

# back bends

## **Back bends are delicious.**

They release the muscles and connective tissue on the front of the body and strengthen the muscles on the back of the body. They provide a sense of elegance and efficiency to improving posture and to revitalizing energy flow. Some would say that back bends far exceed caffeine's kick-start by instead providing a calm way to tame the sagging slump that can overcome a busy mind.

Although back bends provide many benefits, there are also some risks to performing them. A common problem that arises for people practicing back bends is "jamming of the back," which leads to lower back, mid-back, and/or neck pain.

This pain can lead to biomechanical dysfunction of the shoulder and pelvic girdles, possibly leading to referred pain and dysfunction down the arms and legs, respectively.

So it is important to begin by relaxing first and *then* moving – and when you do initiate movement, begin with the spine in mind.

In my time in India, I experienced back bends in a completely different way. In India, programs of back bends are designed for people suffering from cardiovascular disease. The theory is that back bends enable the release of the muscles and fascia of the chest, between the ribs, and particularly of the pericardium (the membrane that envelops the heart). This allows more space for the heart, improving its functioning. While published data does not exist on the effectiveness or truth of this theory, the anecdotal stories and the positive changes in the students' ECGs (electrocardiograms) certainly captivate the curiosity about the effects of back bends on our health and healing.

## Back Bends and the Spine

The spine is the central channel of movement in all poses and particularly in back bends because of its specific role of moving into extension. Without spinal extension there would be no back bend.

### Begin with the Spine in Mind: Moving with Gravity and Moving against Gravity

Glancing in any yoga book, you will notice that all back bends can be classified into one of two groups: back bends that move with gravity, called traction back bends, and back bends that move against gravity, called contraction back bends.<sup>1</sup>

#### Let's take a look:

Traction back bends move with gravity. Typically, they begin from kneeling or from standing; however, they also occur over chairs, bolsters, and blocks. To move into the pose, the body needs to fall with gravity toward the floor. Examples of traction back bends are Supta Baddha Konasana (Reclining Bound Angle Pose), Ustrasana (Camel Pose) (fig 4-8), and Urdhva Dhanurasana from Tadasana (Upward Bow Pose, Back Bend, or Wheel from Standing).

Contraction back bends move against gravity. Typically, they begin from a prone position, with the belly to the floor. To move into the pose, the body needs to lift up and away from the floor. Examples of contraction back bends are Bhujangasana (Cobra Pose), Salabhasana (Locust Pose), and Dhanurasana (Bow Pose) (fig 4-9).

Both groups of back bends require the spine to move into extension, so they require the same primary muscles to contract and release. However, because of the different relationship with gravity, each type of back bend requires a different quality of muscular action to stabilize and support in order to maintain control and smoothness throughout the movement.

#### Let's explore further:

Traction back bends initially require control and then release of the muscles on the front of the body to keep the movement with gravity smooth and paced. Control comes in the form of eccentric contractions of the rectus abdominis, psoas, obliques (bilaterally), and pectoralis major and minor. In some poses, the rectus femoris (one of the quadriceps muscles) will also contribute eccentric control. Once control and smoothness are created, traction back bends then require these same muscles to release, enabling a deeper experience of the pose.

Contraction back bends require more strength of the back muscles, primarily the erector spinae, to overcome the pull of gravity. For more complex poses, the lower trapezius and the mid to lower fibers of the latissimus dorsi contract to help support the extension of the spine that was initiated by the erector spinae. As well, contractions of the gluteus maximus, a powerful extensor of the hip, and the hamstrings are utilized to help lift the legs in positions such as Dvipada Salabhasana (Two Feet up in Locust) and full Dhanurasana (Bow Pose).

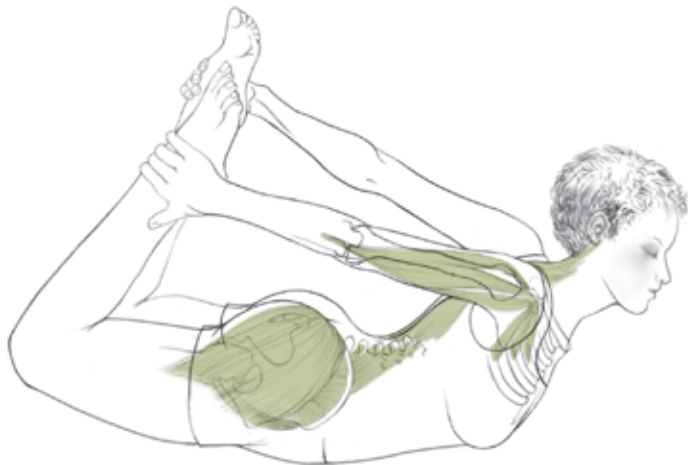
Traction Back Bends	Contraction Back Bends
<b>Move with gravity</b>  Require muscles on front of body to eccentrically contract to control movement with gravity and then release to move deeper into the pose	<b>Move against gravity</b>  Require back muscles to concentrically contract to overcome gravity
Primary muscles eccentrically contracting: rectus abdominis, psoas, obliques (bilaterally), pectoralis major and minor, rectus femoris (in some poses)	Primary muscles concentrically contracting: erector spinae Lower trapezius indirectly supports the extension of the spine by drawing the shoulder blades down the back



Contraction back bends move against gravity. Typically, they begin from a prone position, with the belly to the floor.



**Fig 4-8** Traction back bend:  
Ustrasana (Camel Pose)



**Fig 4-9** Contraction back bend:  
Dhanurasana (Bow Pose)

## Jamming of the Spine: The Path of Least Resistance

No matter if you are moving into a traction or contraction back bend, the same primary risk needs to be addressed – moving through the path of least resistance causes jamming of the lower back.

### Why does this happen?

The tendency to jam the lower back in back bends is an honest one. In fact, one could say that we are almost designed to jam the lower back.

### How so?

Anatomically, extension is greater in the cervical and lumbar portions of the spine than in the thoracic spine. There are three reasons for this:

1

#### Structure of the vertebrae

The thoracic vertebrae have much longer spinous processes than those of the lumbar or cervical spine, so the thoracic vertebrae don't have the same range of motion.

2

#### The ribs attach to the thoracic vertebrae

In addition to vertebrae, the thoracic curve also contends with any tightness or deviation of the muscles attaching to the ribs themselves, which can also limit extension.

3

#### General posture

Since many people work in front of computers, most human posture has some kyphosis, or forward rounding of the thoracic spine. This causes the postural muscles of the thoracic spine to become tight or weak, which limits the thoracic spine extending backward.

For these three reasons, there is a tendency to move in the places that are easiest – the places with least resistance and with the least amount of stability and support. They are L5–S1, T12–L1, and C7–T1.

## How do I make the curve smoother and safer so that my back doesn't jam?

To prevent jamming and to ensure smooth and easy movement, follow the eight major principles of movement:

1. Nourish relaxation by breathing and connecting.
2. Initiate movement at the spine.
3. Connect spinal movement with moving through the largest joints first.
4. Move your joints through their optimum range of motion.
5. Create core stability by boosting up your bandhas and breathing.
6. Be relaxed and resilient.
7. Be generous with yourself and move through your pain-free range of motion.
8. Remember that less is more.

In addition to these eight principles of movement, explore the five principles associated specifically with back bends.

## Principles Specific to Back Bends

### 1. Relax

Because it is easy to complete a back bend by moving through the weak links of the spine, it is easy to create injury and dysfunction. So, to safely inspire a functional and balanced body, it is important to cultivate awareness of movement.

Breathe and relax before moving into any back bend. Being relaxed heightens awareness and encourages tighter, tenser areas of the body to release and let go, while also allowing for inner cues of what is working and what is not working to surface.

As the movement continues into the back bend, you may notice that you are particularly tight in one area of your spine or at your hips. As a result, full extension may not be possible. By being aware, you can prevent yourself from forcing through this and instead cultivate a different way of moving that enables release, stability, and strength.

### 2. Initiate Extension at the Thoracic Spine

Back bends provide a lovely laboratory for enjoying the spine in its full splendour. As mentioned earlier, in order to experience a back bend, the spine must extend. Without spinal extension, the back bend will not occur.

To optimize spinal extension, begin at the thoracic spine. By moving first at the thoracic spine, then maintaining the depth of the pose relative to the movement occurring at the thoracic spine, you are almost guaranteed to not overcompensate, which means you won't move through the weak links, which in turn means you won't jam the lower back and cause back or neck pain.



Applying anatomy to asana: Imagine that you can breathe into your sternum, and just your sternum; from the lungs outward. As your soft breath fills into the sternum, the rib cage gently lifts, as if of its own accord. The throat softens and the thoracic spine gently extends.

## Why begin at the thoracic spine?

Initiating extension at the thoracic spine causes the following to happen:

1. The erector spinae muscles are directly engaged.
2. The lower trapezius muscles, which provide support to extension subsequent to the erector spinae contracting, are also engaged.

By engaging these groups of muscles, support is given to each segment of the spine, preventing a spinal collapse.

If you own or have access to Erich Schiffman's book *Moving into Stillness*, open it up and take a look at how he moves through his spine. His arch is much like the arch of a bridge – strong, smooth, fluid, round. He is not moving by using the hypermobile areas of C7–T1, T12–L1, and L5–S1. Instead, he is strong and stable throughout.

### 3. Release the Chest and Use the Back of the Shoulders

Sometimes initiating movement at the thoracic spine is difficult because the muscles of the chest are tight or desensitized. If the scapulae have the tendency to ride up to the ears, and the shoulders round forward, it can be difficult to access the segmental movement of the individual vertebrae of the thoracic spine.

#### How do I do this?

Follow these steps to release the chest, stabilize the scapulae, and use the back of the shoulders:

1. Release the pectoralis minor, coracobrachialis, and biceps brachii.
2. Strengthen the connection of the rhomboids, teres minor, infraspinatus, and posterior deltoid.
3. Balance the rhomboids with the serratus anterior, levator scapulae, pectoralis minor, and lower trapezius.

#### A direct application with Dhanurasana (Bow Pose)

In asanas such as Dhanurasana (Bow Pose) (fig 4-10), both mobility and strength of the arms can enable smooth and fluid movement.

In Dhanurasana, the arms are in extension in order to grasp the ankles. Strong and smooth extension of the humerus in the shoulder socket relies on the stability of the scapula. Stability of the scapula relies on muscles that attach directly to the spine. If those muscles aren't working functionally, the relationship between the spine, scapula, and humerus will also be dysfunctional, creating the possibility of moving through the weak links of the spine.

#### Let's take a look:

For the arm to move into extension, the humerus at the scapula must move into extension. For the humerus to move in this way, the scapula must be stabilized. The scapula is stabilized by the levator

scapulae, rhomboids, lower trapezius in the back, serratus anterior at the side, and pectoralis minor in the front. If the pectoralis minor is tight, the scapula will have the tendency to rise and rotate anteriorly. This position is unstable and will prevent the humerus from extending backward. So, in order to complete the pose, students typically roll the shoulders forward, which prevents extension through the thoracic spine. Without extension of the thoracic spine, there will be an automatic subconscious tendency to tilt the head back by hinging at C7–T1, to stick the ribs out by hinging at T12–L1, or to jam through the lower back by hinging at L5–S1 just to complete the movement.

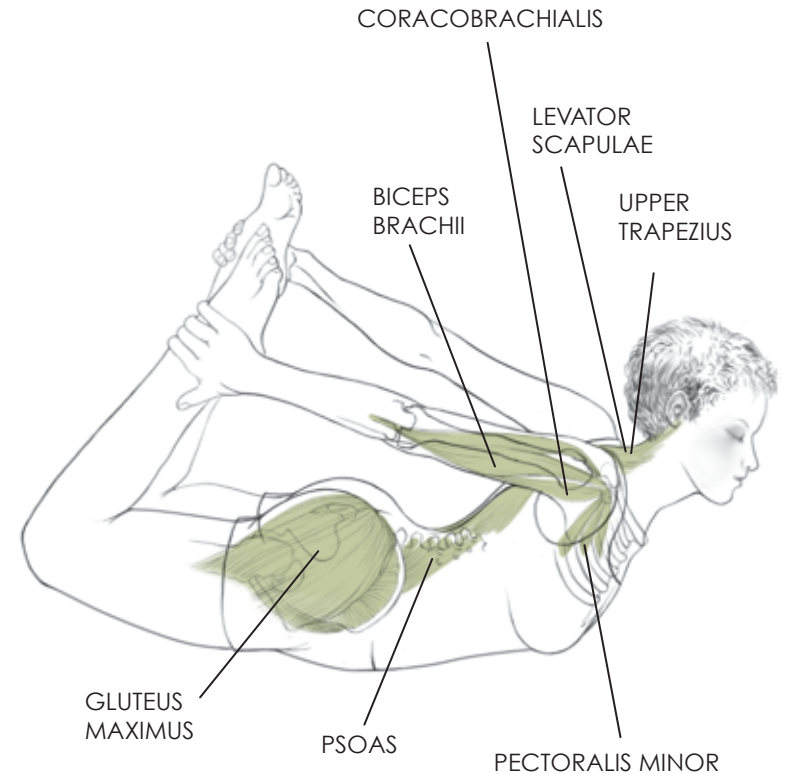
### 4. Stabilize the Connection between the Pelvis and Spine and between the Pelvis and Femurs

Sometimes initiating movement at the thoracic spine and releasing the chest are difficult because the muscles of the lower back are tight, desensitized, or hypermobile. When the lower back is dysfunctional, there is a tendency for the pelvis to move with dysfunction as well. It can become stuck or unstable. Whichever the situation, both can lead to poor spinal movement, increasing the potential for pain and injury in the lower and mid-back. By improving the connection between the pelvis and spine and between the pelvis and femurs, you can gain a foundational structure from which your back bend can move safely and easily.

#### How do I do this?

Follow these steps to stabilize the pelvis:

1. Balance the action and activation of the transversus abdominis, obliques, multifidi, hip adductors, and anterior pelvic floor muscles.
2. Connect the action of the hamstrings, gluteus maximus, and lumbar spine with the balance of the hip rotators.



**Fig 4-10** Dhanurasana (Bow Pose)  
(hamstrings are not shown in this drawing)

## **A direct application with Dhanurasana (Bow Pose)**

Dhanurasana (Bow Pose) provides a laboratory for exploring pelvic girdle and leg movements as they relate to the spine. Specific to Dhanurasana, like all back bends that raise the legs off the floor, strong leg energy is required. Strong leg energy emerges from a stable pelvis.

### **Let's take a look:**

#### **Pelvic Stability: Transversus Abdominis, Obliques, Multifidi, Hip Adductors, Anterior Pelvic Floor**

The pelvis remains stable by gently contracting the anterior portion of the pelvic floor, the transversus abdominis, internal obliques, and multifidi, along with the hip adductors. If any of these muscles are weak, if the contraction is unbalanced, or if the muscles are contracted with too much force and without breath, the foundational stability of the pelvis will be compromised, causing the legs to move weakly and the junction of the pelvis on the lumbar spine at L5-S1 to compensate. This can create dysfunctional movement, possible pain, and potential injury.

#### **Leg Energy: Connecting the Hamstrings, Gluteus Maximus, and Lower Back with the Hip Rotators**

For the legs to move into extension, the femurs must move into extension at the hip joints. For femurs to move in this way, the pelvis must remain stable.

From an anchored pelvis, the gluteus maximus and hamstrings contract, causing the femurs to lift into extension.

However, for yogis and yoginis with tight external rotators, this pure movement of hip extension is not possible. Tight external rotators

cause the femurs to roll outward. You will see this in Dhanurasana by looking at the entire leg and heel. The femurs, tibias, and heels will be turned toward each other. If leg extension was to occur in this position, the chances for pain in the lower back or around the SI joint would be higher than if the legs were not externally rotated.

### **So what to do?**

Fan outward the stability gained in your pelvis. Read on....

## **5. Fan the Pelvic Stability Outward: Developing Your Core**

Fanning the pelvic stability outward is the essence of developing solid core stability. Beginning at the pelvis and radiating up the spine and down to the toes, it is necessary if you want to experience strength, ease, lightness, depth, and freedom in a back bend – when performing traction back bends you will more readily experience a release of the muscles along the front of the body, while in contraction back bends you will feel a more dynamic lift upward.

Since we explored the chest and rib cage earlier in this section, our focus for fanning stability will be on the lower body.

### **Fanning Core Stability Downward**

To fan stability downward, the foundational stability of the pelvis moves into the legs. The stabilizing action of the transversus abdominis, multifidi, and internal obliques, along with the contraction of the anterior pelvic floor muscles, moves into the hip adductors.

From the hip adductors, the core stabilizing energy moves into the feet, where it connects with the muscles of pada bandha. Pada bandha was introduced in principle 5 on page 40. Two of the muscles that create

pada bandha are the peroneus longus and tibialis posterior.

### **How do the hip adductors and pada bandha work in this situation?**

The fibialis posterior and peroneus longus are functionally linked to the hip adductors. From the pelvis, the hip adductors gently pull the legs together with a slight internal rotation. If these muscles weren't opposed, the femurs would continue to rotate inward, creating an inner spiral right to the bottom of the feet. Instead, the peroneus longus and tibialis posterior anchor the foot and ankle, countering the inner rotation of the femurs. The arches lift and energy rebounds up the legs back into the core.



The breath becomes a stone; the stone, a plant; the plant, an animal; the animal, a man; the man, a spirit; and the spirit, a god.

— Christian Nevell Bovee



**Fig 4-11** Ustrasana (Camel Pose)

### A direct application with Ustrasana (Camel Pose)

Prepare for Ustrasana (Camel Pose) (fig 4-11) from kneeling. Move into the asana. Gently ease out. Now, place two pressed foam blocks between your thighs, close to the pelvis. Be sure they are not touching the knees. Gently press the blocks together. When you do, you are using the hip adductors. Now move back into Ustrasana. Is there a difference? You probably noticed one or more of the following:



- A greater release of the muscles in the front of the body
- A deeper experience backward
- Less back pain

This experience can be used with any back bend.

### A direct application with Setu Bandha Sarvangasana (Little Bridge Pose)

Prepare for Setu Bandha Sarvangasana (Little Bridge Pose) (fig 4-12) on your back with your knees bent. Move into the asana. Gently ease out. Now, place two pressed foam blocks between your thighs, close to the pelvis. Be sure they are not touching the knees. Gently press the blocks together. When you do, you are using the hip adductors. Now move back into Setu Bandha Sarvangasana. Is there a difference?

Come out of the pose. Now place your attention on your feet – specifically, the center of your heel, the ball of your foot, and the base of your pinky toe. Now move back into the pose. What do you feel? Is there a difference? Now, combine the two – hip adductors and feet. Any difference?

### To Contract or Not Contract Your Butt

This is a common question and point of discussion for a back bending practice. Some teachers

suggest utilizing the gluteus maximus muscles to create a posterior pelvic tilt, or pelvic tuck, which lengthens the lower back and creates space. The idea is to lengthen the back to prevent jamming. Other teachers suggest relaxing the gluteus maximus muscle.

The answer lies in the stability generated in the pelvis and how that stability can transform into strength, ease, and freedom.

### What happens when we tuck the pelvis?

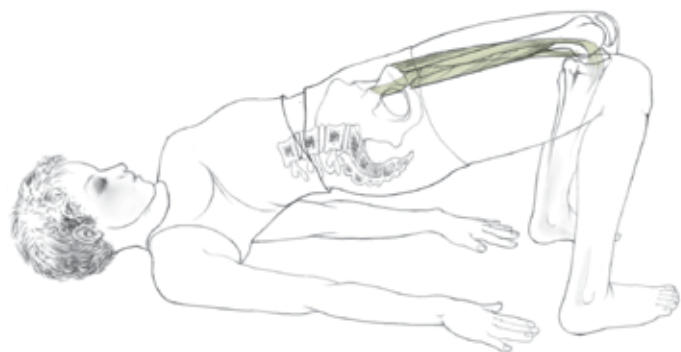
When we tuck the pelvis, the pelvis itself rotates posteriorly. If we are lying supine, on our backs, the lower back will also flatten to the floor. The pubic bone lifts toward the navel. As a result the primary muscle engaged is the rectus abdominis.

### The question is, does this muscle contribute to stability and ease of movement?

To determine if a muscle contributes to stability of the spine, we need to look at the muscles that connect directly to the spine. The rectus abdominis, being the most superficial muscle of the abdominal muscle group, is quite distant from the spinal vertebrae. Because of its distance, it cannot have direct influence on lumbar stability. As a result this position does not contribute to stability and, as such, does not protect the lower back from injury.

### So what to do?

Utilize the pelvic and lumbar stabilizers, the hip adductors, and pada bandha. Work toward releasing the chest and softening the throat; your tendencies to move through the weak links will minimize and your strength, power, and ease will maximize.



**Fig 4-12** Setu Bandha Sarvangasana (Little Bridge Pose)

If you don't have blocks handy, imagine that the heads of your femurs are moving together; or imagine that you are holding a ball between your thighs. Be sure that it is near the upper thigh and not between the knees. By accessing the spot closest to your pelvis, you are activating a greater percentage of the adductors.