adjust via the bones, others via the ligaments, others use stretching. Some use mechanical aids like activators, drop tables, or foam blocks placed

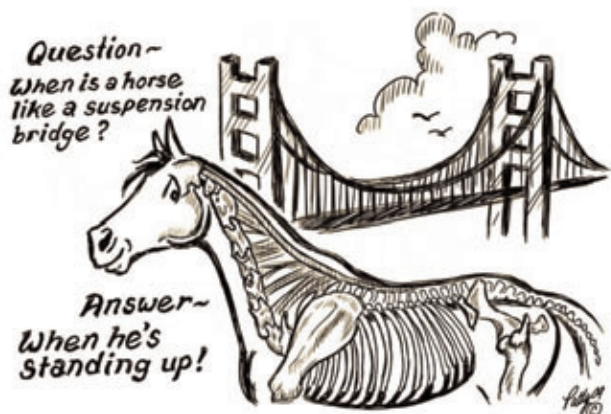
under the individual being adjusted. Each individual chiropractor develops his or her own combination of techniques that work well for them. This becomes his or her “art” and depends on height, size, hand length, and even on personality. (For more on chiropractic techniques, see *Eye Spy*, p. 24.)

If you’ve ever been to a chiropractor and it either hurt a lot or didn’t help at all, it may be that you needed a different technique. There wouldn’t be so many different techniques (over 120!) if they weren’t needed.

design. There are several explanations for this, which I describe next.

SUSPENSION BRIDGE STRUCTURE

The horses' biomechanical structure is similar to that of a suspension bridge. This suspension-bridge design



is what allows a thousand pounds or more of horse to stand on top of four comparatively small legs and feet. As you can see in the drawing, the four legs of the horse are the vertical support pillars. The center topline of the horse's back is the main suspension

cable. This cable includes the *supraspinatus* ligament, thoracic vertebrae, and dura mater of the spinal cord. The remainder of the horse's barrel (thoracic and abdominal cavities) "hangs" off this cable—via the ribs and barrel muscles—just like the deck of the suspension bridge.

Thereby the majority of the horse's weight is transferred, via the suspension cable (topline), over to the vertical support pillars (legs).

Because the weight is transferred via the "cable"

to the legs—completely *unlike* us—*no* muscles are needed to support the horse's standing weight. Only one muscle is in use when the horse is standing still—the triceps muscle, located above the elbow. Because no muscles (other than the triceps) are contracted when the horse is standing still, there are no muscles to "work against" a chiropractic adjustment.

Therefore, it takes much less effort to adjust a horse than it does a human. In humans, a massage is very desirable before an adjustment in order to relax the muscles. This is completely unnecessary in the horse. The muscles are already relaxed. (Note: Any tight muscles in a standing horse indicate that there is something amiss.)

"Come on now," you may scoff. "I can maybe believe this bridge thing about the back, but look at his head. He's got to use his neck muscles to hold up his head!"

Actually, he does not. It takes no muscular effort for the horse to hold his head up. This is because of the *nuchal ligament* on the top of the neck, which is connected to the main "suspension cable" of the back. Rather, it takes muscular effort for the horse to put his head *down*. Therefore, when you notice a horse has tight or contracted muscles standing at rest, even in his neck, this is a good clue that his structure isn't balanced properly.

HORIZONTAL VERTEBRAE

The second major reason that horses are easier to adjust than people is that our back vertebrae are stacked *vertically*—that is, one on top of another. Gravity pulls them down, creating *compressive forces* between each vertebra. When people are adjusted, that compressive force is released (often resulting in a

When a horse is standing still the only muscle that is activated is the triceps muscle, located above the elbow.

popping or cracking sound). Depending on the amount of muscle involved in the subluxation, the adjustment may take quite a bit of force. I know of several big, muscular guys who need to go to a big, muscular chiropractor to get adjusted!

Now consider the horse's vertebrae: They are lined up horizontally with minimal compressive forces working on them. There are primarily *shear* (sliding) *forces* between horse vertebrae. These shear forces are much less powerful than compressive forces. So even though a horse may weigh 10 times as much as a human, it does not take 10 times the force to adjust him. It actually takes less. Unfortunately, there are uncertified people doing animal chiropractic who don't understand this, and they use hammers and tractors and tranquilizers to get the job done. This is totally unnecessary and can definitely cause harm.

MUSCLE MEMORY

The third advantage horses have over people is due to *muscle memory*, or rather, the lack of it. Whereas a person often needs multiple adjustments because their muscles tend to revert to their previous state, a horse's muscles do not. I used to recheck every horse a week after the first adjustment to look for any subluxations that had returned. Ninety percent of them did not need any adjustments redone and any subluxations that recurred were due to other causes, not muscle memory.

Currently, I'll adjust a horse once, maybe twice at most for the given chiropractic problem. If it returns, most likely there is a *primary problem* more medical in nature causing the subluxation (see When to Consider Chiropractic—and When Not,

p. 17). This is a matter for a regular veterinarian to investigate before the *secondary* chiropractic issue can be resolved.

The lack of muscle memory in horses is a good thing! Otherwise we'd be adjusting horses every week. If your horse's chiropractic issue is not at least 90 percent resolved after two treatments (and you followed the prescribed rest and riding recommendations), it's usually time to try something else. That may be a different chiropractor (because as I've mentioned, there are many different techniques), acupuncture, another healing modality, or trying to track down the primary cause with your veterinarian.

HOW OFTEN DOES A HORSE NEED AN ADJUSTMENT?

Horses do not need multiple adjustments to correct their subluxations. However, like any professional athlete, regular chiropractic care is ideal for optimal health and performance.

For example, horses performing at the upper levels of their discipline may need an adjustment every two to three months. Often, however, their owners have them examined for minor chiropractic subluxations once a month and add other modalities like massage or acupuncture, too. One of my clients has a good explanation for this kind of "maintenance": "I keep my horse maintained every month because if you own an expensive, beloved instrument, you need to keep it tuned."

"If you own an expensive, beloved instrument, you need to keep it tuned."

For clients who enjoy pleasure riding on trails, I recommend they have their horses checked every six months to a year—barring any falls, injuries, or illness—and assuming that the list of things able to

cause chiropractic subluxations has been addressed (saddle fit, teeth problems, hoof-angle issues, and rider balance, to name just a few). What I find is that once they know how their horse feels when he is correctly aligned, most owners are able to tell when their horse needs an adjustment.

Compensation

A good question that I commonly get asked is, “If it’s so easy to adjust horses, why don’t they adjust themselves?” The fact is, they *can* adjust themselves. For example, when the horse has a good roll, or when he seeks relief from a pelvic subluxation by leaning his rear end on a bucket in his stall. This is similar to us doing yoga or stretching until one or two of our vertebrae “pop” back into place. You feel a light release of muscles in that area, which can be weird because you probably didn’t even notice any tension! Your *not knowing* where there is a problem shows the power of the body’s ability to compensate. Here is another example:

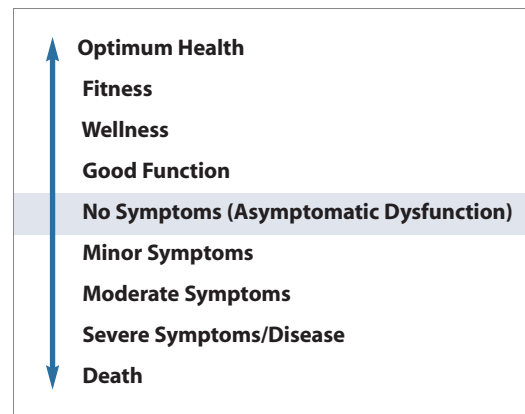
When there is only one subluxation, the body is able to reroute the nerve transmissions and clear the area of swelling and inflammation—the process called “compensation.” It stops the pain, but it doesn’t fix the subluxation.

It’s like when you sleep “wrong” and wake up with a stiff neck. The next day it’s sore and you wish you could take time off work for a massage. But the following day it’s much better. Your pain is gone. But the subluxation is still there. You are able to bend your neck, but not quite as far as you could before—it has a decreased range of motion.

Now when this happens a second time, because

the original subluxation is still present, there is even more pain and stiffness. It will take your body longer to reroute the transmissions. But in a week, you’ll probably feel fine. Your neck with its decreased range of motion will be in the “minor symptoms” category of the Continuum of Health Chart.

THE CONTINUUM OF HEALTH



Notice the range of health options in the chart above—from “optimum health” to “no symptoms”—where you could have an issue that you are not aware of because of compensation. Compensation happens in the horse’s body as well. In addition, there is redundancy in every system, which means that if some part of the body—say the hock—isn’t working quite right, other parts—such as the lumbar section of the back—will “pick up the slack” and there will be no symptoms.

In another example, if part of the horse’s circulation system is blocked, the body will enlarge other arteries and veins, and even create new ones to keep the system functioning. By the time you see an “offness,” all the compensating systems are

overloaded and cannot work at disguising the problem anymore.

A horse does need help with adjustment when he is at the “symptoms stage,” that is, when his compensation systems are overloaded and multiple muscles, joints, and ligaments are involved. All these are functionally connected to each other, and the horse needs help unraveling the complexity of the subluxations.

What You Can Do to Help Your Horse

I can tell you that sometimes health and behavior problems are rooted in a chiropractic issue that is pertaining to the horse being out of alignment, and sometimes not. But what I’ve heard over and over again from caring horse owners is that they wish they had known that chiropractic could fix their horse’s problem before:

- Spending thousands of dollars on diagnostics.
- Selling their horse because he couldn’t do his job anymore.
- Turning their horse out to pasture for a year.
- Constantly arguing with multiple farriers.

- Buying various training aids.
- Trying new trainers for themselves and/or their horse.
- Thinking for years they just need more lessons or a new saddle.

You get the picture. The good news is that through a series of Body Checkups, you can learn to find exactly where your horse hurts—and whether there is an out-of-alignment issue—before you get stuck in any of the above scenarios. Part Two of this book (see p. 33) contains 27 individual Body Checkups you can perform on the whole horse—from head to tail. By doing these you can discover where, or if, he is subluxated and whether to call your chiropractor.

All the techniques for body checking can be learned by anyone. It just takes patience, a gentle touch—and some practice. Your horse is going to love you and you’ll be able to solve many small mysteries before they turn into big problems.

What I’ve heard over and over again from caring owners is that they wish they had known that chiropractic could fix their horse’s problem before they spent time and money on various wrong “answers.”

BODY
CHECKUP
THE RIBS

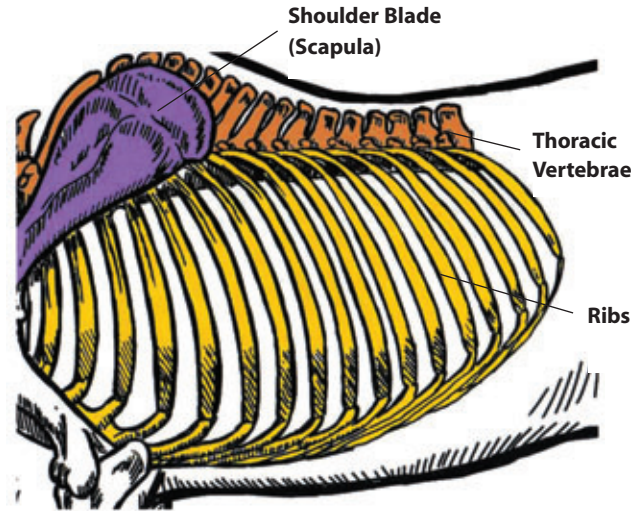
19

You would not believe how many horses have their ribs subluxated, or “out” as I tend to say. I know when I have a rib out. The first day, it really hurts, then it becomes just a dull ache.

I fell facedown while I was trying to learn to snowboard. I heard a pop and I was certain that I had cracked a rib. But then it didn’t hurt—that is, unless I squeezed my shoulders in toward my chest, at which point it was as if someone had stuck a knife in my chest! When I pulled my shoulders back out, it stopped hurting completely.

I was sure I had fractured a rib and the spiky end of it was puncturing my lung. But since I could inhale and exhale just fine, I ruled that out. As you may have guessed, I had a subluxated rib.

The point of telling you this story is to explain why I have such admiration for a horse whose ribs are out. Like me, he probably doesn’t hurt too much until a saddle is put on him, girthed up, and a rider is added—someone who wants the horse to move and bend through the rib cage. Yikes! I can understand why there are some horses out there that act like broncs, bucking like crazy whenever anyone gets on them. And, sadly, nobody understands why.



19.1 The horse has 18 ribs. The first rib through the seventh rib (approximately) are covered by the shoulder blade (scapula). Therefore, you check ribs 8 through 18 in this Checkup.

Won't it be great when someday horse pain is recognized as pain, and not bad behavior?

Common Symptoms

BEHAVIOR OR PERFORMANCE SYMPTOMS

Very Common

- ▶ Cold-backed
- ▶ Stiff, but may often warm up to perform acceptably

RIBS CHALLENGE LEVEL ★★ ★

Locating Anatomic Area: ★★

Positioning of Horse or Handler: ★

Subtle Range of Motion: ★★

Complex Evaluation of Checkup: ★★ ★

- ▶ Difficulty bending in one or both directions
- ▶ Short-striding in front or rear
- ▶ Lack of front-end extension
- ▶ “Girthy”/“cinchy”
- ▶ Difficulty with collection and/or impulsion

Frequent

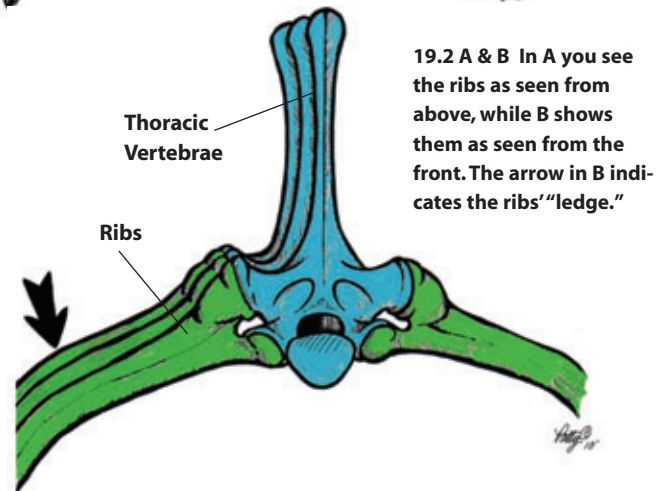
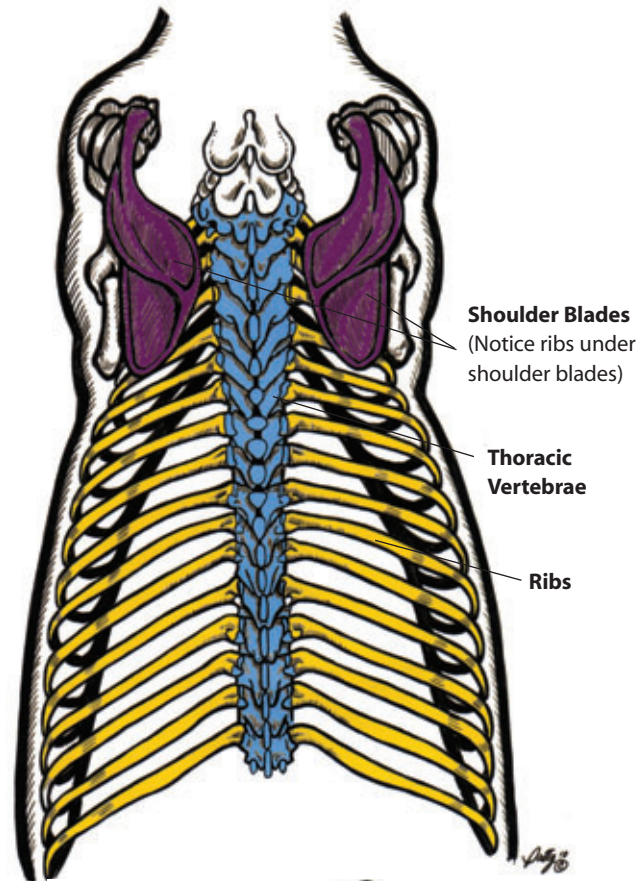
- ▶ Reluctance to stretch front end
- ▶ Shoulder has tightness, decreased range of motion, and is difficult to stretch
- ▶ Anything “weird” with the shoulder
- ▶ Hypersensitivity to brushing
- ▶ Difficulty picking up, maintaining, or changing leads
- ▶ Unable to stand still, especially when being mounted

Occasional

- ▶ Rolling excessively
- ▶ Crow-hopping or bucking
- ▶ Drops shoulder on turns
- ▶ Goes wide on turns
- ▶ Struggles with hind-end lateral work
- ▶ Shoulder muscles sore
- ▶ Tripping
- ▶ Prefers to trot over other gaits

PHYSICAL SYMPTOMS: CURRENT AND PRIOR

- ▶ Back-sore
- ▶ Rider feels crooked or saddle slips to one side
- ▶ Shortness of breath
- ▶ Troubles with saddle fit
- ▶ Inability to work (“exercise intolerance”)
- ▶ Feet land toe first
- ▶ Foot is “clubby” or has a tendency to grow excess heel



Checkup Directions

FUNCTION: Besides being the bony protection for the thoracic cavity, the ribs allow for flexibility through the barrel of the horse.

RANGE OF MOTION: Due to the horse's anatomy, you are unable to check the true range of motion of the ribs. Instead, look for a light pain response (an "ouch") when the ribs are placed under pressure in a particular manner.

HOW TO

Check the ribs just past the shoulder blade all the way to the flank. These are attached to vertebrae T8 through T18. You'll be able to feel each individual rib's

19.4 A–C Place your hand in the midline of the horse's back and slide it toward the barrel while pushing down. You will land on the ribs' "ledge."



19.3 The hand position for finding the ribs' "ledge."



For ease of description, I use the term “rib head” in this Checkup, even though anatomically a rib’s head is further in, nearer to the thoracic spinal processes.



19.5 A & B In A, I have found the ribs’ “ledge.” In B, I press down vertically with my fingertip pad onto a rib “head.” NOTE: While the finger itself is at an angle, the pressure is directly vertical.

“head” located beneath the spinal process as a “bump” along the ribs’ “ledge.” To locate this ledge, hold your hand with your fingers bent (fig. 19.3). Place it in the midline of the back and slide it toward the barrel while pushing down. You will land on the ribs’ ledge when you push hard enough—but don’t push too hard on a skinny horse (figs. 19.4 A–C).

If the horse is on the skinny side, you may feel another smaller ledge before the ribs’ ledge. This first ledge is made up of the lateral processes of the thoracic vertebrae. The lateral processes project outward from the center of the spine about 7 inches. They end about one inch above the ribs’ ledge. Again, the horse has to be pretty skinny (ribs almost visible) to feel this first ledge. You’ll know when you’ve come to the ribs’ ledge because, if you continue past it, your hands slide down onto the ribs themselves.

This ribs’ ledge continues from the shoulder blade all the way to the flank. As you run your hand along it, you feel the subtle “bumps,” which are each rib’s “head.” To do the Checkup, simply press down vertically on a rib’s head with your fingertip(s) (figs. 19.5 A & B).

Be sure the pressure you apply is straight down vertically, not inward toward the horse. Also, use the pads of your fingertips, not the tips themselves. That would be the equivalent of poking the horse in the ribs—and he wouldn’t like that!

Diagnosis

When there is a consistent, repeatable pain response (such as flinching, muscle spasm, tail switching, an irritated look), the rib is subluxated. NOTE: The pressure needed to check for rib subluxation is

extremely individual. With some horses—for example, a typical Thoroughbred—you need to use the pressure that you would use to squeeze a firm peach. With another horse, such as a Warmblood, you need to use such firm pressure that you are using all the arm muscles you’ve got just to keep your wrist straight. Even with that much pressure, a Warmblood typically only gives a very tiny muscle twitch when a rib is subluxated. Any consistent pain response (however small) is a subluxated rib.

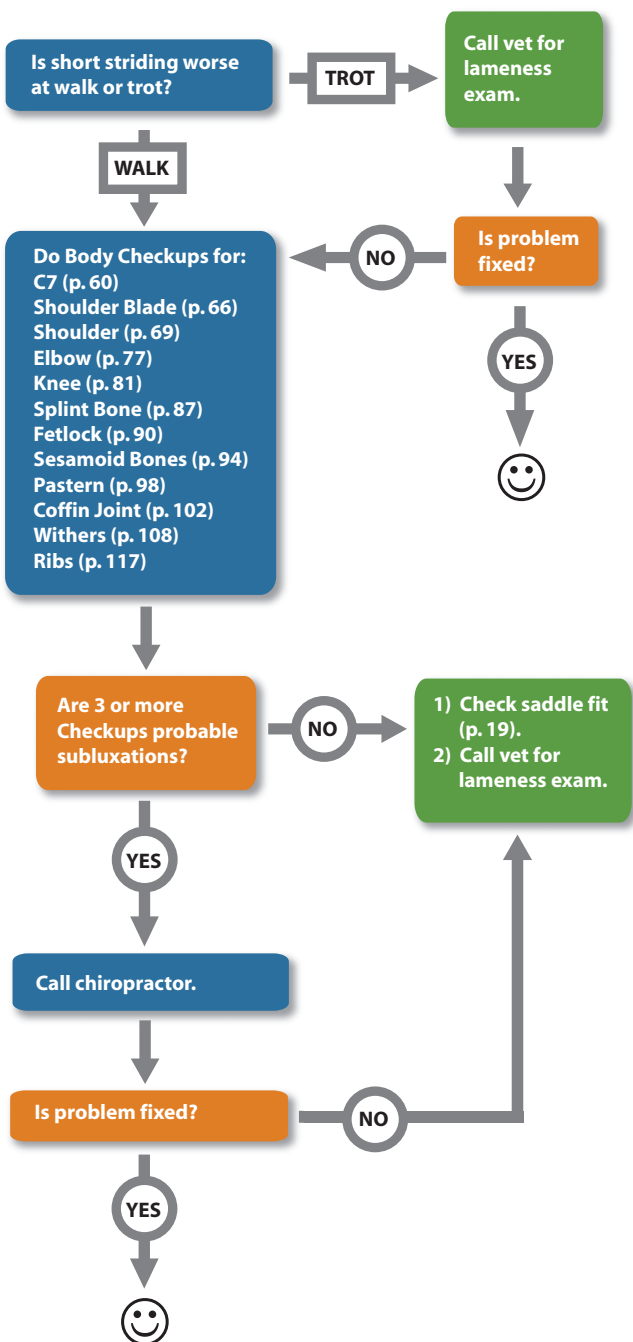
Checking for subluxated ribs can also be tricky because some horses hold their breath when you first start pressing around their ribs. Others start dancing around to avoid the exam. Start with a light pressure and only press as hard as you need to see a response. A non-subluxated rib will be unresponsive to full finger pressure (approximately as much finger

pressure as you would need to make an indent on a tennis ball).

Summary: RIBS

- ▶ Rib subluxations are very common, so when pain is apparent, call chiropractor and have saddle fit checked because it is the most common cause of rib subluxations.
- ▶ When no indication of subluxation but symptoms remain, check for:
 - Subluxations at: thoracic vertebrae; withers; lumbar vertebrae; C7 (p. 112, 108, 122, 60)
 - Ulcers
 - Saddle fit

1. SHORT-STRIDING (OR OFF) IN FRONT



2. SHORT-STRIDING (OR OFF) BEHIND

