

## PATIENT EDUCATION GUIDE

For our patients with osteoarthritis

# Stretching and strengthening the hip, thigh, and knee

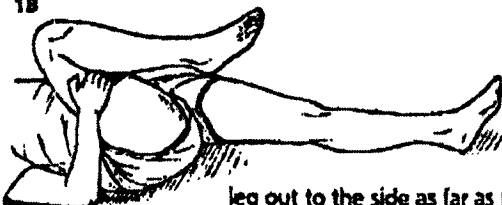
Exercise is one of the most important parts of your care plan. It promotes strength and flexibility, helps you maintain a healthy body weight, reduces pain, and improves overall mobility and quality of life.

Stretching exercises help preserve or increase the joint's range of motion. Strengthening exercises make your joints more stable and provide cushioning and support around the joints. The exercises shown here, combined with an aerobic activity such as walking for 45 minutes daily, provide a basic program for conditioning your lower extremities.

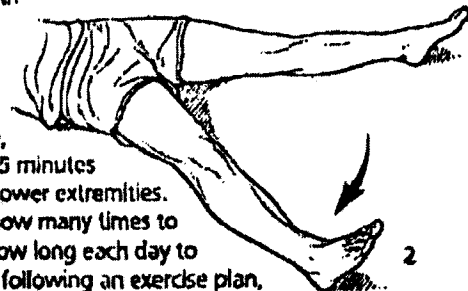
1A



1B



2 leg out to the side as far as possible, then return it to its original position (2). Repeat for the other leg. Rotate your hips inward so your toes point to each other (3A). Then rotate your hips outward so your toes point away from each other (3B). Do all three of these exercises 5 to 10 times for each leg.



Your therapist can tell you how many times to do these exercises and for how long each day to get the most benefit. When following an exercise plan, patience and faithfulness are important; it may take some time before you notice an improvement. Don't give up!

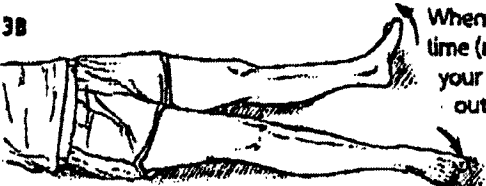
### 1 - 3. Range of motion exercises for the hip and knee

Lying on your back, slide the foot of your right leg up to the buttock, then bend the thigh in toward your chest (1A). You can hold the back of the thigh if this helps (1B). Return the leg to its original position. Repeat for the other leg. Slide your right

3A



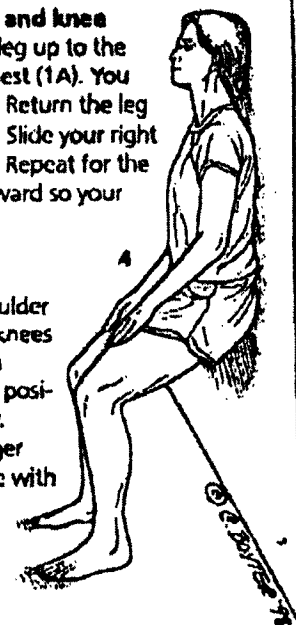
3B



### 4. Wall sit

Stand with your back against a wall and your feet shoulder width apart and 18 inches from the wall. Bend your knees slowly, keeping your heels flat on the floor. Hold for a count of 5 to 10 seconds, then return to your starting position. Perform only 1 or 2 repetitions, several times daily. When you can comfortably hold this position for a longer time (more than 1 to 2 minutes) start doing the exercise with your body lower on the wall and your feet further out from it (be sure that you can still see your toes).

When performing this exercise, it is important to wear shoes with nonskid soles. This exercise should not be painful.



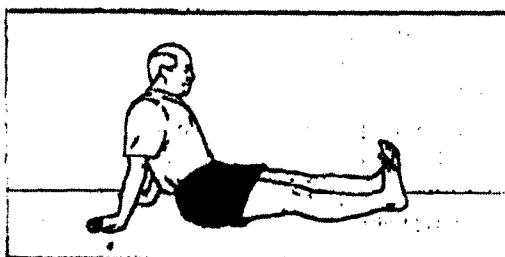
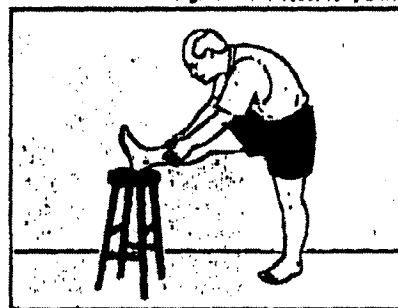
Prepared by Susan M. Murphy, MD and Mary L. Jurisson, MD  
Mayo Clinic, Rochester, Minnesota

If you have any questions, call this office: \_\_\_\_\_

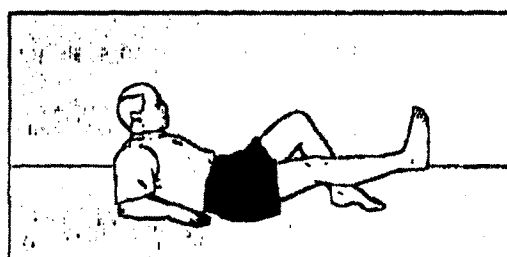
\_\_\_\_\_  
\_\_\_\_\_

**Figure 4.** Tight hamstrings are common in knee OA patients, and they can exacerbate knee pain. Hamstring stretches, an important treatment modality, can be done supine, sitting, or standing. In the standing hamstring stretch shown here, the foot is placed on a stool and the patient slowly leans forward until a stretch is felt in the back of the thigh. The stretch is held for 30 seconds.

Figures 4-7 © 1998, Terry DeRos.

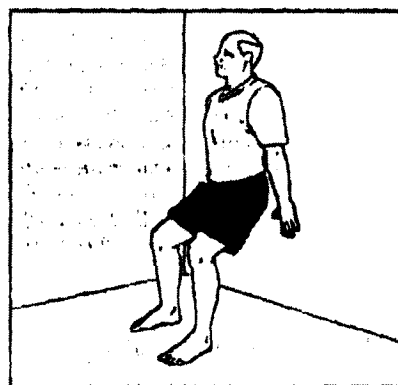


**Figure 5.** Quadriceps rehabilitation begins with quad sets. In this exercise the patient sits with both legs extended, leans back about 60° on the palms of the hands with arms straight, and then tightens the muscles in the proximal thigh by pushing the knees down into the floor. The feet may rise slightly with this maneuver.



**Figure 6.** Straight-leg raises are part of quadriceps rehabilitation. In this exercise, the patient lies back on a table or floor, leaning on the forearms with the back propped up a few inches and legs extended. The fully extended knee is lifted about 12 in. and held for 10 seconds. This is repeated 20 times or as tolerated.

**Figure 7.** Closed-kinetic-chain exercises further strengthen the quadriceps and hamstrings for knee rehabilitation. In a strengthening wall slide, the patient leans back against a smooth wall and lowers his or her body 4 to 6 in. by bending the knees. This position is held for 15 seconds. The patient then returns to the starting position, maintaining good proximal quadriceps tone on the ascent. This is repeated as tolerated.



nonoperatively for a significant length of time. We generally treat knee OA with easy-to-follow steps similar to those recommended by the American College of Rheumatology.<sup>20</sup>

**Medication.** The first line of treatment is nonsteroidal anti-inflammatory drug (NSAID) therapy. Currently, there are at least 15 NSAIDs on the market<sup>11,21</sup> (table 1). There have been no definitive studies that clearly show superior ef-

ficacy for any one NSAID.<sup>11</sup>

All NSAIDs have been associated with significant risks and side effects. They work by inhibiting the cyclooxygenase pathway of arachidonic acid metabolism, blocking the production of proinflammatory prostaglandins but also blocking the beneficial effects of prostaglandins on gastric mucosal lining, renal blood flow, platelet function, and sodium balance.

*continued*