

Deep Relief for Low Back Pain

By applying these simple principles to your asana practice you can strengthen the hidden muscles that maintain the health of your back. **By Doug Keller**

While there are no quick fixes when it comes to low back pain, if you address the root of the problem, treatment can be surprisingly simple. Chronic back pain is often attributed to underlying structural abnormalities such as a herniated disk, scoliosis, or a tilted pelvis. But several studies over the past two decades have shown that pain can strike some people and not others who have the *same* condition, and that it may unexpectedly recur despite treatment. The researchers reasoned that if one person with a herniated disk is in pain and another with the same herniation feels no soreness, there are other factors at play. In searching for a universal cause that could be directly linked to pain across various cases, they found that sufferers do share a common problem—an irregularity or weakness in the tiny back muscles called the multifidi. By understanding how these largely unacknowledged muscles work and targeting them with yoga therapy, you can find dependable relief from your low back pain.

Muscle Anatomy

The multifidi are a set of deep small back muscles that run along both sides of the

The cause of low back pain may be less mysterious than you think.



THE MULTIFIDUS

muscles line both sides of the spine; when they contract, the spine extends. When only one side contracts, the spine twists.



THE ERECTOR SPINAE

muscle group consists of the spinalis, longissimus, and iliocostalis. These muscles extend the spine and contribute to side bending.

can also originate in the muscle itself, as when a multifidus in the area of a disk herniation contracts more than it should, thus becoming strained.

Investigating the role of the multifidi in relieving back pain, researcher J.A. Hides and his colleagues conducted a study (1996) in which one group was given exercises specifically designed to strengthen the multifidus muscles, while a second control group was given no such exercises. At the end of one year, only 30 percent of the exercise group had a recurrence of back pain, while the nonexercise group suffered an 84 percent recurrence rate.

Such studies indicate that the solution to reducing or overcoming back pain is to strengthen the

spine (**Fig. 1**). Each multifidus spans between two and four vertebrae, traversing between the processes, or bony projections, of each vertebra.

The job of a multifidus is to protect the cartilaginous disks between the vertebrae during bending and twisting motions. When such movement occurs, the multifidi activate and contract, pulling on the connective tissues that surround the intervertebral disks, thus preventing any painful pinching of the spinal nerves.

Long term, if the multifidi are functioning properly, they allay the damaging pressure that leads to conditions such as herniated or degenerated disks. Since each multifidus has its own job to do, a single weak muscle can cause pain in one area of the back even if the rest of the multifidi are in good shape. When a weak multifidus contributes to pressure on a disk, and the disk bulges and presses on surrounding nerves, the pain is neurological in nature. But the pain

multifidi. It may seem paradoxical at first to exercise muscles that are already overworked, but light exercise followed by relaxation actually allows a stressed muscle to let go of its chronic contraction and return to proper balanced function.

The Multifidi in Action

The multifidi are activated when you're standing, bending forward, twisting, lifting heavy objects, or walking. They are less active when you are lying down or bending directly to the side without twisting. In backbending, the multifidi are working if the back of the spine has to bear weight, as in *shalabhasana* (locust pose), where the spine is lifting against gravity. But the muscles are relatively passive in backbends where there is no resistance, such as those originating from an upright position like *ustrasana* (camel pose). While the erector spinae (**Fig. 2**), the long muscles of the spine, are causing it to bend backward in this pose, the quadriceps and abdominals at the front



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LEG EXTENSION Starting on the hands and knees, extend your left leg back. Keep your big toe pointing to the floor to stabilize the pelvis.



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ASYMMETRICAL EXTENSION As you inhale, straighten and lift your left leg and right arm. Engage the abdominals to stay balanced.

of your body are actually bearing the weight of the backbend.

When exercising the multifidi, it is important to challenge them without exhausting them. The exercises below, which are safe for beginners, simulate the action of a weight-bearing backbend—this makes it easy to isolate and activate the multifidi.

Strengthening the Back Muscles

Begin on your hands and knees. If necessary, place a folded blanket under your knees for padding. Keep your head in line with your spine and maintain a neutral inward curve in your lower back. As you exhale, extend and straighten your left leg back, bringing it in line with your spine and parallel to the floor (**Fig. 3**). Keep your big toe pointing straight down, your hips level, and your abdomen firm to stabilize

your lower back. Hold for two breaths, then lower your knee back to the floor as you inhale. Alternate between the two legs, working up to 20 repetitions on each side once a day, two or three days a week.

If you can manage this amount, then you can add more weight to the exercise by including arm extensions. As you extend your left leg back, raise and extend your right arm forward with the palm facing down (**Fig. 4**). Don't lift the arm so much that it causes pinching in your shoulder or increased arching in your lower back. Hold for a second, then lower your arm and leg on the inhale. Follow the same program of repetitions as above.

As this exercise becomes easier you can use light ankle weights. It's best to begin with one-pound weights. You'll know that the weight is appropriate if you can do the exercise for 10 repetitions.

Downward-Facing Dog Variation

Next, try strengthening the multifidi in *adho mukha shvanasana*, or downward-facing dog pose (**Fig. 5**). Once you are in the pose, step your left foot a bit closer to the midline and lift your right leg until it is in line with your upper body. Point your big toe straight down to help keep your hips level. In this variation there is no need to twist. Instead, focus on working the back muscles symmetrically. Firm your lower belly by gently pressing the muscles below your navel toward the spine, and upward toward your chest, as your tailbone lengthens back toward your heel.

Core Power

When the body is upright, the key to maintaining proper action in the multifidi lies in the lower abdominals and their relationship to postural alignment. The multifidi are too small and deep for us to work with them directly in an upright posture, but simple body mechanics allow us to reach them through the following technique. The two sets of muscles are "wired" to work



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DOWNWARD-FACING DOG VARIATION Engage the lower abdominals before lifting the right leg.

together; once you can maintain a neutral spine, activation of the lower abdominals will stimulate the multifidi to simultaneously contract.

Rediscover the Abdominals

This exercise is mild and safe for a tender low back. You can stand, sit, or, if you have difficulty locating and firming your abdominals, try reclining on your back with your feet on the floor, your knees bent, and your thighs at a 45-degree angle to the floor. Begin with a neutral spine. Then place one hand just below your navel on your lower abdomen and the other just above the sacrum on your lower back. Your hands will help you feel the muscles engage. As you exhale, draw your lower abdomen in and up while keeping the pelvis stable (**Fig. 6**). To help get your abdominals to activate, try this trick: purse your lips and blow slowly and strongly from your lower abdomen, as if blowing

dust off a mirror. As you practice, visualize a sphere of energy the size of a grapefruit in the core of your pelvis. When you firm your lower abdomen, imagine it rotating up and back toward the navel, while the tailbone lengthens downward and slightly forward. This feeling of an elongated strong spine signals that the multifidi are working properly on the deepest level. Hold the contraction for 3 to 5 seconds, then release slowly as you inhale. Gradually increase the number of repetitions until you can do 20 contractions in a row.

Safer Forward Bends

In hip openers and forward bends, the muscles of the back work on two levels to maintain the length and strength of the spine. The long superficial muscles at either side of the spine (the erector spinae) contract in order to maintain the extension of the spine and create a slight backbend (which prevents the spine

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ACTIVATING THE ABDOMINALS

Keep the pelvis stable as you draw the lower abdominals in and up.

from slumping and stressing the back at its weakest point). This in turn stimulates and strengthens the multifidi.

At the same time, engagement of the abdominals in the following exercises will further trigger the multifidi to activate and protect the spine. If you're flexible, this important action helps keep your back from overarching.

Baddha Konasana

Baddha konasana (bound angle pose) challenges the erector spinae in the lower back to engage strongly in order to hold the spine upright and stabilize the pelvis, allowing you to work with the multifidi muscles. Since any tightness in the hip and gluteal muscles pulls on the lower back, causing the pelvis to tuck under, the major muscles of the back have to work to lengthen the spine, drawing it inward and upward to reverse the collapsed curve in the lower back. The simultaneous action in the abdominals needed to support the spine from



BOUND ANGLE POSE Keep the spine long by pressing your hands into the floor as you engage the lower abdominals and tip the pelvis forward.

the front, as the lumbar spine arches slightly inward, will stimulate the multifidi at a deeper level, causing energy to flow downward through the sacrum and

tailbone. This releases tension in the low back.

To begin, sit upright, bring the soles of your feet together in front of you, and let your knees splay out to the sides. The closer you bring your feet toward you, the more challenging the stretch. If you can't keep your spine upright and straight, it either means that your feet are too close, or that you need to elevate your hips by sitting on a folded blanket or two. To support the posture, place your hands behind you (if you are seated on blankets and cannot reach the floor, you can place blocks under your hands). On an inhale, lift your knees slightly and tip the top of your pelvis forward toward your feet, increasing the inward curve of your lower back; as you exhale, tone and lift your lower abdominals, feeling how this both extends your spine and opens your hips (**Fig. 7**). You can either stay here and work with these core actions, or to increase the hip stretch, bend forward at the hips while keeping your lower belly firm and lifted.

If you are having a hard time engaging the abdominals in this pose, try this: inhale deeply into the back of the lower rib cage, expanding the whole chest. Feel how this draws your lower belly in and up while encouraging your tailbone to lengthen downward—a sign that the multifidi in the low back are working.

Janu Shirshasana

Janu shirshasana (head-to-knee forward bend) adds the pull of gravity to the hip opening, intensifying the strengthening actions around the spine. From baddha konasana, keep your left knee bent and extend your right leg forward. You can place your left foot at the inner edge of your right thigh, or for the full pose, draw your left knee further back, turning your foot so that the sole faces upward and your heel touches your inner left thigh or groin. Use your hands to rotate the thighs inward so you can sit more upright on your sit bones. As you turn your torso toward your right leg, repeat the same actions with the breath and

lower abdomen as in baddha konasana. Keep your upper body lifted, the spine extended (so that you're not slumping forward), and your hips open and grounded as you bend forward (**Fig. 8**).

If you can bend to 45 degrees or more with a flat back, you can let your spine round symmetrically, making sure not to



HEAD-TO-KNEE FORWARD BEND

Use the strength of the abdominals to elongate the back as you bend forward with a straight spine.

collapse. Use your breath to help you lift and extend the spine forward. If your straight-spine forward bend isn't at 45 degrees, remain upright with the support of your hands, and practice the action of lifting the lower abdomen and lengthening downward through the tailbone with a slight forward tilt in the pelvis. Repeat the pose on the opposite side.

Seated hip openers and forward bends are among the most challenging and strengthening asanas for the lower back because they work the muscles of the spine while stretching them to relieve back tension. The multifidus muscles teach us that when it comes to low back pain, your back is only as strong as its weakest link. The more you strengthen the multifidi, the more pain-free your back will be. ■

Contributing editor Doug Keller practiced yoga for over 14 years in Siddha Yoga ashrams, studied the Iyengar and Anusara methods, and has taught yoga in the United States and abroad for over a decade.