

Hyperextension of Knees in Asana

We will encounter students who possess slightly looser ligaments and tendons meaning that the range of motion at affected joints can be excessive, potentially leading to damage or injury of the joint, with the soft tissues of ligaments and tendons potentially becoming more overstretched.

The knee joints are especially prone to this hypermobility with the associated ligaments (cruciate, popliteal, medial collateral and lateral collateral) and tendons (hamstring, gastrocnemius), being primarily responsible for uniting the femur and tibia at this important weightbearing joint.

We can know if the knee is hypermobile because it will bend backwards when viewed laterally. If we look closely at the uppermost part of the tibia as the knee moves into hyperextension we see it being drawn backwards.

Associated issues:

We will often find that the **soleus**, a calf muscle, attached to the upper tibia and fibula and to the heel, is **short and tight** and if so this contributes to the potential for hyperextension as it pulls the tibia and fibula backwards.

The **hamstrings** may be **very flexible** with their associated tensions overstretched so reducing their ability to resist the backwards movement of the tibia

The **quadriceps** may also **be weak**.

To compensate there may be additional **postural deviations** such as the pelvis may be forced into a slight forwards anterior tilt, the chest area may collapse and the head may jut forwards.

To protect the knee joint in the short term:

In seated poses such as dandasana, or paschimottanasana etc. when these students are asked to straighten their legs they may simply draw the knee back, bringing the leg into further hyperextension so must be taught to engage or activate the thigh muscles instead. But significantly this can increase the backwards action at the top of the tibia meaning there is still hyperextension so to be more exact we need to

- Contract the quadriceps and simultaneously keep the heels pressed down into the floor

In standing poses such as trikonasana, uttanasana etc.

- Ensure the weight is placed into all four corners of the feet, avoiding pressing excessive pressure into the heel.
- With practice imagine the uppermost part of the shinbone is being moved away from the floor
- Do not press down onto the shinbone with a hand as this pushes the tibia backwards, use the floor, a block or place hand higher on the leg.

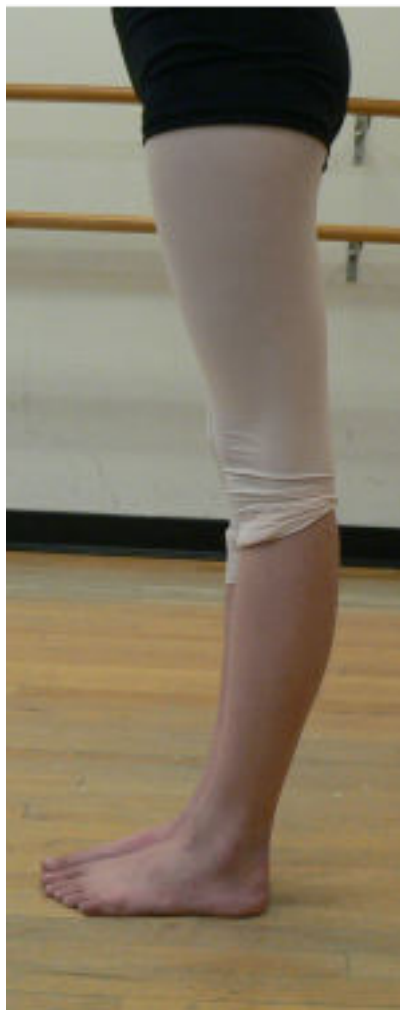
To protect the knee joint over the longer term:

- Practice bent knee calf stretches such as utkatasana and malasana to release the soleus
- Strengthen the quadriceps muscles with asana such as utkatasana, virabhadrasana, parsvakonasana etc.
- Strengthen the hamstrings with asana such as shalabhasana, virabhadrasana III

The benefits of asana

Asana will tone the supporting and protective muscles and bring awareness to posture.

See below: In the first image we see hyperextension at the knee and in the second image it has been rectified. Note the position of the pelvis and also the ankles as these are also affected by hyperextension of the knees.



Images from: <http://danceart.com/profiles/blogs/knee-hyperextension-training>

Text based on information to be found at: <http://www.yogajournal.com/article/practice-section/the-hyperextended-knee/>