KNEE CONDITIONING PROGRAM

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After an injury or surgery, an exercise conditioning program will help you return to daily activities and enjoy a more active, healthy lifestyle. Following a well-structured conditioning program will also help you return to sports and other recreational activities. **This is a general conditioning program that provides a wide range of exercises.** To make sure the program is safe and effective for you, it should be performed under your doctor's supervision — talk to your doctor or physical therapist about which exercises will best help you meet your rehabilitation goals.

STRENGTH

WHY IT MATTERS

- Strengthening the muscles that support your knee will reduce stress on your knee joint. Strong muscles help your knee joint absorb shock.

FLEXIBILITY

WHY IT MATTERS

- Stretching the muscles that you strengthen is important for restoring range of motion and preventing injury. Gently stretching after strengthening exercises can help reduce muscle soreness and keep your muscles long and flexible.

TARGET MUSCLES

- Quadriceps — front of the thigh
- Hamstrings — back of the thigh
- Abductors — outer thigh
- Adductors — inner thigh
- Gluteus medius and gluteus maximus — buttocks

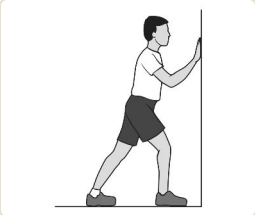
LENGTH OF PROGRAM

This knee conditioning program should be continued for **4 to 6 weeks**, unless otherwise specified by your doctor or physical therapist. After your recovery, these exercises can be continued as a maintenance program for lifelong protection and health of your knees. Performing the exercises **2 to 3 days a week** will maintain strength and range of motion.

GETTING STARTED

- **Warm up:** before doing these exercises, warm up with 5 to 10 minutes of low-impact activity, such as walking or riding a stationary bicycle
- **Stretch:** after the warm-up, do the stretching exercises before moving on to the strengthening exercises. When you have finished the strengthening exercises, repeat the stretching exercises to end the program
- **Do not ignore pain:** you should not feel pain during an exercise. Talk to your doctor or physical therapist if you have any pain while exercising
- **Ask questions:** if you are not sure how to do an exercise, or how often to do it, contact your doctor, your physical therapist or our office at 615-936-7846

STRETCHING EXERCISES



EXERCISE 01

HEEL CORD STRETCH

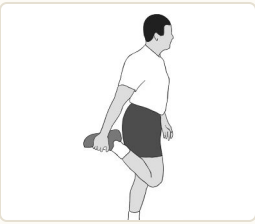
Works: Gastrocnemius–soleus complex · felt in the calf and into the heel

- Stand facing a wall with your unaffected leg forward and slightly bent at the knee. Your affected leg is straight and behind you, heel flat, toes pointed in slightly
- Keep both heels flat on the floor and press your hips forward toward the wall
- Hold the stretch for 30 seconds, then relax for 30 seconds. Repeat

TIP Do not arch your back.

REPETITIONS: 2 sets of 4

DAYS PER WEEK: 6 to 7



EXERCISE 02

STANDING QUADRICEPS STRETCH

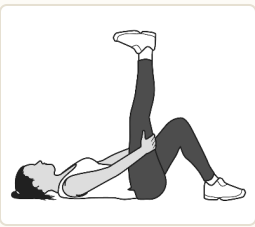
Works: Quadriceps · felt in the front of the thigh

- Hold on to the back of a chair or a wall for balance
- Bend your knee and bring your heel up toward your buttock; grasp your ankle and gently pull your heel closer to your body
- Hold for 30 to 60 seconds, then repeat with the opposite leg

TIP Do not arch or twist your back.

REPETITIONS: 2 to 3

DAYS PER WEEK: 4 to 5



EXERCISE 03

SUPINE HAMSTRING STRETCH

Works: Hamstrings · felt at the back of the thigh and behind the knee

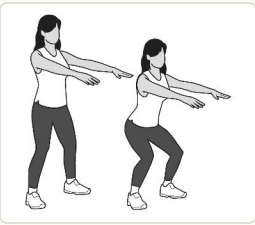
- Lie on the floor with both legs bent. Lift one leg and bring the knee toward your chest, clasping your hands behind your thigh below the knee
- Straighten the leg and pull it gently toward your head until you feel a stretch. If you cannot clasp your hands, loop a towel around your thigh and pull on the ends
- Hold for 30 to 60 seconds, then repeat with the opposite leg

TIP Do not put your hands at your knee joint and pull.

REPETITIONS: 2 to 3

DAYS PER WEEK: 4 to 5

STRENGTHENING EXERCISES



EXERCISE 04

HALF SQUATS

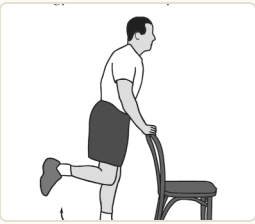
Works: Quadriceps, gluteus, hamstrings · felt at the front and back of the thighs and in the buttocks

- Stand with your feet shoulder-width apart. Your hands can rest on the front of your thighs or reach in front of you; hold a chair or wall for balance if needed
- Keep your chest lifted and slowly lower your hips about 10 inches, as if sitting down into a chair
- Plant your weight in your heels, hold the squat for 5 seconds, then push through your heels to stand
- **Equipment:** as the exercise becomes easier, add hand weights, beginning with 5 pounds and progressing up to 10 pounds

TIP Do not bend forward at your waist.

REPETITIONS: 3 sets of 10

DAYS PER WEEK: 4 to 5



EXERCISE 05

HAMSTRING CURLS

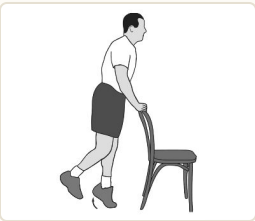
Works: Hamstrings · felt at the back of the thigh

- Hold on to the back of a chair or a wall for balance
- Bend your affected knee and raise your heel toward the ceiling as far as possible without pain
- Hold for 5 seconds, then relax. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Flex your foot and keep your knees close together.

REPETITIONS
3 sets of 10

DAYS PER WEEK
4 to 5



EXERCISE 06

CALF RAISES

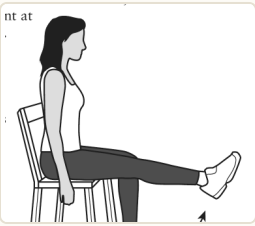
Works: Gastrocnemius–soleus complex · felt in the calf

- Stand with your weight evenly distributed over both feet, holding a chair or wall for balance
- Lift your unaffected foot off the floor so that all of your weight is on the affected foot
- Raise the heel of your affected foot as high as you can, then lower. Repeat 10 times
- **Equipment:** chair for support

TIP Keep your weight centered on the ball of your working foot.

REPETITIONS
2 sets of 10

DAYS PER WEEK
6 to 7



EXERCISE 07

LEG EXTENSIONS

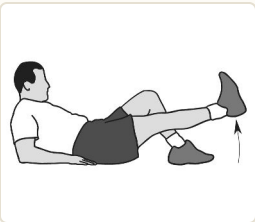
Works: Quadriceps · felt at the front of the thigh

- Sit up straight on a chair or bench
- Tighten your thigh muscles and slowly straighten and raise your affected leg as high as possible
- Squeeze your thigh muscles and hold for 5 seconds; relax and bring your foot to the floor. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Do not swing your leg or use momentum to lift it higher.

REPETITIONS
3 sets of 10

DAYS PER WEEK
4 to 5



EXERCISE 08

STRAIGHT-LEG RAISES

Works: Quadriceps · felt at the front of the thigh

- Lie on the floor with your elbows directly under your shoulders to support your upper body
- Keep your affected leg straight and bend the other leg so that the foot is flat on the floor
- Tighten the thigh muscle of the affected leg and slowly raise it 6 to 10 inches off the floor
- Hold for 5 seconds, then relax and lower the leg. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Do not tense up in your neck and shoulders.

REPETITIONS
3 sets of 10

DAYS PER WEEK
4 to 5

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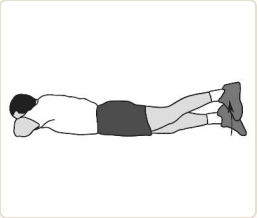


EXERCISE 09

STRAIGHT-LEG RAISES — PRONE

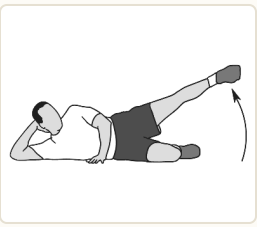
Works: Hamstrings, gluteus · felt at the back of the thigh and into the buttock

- Lie on your stomach with your legs straight, resting your head on your arms
- Tighten the gluteus and hamstring muscles of the affected leg and raise the leg toward the ceiling as high as you can
- Hold for 5 seconds, lower your leg and rest for 2 seconds. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Keep your pelvic bones on the floor.

REPETITIONS
3 sets of 10

DAYS PER WEEK
4 to 5



EXERCISE 10

HIP ABDUCTION

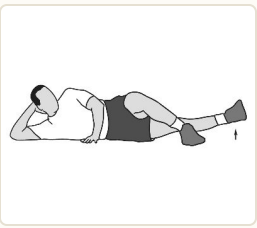
Works: Abductors, gluteus · felt at the outer thigh and buttock

- Lie on your side with the injured leg on top and the bottom leg bent for support
- Straighten your top leg and slowly raise it to 45°, keeping the knee straight but not locked
- Hold for 5 seconds, then slowly lower your leg and relax for 2 seconds. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Do not rotate your leg in an effort to raise it higher.

REPETITIONS
3 sets of 20

DAYS PER WEEK
4 to 5



EXERCISE 11

HIP ADDUCTION

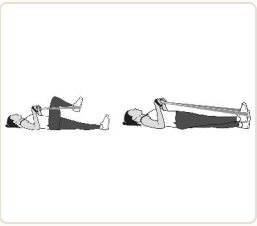
Works: Adductors · felt at the inner thigh

- Lie on the floor on the side of your injured leg with both legs straight
- Cross the uninjured leg in front of the injured leg
- Raise the injured leg 6 to 8 inches off the floor and hold for 5 seconds
- Lower your leg and rest for 2 seconds. Repeat
- **Equipment:** as the exercise becomes easier, gradually add an ankle weight, beginning with 5 pounds and progressing up to 10 pounds

TIP Place your hand on the floor in front of your stomach for support.

REPETITIONS
3 sets of 20

DAYS PER WEEK
4 to 5



EXERCISE 12

LEG PRESSES

Works: Quadriceps, hamstrings · felt at the front of the hip and the front and back of the thigh

- Place the center of an elastic band at the arch of your foot and hold the ends in each hand. Lie on the floor with your elbows bent
- Tighten the thigh muscle of your affected leg and bring your knee toward your chest
- Flex your foot and slowly straighten your leg directly in front of you, pushing against the band
- Hold for 2 seconds; relax and bring your leg to the floor. Repeat
- **Equipment:** an elastic stretch band of comfortable resistance — **do not use ankle weights with this exercise**

TIP Keep your abdominals tight throughout the exercise.

REPETITIONS
3 sets of 10

DAYS PER WEEK
4 to 5

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BALANCE & CONTROL

EXERCISE 13

SINGLE LEG BALANCE

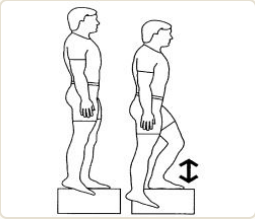
Works: All ankle and foot musculature

- Stand next to a support surface and place both hands on the surface with both feet on the floor
- Keeping both knees straight, lift one foot in the air, balancing on the affected leg
- Remove your hands from the support surface, replacing them as needed to prevent loss of balance
- Hold a single leg balance for up to **30 seconds**, using occasional hand support as needed. Repeat
- Perform this wearing comfortable footwear, preferably walking shoes
- **Equipment:** a stable support surface, such as a chair or countertop

TIP Complete without shoes for a greater challenge. Make it harder by closing your eyes, standing on a pillow or playing catch.

REPETITIONS
3 to 5

DAYS PER WEEK
6 to 7



EXERCISE 14

SINGLE LEG STEP DOWN

Works: Quadriceps, gluteus · felt at the front of the thigh and the hip

- Stand on an elevated surface — a step or firm box — with your **involved leg on the edge of the step** and your uninvolved leg hanging off the side
- Lower your uninvolved leg slowly toward the ground over **3–4 seconds**
- Tap your uninvolved toe to the floor, but **do not place weight on that leg**
- Stand back up using your involved leg — fast but controlled, in **1–2 seconds**
- **Equipment:** a step or firm box

TIP Keep your hips and core balanced and do not lean forward. Increase the height of the step to increase difficulty.

REPETITIONS
2 sets of 8 → 3 sets of 12

DAYS PER WEEK
As directed

Adapted from the *Knee Conditioning Program*, American Academy of Orthopaedic Surgeons / OrthoInfo (2023), with a single-leg balance and step-down addendum. The AAOS does not endorse any treatments, procedures, products or physicians; this material is provided as an educational service and is not a substitute for the advice of your own orthopaedic surgeon.

QUESTIONS ABOUT YOUR RECOVERY?

Call the office with any question about your protocol, your brace or sling, or your incision. Bring this handout with you to every post-operative visit.

LANCE E. LECLERE, MD

CLINIC LOCATIONS

Belle Meade Orthopaedics and Sports Medicine
6002 Highway 100, Nashville, TN 37205

Vanderbilt Orthopaedics Nashville West
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Vanderbilt Orthopaedics Franklin
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