

Sweetwater Pain & Spine

Home Exercise Handout

Knee Osteoarthritis

Knee osteoarthritis (OA) is a degenerative condition in which the cartilage of the knee gradually wears away, causing pain, stiffness, and swelling — typically worsened by activity and relieved with rest. Quadriceps strengthening is the single most effective exercise intervention for knee OA, reducing pain and protecting the joint from further stress. These exercises build quad strength from gentle isometric activation through functional weight-bearing movement. Perform them consistently on most days of the week.

1 Quad Sets

1–3 sets • 10–15 reps • 3–5 days per week

1



START POSITION

Lie on your back with the affected leg straight.
A small rolled towel under the knee is optional.
Relax your leg muscles.

2



TIGHTEN QUADRICEPS

Tighten the quadriceps muscle by pressing the back of the knee down toward the floor, as if trying to straighten the knee further.
Keep your foot relaxed and pointing up.

3



HOLD & FEEL

You should see the kneecap move upward slightly and feel the thigh muscle firm up.
Hold for 5 seconds.

4



RELAX

Relax the muscle completely.
Rest for a moment.
Then repeat for the prescribed reps.

2 Straight Leg Raise

1–3 sets • 10–15 reps • 3–5 days per week

1



START POSITION

Lie on your back with both legs straight.
Keep the affected leg straight and the other leg relaxed.
Keep your toes pointing up.
Engage your core and keep your low back relaxed.

2



RAISE THE LEG

Tighten your quadriceps on the lifting leg.
Slowly raise the straight leg to about 12–18 inches off the ground.
Keep your knee straight and your toes pointing up.
Avoid leaning or lifting your low back.

3



HOLD

Hold the leg at the top for 1–2 seconds.
Keep your quadriceps engaged and your leg straight.
Breathe normally.

4



LOWER SLOWLY

Slowly lower your leg back down to the starting position with control.
Do not let it drop.
Repeat for the prescribed reps.
Then switch legs if directed.

3 Short-Arc Quad (SAQ)

1–3 sets • 10–15 reps • 3–5 days per week



START POSITION

Lie on your back.
Place a rolled towel or foam roller under the affected knee, propping it up to approximately 45°.
Relax your ankle and foot.
Engage your core and keep your low back relaxed.



EXTEND THE KNEE

Tighten your quadriceps.
Straighten the knee from 45° to full extension, raising your heel off the floor.
Keep your thigh on the roller.
Do not lift your thigh or hip.



HOLD

Hold the leg at full extension for 2 seconds.
Squeeze your quadriceps at the top.
Breathe normally.

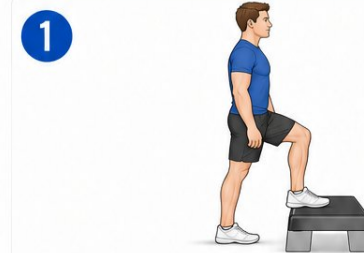


LOWER SLOWLY

Slowly lower your heel back down by bending your knee.
Lower over 3 seconds with control.
Do not let your quad relax.
Repeat for the prescribed reps.

4 Step-Ups

2–3 sets • 8–12 reps per leg • 3–5 days per week



START POSITION

Stand facing a low step (4–6 inches).
Place the affected foot on the step.
Keep your chest up and your core engaged.
Let your arms hang naturally at your sides.



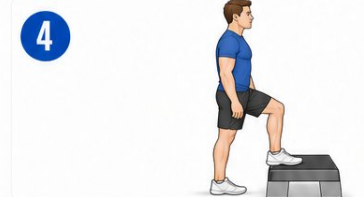
STEP UP

Press through the heel of your affected leg to step up.
Bring your other foot up to meet it.
Keep the knee aligned over the second toe — do not let it cave inward.
Stand tall at the top.



STEP DOWN SLOWLY

Step back down with the non-affected leg first.
Lower your affected foot to the floor slowly and under control.
The eccentric (lowering) phase is the most therapeutically important.



REPEAT

Repeat for the prescribed number of repetitions.
Then switch legs.
Progress to a higher step as your strength improves.

■ Stop any exercise that causes sharp pain, new numbness or weakness, or worsening of symptoms, and contact our office. These exercises supplement but do not replace your provider's individualized plan.

Questions or concerns? Call Sweetwater Pain & Spine: (775) 870-1480

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