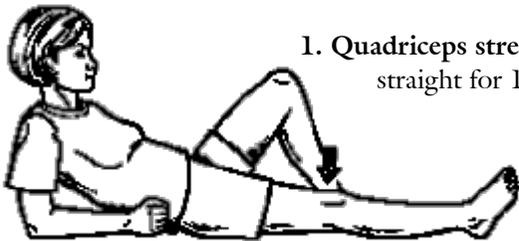


KNEE PAIN

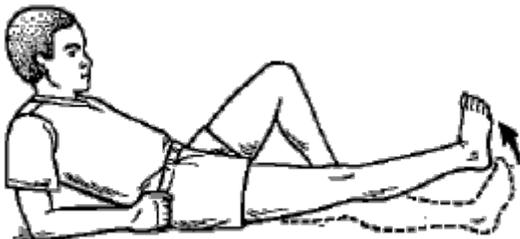
Knee pain is either from an injury or osteoarthritis (degenerative arthritis or wear-and-tear arthritis). Exercise, as outlined below may help smooth the 'mating' surfaces of the joint and increase the natural lubricants in the joint. Steroid injections can be given into the knee joint. Since one of the natural lubricants of the knee is hyaluronic acid, injections of hyaluronic acid is another treatment for knee pain. Since osteoarthritis tends to progress, about one in 4 people with bad osteoarthritis of the knee will get knee surgery. Cleaning up the cartilage or washing out the joint of debris or even smoothing the bones can help, and if all else fails, artificial joints can be put in the knee.

That said; let's see if we can restore the natural function of the knee with the exercises below. If you are having difficulty with them, see if we can set you up with a physical therapist that is trained to make these and other exercises work for you. Try to do all the exercises shown in the drawings, then reverse your position, and do the exercises with your other leg, so both knees get the benefit of stretching.



1. **Quadriceps strengthening: isometrics.** Position yourself as shown above. Hold your right leg straight for 10 to 20 seconds and then relax. Do the exercise 5 to 10 times.

2.
shown
10
seconds.



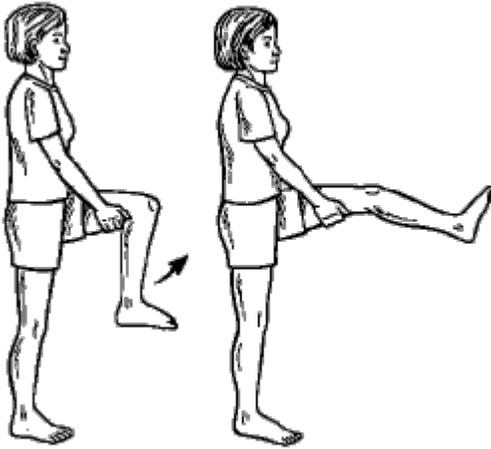
Quadriceps strengthening: straight leg lift. Position yourself as above. Raise your right leg several inches, and hold it up for 5 to seconds. Then lower your leg to the floor slowly over a few seconds. Do the exercise 5 to 10 times.



3. **Iliotibial band and buttock stretch** (right side shown). Position yourself as shown above. Twist your trunk to the right and use your left arm to "push" your right leg. You should feel the stretch in your right buttock and the outer part of your right thigh. Hold the stretch for 10 to 20 seconds. Do the exercise 5 to 10 times.

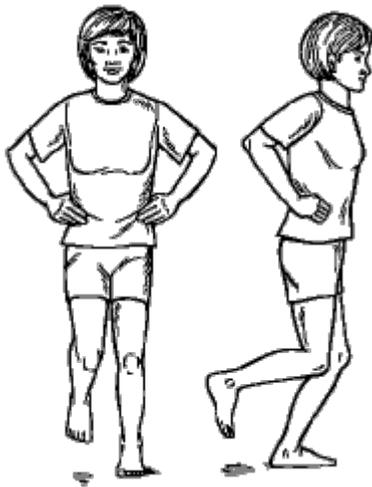


4. **Iliotibial band stretch** (left side shown). Position yourself as shown above, with your right leg crossed in front of your left leg. Hold your hands together and move them toward the floor. You should feel a stretch in the outer part of your left thigh. Hold the stretch for 10 to 20 seconds. Do the exercise 5 to 10 times.



5. Hamstring stretch. Position yourself as shown in the left-hand drawing above. Bend your left knee. Grip your thigh with your hands to keep the thigh steady. Straighten your left leg in the air until you feel a stretch. Hold the stretch for 5 to 10 seconds. Do the exercise 5 to 10 times.

6. Hip adductor strengthening. While sitting, squeeze a rubber ball between your knees. Hold the squeeze for 5 to 10 seconds. Do the exercise 5 to 10 times. (If you don't have a ball, put your hands or fists between your knees and then squeeze.)

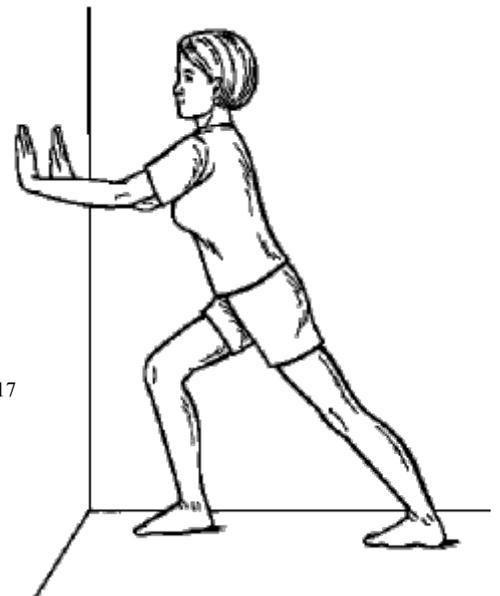


7. Hip abductor strengthening (left side shown, front and side views). Position yourself as shown above, standing on your left leg with the knee slightly bent. Slowly raise your right foot about 30 degrees, hold for a few seconds, and then slowly lower the foot and straighten both legs. Do the exercise 10 times. Don't let your pelvis tilt (be crooked), and don't let your knees turn inward during bending.



8. Hip and buttock stretch (left side shown). Position yourself as shown above, with your left leg over your right leg, and place your hands over your left knee. Pull the knee slightly toward you while sitting up straight. Hold the position for 20 seconds, and then rest for several seconds. Do the exercise 6 times.

9. Calf stretch. Position yourself against a wall as shown above. Keep your left heel on the ground to feel the back of the leg stretch. Hold for 10 to 20 seconds. Do the exercise 6 to 10 times.



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