

# Bend it like Yoga

By James Bone

**Question** – Should you bend the spine in forward bends in Yoga?

## **Is it Bad for my Back**

Is it bad for your back to bend your spine when doing a forward bend in yoga? This is probably the wrong question to ask. The more important questions to ask are - whose spine is doing the bending, and what are they doing when bending?

## **Normal or Injured**

The role of this article is not to say that one should bend the spine when moving in a forward movement, but to simply highlight what happens in normal people with a healthy spine. Whether one bends the spine or not has a lot more to do with whether an individual has an injury, medical problem or a healthy spine.

## **Healthy**

If you have a healthy spine and bend forward from standing, research tells us that approximately 50% of the movement comes from your hips and 50% from your spine, with there being more hip movement for women.

## **Painful**

However, if you have a history of back pain, have tight hips, tight hamstrings (hamstrings attach to your sit bones, so affect your ability to bend forward at the hips), or a tight spine, then this may change the percentage of movement between the hips and spine.

## **Multifidus the stabiliser**

Interestingly research in San Diego has found that one of the major stabilising muscles of the spine called Multifidus actually gets stronger as the spine flexes – it is designed to stabilise the spine as the spine flexes.

## **Disc damage**

So what is the major concern with bending the spine? Primarily it is concerned with damaging the intervertebral disc. This is a structure made up of a dense outer fibrocartilage ring and an inner water-attracting structure called the Nucleus Pulposus. Bending the spine may lead to damage to the outer fibrous ring, the inner Nucleus contents pushing out or even leaking, leading to pressure being placed on the spinal structures or nerves as they leave the spine – such a condition can be very painful. Research tends to suggest that the disc is at most risk when bending and twisting at the same time, bending and lifting loads, and bending if your muscle support system is weak or not working properly. It is possible there is also more pressure bending when sitting, than when standing.

Research has also tended to indicate that bending forward multiple times can cause the back supporting muscles to become more inhibited at the end of the movement, which may also put the spine at further risk of injury.

### **Hips and backs in forward bends**

In Yoga some people have learnt to bend forward, using only the hips and keeping the back overly extended to try to protect the spine. I remember at a workshop I attended with Judith Lassatar (a very experienced yoga teacher and physiotherapist) she felt that overly extending the spine can lead to spinal problems by causing too much **compression** on the spine. It is also possible that overly bending from the hips, especially keeping the knees straight, can lead to micro trauma in the tendon of the hamstrings, as it attaches to the sit bones, leading to chronic problems and pain in the butt area.

A healthy spine needs to bend to keep it healthy, even if it is as simple as bringing your knees up to your chest while lying on your back.

### **CARE**

However some people shouldn't bend their spine if they have an acute disc injury, experience acute back pain, have an infection or inflammation in their spine, or other acute problem which may affect movement. Wait till this subsides and they get the all clear from their doctor. A person should also check their bending forward movement and see that it is comfortable and they don't feel any burning, pins or needles, numbness, weakness, pain etc in their spine or down their legs. Stop if they do and get themselves checked by a health professional.

### **Chronic pain**

Some people can have a condition of chronic pain, where something has gone wrong in their nervous system, and their back structures have become hypersensitive – they feel pain with movement, though there is no injury or problem. These people may have deconditioned muscles, stiffness, dysfunctional muscle and movement patterns, all making bending difficult. Sometimes, people can change the way they move just from fear of getting pain. These people should be encouraged to move and begin to normalise their movements. This process can't be rushed and may need lots of support and encouragement. It may be best that these people be supervised by a physiotherapist familiar with yoga or a yoga therapist.

### **Fear**

There are some simple ways to make bending forward easier and reduce pressure on the spine, but we should never be *afraid* to bend the spine (fear itself may affect how we use our muscle/s to support the spine when bending) Just avoid bending and twisting at the same time. Avoid bending also if you are having problems with your postural core muscles (get help from a physiotherapist), and be careful not to lift loads with a bent spine. The safe way to lift loads is to do the Dead Lift action, as the professional weight lifters do. See your physiotherapist, health Professional, or exercise physiologist for how to do this.

### **Helpful Tips**

*(See your yoga teacher for advice on how to do the stretches properly and safely)*

**These are only principles – there is NO one way to do any movement and it may vary between individuals due to anatomical differences. The important thing is that you feel comfortable, no strain, breathing is free and natural – not strained.**

**I also like to follow the principle of cross training – do too much of anything and you can cause problems – have balance and variety to your yoga or exercise program.**

- Don't over do anything – we sometimes think if a little is good then a lot must be better. It usually doesn't work that way. Over tightening a muscle, over bending or extending a joint can cause strain – apply moderation and awareness to what you do
- Always Warm Up properly before any exercise or yoga
- I also like to do actions which “turn on” the postural core muscles in the warm up such as standing and lifting tall from the crown, feeling the waist gently thin and belly softly drawn in – this helps to awaken the Transversus Abdominis and Multifidus muscles
- Keep your hamstrings flexible – a good way is with the Single Leg Raise stretch lying on your back
- Keep your hips flexible, especially the Glut muscles at the back of your hips. The Hip Cradle or Pigeon Stretch maybe helpful for this
- Keep your spine flexible. Moving from Cat to Child's Stretch, gently flexing your spine as you sit back on your haunches can be nice way to do this.
- Get a sense of natural forward bending – a balance between moving from the hips at the start of the movement with natural neutral spine (not over extended) then drawing in the lower belly, and bending the spine gently at the end of the movement to complete the action.
- Use your core postural muscles to provide support to your spine – drawing in the lower belly, using the Deep Transversus Abdominis muscle, and keeping your chin also gently lowered
- Bend your knees a little as you bend forward
- Support your chest on your thighs in the bent forward position
- Drop your sit bones and push up from your feet to bring you upright – this takes some of the load from your spine
- Breathe properly – exhale gently into the bend
- Take your time – don't rush it
- Avoid doing too many forward bends at one time
- Be mindful that if you have digestive issues this maybe affecting how your core stomach muscle work
- Whether you bend or extend your spine always imagine length in your spine to avoid any compression of the spinal structures

### **References & Reading Resources:**

- Dickey et al “Repeated spinal flexion modulates the flexion - relaxation phenomenon” Clin Biomech Volume 18, Issue 9, Pages 783-789 (November 2003)
- Esola et al “Analysis of lumbar spine and hip motion during forward bending in

subjects with and without a history of low back pain” Spine (Phila Pa 1976). 1996 Jan 1;21(1):71-8.

- Gidaris et al “Spinal flexibility affects range of trunk flexion during performance of a maximum voluntary trunk curl-up” J strength cond res 2009-Jan; vol 23 (issue 1) : pp 170-6
- McCook, Vincenzino, Hodges “Activity of deep abdominal muscles increases during submaximal flexion and extension efforts but antagonist co-contraction remains unchanged” J Electro Kinesiol doi:10.1016/j.jelekin.2007.11.002
- Mikkonen et al “A Survey of Musculoskeletal Injury among Ashtanga Vinyasa Yoga Practitioners” Int J Yoga Therapy- No. 18 (2008)
- Peharec et al “Kinematic Measurement of the Lumbar Spine and Pelvis in the Normal Population” Coll. Antropol. 31 (2007) 4: 1039-1042
- van Wingerden, Vleeming, Ronchetti “Differences in Standing and Forward Bending in Women With Chronic Low Back or Pelvic Girdle Pain: Indications for Physical Compensation Strategies” Spine:15 May 2008 - Volume 33 - Issue 11 - pp E334-E341
- “Backache Sufferers Who Fear Pain Change Movements” - [www.sciencedaily.com/releases/2007/08/070806170318.htm](http://www.sciencedaily.com/releases/2007/08/070806170318.htm)
- “Unique Skeletal Muscle Design Contributes To Spine Stability” [www.sciencedaily.com/releases/2009/01/090107134537.htm](http://www.sciencedaily.com/releases/2009/01/090107134537.htm)