

Knee Class

Fremont Physical Therapy

Knee Facts

- The knee loses strength and stability after an injury.
- Stretching, strengthening and stability exercises are recommended not only for people who have injured their knees, but also to prevent injury.

How can this class help?

- The purpose of this class is to have you begin a series of home exercises.
- Please review the instructions and perform the exercises as prescribed (frequency, number of repetitions). These exercises should be performed regularly for three weeks. If your symptoms feel worse with any exercise, stop doing the exercise until you check with your physical therapist or your doctor or call the Fremont Physical Therapy Department at **510-248-3200** to schedule an appointment with a physical therapist.

Class Goals:

- Present a brief overview of the anatomy of your knee
- Present an overview of the causes of your knee pain
- Instruct you in exercises for recovery: stretches, strength and aerobic exercises
- Discuss how you will manage flare-ups

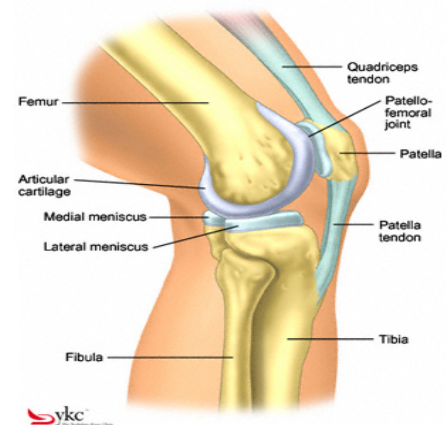
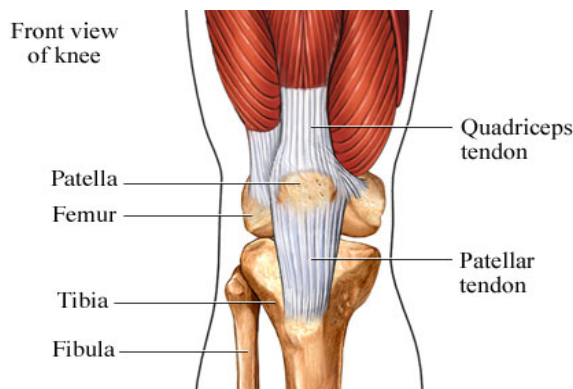
Anatomy of your knee

Bones: Femur, Tibia, patella, fibula

Joints: Knee joint, Patello-femoral joint

Ligaments: Ligaments are strong bands that help hold the bones together.

Muscles: The muscles surrounding your knee give it support and allow you to move. Eg: Hamstrings, Quadriceps, Calf



What causes knee pain

- Knee Strain/Sprain - When muscles, ligaments or meniscus are injured due to trauma.
- Degenerative joint disease (Knee Osteoarthritis) – cartilage loss.

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- Patellofemoral Syndrome (PFS) – compression of the kneecap.

STRETCHING EXERCISES



OR



Quadriceps stretch: Standing

Hold on to a chair, counter or wall. Bend your one knee back and grab your ankle. Gently tighten your buttocks until you feel the stretch down the front of your thigh.

Hold for 30 seconds. Repeat 2 times.

Frequency: 1-2 times/day

Quadriceps stretch lying on stomach:

Place a strap around the ankle of the leg you want to stretch. Tighten your buttocks. Bend your knee and gently pull on the strap until you feel a stretch on the front of your thigh.

Hold for 30 seconds. Repeat 2 times.

Frequency: 1-2 times/day

Standing ITB stretch:

Stand next to a chair or a wall, about 1-2 feet away. Cross your outer leg in front of your inner leg. Lean away from your inner leg. If you are standing next to a wall, you can lean your hip into the wall for balance.

Hold for 30 seconds. Repeat 2 times.

Frequency: 1-2 times/day

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Standing Hamstring Stretch:

Place your foot on a chair in front of you. Slowly straighten your knee until you feel a stretch in the back of your thigh. Stick your buttocks out backwards to increase the stretch.

Hold for 30 seconds. Repeat 2 times.

Frequency: 1-2 times/day

Calf Stretch:

Stand facing a wall with your hands on the wall at about eye level. Place the leg you want to stretch about a step behind your other leg.

Keeping your back leg straight and your back heel on the floor, bend your front knee and gently bring your hip and chest toward the wall until you feel a stretch in the calf of your back leg.

Hold 30 seconds. Repeat 2 times. Perform 1-2/day.

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Soleus Stretch:

Stand facing a wall with your hands on the wall at about eye level. Place the leg you want to stretch about a step behind your other leg.

Keeping your back knee bent and your back heel on the floor, bend your front knee and gently bring your hip and chest toward the wall until you feel a stretch in the calf of your back leg.

Hold for 30 seconds. Repeat 2 times. Frequency: 1-2 times/day

STRENGTHENING EXERCISES



Quadriceps Set:

Place a small towel roll under your knee. Straighten your knee by tightening your thigh muscles. Press the back of your knee into the floor or towel and hold for 5-10 seconds. This may also be done sitting.

Repeat 3 sets of 10 repetitions , 3 times/week



Short arc quadriceps set in supine:

Lie on your back with a large towel roll under your knee. Tighten your thigh muscles and lift your heel off the ground. Keep your knee on the towel roll as you hold your leg as straight as possible for 5 seconds.

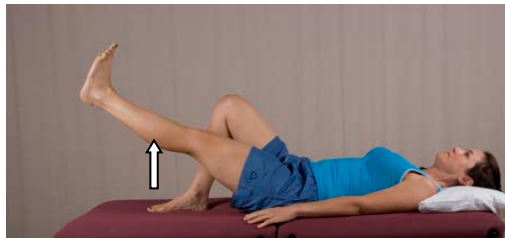
Repeat 3 sets of 10 repetitions , 3 times/week

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Straight Leg Raise Supine:

Lie on your back with your affected leg straight and your other leg bent. Tighten your thigh muscle then lift your straight leg no higher than the other knee without allowing your knee to bend. Keep your thigh muscles tight while you lower your leg.

Repeat 3 sets of 10 repetitions , 3 times/week



Step up:

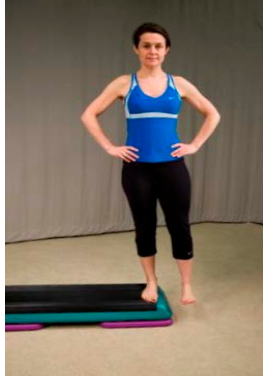
Stand with one foot on the step and one foot placed behind you on the floor. Raise yourself up on the step. Keep your stomach and buttock muscles tight and your pelvis level.

Repeat 1 set of 10 repetitions , 3 times/week

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Step down to the side:

Stand on one leg close to the edge on the step. Bend the knee of your standing leg and touch the toes of your other leg to the floor. Extend your knee to return to standing. Keep your stomach and buttock muscles tight and your pelvis level throughout the exercise.

Repeat 1 set of 10 repetitions , 3 times/week



Wall Squat:

Stand with your back to the wall and feet about 12-18 inches away. Perform a small squat, making sure your knees stay over your ankles. Hold the position for 5-10 seconds. Return to standing and repeat.

Repeat 1 set of 10 repetitions , 3 times/week



Standing Calf Raises – Progression

Use both feet to rise up onto your toes and lower the heels slowly. Assist with the unaffected side so that there is no pain in the affected side. The affected side may do most of the work at this stage.

Repeat 1 set of 10 repetitions , 3 times/week

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Balance Exercises with or without support.

Hold 30 seconds. Repeat 3 times.

You can progress this exercise by:

- Standing on one foot
- Turning your head left and right while you maintain your balance.
- Closing your eyes while you maintain your balance.

Standing on a soft surface such as a foam pad, pillow.

Hamstring Curls

Stand on one leg with your knee slightly bent. Keep your stomach and buttock muscles tight and your pelvis level.

Hold on to the back of a chair for balance.

Bend your other knee up and down, lifting your heel toward your buttocks.

Do not let your knee move forward or backward as you bend it.

Repeat 1 set of 10 repetitions , 3 times/week



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Starting an Exercise Program

- Respect your pain
- You will continue to have good and bad days
 - Back off a little on bad days
 - Do not increase exercises just because it is a good day
- Success comes from being consistent
 - Avoid reacting too much to daily changes
 - Monitor the cumulative effects of other daily activities
- Stressful activities
 - Running: 6-11 times body weight
 - Squatting: 5-8 Times body weight
 - Climbing Stairs: 3.5 times body weight
 - Jumping
 - Leg extension machines
- Less Stressful activities
 - Biking on level surfaces or stationary bike
 - Walking on level surfaces
 - Swimming with flutter kick

Exercise for recovery

- Stretching
- Strengthening
- Aerobic exercise
 - Begin an aerobic program
 - Walking is an easy way to start

Do some walking every day

Start at a time and distance that you can complete easily. Start with a 5-minute walk and add 5 minutes to your time as tolerated. Your goal is to reach 20-30 minutes of walking every day.

This may be your most important exercise.

Strengthening guidelines

- Start without weight.
- Perform 10 to 15 repetitions.
- Perform 3 sets of each exercise.
- Exercise 4 to 5 times per week.
- Add weights once you have achieved the exercise level above.
- Avoid pain or any discomfort (during or after the strengthening exercises) Do not perform exercises which aggravate your symptoms. Do not hold your breath during exercises.

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Next Steps:

- Begin your exercise program today
 - Strengthening exercises.
 - Aerobic exercises (walking, biking)
- If the exercises make you worse:
 - Have you done the exercise correctly?
 - Have you done too many repetitions?
 - Have you exercised too vigorously?
- Be patient. It is not always realistic to expect to eliminate all of your pain.
- It can take 2-3 months to create change.

Tips for managing flare-ups

- **Place a cold or heat pack** on your knee for 10-15 minutes to help with the pain. Place a thin cloth layer between the skin and the cold or heat pack. Repeat this several times per day when it is flared up.
- **Take your medication** as prescribed
- **Wear supportive shoes:** Good arch support and supportive shoes decrease pain with activities by achieving good alignment. Avoid non-supportive shoes like, flip flops, sandals and high heels.
- **Modify your activities:**
 - Limit repetitive or excessive amounts of activities that increase pain.
 - Compressive activities like squatting, stairs, running, and jumping put the most pressure on your knees.
 - Replace these activities with less compressive activities such as biking, swimming, water aerobics and the elliptical trainer. Begin with 5 minutes, progress to 20 minutes, as able.
 - Use a pad under your knees when kneeling.
 - Change your leg position often when sitting.
 - Take frequent breaks.

Questions ???

Thank you !!

Physical Therapy Department, Kaiser Fremont

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