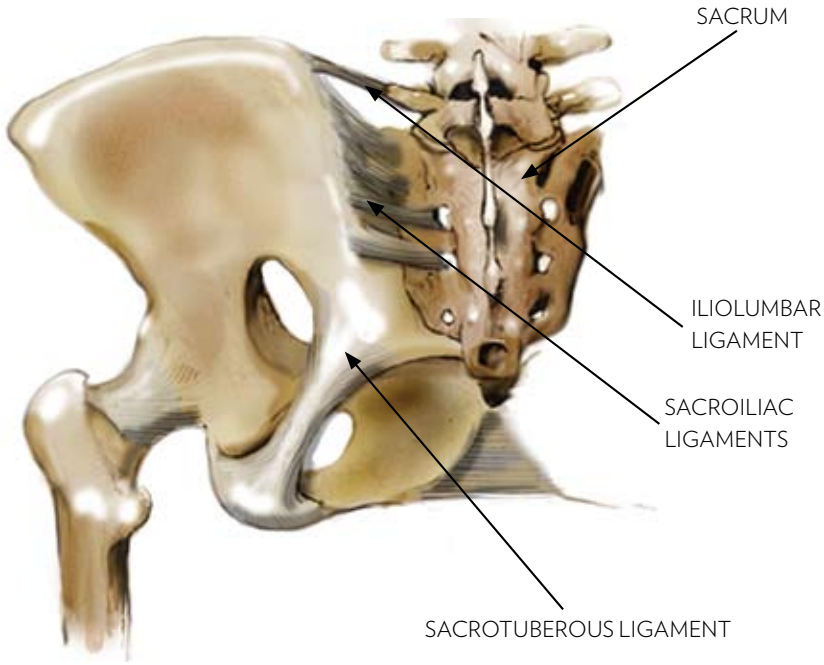
essential skills

BY BEN BENJAMIN

THE LIGAMENTS OF THE SACRUM

The Primary Cause of Low-Back Pain, Part 1

Different generations have used different phrases to describe low-back pain. In the 1940s, it was "Oh, my aching sacroiliac." In the 1950s and 1960s, the slipped disc theory entered a phase of popularity, and the 1980s were the decade of the trigger point. Though the sacroiliac theory passed out of vogue, it was actually a very accurate description of the primary cause of chronic low-back pain. Microtears of the sacroiliac and other ligaments of the posterior pelvis surrounding the sacrum account for the majority of low-back and so-called sciatic pain, but many people are unaware that the sacral area can cause such far-reaching problems.



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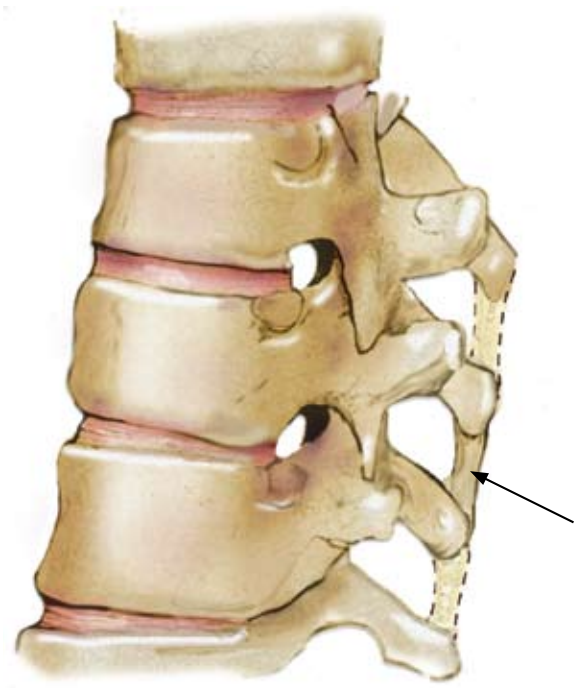
WHAT ARE THE LIGAMENTS IN THE SACRAL AREA?

The sacroiliac ligaments hold the sacrum to the iliac bones (hence the term *sacroiliac ligaments*). This junction connects the upper and lower parts of the body, the spine to the pelvis. This connection is pivotal to our low-back and pelvic health, as these ligaments hold together and stabilize the back of the pelvis. They consist of thousands of individual fibers that are deeply layered for nearly two inches. Tears of these ligaments cause low-back, buttock, and lateral hip pain, as well as so-called sciatic pain down into the thigh, lower leg, and foot.

The sacrotuberous and sacrospinous ligaments stabilize the lower part of the sacrum; through their attachments to the ischia, they hold the lower sacrum to the bottom of the pelvis. There are also suprasacral ligaments, which are an extension of the supraspinous ligaments in the low back. These small ligaments connect the bony protuberances on the posterior surface of the sacrum that are the remnants of the fused vertebrae that form the sacrum. Tears in these various ligaments can cause low-back pain, buttock pain, and referred pain down the leg. The pain

may manifest itself in many different patterns: an ache in the lowest part of the back; pain down the thigh, within the thigh, in the outer lower leg, or down the back of the leg and into the heel; and so on. To make matters more confusing, the iliolumbar ligaments and the supraspinous and interspinous ligaments of the L1 to L5 vertebrae may also be injured simultaneously, causing overlapping pains (see "The Mystery of Low-Back Pain," parts 1 (December/January 2006), 2 (February/March 2006), and 3 (April/May 2006)).

For a more detailed explanation of some of these structures and drawing on a live model, visit *Massage & Bodywork's* digital edition featuring a video clip from the 2008 DVD "Orthopedic Massage Series—The Low Back: Assessment and Treatment Strategies for Soft Tissue Pain and Injury" by Ben Benjamin (link available on ABMP.com and Massageandbodywork.com).



SUPRASPINOUS LIGAMENT
SIDE VIEW

INTERSPINOUS LIGAMENT

ONSET PATTERNS

While the origination of back pain may vary a great deal from individual to individual, there are four basic patterns of pain caused by tears of the ligaments in the sacrum and posterior pelvis. In each of the following categories, pain in the lower back, buttock, thigh, and/or lower leg may appear either suddenly or slowly over the course of many hours or several days. (Note: the terms *sciatica* and *sciatic pain* are commonly used as shorthand for a referred pain down the thigh and/or the lower leg. Sciatica is not a diagnosis, but simply a general term like stomach ache. Referred pain down the leg can be caused just as easily by torn ligaments or muscles as by a nerve compression from a bulging disc.)

CATEGORY 1

Periodically, the person is immobilized by severe back pain—with or without leg pain—or leg pain alone. The pain is intense and may come on after

activity or prolonged sitting. The person often goes to bed or just lies on the floor and waits for the pain to subside. This may take several days, a week, or a month. The pain may disappear (for no apparent reason) as suddenly as it came, or it may lessen slowly, until the individual is completely fine. This pain-free state may last a month or a year until the next attack.

CATEGORY 2

The person experiences the same pattern of pain as described above, but it is not severe; it may appear once or twice a week or several times a month. The pain may be brought on by certain activities that the person has learned to avoid, such as prolonged sitting, lifting heavy objects without bending the knees, or certain twisting motions. There may be a hint of discomfort much of the time, but it is only occasionally bothersome. Pain may be felt straight across the low-back area or on one side of the low back, and the pain may switch from right to left from episode to episode. In these cases, the affected person thinks of it more as a nuisance than as an actual injury, unless one day it changes to the kind of pain described in category 1, 3, or 4.

CATEGORY 3

The individual becomes fixed ("deviated") in a side-flexed position or is doubled over and unable to straighten up. Sometimes the body is twisted with one hip raised. There is consistent muscle spasm, and any attempt to straighten up to a normal standing position causes excruciating pain. No position seems comfortable. This may last for hours, days, or even longer, and usually abates slowly over many days. It is often a frightening experience, for the body feels immobilized and distorted.

> To fully understand the origins of back pain, we need to understand how various contributing factors interact with one another.

CATEGORY 4

Fairly intense back pain with or without leg pain, or leg pain alone, is felt constantly for many years. This may come on suddenly or after experiences described in category 1, 2, or 3. When you see clients with this pain pattern, usually they have tried medications, along with many kinds of therapy (possibly including surgery), but nothing seems to help. Their lives and mental states have been altered by the constant pain. There may be difficulty sleeping, and the person's spirit often appears to be broken, for this, indeed, is a difficult way to live.

UNDERLYING CAUSES

What causes these four patterns of back pain? I've given the short answer—ligament injuries of the sacrum and pelvis—but this isn't a full explanation. The more important question is what leads to these injuries, and what prevents them from healing. In some cases, there is an obvious precipitating event, such as a severe fall or motor vehicle accident. Yet while some of these individuals heal quickly and completely, others take years to get better or never really feel free of back pain again. And in many cases, the pain develops gradually without any obvious trigger. To fully understand the origins of back pain, we need to understand how various contributing factors interact with one another. After working for 45 years with people suffering from chronic low-back pain, I have come to believe that in most cases, there are numerous indirect causes that are working in combination with one direct cause. The indirect causes include emotional stress; depression; poor diet and nutritional deficits; excessive, chronic muscle tension; bone misalignment; a craniosacral rhythm that is out of balance; myofascial distortions and injury; poor movement habits and postural alignment; a weak, inflexible, unexercised body; and other predisposing factors. All of these indirect causes set the stage for the final event that causes the pain. This final event, or direct cause, is the microtearing and injury of the ligaments that attach the sacrum to the posterior pelvis.

I first learned this lesson years ago when I was living in Oregon. I was working with several physicians who were treating 30 or 40 patients with intractable low-back pain that had lasted anywhere from three to 20 years. Most of these individuals had already pursued various medical and alternative routes: everything from surgery to acupuncture and Rolfing to massage. Several of these patients had been to live-in pain clinics, and many had been referred to psychiatrists for psychogenic (imagined) pain. I had been called in to consult with several of these doctors about some of their patients and was as confused as they were. At my suggestion, we invited a physician we had heard about through one of Dr. James Cyriax's books to come and see if he understood what was happening in these intractable cases. He taught us more than we expected and changed my perspective about back pain forever.

In case after case, he showed us that the sacrum had rotated, leaving one side of the sacrum more posterior than the other. In some instances the hip bones were out of balance, with one side raised or twisted. This seemed interesting, but not that impressive at first. However, he then explained that when the sacrum was rotated or out of alignment, it created a shearing stress in the ligaments on one or both sides of the sacrum (pain on one side as opposed to both was dependent on the angle of rotation and the degree of the torque). He then proceeded to explain why these patients did not generally respond to treatment. He said that these sacroiliac ligaments had become lax and the bones were therefore unstable; while manipulation would often correct the rotation and temporarily relieve the symptoms, the patients' ligaments were too loose for the bones to stay put.

After seeing these dramatic improvements, I became convinced that the ligaments of the sacrum were at fault in most cases of severe, intractable low-back pain.

He then taught the physicians how to inject all of the major ligaments in the low back and sacrum with xylocaine (the numbing medicine your dentist uses) to illustrate his diagnosis. He surmised that if he was correct and the ligaments were causing the pain, the xylocaine injections should make the pain disappear for 15 or 20 minutes. If he was wrong and the cause of the pain was a disc or arthritis or strained muscles, then the xylocaine would have no effect. We agreed to see his hypothesis through, but we were still quite skeptical.

I'll never forget what happened next: under his guidance, one of the doctors used injections to numb the ligaments of each patient's sacrum. In case after case, the patients could bend and twist and lift things without pain while the xylocaine was in effect. All sorts of strange pains disappeared for a half hour or so. After very clearly making his point, he went on to teach the physicians how to treat these ligament problems so the pain would disappear permanently. About 40 people, with some of the most difficult back pain problems I had ever seen, were treated over the next several months with these methods. Most of them healed completely, some noticeably improved, and only a few were not helped substantially. When we followed up on these patients a year or so later, 85 percent were still well or had even improved further.

After seeing these dramatic improvements, I became convinced that the ligaments of the sacrum were at fault in most cases of severe, intractable low-back pain. As the years went on, I began to suspect that these structures were often at fault in less severe cases as well.

In the next article, we will look at the assessment and various treatments for these injured ligaments. **m&b**

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Note: *Massage & Bodywork* is dedicated to educating readers within the scope of practice for massage therapy. Essential Skills is based on author Ben Benjamin's years of experience and education. The column is meant to add to readers' knowledge, not to dictate their treatment protocols.