

Quad Strain

Quadriceps Strain: A quadriceps strain is a tear of the muscle fibers in the front of the thigh, most commonly involving the rectus femoris during sprinting, kicking, or sudden acceleration. The injury ranges from mild overstretch (Grade I) to partial tear (Grade II) or complete rupture (Grade III). Rehabilitation focuses on reducing pain, restoring flexibility, and progressively strengthening the quadriceps to tolerate load and return to sport safely.

Key Rehabilitation Points:

- **Control pain and swelling** early with rest, ice, compression, and elevation.
- **Protect the muscle** by avoiding high-force stretching or sprinting until healing progresses.
- **Gradually restore flexibility** to prevent scar tissue adhesions.
- **Progressive strengthening** of the quadriceps and surrounding hip/core muscles.
- **Neuromuscular control** and proper mechanics during sprinting and kicking to prevent recurrence.

Exercise Principles:

- **Mobility Restoration:** Gentle, pain-free stretching of the quadriceps and hip flexors, progressing as tolerated.
- **Strengthening Progression:** Begin with isometrics → concentric strengthening (leg press, step-ups) → eccentric strengthening (controlled lowering, Nordic-style variations).

- **Neuromuscular Training:** Single-leg balance, core stability, and controlled running mechanics.
- **Gradual Return to Function:** Start with low-impact conditioning, then progress to jogging, sprint drills, and sport-specific kicking/acceleration once pain-free and strong.

Exercises are most effective when guided by a qualified professional, such as a physiotherapist, athletic therapist, or strength and conditioning coach. If you have any concerns, it's always a good idea to consult with an expert.

Level 1

Potential Inclusion Criteria:

- Pain through the front of thigh
- Mild swelling / Bruising
- Pain that gets worse with activities (Running or Jumping)

Goals:

- Improve tolerance to tissue stretching
- Regain/ Maintain full Knee and Hip ROM

Requirements For Progression:

- 10-14 days of adherence
- Significant decrease in pain/ discomfort

Aerobic Exercise:

Avoid Running, Jumping or any exercise that provokes symptoms. You can continue exercise with non-weight bearing activities such as swimming or cycling if tolerated.

1. Heel Slides

Sets: 2-3 | Reps: 10-15 | Frequency: Daily

Preparation:

- Lie on back with knee straight

Execution:

- Keeping the heel in contact with the floor, slowly slide heel up toward buttocks
- Relax back to the start position.



Start Position



Slide heel up

2. Knee Extension Isometric

Sets: 2-3 | Reps: 5-10 | Hold: 5-1seconds | Frequency: daily

Preparation:

- Lie flat on your back

Execution:

- Tighten the muscles on the top of your thigh by pushing the back of your knee into the floor and lifting your heel off the ground
- Relax



Push Back of Knee to Ground, Lift Heel

3. Bridge | Arms Flat

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

Preparation:

- Lie flat on your back with your arms straight beside you
- Bend knees up so that your feet are flat

Execution:

- Lift your hips up in the air to make a bridge using your arms to stabilize
- Lower down in a controlled manner



Start Position



Lift hips up

4. Single Leg Balance

Sets: 2-3 | Reps: 20-30 Seconds | Frequency: Daily

Preparation:

- Stand next to a wall, counter or chair if needed

Execution:

- Stand on one leg



Balance on one leg

Stage 2

When Can I Start Level 2?

- Completed Level 1 Goals
- Improved tissue tolerance with full knee and hip ROM

Goals:

- Improved tolerance to tissue stretching
- Increased tolerance to light load and strengthening

Aerobic Exercise:

- Avoid Running, Jumping or any exercise that provokes symptoms. Continue exercise with non-weight bearing activities such as swimming or cycling if tolerated.

1. Quads Stretch (Wall)

Sets: 2-3 | **Hold:** 20-30sec | **Frequency:** Daily

Preparation:

- Stand tall with one hand on wall
- Grab your foot with the other hand

Execution:

- Pull your heel towards your buttock to stretch the front of the thigh



Avoid arching through the lower back, keep tailbone tucked

2. Quadriceps Release (Foam Roller)

Duration: 1-5 minutes | **Frequency:** daily

Preparation:

- Position yourself on foam roller as shown

Execution:

- Roll up and down on the foam roller to release the muscles on the front of the thigh



Start Position



If you feel a tender point, you can hold and allow the muscle to relax

3. Knee Flexion (Band)

Sets: 2-3

Reps: 8-12

Frequency: Daily

Preparation:

- Lay flat on your stomach with your legs straight
- Attach a band to foot

Execution:

- Lift your heel up towards your buttocks, bending your knee against resistance



On stomach



Bend knee



Continue bending

4. Knee Extension Concentric (Band)

Sets: 2-3

Reps: 8-12

Frequency: Daily

Preparation:

- Sit in a chair with good posture with a band around your ankle

Execution:

- Straighten your knee
- Return your foot to the floor with control



Sit with good posture, band around ankle



Lift foot off the floor



Straighten knee as straight as you can

5. Front Squat Form

Sets: 2-3

Reps: 8-12

Frequency: Daily

Preparation:

- Stand with good posture, feet shoulder width apart
- Cross arms at shoulder height as shown

Execution:

- Perform a squat by bending at the hip
- Rise up by straightening at the hip



Start Position



Squat - Knees aligned over toes



Side view

Squat - Straight back, knees aligned over toes

6. Monster Walk (Band)

Sets: 2-3

Reps: 8-12

Frequency: Daily

Preparation:

- Attach tubing to ankles as shown
- Wide stance, knees and hips slightly bent

Execution:

- Perform a partial squat
- Walk forward, keeping legs wide
- Keep tension on tubing throughout the whole exercise



Wide stance



Walk forward, keeping legs wide



Walk wide - Keep tubing under tension

7. Leg Press (Machine)

Sets: 2-3 | Reps: 8-12 | Frequency: Daily

Preparation:

- Sit with good posture as shown

Execution:

- Press legs straight against resistance



Start Position



Finish Position

8. Runner's Step Up

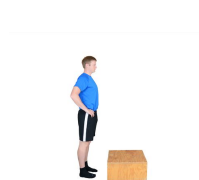
Sets: 2-3 | Reps: 8-12 | Frequency: Daily

Preparation:

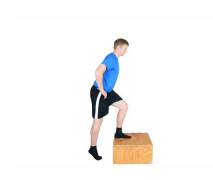
- Stand in front of a box or step that is below the level of the knee

Execution:

- Step up onto the box and bring the opposite leg up towards your chest
- Lower down in a controlled manner
- Repeat, alternating legs



Start position



Keep knee inline
with toes



Rise with control,
lifting opposite
leg

Stage 3

When Can I Start Level 3?

- Completed Level 2 Goals
- Improved tissue tolerance to light loads

Goals:

- Increase tolerance to load and able to tolerate full weight bearing activities without any pain or symptoms

Aerobic Exercise:

- Return to running or jumping activities as long as there is no pain or symptoms present before or during activity. Continue swimming and cycling.

1. Quadriceps Release (Foam Roller)

Duration: 1-5 minutes | **Frequency:** daily

Preparation:

- Position yourself on foam roller as shown

Execution:

- Roll up and down on the foam roller to release the muscles on the front of the thigh



Start Position



If you feel a tender point, you can hold and allow the muscle to relax

2. Iliopsoas & Quad Stretch

Duration: 1-3 minutes | **Frequency:** daily

Preparation:

- Kneel on the ground in a lunge position, uninvolved leg forwards
- Rotate your pelvis slightly backward, flattening your lower back

Execution:

- Lean forwards, while maintaining straight posture and keeping your head up
- Reach back and pull your ankle towards your buttock



Lean forward, straight back, pull ankle

3. Bridge | Towel Slide

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate Days

Preparation:

- Lie on back, feet on towel

Execution:

- Lift hips to make a bridge
- Now slide feet out on the towel - Keep the bridge
- Now slide feet up again - Keep the bridge



Feet on towel



Lift hips to make a bridge



Slide feet out on towel



Slide feet up again

4. Forward Lunge

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate days

Preparation:

- Stand with good posture

Execution:

- Lunge forward
- Keep back shoulder, hip and knee in line
- Rise up and return to the start position
- Repeat



Stand with good posture



Lunge forward



Return to standing and repeat

5. Reverse Lunge

Sets: 2-3 | Reps: 8-12 | Frequency: Alternate days

Preparation:

- Stand with good posture

Execution:

- Lunge backwards keeping your back knee in line with your hip and shoulder
- Return to start position
- Repeat

NOTE:

- Keep your front knee aligned with your middle toe



Stand with good posture



Lunge backward



Return to standing and repeat

6. Deadlift | Single Leg and Arm (Dumbbell)

Sets: 2-3

Reps: 8-12

Frequency: Alternate Days

Preparation:

- Stand on one leg, dumbbell in the opposite hand as the stance leg

Execution:

- Bend at the hip, keeping the trunk aligned with the back leg
- Rise up from the hips



Stand tall, hold weight at side



Reach leg back, arm hangs straight down



Bend at the hip, back leg aligned with trunk

7. Squat (Dumbbells)

Sets: 2-3

Reps: 8-12

Frequency: Alternate Days

Preparation:

- Stand with good posture, feet shoulder width apart
- Free weight in either hand

Execution:

- Initiate squat by bending at the hips
- Rise up at the hips



Front view



Squat - Knees aligned over toes



Side view



Squat - Knees over toes, straight back

8. Step Down Touch

Sets: 2-3

Reps: 8-12

Frequency: Alternate Days

Preparation:

- Stand on a step or box

Execution:

- Lower your leg down as far as your can under control until your heel slightly touches the ground
- Rise up in a controlled manner



Stand on a box



Touch heel to floor - Maintain control

9. Leg Press (Machine)

Sets: 2-3

Reps: 8-12

Frequency: Alternate days

Preparation:

- Sit with good posture as shown

Execution:

- Press legs straight against resistance



Start Position



Finish Position

10. Graduated Return to Jogging

Graduated return to running suggested program: Week 1:
(start and finish with 5 min walk)

- 4x (1' run / 1' walk)
- 5x (1' run / 1' walk)
- 6x (1' run / 1' walk)
- 8x (1' run / 1' walk)

Week 2: (start and finish with 5 min walk)

- 10x (1' run / 1' walk)
- 11x (1' run / 1' walk)
- 13x (1' run / 1' walk)
- 4x (2' run / 1' walk)

Week 3: (start and finish with 5 min walk)

- 4x (2' run / 1' walk)
- 5x (2' run / 1' walk)
- 6x (2' run / 1' walk)
- 7x (2' run / 1' walk)



Graduated Return to Jogging

Return to Activity / Achieving Your #RISEABOVE Goal(s)

Build back into your activity or sport, progressing time or intensity slowly by 10% per week. Be sure to discuss sport specific progressions with a G23 physiotherapist