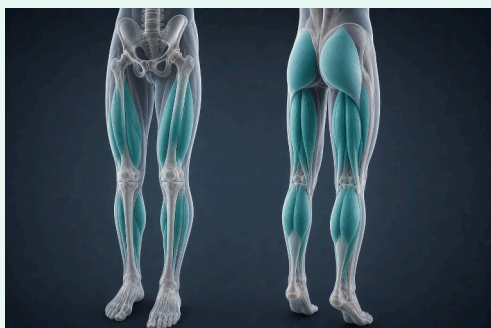


Building Leg Strength — A Home and Gym Plan



WHAT IS HAPPENING?



Strong legs let you get out of a chair, a car, or the bathtub on your own, and they make walking and stairs feel easier. If you are losing weight, working your legs against resistance is one of the main things that protects your muscle while the fat comes off.



READ THIS BEFORE YOU START

Read this first. These exercises are general education, not a diagnosis. If you have not been examined for this problem, call us before starting. Stop and read "Stop and get help" on the last page now, so you know the warning signs before you begin.

KEEP THE SUPPORT SHOWN IN THE PICTURE

Where a movement picture is shown, it shows the complete person and the complete safety setup.

How Your Week Fits Together

● WHY THESE MOVEMENTS HELP

- **Chair Stand (standing up from a chair):** Builds the thigh and hip muscles you use every time you stand up. These are the muscles you lose first when you are sick, inactive, or losing weight quickly.
- **Counter Heel Raise:** Strengthens your calves, the muscles on the back of your lower legs. They push you forward with every step and help you catch yourself when you stumble.
- **Standing Side Leg Lift:** Strengthens the outer hip muscles that keep your pelvis level when you walk, so you feel steadier and less wobbly on your feet.
- **Seated Leg Press:** This is the main strength builder for your thighs and hips — the biggest muscles in your body, and the ones most worth protecting if you are losing weight.
- **Seated Leg Curl:** Strengthens the hamstrings, the muscles on the back of your thigh. They balance out the front of your thigh and help control your knee and hip when you walk or catch yourself.
- **Seated Outer Thigh Machine (hip abduction):** Strengthens the outer hip and buttock muscles that steady your pelvis, which is what keeps your walking smooth and your balance solid.

Wall Calf Stretch

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS

Your back heel must stay flat on the floor.

SET UP

Do this after you walk or after your exercises, when the muscles are warm. Wear closed, flat, lace-up shoes. Stand about an arm's length from a wall on a clear floor with no throw rug. Put both palms flat on the wall at shoulder height. Step one foot back about two feet. Keep that back leg straight and keep both feet flat, with the toes of both feet pointing straight at the wall.

HOW MUCH

Hold 30 seconds. Do it 2 times on each leg. Do this 5 to 7 days a week.

DO THIS

Bend your front knee and lean your whole body toward the wall as one piece, until you feel a gentle pull in the calf (the back of the lower leg) of your back leg. Hold there and breathe normally. Do not bounce. Come out of it slowly, then switch legs.

FORM CHECK

Your back heel must stay flat on the floor. If it lifts, bring your back foot closer to the wall. Keep the back knee straight but do not push it backward past straight. This should feel like a steady pull, never sharp or burning.

Seated Hamstring Stretch

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS Do not round your back or reach for your toes.

SET UP

Use a sturdy chair with four legs, no wheels, and push the chair back against a wall so it cannot slide. Sit on the front third of the seat, but keep your thigh fully supported on the seat — do not perch on the very front edge. Straighten one leg out in front of you with the heel on the floor and the toes pulled up toward your shin. Keep the other foot flat on the floor with that knee bent. Rest both hands on the thigh of the bent leg.

DO THIS

Keep your back straight and your chest lifted. Bend forward from your hips, as if you were taking a small bow, until you feel a pull along the back of the straight leg (the hamstrings, the muscles on the back of the thigh). Hold and breathe. Come back up slowly, then switch legs.

HOW MUCH

Hold 30 seconds. Do it 2 times on each leg. Do this 5 to 7 days a week.

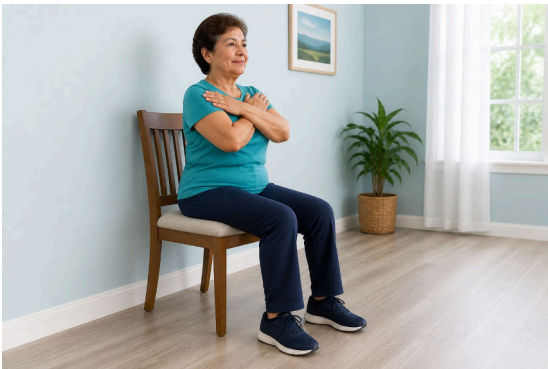
FORM CHECK

Do not round your back or reach for your toes. That pulls on your low back instead of the muscle you want, and it can strain your back. Chest tall, bend from the hips only. If you have had a hip replacement, do not do this stretch until we tell you which hip rules you were given.

Chair Stand (standing up from a chair)

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS

The slow sit-down is where most of the strength is built, so do not rush it.

WHY IT HELPS

Builds the thigh and hip muscles you use every time you stand up. These are the muscles you lose first when you are sick, inactive, or losing weight quickly.

SET UP

Warm up first with 5 minutes of easy walking. Wear closed, flat, lace-up shoes — not socks, slippers, or flip-flops. Clear the floor of throw rugs and keep your phone where you can reach it. Sit on a firm dining chair with no arms, pushed back against a wall so it cannot slide. Put your feet flat on the floor about hip-width apart, and pull your heels back so they sit a little behind your knees. Cross your arms over your chest. If you cannot stand up without your hands, raise the seat with one or two firm pillows and start there.

DO THIS

Lean your chest forward until your nose is over your toes. Push down through your heels and stand all the way up. Then sit back down slowly, counting to three on the way down, until you touch the seat. Do not flop down.

HOW MUCH

A rep is one full movement — standing up once. A set is a group of reps done one after the other, then you rest. Weeks 1 and 2: 1 set of 8. Weeks 3 and 4: 2 sets of 8. Week 5 on: 3 sets of 10 to 12. Rest 1 to 2 minutes between sets. Do your leg work on 3 days a week that are not back-to-back — Monday, Wednesday, and Friday work well. On a day you go to the gym, the three gym exercises take the place of these three home exercises. Never do both blocks on the same day, and never work your legs two days in a row. On the days in between, walk: start at 10 minutes and work up to 30 minutes. When 12 reps feel easy two sessions in a row, make it harder — take a pillow away, or hold a half-gallon jug of water against your chest.

FORM CHECK

The slow sit-down is where most of the strength is built, so do not rush it. If you still need your hands, push off your own thighs rather than the chair, and work toward no hands. Stand up slowly between sets; if you feel lightheaded, sit back down until it passes.

Counter Heel Raise

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS

Keep your weight over your big toe and second toe.

WHY IT HELPS

Strengthens your calves, the muscles on the back of your lower legs. They push you forward with every step and help you catch yourself when you stumble.

SET UP

Warm up first with 5 minutes of easy walking. Stand facing a kitchen counter or another sturdy, fixed countertop, close enough that your hands rest on the front edge with your elbows slightly bent — about a foot away. Feet flat, hip-width apart, toes pointing straight ahead. Rest both hands on the counter. Use your whole hand if you feel at all unsteady; use fingertips only once you feel solid.

DO THIS

Slowly rise up onto the balls of your feet, lifting your heels as high as you can. Hold 2 seconds at the top. Lower your heels back to the floor slowly, counting to three.

HOW MUCH

Weeks 1 and 2: 1 set of 10. Weeks 3 and 4: 2 sets of 10 to 15. Week 5 on: 3 sets of 10 to 15. Hold 2 seconds at the top and take 3 seconds to lower. Same 3 days a week as your other leg work. When 15 reps feel easy two sessions in a row, make it harder one of two ways: hold a half-gallon jug of water in one hand, or put about three-quarters of your weight on one leg and let the other foot rest lightly on the floor.

FORM CHECK

Keep your weight over your big toe and second toe. If your ankles roll toward the outside of your feet, you are going too high or too fast — lower the height and slow down. Keep your hands on the counter for every rep. Do not go all the way up on one foot on your own, and never do this where you cannot reach something solid and fixed.

Standing Side Leg Lift

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS

The most common mistake is leaning your upper body toward the standing leg and swinging the leg out fast.

WHY IT HELPS

Strengthens the outer hip muscles that keep your pelvis level when you walk, so you feel steadier and less wobbly on your feet.

SET UP

Warm up first with 5 minutes of easy walking. Stand tall facing the counter with both hands resting on the front edge, elbows slightly bent. Place your feet hip-width apart — not together — with toes pointing forward. Put your weight on one leg.

DO THIS

Keep the knee of the leg you are lifting straight and its toes pointing straight ahead. Lift that leg out to the side about 6 to 12 inches. Hold 1 second, then lower it slowly, counting to three. Keep your body upright the whole time — do not lean away from the leg you are lifting. Finish the set, then repeat on the other side.

HOW MUCH

Weeks 1 and 2: 1 set of 10 on each leg. Weeks 3 and 4: 2 sets of 10 to 12 on each leg. Week 5 on: 3 sets of 12 on each leg. Hold 1 second at the top and take 3 seconds to lower. Same 3 days a week as your other leg work. When 12 reps feel easy two sessions in a row, add a light resistance band looped around both legs just above the knees, then move to a heavier band.

FORM CHECK

The most common mistake is leaning your upper body toward the standing leg and swinging the leg out fast. Move slowly, keep your shoulders level, and keep your kneecap pointing forward — not up at the ceiling. Loop the band above your knees, not at your ankles: a band down at the ankle puts a surprising amount of strain on the knee. Make the exercise harder by adding band, never by taking your hands off the counter.

Seated Leg Press

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP



2 END POSITION



MOVE TO HERE

WATCH THIS Never snap your knees straight at the top.

MACHINE

Seated leg press — the machine where you sit nearly upright with your back on a padded seat and push a large footplate away from you. Use the version with a weight stack and a metal pin. Most gyms, including Planet Fitness, LA Fitness, and the YMCA, have one. If your gym only has the angled sled version, where you lie back and push the weight up a track, that one has safety catches you must release before your set and lock back in afterward. Ask a staff member to show you how the catches work before your first set — they do this every day.

SET UP

Warm up with 5 minutes of easy walking. Adjust the seat so that with your feet on the plate, your knees bend to about a right angle — no deeper. Put your feet flat, about shoulder-width apart, in the middle of the plate, with your whole foot including the heel touching the plate. Press your back, hips, and tailbone flat against the pad, rest your head back, and hold the handles at your sides. To change the weight, pull the metal pin out of the stack and put it in the hole one plate lower for heavier or one plate higher for lighter. One plate is usually 5 to 10 pounds.

DO THIS

Push evenly through your whole foot until your legs are almost straight — stop just short of your knees locking. Then bend your knees slowly, counting to three, until you are back at a right angle. Breathe out as you push. Never hold your breath.

Seated Leg Press — Dose and Form

Use the START and END pictures on the previous page while you follow these details.

HOW MUCH

First session only: put the pin at the very lightest weight on the stack and do 1 set of 10, even if it feels far too easy. That session is for learning the movement. Weeks 1 and 2: 1 set of 10. Weeks 3 and 4: 2 sets of 8 to 12. Week 5 on: 3 sets of 8 to 12. Rest 1 to 2 minutes between sets. Do this on 2 of your 3 leg days, and never two days in a row. End every set with 2 or 3 reps still left in you. Move the pin one plate heavier once you can finish 12 good reps in your last set on two workouts in a row.

WHY IT HELPS

This is the main strength builder for your thighs and hips — the biggest muscles in your body, and the ones most worth protecting if you are losing weight.

FORM CHECK

Never snap your knees straight at the top. Watch the bottom: if your tailbone or low back starts to curl up off the pad as the weight comes toward you, you have gone too deep. Stop the movement higher up instead of chasing a deeper bend. If you have had a hip replacement, do not use this machine until we tell you which hip rules you were given.

Seated Leg Curl

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS No yanking and no bouncing.

WHY IT HELPS

Strengthens the hamstrings, the muscles on the back of your thigh. They balance out the front of your thigh and help control your knee and hip when you walk or catch yourself.

SET UP

MACHINE: Seated leg curl machine, sometimes labeled hamstring curl. You sit upright, a padded roller sits behind your ankles, and a second pad clamps down over your thighs. It has a weight stack and a pin. Standard at Planet Fitness, LA Fitness, and the YMCA. If your gym only has the lying-down version, that works too, but the seated one is easier to get into and out of.

Sit all the way back so your back is against the pad. Slide the seat until the side of your knee lines up with the round hinge the machine pivots on. Set the ankle roller so it sits across the back of your legs just above your heels. Bring the thigh pad down snug on your lower thighs. Hold the handles. Change the weight by moving the metal pin in the stack — one plate is usually 5 to 10 pounds.

HOW MUCH

Weeks 1 and 2: 1 set of 10, at a weight that feels easy. Weeks 3 and 4: 2 sets of 10 to 12. Week 5 on: 3 sets of 10 to 12. Hold 1 second at the bottom of the pull and take 3 seconds to return. Rest 1 to 2 minutes between sets. Do this on the same 2 gym days as the leg press. End every set with 2 or 3 reps still left in you. Move the pin one plate heavier when you can finish 12 good reps in your last set on two workouts in a row.

DO THIS

Bend your knees to pull your heels down and back underneath the seat. Hold 1 second. Then let your legs return slowly, counting to three, until they are almost straight. Breathe out as you pull.

FORM CHECK

No yanking and no bouncing. If your hips lift off the seat, or you find yourself rocking backward to get the weight moving, it is too heavy. Take weight off.

Seated Outer Thigh Machine (hip abduction)

Match the setup first. Then move slowly toward the end-position reference.

1 START / SETUP



MATCH THIS SETUP

2 END POSITION



MOVE TO HERE

WATCH THIS

Sit tall with your back against the pad the whole set.

WHY IT HELPS

Strengthens the outer hip and buttock muscles that steady your pelvis, which is what keeps your walking smooth and your balance solid.

SET UP

MACHINE: Hip abduction machine — the seat with two pads that sit against the **OUTSIDE** of your knees and that you push apart. At many gyms one machine does both outward and inward; make sure the pads are set on the outside of your knees, not between them.

Sit all the way back with your back flat against the seat back and your feet on the footrests. Set the pads against the outside of your knees, with your knees starting close together or only slightly apart. Do not set the starting position so wide that your hips feel stretched before you begin. Rest your hands on the handles at the sides of the seat.

HOW MUCH

Weeks 1 and 2: 1 set of 12. Weeks 3 and 4: 2 sets of 12 to 15. Week 5 on: 3 sets of 12 to 15. Hold 1 second at the widest point and take 3 seconds to return. Do this on the same 2 gym days as the leg press. Move the pin one plate heavier when 15 reps feel easy two workouts in a row.

DO THIS

Press your knees apart slowly and evenly, only to a little wider than shoulder width. Hold 1 second at the widest point. Let them come back slowly, counting to three. Stop just before the weight plates clank together.

FORM CHECK

Sit tall with your back against the pad the whole set. If you have to lean back, bounce off the weight stack, or push your knees apart with your hands, it is too heavy. Do not use this machine until we clear you if you have had a hip replacement, or if you have been told you have a disc problem or a narrowed spinal canal.

Do Not Do These

- **Do not start this program until you talk to us** if you have had surgery, a joint replacement, a fracture, a hernia repair, or a heart procedure in the last 3 months; if you get chest pain or get short of breath with ordinary activity; if you have been told you have a heart valve problem, heart failure, or an aneurysm; or if we have already restricted your activity. These need a different plan, and some need a physical therapist instead of a handout.
- **Do not start until you ask us** if you have numbness in your feet, a big change in your vision, a known disc problem or a narrowed spinal canal, the kind of diabetic eye disease where new blood vessels grow and can bleed, or if you use a cane or a walker. Some of these change which exercises are safe for you.
- **Do not do the leg press, the outer thigh machine, the seated hamstring stretch, or a lower chair if you have had a hip replacement** — until we tell you which hip rules you were given. Many hip replacements come with a rule against bending the hip past a right angle, and breaking that rule can pop the new hip out of place.
- **Do not treat leg strength as your whole fall-prevention plan** if you have fallen in the past year or use a cane or walker. Strength is only one part of not falling. Ask us for the balance handout and about a physical therapy referral.
- **Do not hold your breath while you push or lift.** Breathe out on the hard part. Breath-holding sends your blood pressure up sharply and can make you dizzy or faint — this matters most if you take blood pressure medicine.
- **Do not find out how much you can lift "just once."** Never max out. Every set here should end with 2 or 3 reps still left in you.
- **Do not snap your knees straight and lock them at the end of a leg press.** Stop just short of straight so the weight stays on your muscles instead of your knee joint.
- **Do not let the leg press come down so far that your tailbone or low back curls up off the pad.** That loads a rounded low back and is a common way people hurt a disc. Shorten the movement instead of going deeper.
- **Do not make the seated leg extension machine your main leg exercise, and do not load it heavy.** It is a fine quad exercise, but it is easy to overload, and it does less for standing up and walking than the leg press and chair stands. If you use it, keep the weight light and stop short of straightening all the way.

Do Not Do These

- **Do not use the Smith machine or the hack squat machine for squats on your own.** The fixed track forces your body along one path you cannot adjust, and whatever does not match your build gets absorbed by your knees and low back. Use the leg press instead.
- **Do not do deep squats, deep lunges, step-ups onto anything higher than a normal stair, or any jumping or hopping.** Too much fall and knee risk without someone watching you.
- **Do not try barbell squats and deadlifts from a handout.** They are good exercises, but they need in-person coaching, and you do not need them to build strong legs.
- **Do not use ankle weights heavier than about 5 pounds for straight-leg exercises, and do not put a resistance band at your ankle, if you have knee pain.** A weight that far from your hip strains the knee. Put the band above your knees instead.
- **Do not work your legs hard two days in a row,** and do not do the home block and the gym block on the same day. Muscle is built during the 48 hours after the workout, and 3 leg days a week is the cap.
- **Do not count on vibration plates, "shake" machines, stimulation belts, or massage guns** in place of lifting. They may feel good, but they do not build strength or protect muscle.
- **Do not exercise on an empty stomach or short on fluids** — especially on a day when a weight-loss medicine has your appetite down and you have barely eaten. Eat something, drink water, or move the workout to a better day.
- **Do not expect lifting alone to protect your muscle if you are barely eating protein.** Put some protein at every meal — eggs, Greek yogurt, chicken, fish, cottage cheese, beans — and put it on the plate first when your appetite is low. Ask us how much protein is right for you; it depends on your kidney function.
- **Do not exercise in socks, bare feet, slippers, or flip-flops, on a floor with throw rugs, or anywhere you cannot reach something solid and fixed.** If you have diabetes, look at your feet after you exercise.

Warning Signs and What to Do

- Chest pain, pressure, tightness, or squeezing — or pain spreading into your jaw, neck, or arm — during or shortly after exercise. Stop right away and sit down. **Call 911.**
- You actually passed out during or right after exercise, even if you feel fine now. **Call 911.**
- You felt close to passing out — the room went dark, grey, or spinning — but you did not pass out. Stop, sit or lie down until it passes. **Call the office today.**
- Sudden weakness or drooping on one side of your face, weakness in one arm or leg, or slurred speech. **Call 911.**
- Shortness of breath far beyond what the effort should cause, or breathlessness that starts while you are resting, that does not settle within a few minutes — or that comes with chest pain or a swollen calf. **Call 911.**
- New shortness of breath that does settle with rest but is not normal for you. **Call the office today.**
- New pain, swelling, warmth, or redness in one calf. Do not rub it and do not stretch it — this can be a blood clot and needs an ultrasound. **Call the office today.**
- Calf pain or swelling along with new shortness of breath, chest pain that is worse when you breathe in, or coughing up blood. A clot can travel to the lung. **Call 911.**
- A sudden sharp pain, a pop, or a tearing feeling in a muscle or joint. Stop and do not walk it off. **Call the office today.**
- A leg you cannot put any weight on. Do not try to walk on it. **Go to the ER today.**
- A joint that becomes hot, red, and swollen, or joint pain along with a fever. **Call the office today.**

Warning Signs and What to Do

- A hot, swollen joint you cannot move, along with a fever or feeling generally sick. **Go to the ER today.**
- New numbness, tingling, or weakness in a leg. **Call the office today.**
- Numbness in your groin, your inner thighs, or the area that would touch a bicycle seat, or losing control of your bladder or bowels. **Go to the ER today.**
- You take insulin or a diabetes pill that can drop your sugar (glipizide, glyburide, glimepiride) and you feel shaky, sweaty, weak, or confused during or after exercise. Stop, check your blood sugar right away, and treat the low with juice or glucose tabs. If you cannot treat it yourself, or you do not feel better after treating it, **call 911.**
- Low blood sugars that keep happening around exercise, even when you treat them successfully. **Call the office this week.**
- New or worsening swelling in both ankles or both legs, weight gain of more than 3 pounds in 2 days, or getting short of breath when you lie flat. **Call the office today.**
- Your home blood pressure is higher than 180 on the top number or higher than 110 on the bottom. Sit quietly for 5 minutes and take it again first; if it is still that high, skip the workout. **Call the office today.**
- A knee or hip that buckles or gives way under you, or any new fall — even one you caught yourself from. It changes what exercise is right for you. **Call the office this week.**
- Cramping, aching, or tightness in your calves or thighs that comes on reliably when you walk or exercise and goes away within a few minutes of resting. That pattern is a circulation problem, not soreness. **Call the office this week.**

How to Adjust or Stop

- Some muscle burning while you work, and some soreness for a day or two afterward, is normal and expected — especially when you are new to this. Normal soreness should be easing by the next morning and gone within about two days.
- Stop the exercise if pain goes above about 5 out of 10, on a scale where 0 is no pain and 10 is the worst pain you can imagine.
- Stop if the pain is sharp or stabbing instead of a dull ache.
- Stop if the pain is deep inside a joint instead of in the meat of the muscle.
- Stop if you are still worse than your usual 24 hours later.
- When you stop, do not stop moving altogether. Take weight off, do fewer reps, or use a smaller range of motion, and try the easier version at your next session.
- If the easier version still hurts the same way at your next session, drop that exercise and call the office.
- Stand up slowly between exercises and between sets. If you feel lightheaded when you rise, sit back down until it passes.
- If you take insulin or a diabetes pill that can drop your sugar (glipizide, glyburide, glimepiride), check your blood sugar before you start, do not exercise if it is under 100, and keep juice or glucose tabs within reach the whole time.

When We Recheck Your Plan

- Come back in 8 weeks. Bring this sheet, tell us which exercises you actually did and how much weight you worked up to, and we will recheck your leg strength and set your next step. Call sooner if pain is getting worse instead of better.