# "Injury Prevention"
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### *Tips to Prevent and Manage Knee Pain*

Pain in the front of the knee is very common in walkers and runners. A frequent finding when evaluating this condition is tightness in the quadriceps muscle group. The quadriceps is made up of 4 muscles on the front of the thigh, which join into one common tendon and attach to the knee cap (patella). When this muscle is excessively tight it creates tension in the tissues above or below, or on either side of your patella. Additionally, it increases compressive forces on the back of the patella every time your knee bends which can lead to discomfort or "grinding" (crepitus) with activities such as stair-climbing or rising from sitting. Prolonged compressive forces could potentially contribute to early arthritis, or increase pre-existing arthritis pain. Normal quadriceps flexibility is illustrated by the ability to easily pull your heel up to your buttock with your hand on the same side (see figure below). Two common quadriceps stretches are pictured below and should be performed before and after exercise, three times each, for a duration of 30 seconds each time. Performing these stretches throughout the day provides additional benefit.

Excessive tightness in the calf or hamstring muscles can make it difficult to fully straighten the knee when running or walking, which also creates more pressure on the patella. Effective stretches for these muscles are pictured below.

Other common causes of pain in the knee with running include weakness in the quadriceps or hip musculature, tightness in the hip joint or musculature, misalignment of the hips and/or knees, or abnormal foot and ankle biomechanics such as excessive pronation. These issues can be a little more complex and may require a thorough evaluation and exercise prescription by a qualified medical professional.

Just remember, consistent quadriceps stretching can be extremely beneficial in treating or preventing knee pain to keep you active later in life!



Calf