

Lower Body Strength Program

1. Machine Leg Extension

Equipment: Machine leg extension

Primary mover: Quadriceps

- First choose your weight and sit on the machine with your legs under the pad (feet pointed forward) and the hands holding the side bars. This will be your starting position. You will need to adjust the pad so that it falls on top of your ankle. Also, make sure that your legs form a 90-degree angle between the lower and upper leg. If the angle is less than 90-degrees check if you can adjust the pad forward. Tip: Instead of lying back on the seat, sit upright engaging your abdomen muscles.
- Using your quadriceps, extend your legs, but don't lock your knees. Ensure that the rest of the body remains stationary on the seat. Control the upward movement avoid swinging the legs to pick up momentum. Pause a second on the contracted position.
- Slowly lower the weight back to the original position as you inhale, ensuring that you do not go past the 90-degree angle limit to prevent stress on the knees.
- Video: <https://youtu.be/uOwSF4hQ8yk>

2. Machine Seated Leg Curl

Equipment: Machine seated leg curl

Primary mover: Biceps Femoris, Semitendinosus, Semimembranosus

- Adjust the machine lever to fit your height and sit on the machine with your back against the back support pad.
- Place the back of lower leg on top of padded lever (just a few inches under the calves) and secure the lap pad either against your thighs or on the top of your lower leg (depending on the machine brand). The lap pad will not be on the top of your knees. Then grasp the side handles on the machine as you point your toes straight up (foot flexion) and ensure that the legs are fully straight right in front of you. This will be your starting position.
- As you exhale, pull the machine lever as far as possible to the back of your thighs by flexing at the knees. Keep your torso stationary at all times. Hold the contracted position for a second.
- Slowly return to the starting position and stop just before your legs become completely straight.
- Caution: Do not ever use so much weight on the exercise that you start using swinging as you can risk both lower back injury and also a hamstring tear.
- Video: <https://youtu.be/FV0qAZWdC18>

3. Smith Machine Squat

Equipment: Smith Machine

Primary mover: Quadriceps, hamstrings and glutes

- To begin, first set the bar on the height that best matches your height. Once the correct height is chosen and the bar is loaded, step under the bar and place the back of your shoulders (slightly below the neck) under it.

- Hold on to the bar using both arms at each side (palms facing forward), unlock it and lift it off the rack by first pushing with your legs and at the same time straightening your torso.
- Position your legs shoulder width apart with the toes pointing forward. Keep your head up at all times and also maintain a straight back. This will be your starting position.
- Begin to slowly lower the bar by bending the knees like you are about to sit back in a chair. Drive your hips back, keeping your back straight with the hips and holding your abs in. Continue down until the angle between the upper leg and lower leg forms a 90-degrees (upper legs are parallel to the floor). Inhale as you perform this portion of the movement. Tip: If you performed the exercise correctly, the front of the knees should make an imaginary straight line with the toes that is perpendicular to the front. If your knees are past that imaginary line (if they are past your toes) then you are placing undue stress on the knee and the exercise has been performed incorrectly.
- Begin to raise the bar as you exhale by pushing the floor with the heel of your foot as you straighten the legs again and go back to the starting position.
- Caution: This is not an exercise to be taken lightly. If you have back issues, substitute it with leg presses instead. If you have a healthy back, ensure perfect form and never slouch the back forward as this can cause back injury. Be cautious as well with the weight used; in case of doubt, use less weight rather than more.
- Video: <https://youtu.be/MFFpOKUKAIM>

4. Smith Machine Calf Raise

Equipment: Smith Machine and two plates or a step box

Primary mover: Gastrocnemius

- Place a block, weight plate, or step box below the bar on the Smith machine. Set the bar to a position that best matches your height. Once the correct height is chosen and the bar is loaded, step onto the plates with the balls of your feet and place the bar on the back of your shoulders.
- Take the bar with both hands facing forward. Keep your knees unlocked (slightly bent). Rotate the bar to unrack it. This will be your starting position.
- Raise your heels as high as possible by pushing off of the balls of your feet, flexing your calf at the top of the contraction. Your knees should remain extended but not locked. Hold the contracted position for a second before you start to go back down.
- Return slowly to the starting position as you breathe in while lowering your heels.
- Video: <https://youtu.be/-v5BUhsAof0>

5. Machine Seated Calf Raise

Equipment: Machine seated calf raise

Primary mover: Soleus

- Sit on the machine and place your toes on the lower portion of the platform provided with the heels extending off (half foot in the platform and half off). Keep your toes pointing forward.
- Place your lower thighs under the lever pad, which will need to be adjusted according to the height of your thighs. Now place your hands on top of the lever pad in order to prevent it from slipping forward.

- Lift the lever slightly by pushing your heels up and release the safety bar. This will be your starting position.
- Slowly lower your heels by bending at the ankles until the calves are fully stretched. Inhale as you perform this movement.
- Raise heels by extending ankles as high as possible as you contract the calves and breathe out. Hold the contraction for a second.
- Video: <https://youtu.be/OQyHfVks7LE>

6. Dumbbell Stationary Single Leg Lunge

Equipment: Dumbbells

Primary mover: Quadriceps and hamstrings

- Stand with your torso upright holding two dumbbells in your hands by your sides.
- Step forward with your right leg around 2 feet or so from the foot being left stationary behind and lower your upper body down, while keeping the torso upright and maintaining balance. Inhale as you go down. Note: Do not allow your front knee to go forward beyond your toes as you come down, as this will put undue stress on the knee joint. Make sure that you keep your front shin perpendicular to the ground and the back knee will make a 90 degree angle with the upper thigh. Knee cap does not touch the floor.
- Push straight up as you exhale. Your back leg will finish in a straight position.
- Once the number of repetitions are completed, switch sides.
- Caution: This is a movement that requires a great deal of balance so if you suffer from balance problems you may hold on to a fixed object without the dumbbells. Definitely never perform with a barbell on your back if you suffer from balance issues.
- Video: <https://youtu.be/EkzKCAIHk7Y>

7. Angled Machine Leg Press

Equipment: Angled machine leg press

Primary mover: Quadriceps and hamstrings

- Using a leg press machine, sit down on the machine and place your legs on the platform directly in front of you at a medium (shoulder width) foot stance to target overall muscle development.
- Lower the safety bars holding the weighted platform in place and press the platform all the way up until your legs are fully extended in front of you. Tip: Make sure that you do not lock your knees. Your torso and the legs should make a perfect 90-degree angle. This will be your starting position.
- As you inhale, slowly lower the platform until your upper and lower legs make a 90-degree angle.
- Pushing mainly with the heels of your feet and using the quadriceps go back to the starting position as you exhale.
- Ensure to lock the safety pins properly once you are done. You do not want that platform falling on you fully loaded
- If you don't have an angled leg press machine, you can use a standard leg press.
- Video: <https://youtu.be/kLJuh5tKkAg>

8. Jump box plyometrics

Equipment: Plyo box (in between 12 and 36 inches tall).

Primary mover: Quadriceps, hamstrings, glutes, calves, core and arms.

- Stand in front of the box with feet hip-width apart and hands by your side.

- Lower yourself into the jumping position by bending at the knees and hips. Keep your head up and back straight.
- Explosively jump from the crouched position whilst swinging the arms.
- Land softly on the center of the platform absorbing the impact with your legs.
- You should land in a position with your knees close to a 90 degree angle. Give a brief pause, before jumping or stepping down.
- Return to starting position by either jumping backwards off the box, or by stepping down and repeat the movement. To avoid high knee impact, stepping down is recommended.
- Video: <https://youtu.be/xVo22lrlspc>