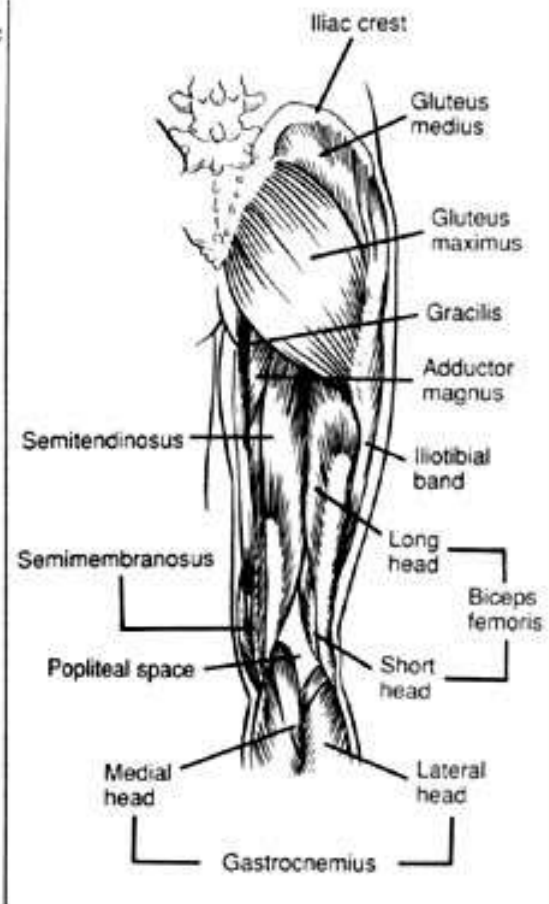
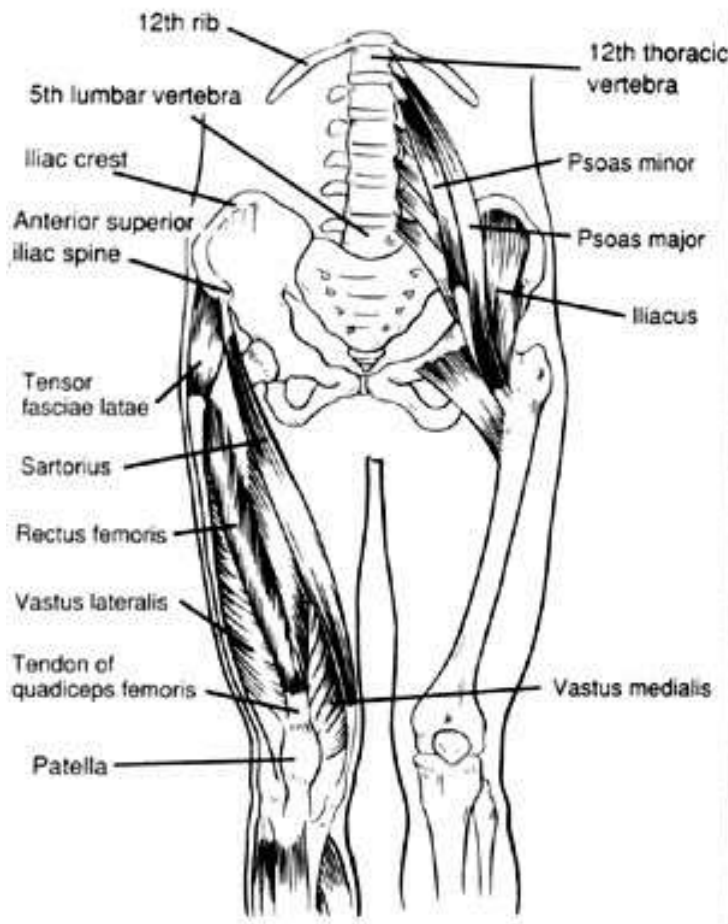


Ultimate Personal Training Quads Exercise Guide



Major Muscles That Act On Hip Joint and Knee Joint

MUSCLE	ORIGIN	INSERTION	PRIMARY FUNCTIONS
Iliacus	Inner surface of the ilium and base of sacrum	Lesser trochanter of femur	Flexion and lateral rotation
Psoas major and minor	Transverse processes of all five lumbar vertebrae	Lesser trochanter of femur	Flexion and lateral rotation
Rectus femoris	Anterior-inferior spine of ilium	Superior aspect of patella and patellar tendon	Extension (most effective when hip is extended); Flexion
Vastus medialis, intermedius, and lateralis	Proximal two-thirds of anterior femur at midline	Patella and tibial tuberosity via the patellar tendon	Extension (partially when hip is flexed)
Adductor magnus	Pubic ramus and ischial tuberosity	Medial aspects of femur	Adduction and lateral rotation
Adductor brevis and longus	Pubic ramus and ischial tuberosity	Medial aspects of femur	Adduction, flexion, and medial rotation

Barbell Deadlift

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



What NOT To Do:



Tips: Think of a deadlift as a squat, only the bar is in your hands rather than on your back.

The Stance: Approach the loaded barbell and assume a stance about as wide as your own shoulders while gripping the bar such that the inner aspects of your arms are slightly outside of your thighs. Another way to determine your optimal deadlift foot placement is to jump down from a box which is half your own height and "stick" the landing. Now look at your feet...this will approximate your ideal stance width and degree of foot turn-out.

Feet and Shin Position: Feet should point straight forward or turned out to a 25 degree angle at most. The best foot angle is one which provides the least amount of hip and knee restriction when you lower the hips in preparation to lift, so don't be afraid to experiment a bit. The shins should be two to three inches from the bar and then when you actually bend down and lower your hips in preparation to lift, the shins will touch the bar. Most of the weight will be on the heels of the feet. This facilitates maximal contribution of the glutes and hamstrings. During the ascent, the bar will travel as close to the leg and shins as possible. Ideally, wear cotton sweat pants or track pants with long socks to protect your shins.

Hand Position: A "reverse grip" should be used when deadlifting. This means that one hand will be supinated (palm faces you) and the other pronated (palm facing away). This will help keep the bar in your hand. If grip strength is not one of your training targets, feel free to use wrist straps with a conventional grip. Hold the bar high up on the palm to compensate for any roll of the bar when pulling the weight up. Generally, the grip should start with the index finger and the little finger bordering the knurling in the middle of the bar.

Head Placement and Eye Contact: The entire spine should remain neutral, which means you look neither up nor down, but instead, the head follows the body, almost like you're wearing a cervical cast on your neck. It's OK for the head to be SLIGHTLY up (this tends to improve muscular contraction of the low back muscles) but in all cases, the lift must start with the hips down, the entire spine neutral, and the feet flat on the floor.

The Ascent: As you stand up with the weight, imagine pushing the earth away from you with your feet. When viewed from the side, your hips and shoulders should ascend together; if the hips rise before the shoulders, it means you're using your back rather than your legs. If this happens, reduce the weight until you can perform the lift correctly and add more specific quad-strengthening exercises to your program.

The Lockout: Competitive powerlifters are required to demonstrate control over the weight by standing up and then extending the hips forward in an exaggerated manner. If you're NOT a competitive lifter, simply stand up with the weight without this exaggerated maneuver.

The Descent: Simply return the bar to the floor, under control, by reversing the technique you used to lift the weight.

Barbell Full Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Position a barbell on the back of the shoulders and grasp bar to the sides. Put your feet at shoulder width with your toes and knees slightly pointed outwards. Descend until knees and hips are fully bent. Extend knees and hips until legs are straight. Return and repeat. Some people believe this is damage to your knee, but others believe it is a great exercise. Can also be done with dumbbells in your hands instead or on the Smith machine.

Barbell Hack Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Forearms, Hamstrings, Calves

Equipment: Barbell

Mechanics Type: Compound



Tips: Hold a barbell behind you at arm's length. Keep the bar tucked against your butt and upper thighs. Palms up, facing back, and your hands as wide as your hips. Turn wrists up to lock bar solidly. Bars stays this way at all times! With your head and eyes up and your feet firmly on the floor at shoulder width, squat until your upper thighs are parallel to the floor. Return slowly to the starting position. Can also be done with your heels slightly elevated on a small block.

Barbell Lunge

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Place a barbell on your upper back. Lift your chest up and look straight ahead. Position your right leg forward in a long stride. Your foot should be far enough in front of you so that when you bend your right knee, your thigh and lower leg form a right angle. Slowly bend your knees, lowering your hips so your rear knee just clears the floor. Pause briefly in this position, then slowly straighten your legs and raise your body back up to a standing position. Complete a full set, then switch legs and repeat, or alternate legs for each rep. Make sure your knee does NOT travel past your toes in the down position! Can also be done with dumbbells in each hand instead of using a barbell.

Smith machine squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Lower Back, Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Rest a barbell on the upper portion of your back, not your neck. Firmly grip the bar with your hands almost twice your shoulder width apart. Position your feet about shoulder width apart and your toes should be pointing just a little outward with your knees in the same direction. Keep your back as straight as possible and your chin up, bend your knees and slowly lower your hips straight down until your THIGHS ARE PARALLEL TO THE FLOOR. Once you reach the bottom position, press the weight up back to the starting position. Don't lean over or curve your back forward! You can use a [Belt](#) to help reduce the chance of lower back injury. You can put your heels on a 1 inch block to further work the quads. You can also use a wider stance to work the inner quads even more.

Barbell Squat To A Bench

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: This is like the regular [Barbell Squat](#) but you put a flat bench behind you. Squat down and barely touch the bench. Do NOT sit on it or rest at all. It is just there to help make sure you go all the way down on each repetition.

Barbell Step Ups

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Barbell

Mechanics Type: Compound



Tips: Place a barbell on your shoulders like you would if you were doing [Barbell Squats](#). Step up onto a flat bench with your left leg. Then step up with your right leg so you are now standing on the bench. Step down with your left leg, then your right leg. Repeat, starting with your right leg this time. Be careful not to fall! Use lighter weights. Can also be done with two dumbbells in your hands instead of a barbell

Dumbbell Lunges

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Hold a dumbbell in each hand and pull your shoulders back. Lift your chest up and look straight ahead. Position your right leg forward in a long stride. Your foot should be far enough in front of you so that when you bend your right knee, your thigh and lower leg form a right angle. Slowly bend your knees, lowering your hips so your rear knee just clears the floor. Pause briefly in this position, then slowly straighten your legs and raise your body back up to a standing position. Complete a full set, then switch legs and repeat, or alternate legs for each rep. Make sure your knee does NOT travel past your toes in the down position!

Dumbbell Rear Lunge

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Calves, Glutes

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Stand with dumbbells grasped to sides. Extend one leg back on forefoot. Lower body on other leg by flexing knee and hip of front leg until knee of rear leg is almost in contact with floor. Return to original standing position by extending the hip and knee of the forward leg. Repeat by alternating lunge with opposite leg. Keep torso upright during lunge; flexible hip flexors are important. A long lunge emphasizes the Gluteus Maximus; a short lunge emphasizes Quadriceps.

Dumbbell Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Stand with your feet at shoulder width apart with your toes and knees slightly pointing outward. Hold dumbbells in your hands with your arms at your sides. Keep your back straight and your head up. Squat down until your thighs are parallel to the floor. Slowly return to the starting position. Can also be done with a barbell on your back instead of dumbbells.

Dumbbell Squat To A Bench

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Same as the [Dumbbell Squat](#) except you put a bench behind you. Go down and barely touch the bench, but do NOT sit on it at all. This is just to help you make sure that you go all the way down on each rep.

Dumbbell Step Ups on bench

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Hold two dumbbells, one in each hand, at your side. Step up onto a flat bench with your left leg. Then step up with your right leg so you are now standing on the bench. Step down with your left leg, then your right leg. Repeat, starting with your right leg this time. Be careful not to fall! Use lighter weights. Can also be done with a barbell on your shoulders instead of dumbbells.

Freehand Jump Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Calves, Glutes

Equipment: Body Only

Mechanics Type: Compound



Tips: Cross your arms over your chest. With your head up and your back straight, position your feet at shoulder width. Squat down until your upper thighs are parallel, or lower, to the floor. Jump straight up in the air as high as possible, using thighs like springs. Immediately squat down and jump again. Can also be done with a barbell on your upper back or with dumbbells hanging at your sides.

Front Barbell Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Barbell

Mechanics Type: Compound



Tips: Place a barbell on your upper chest and rest it on your front deltoids and upper thorax. Place right hand on the bar even with your left deltoid and your left hand on the bar even with your right deltoid. Keep your upper arms slightly above parallel to keep the bar from sliding. Keep your head up and your back straight with a shoulder width stance. Your toes and knees should be slightly pointed outwards. Squat down until your upper thighs are parallel to the floor. Return slowly to the starting position. Can also be done with your heels on a 1 inch block or with a wider stance.

Front Barbell Squat To A Bench

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Barbell

Mechanics Type: Compound



Tips: Same as the normal [Front Barbell Squat](#) but you put a flat bench behind you. Squat down and barely touch the bench. Do NOT sit on it or rest at all. It is just there to help make sure you go all the way down on each repetition. Can also be done with your heels on a 2 X 4.

Hack Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Machine

Mechanics Type: Compound



Tips: Lie face up on a hack squat machine with shoulders against pad. Place feet on platform. Your feet should be together, toes pointed slightly out. Extend hips and knees. Release dock levers. Flex hips and knees to descend until knees are just short of complete flexion. Raise sled by extending knees and hips. Repeat. Great for developing the lower area of the thigh.

Iron Cross

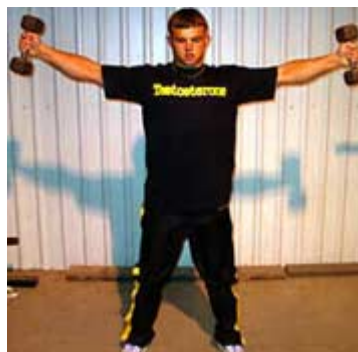
Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Lower Back, Traps, Hamstrings, Shoulders, Glutes

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Stand in a low parallel squat position, feet shoulder width apart and holding dumbbells parallel to the ground with palms facing in. Move arms out away from your sides in a giant "T" as you stand upright.

Leg Extensions

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: None

Equipment: Machine

Mechanics Type: Isolation



Tips: Using a leg extension machine, sit in the seat and hook your feet under the padded bar. Adjust the pad and/or the seat so that your knees hang off the end of the seat and the footpad rest on the lowest part of the shins. Grasp the handles on the machine or the edges of the seat to keep your hips from lifting up as you perform the exercise. Extend your legs until knees are straight, making sure you remain seated flat on the machine. Raise the weight all the way, lock and hold briefly, then slowly lower the weight back to the starting position. Get the full range of motion and feel the muscle being worked during the entire movement. Do not SWING the weight up!

Lying Leg Press

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Machine

Mechanics Type: Compound



Tips: Sitting on a leg press machine, position your feet together against the crosspiece about shoulder-width apart and toes pointed slightly outward. Grasp the handle grips or sides of the seat. Bend your knees and lower the weight as far as possible without changing the position of your hips. Do not lower the weight so far that your hips start to curl up off the seat! Then slowly push the weight back up using your heels, not your toes. Do not lock your knees at the top, but rather take the weight to just before lock. Then bring to lower the weight again SLOWLY. You can change your foot positions to vary the angle on the muscle.

Lying Machine Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Machine

Mechanics Type: Compound



Tips: Using a machine like the one shown above, follow the directions that are listed on it.

One Leg Barbell Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Use a 12 to 18 inch box or bench for this exercise. The higher the box, the more difficult the exercise. Place a barbell behind your head at the base of your neck. Grasp the barbell with both hands with a wider than shoulder width grip. Stand approximately 2 to 3 feet from the box and turn so that the box is directly behind you. Reach one foot back and place your toe on the box. Keep your opposite foot flat on the floor and point your toes forward. Stand up straight. Keep your back tight and your chest out throughout the entire exercise. Keep your head and neck in line with your torso so that you are looking forward. Your shoulders should be directly over your front foot. Keeping your front foot flat on the floor, sit your hips back (like you are going to sit in a chair), bend your knee (of your front leg), and lean forward slightly at the waist. Lower yourself in a controlled fashion until your thigh (of your front leg) is parallel to the ground. If you have difficulty lowering yourself down this far, lower yourself until the knee of your front leg is bent 90 degrees. At this point, your knee should be directly over your toe, your hips should be sitting back, and your chest should be directly over the middle of your thigh. Now, leading with your head and chest, raise yourself by pushing your hips slightly forward and up toward the ceiling, and straightening your leg. Return to the starting position. At this point, your shoulders should be directly over front foot.

One-Arm Barbell Snatch

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Lower Back, Traps, Hamstrings, Calves, Abdominals, Shoulders

Equipment: Barbell

Mechanics Type: Compound



Tips: Start from the hang position (holding the bar slightly above the knees). With an explosive pull upwards with the hips, drive the weight overhead.

Since the grip will typically be the first to fatigue, the repetitions should remain on the lower end, 3 to 5 reps. This will normally encourage a higher number of sets be implemented to compensate for the lower repetitions. Lifters will also find their performance will vary depending upon the size of the bar. Having been in many different gyms, I know that the grip size of bars will vary a lot, thicker bars will seem heavier, but may be more appropriate for those that are trying to challenge their grip.

One-Arm Side Deadlift

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Abdominals, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Standing to the side of barbell resting on the ground, grasp weight directly in the center. Drop into a low deadlift position and drive off as with a standard [deadlift](#) but with particular emphasis of pushing off the obliques. Repeat for your desired reps and then switch sides. Can also be done with a dumbbell.

Overhead Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Lower Back, Hamstrings, Calves, Shoulders, Glutes

Equipment: Barbell

Mechanics Type: Compound



Tips: Place the bar overhead using a side snatch grip with the arms locked out. The feet are placed wide with your toes pointing outward in the receiving position for the snatch. Squat by lowering your hips between your heels until your upper legs are below parallel with the floor. Maintain an upright posture with back tight and chest up. Keep the feet flat on the floor and maintain eyes straight ahead. Do not lean forward from the waist and push the hips back.

Plie Dumbbell Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Dumbbell

Mechanics Type: Compound



Tips: Position your feet 2-4 inches wider than your shoulders. Hold one dumbbell in front of your body. Point your toes out at a 45 degree angle. While standing upright, keep your knees slightly bent with your hips in a neutral position. Don't arch your lower back. To begin the exercise, start by moving your hips back like you were going to sit in a chair. Then, bend your knees letting them follow the exact angle of your toes. Lower your body until your thighs are parallel to the floor or to a position that feels comfortable to you. Exhale and return to the starting position. Remember to maintain good posture with your chest up. Also, keep your feet flat on the ground throughout the movement. You can also do this with a barbell on your back.

Smith Machine Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves, Glutes

Equipment: Machine

Mechanics Type: Compound



Tips: Just like a [Barbell Squat](#) but in the Smith Machine. Using the safety locks, this is safer than regular barbell squats. It may not be as effective though since your stabilizer muscles are not used quite as much, as with all machine exercises.

Thigh Abductor

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings

Equipment: Machine

Mechanics Type: Isolation



Tips: The outer thighs are tough to work effectively, and the abductor machine is a welcome addition for both body-sculptors and serious bodybuilders alike. Angles are crucial in getting the most out of this movement. Keeping your back and butt where they belong, wedged well against the backrest and on the seat, respectively, is key. The movement is elementary in that you simply keep the OUTside of your knees pressed firmly against the pads as you move them apart.

Thigh Adductor

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings

Equipment: Machine

Mechanics Type: Isolation



Tips: The inner thighs are tough to work effectively, and the adductor machine is a welcome addition for both body-sculptors and serious bodybuilders alike. Angles are crucial in getting the most out of this movement. Keeping your back and butt where they belong, wedged well against the backrest and on the seat, respectively, is key. The movement is elementary in that you simply keep the inside of your knees pressed firmly against the pads as you move them together.

Wide Stance Barbell Squat

Exercise Data

Main Muscle Worked: Quadriceps

Other Muscles Worked: Hamstrings, Calves

Equipment: Barbell

Mechanics Type: Compound



Tips: Works more of the inner thighs. Place a barbell on your upper back. Use a comfortable hand grip. Keep your head up and your back straight with your feet about 30 inches apart. Point your toes and knees a little outwards. Squat until your upper thighs are parallel to the floor. Slowly return to the starting position.
