

QUADRICEP STRENGTHENING EXERCISES

Straight leg raise

This exercise can be done lying down or sitting. Lying down is easier. Sit flat on the floor with the legs straight out in front of you. Raise one leg off the floor keeping the knee straight. Hold for 3 to 5 seconds before lowering back to the ground. Repeat 10 to 20 times. This exercise can be done daily. Progress the exercise by increasing the length of hold and the number of reps.



Knee extensions

The quad muscles are responsible for straightening the knee. This exercise can be performed using no weight, ankle weights, or resistance band. Start with no weight and then progress to either ankle weights or a resistance band. Straighten the knee then slowly return to the start position. Start with 2 sets of 10 reps and gradually increase to 3 sets of 15 gradually increasing the weight or resistance when comfortable to do so.



Wall Sit



- Stand with your back up against a wall
- Your feet should be shoulder width apart and toes pointing straight forwards
- Take your feet approximately 1-2 feet away from the wall
- Bend your knees and slide your back down the wall
- Do not let your knees move in front of your toes
- Do not squat deeper than a 90 degree (right angle) at the knee
- Start with shallow squats and increase gradually
- Hold for up to one minute
- Return to the starting position

Variations & progressions

- Use a dumbbell in each hand to add weight

Muscles worked -

- Gluteus medius
- Gluteus minimus
- Rectus femoris
- Vastus medialis
- Vastus intermedius
- Vastus lateralis
- Iliopsoas
- Gluteus maximus

Related injuries

- Iliotibial band friction syndrome
- Patellofemoral pain syndrome

Lunges



- Step forwards with one foot in a long stride
- Make sure your feet are in line and pointing straight forwards
- Keep your back upright as you slowly bend and lower the back knee towards the floor, raising the heel off the floor
- At the same time bend the front knee, making sure it doesn't go past your toes
- Don't let the back knee touch the floor before returning to the starting position

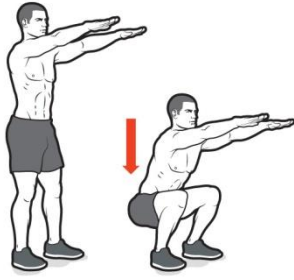
Variations & progressions

- Use a dumbbell in each hand
- Use a barbell over the shoulders
- Walking lunges - after completing one lunge as above, swing the back leg forwards so that it becomes the front leg and repeat

Muscles worked - Rectus Femoris, Vastus Medialis, Vastus Lateralis, Vastus Intermedius, Biceps Femoris, Semimembranosus, Semitendinosus, Gluteus Maximus, Iliopsoas, Gastrocnemius, Soleus

Related injuries - Quad strain, Contusion, ACL rupture , PCL rupture , Meniscus tear, Hamstring strain, Patella tendonitis (jumpers knee), Patellofemoral pain syndrome

Squats



- Stand with your feet shoulder width apart and toes pointing straight forwards
- Keep the back straight as you initiate movement at your hips
- Push your buttocks out behind you and bend your knees
- Do not let your knees move in front of your toes
- Do not squat deeper than a 90 degree (right angle) at the knee
- Start with shallow squats and increase gradually
- Return to the starting position

Muscles worked - . Rectus Femoris, Vastus Medialis, Vastus Lateralis, Vastus Intermedius, Biceps Femoris, Semimembranosus, Semitendinosus, Gluteus Maximus, Iliopsoas, Gastrocnemius, Soleus