Into the Fold

Bend deeply forward without a twinge of pain.

BY JULIE GUDMESTAD

So you have some nagging, persistent low-back pain. You’ve heard that your tight legs are probably part of the problem and that stretching them is a good idea. Since forward bends mightly stretch the backs of your legs, you decide to add some to your home practice a few times a week. Good idea?

Actually, it depends. While forward bends can be wonderfully relaxing and introspective, they can also strain or injure your low back—especially if the backs of your legs are tight.

In fact, there’s a right and a wrong way to do forward bends. Learning to do them correctly will keep your back safe from harm but requires that you pay close attention to the mechanics of your body. The crucial muscles to understand are the hamstrings, particularly in their interactions with your pelvis.

The hamstrings, of course, occupy the backs of your thighs. They originate on the ischial tuberosities (sitting bones), which project from the bottom of the pelvis. From the sitting bones, the hams extend about two-thirds of the way down the backs of the thighs, at which point they connect to the long tendons that cross the back of the knee to attach on the lower leg bones, the tibia and fibula.

The lateral (or outer) hamstring is known as the biceps femoris (biceps means "two heads"; the second head originates on the back of the femur, or thighbone). The two medial (inner) hamstrings are called the semitendinosus and semimembranosus.

When the hams contract they flex, or bend, the knee. You can feel this if you sit on the floor with one knee bent and your fingers placed on the back of the lower thigh near the knee. Dig your heel into the floor, pulling your heel toward you against the friction of the floor, and you should feel the hamstring tendons pop out into your fingers. At the hip (with the help of the gluteus maximus), the hamstrings pull the thigh into line with or behind the torso. This is called "hip extension." The hamstrings also have leverage to rotate the femur bones. This action is called "hip rotation": The biceps femoris externally rotates, and the two inner hamstrings internally rotate the hip.

Here’s the basic anatomy of a forward bend: To stretch the hamstring muscles, you extend (straighten) the knee and flex the hip, bringing the torso and the front of the thigh closer together. Doing straight-leg forward bends like Paschimottanasana (Seated Forward Bend) and Janu Sirsasana (Head-of-the-Knee Pose) is an excellent way to stretch your hamstrings.
Muscle Rebellion

The problem is, when the hamstrings are pushed to the limit of their flexibility, they rebel and avoid further stretching by either bending the knee or extending the hip. *Hip extension* means that as you sit on the floor, the short hams will pull the ischial tuberosities toward the back of the knees, which will tilt your pelvis backward, putting your spine into a major slump and flattening the natural curve of your lower back. The front body and internal organs—including the heart, lungs, and digestive organs—will be compressed, and the back of the body—including the back muscles and spinal ligaments—will overstretch. The tighter your hamstrings are, the more likely it is that this will happen. And that, in a nutshell, can be bad news for your back.

If you are bending forward and get pulled or pushed too far by a teacher or helper, you can seriously injure the spinal disks and ligaments. As you bend forward, more weight gets transferred to the front of the disks. With excessive force, the gel-like center of the disk can be pushed backward into the support ligaments, which can then bulge out. A bulging, or herniated, disk or an injured sacroiliac joint will disrupt your life and yoga practice for months, and may require expensive, time-consuming treatment.

There is a notable exception to the guidelines about low-back pain and forward bends: If your low-back pain is due to a swayback, you may actually find that forward bends ease your discomfort by stretching tight low-back muscles. The swayed, overarched, hyperextended lower back is usually caused by an anterior, or forward-tilted, pelvis, which is most often accompanied by long, flexible hamstrings. So if you've got a swayback, you can usually move into the forward bend and find the back stretch pleasurable.

There's a simple way to check whether you might be vulnerable to low-back strain or injury in Paschimottanasana and other forward bends. First, lie on your back on the floor. Come into Supta Padangusthasana (Reclining Hand-to-Big-Toe Pose). Bring your right leg up, catch your foot with a strap, and straighten the right knee, while keeping the left leg straight on the floor. If you can make a 90-degree angle between your right leg and torso, you should be able to sit safely in Dandasana (Staff Pose). If you can't bring the leg to perpendicular (don't bend those knees!), your pelvis will tip backward in Dandasana, and you'll be sitting slumped before you've even tried to fold forward.

Degrees of Freedom

So before doing sitting forward bends like Paschimottanasana, you should have at least 90 degrees in Supta Padangusthasana. If you don't, you risk hurting your back. Instead of rushing into ill-advised forward bends, take time to improve your hamstring flexibility by consistently working on Supta Padangusthasana with a strap, and on Utthita Hasta Padangusthasana (Extended Hand-to-Big-Toe Pose), standing tall with your foot on a chair seat. Both of these poses will stretch your hamstrings while taking your lower back out of the equation.

If you've already been working on your hamstring flexibility, and you can bring your leg to 90 degrees in Supta Padangusthasana, that means your hamstrings are flexible enough to allow your pelvis to sit upright in Dandasana but not yet flexible enough to allow it to rotate forward over
your thighs. So if you go too far, the forward movement will come from your low back, causing strain or injury. In other words, to fold forward safely without bending your knees, you'll need to have enough flexibility that your leg can easily come past 90 degrees toward your torso when you're in Supta Padangusthasana.

In the meantime, the solution is to sit up with a folded blanket or firm cushion under your sitting bones to help tip your pelvis forward. You can also defuse the urge to pull forward by sitting with your back against a wall or by placing a folding or kitchen chair directly in front of you, with your legs placed to the inside of the chair legs. Rest your head on the chair seat and focus on relaxing into the stretch rather than forcing your body to go further than it's ready to.

No Cheating

You may have heard the instruction to contract your quadriceps (the muscles on the front of your thighs) in forward bends. If your hamstrings are tight, this is an excellent way to help them loosen up. The quads will stabilize your knees and hold them straight in forward bends while the hams try to "cheat" and bend the knees. Not only that, but, by contracting your quads, you'll be taking advantage of a kinesiological law called "reciprocal inhibition," in which your nervous system tells a muscle to let go of its contraction when the opposing muscle has work to do. In forward bends, contracting your quads facilitates the release of the hamstrings.

And finally, a word about patience. The hamstrings are layered with lots of tough connective tissue—the gristly fibers that help hold the muscles' structure together. So you can't rush or hurry the hamstrings into flexibility; they need time to change their length—time in the sense that longer stretches (90 to 120 seconds) seem most effective with connective tissue. And time in the sense that it can take months, if not years, for tight hamstrings to loosen their grip and become flexible. So don't get your back up. Instead, relax, practice patience, and enjoy the ride.

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