



Osteoporosis Exercise: Weight-Bearing and Muscle Strengthening Exercises

Introduction

Weight-bearing and resistance exercises have many benefits. These are good activities to help with bone strength.

Weight-bearing exercise means your feet and legs support your body's weight. Some examples are:

- Walking
- Hiking
- Dancing
- Low-impact aerobics
- Stair climbing

Walking as little as 3 to 5 miles a week can help build your bone health. For your overall health, most experts recommend that everyone get a total of 30 minutes each day, 5 to 7 days a week. 45 minutes to an hour is even better.

Resistance exercises work against the weight of another object. The resistance helps strengthen muscle, build bone and can reduce the risk of fractures. Some examples are using:

- Free weights
- Weight machines
- Resistance tubing

Sports, like bicycling and swimming, are great for your heart and lungs. These are **not** weight-bearing exercises for osteoporosis but they are still great exercises to participate in. That is because you are being held up by something other than your feet and legs, such as, the bicycle or the water. Some exercises may increase your risk of breaking a bone, especially for persons with osteoporosis or low bone density. Make sure your doctor approves of the exercise program you have chosen.

Remember:

- Check with your doctor or physical therapist (PT) before starting any new exercise program or activities.
- Avoid movements that require bending forward from the waist or too much twisting of the spine, such as, touching your toes or doing sit-ups.
- A little muscle soreness lasting for 1 to 2 days after new or increased exercise movements is normal. Exercises should **not** hurt while you are doing them or cause soreness for more than 1 to 2 days afterwards. Discuss pain or soreness that goes beyond 1 or 2 days with your doctor.
- Avoid high-impact fast-moving exercises that place you at risk for falling.
- If you are at risk for a fracture, avoid jerky, rapid movements in general. Choose low-impact exercises with controlled movements such as side-stepping, knee lifting and so on.

Start by choosing a few exercises that you can grow from.

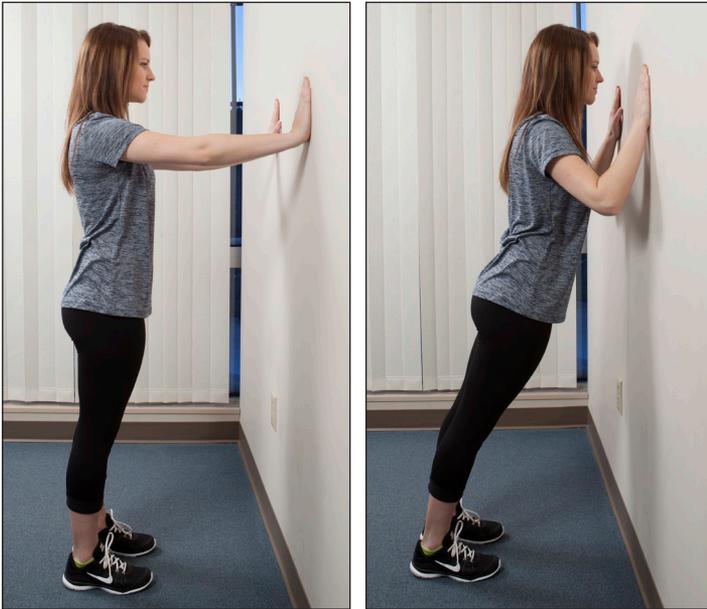
Choose exercises that work on:

- Weight-bearing
- Muscle strength
- Balance, posture and function.

Add more exercises, repetitions (times), weight or duration as time goes on and you will have success.

For floor exercises, place a blanket or thick mat under you for comfort. If you have difficulty getting up and down from the floor, try the exercise on a firm bed.

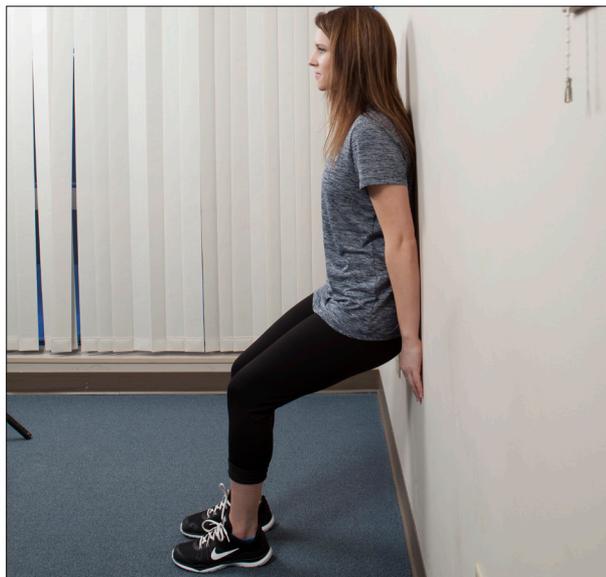
Standing Exercises



Arm press or wall push-ups:

This exercise helps strengthen the arm, shoulder and chest muscles.

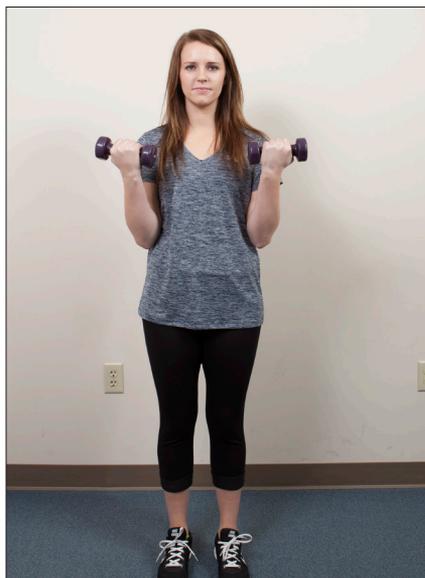
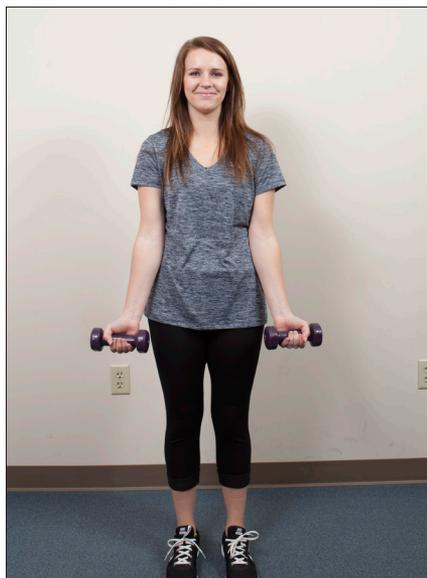
- Stand facing a wall a little farther than arm's length away from it. Your feet should be slightly apart, arms bent at the elbows and hands at shoulder height flat against the wall. Do **not** round your back.
- Bend at the elbows and lean your body forward towards the wall by bending your elbows in a controlled movement as you count to 5.
- Pause. Then, slowly push yourself back until your arms are straight as you count to 4. Make sure you do **not** lock your elbows.
- Repeat the wall push-up 10 times. Rest for about 1 minute. Then do a second set of 10 wall push-ups.



Wall slide:

This exercise helps strengthen the thighs, stomach and back. It helps improve a rounded upper back and forward head posture. In addition, this exercise improves leg alignment.

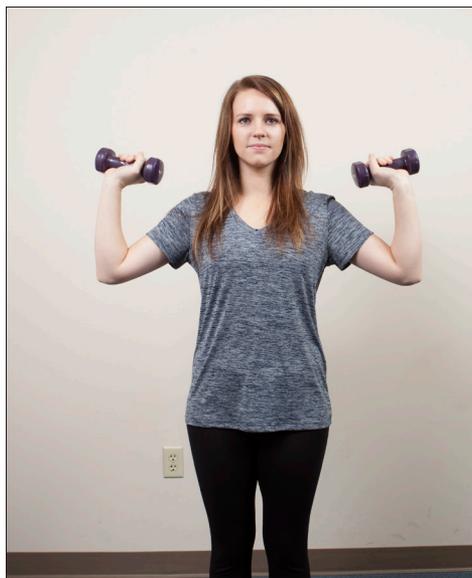
- Stand with your back to the wall, heels at least one shoe-length from the wall. Avoid knees in front of toes with exercise. May use a chair in front for safety if needed.
- Point your feet straight ahead and shoulder-width apart.
- Place your buttocks, palms of your hands and shoulders against the wall.
- Tuck your chin. The back of your head should be as close to the wall as possible. Tighten your stomach muscles during the entire exercise.
- Slide up and down the wall and get as close to a sitting position as possible. It may take several days or weeks to reach this position. Repeat this 10 times.
- Remember: Keep your shoulders back. Keep your stomach and back flat.



Bicep curls:

This exercise helps strengthen the arm, shoulder and chest muscles.

- Stand with a weight in each hand. Place your feet shoulder-width apart and your arms at your sides, palms forward. Follow your doctor's direction about weight limits.
- Slowly lift the weights to your shoulders as you count to 2. Your palms should now be facing your shoulders. Keep your upper arms and elbows touching or close to your side.
- Pause. Then, slowly lower the weights back towards your thighs as you count to 4.
- Repeat 10 times. Rest for about 1 minute. Then complete a second set of 10.
- Keep your wrists straight and breathe regularly throughout the exercise.



Overhead press:

This exercise helps strengthen the arm, shoulder and chest muscles. It also helps firm up the back of the upper arms, to make reaching for high items easier.

- Stand with a weight in each hand. Place your feet shoulder-width apart. Raise your hands to your shoulders with your palms and forearms facing forward. Follow your doctor's direction about weight limits.
- Slowly push the weights over your head until your arms are fully extended as you count to 2. Do **not** lock your elbows.
- Pause. Then, slowly lower the weights back to the starting position as you count to 4, bringing your elbows close to your sides.
- Repeat 10 times. Rest for about 1 minute. Then complete a second set of 10.
- Keep your wrists straight and breathe regularly throughout the exercise.
- Relax your neck and shoulders.
- Do **not** let the weights move too far in front of your body or behind it.

Walking Exercises



Walking posture:

Walking strengthens your legs, heart and other muscles, and helps to improve your balance.

- Hold your head high keeping your back and neck straight.
- Tighten your stomach muscles.
- Your shoulders and arms should move freely and naturally.



Marching:

This exercise strengthens your legs, heart and other muscles, and helps to improve your balance.

- Using the walking posture, march gently on the spot, lifting the opposite arm towards the lifted knee.
- Continue for 2 minutes or longer.



Side-step:

This exercise strengthens your legs, heart and other muscles, and helps to improve your balance.

- Using the walking posture, step to the side, transferring your weight from the ball to the heel of your foot.
- Bring your other foot across to touch the floor.
- Repeat to the other side.
- Continue for 2 minutes or longer.

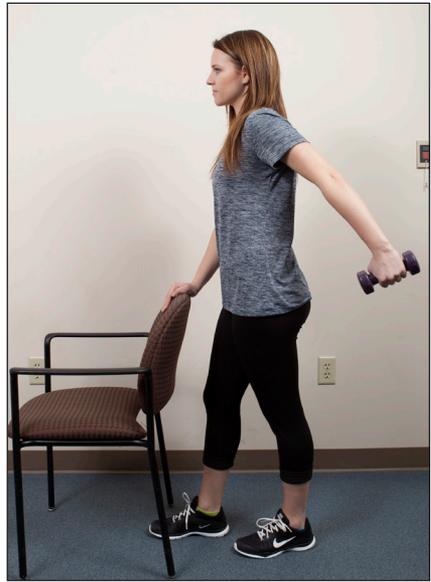


Step ups:

This exercise strengthens your legs, hips, buttocks, heart and other muscles, and helps to improve your balance.

- Stand next to a handrail at the bottom of a staircase.
- Place your feet flat on the ground with your toes facing forward.
- Put your entire left foot on the first step.
- Hold the handrail for balance but do **not** pull yourself up with the handrail. Count to 2 as you place your weight on your left leg and straighten up. Lift your right leg and place it on the first step.
- Pause. Use your left leg to support your weight and slowly lower your right foot back to the floor as you count to 4.
- Repeat 10 times with the left leg and then 10 times with the right leg. Rest for about 1 minute. Then complete a second set of 10.
- Do **not** let your back leg do the work. Do **not** let momentum do the work.
- Press your weight on the heel and **not** the ball or toes of your leg.
- Advanced move: When you are ready, you can use 2 stairs rather than 1.

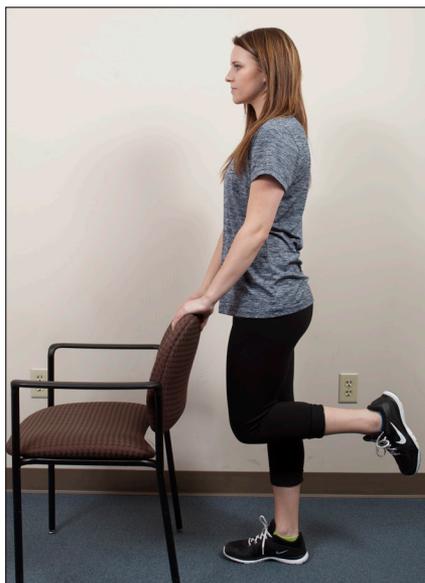
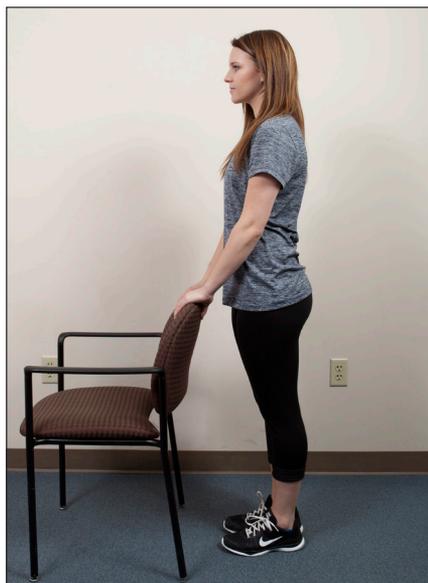
Standing Exercises with a Chair or at a Counter



Shoulder strengthening exercise:

This exercise strengthens the back of your shoulders, your upper arm and your upper back muscles.

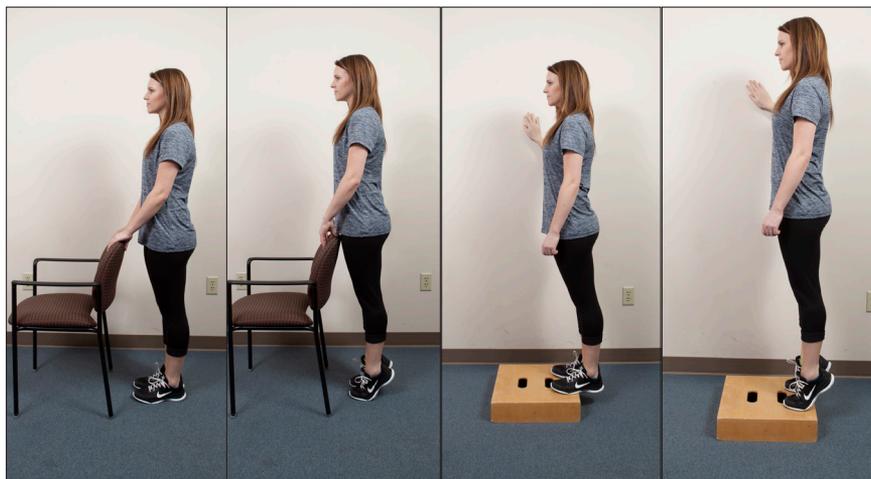
- Stand with your left leg in front and your left hand on the back of a chair or counter. Bend your front knee while holding a light weight in your right hand. Follow your doctor's direction about weight limits.
- Move your right hand backward, straightening your arm behind you. Hold this position for a few seconds.
- Return to your starting position and repeat 5 to 10 times.
- Perform the exercise with the weight in your left hand and with your right knee bent and forward.
- Slowly increase the weight poundage, but do **not** go over the amount your doctor says.



Knee curl:

This exercise strengthens the muscles of the back of the upper leg, known as the hamstrings. Walking and climbing are easier when you do both the knee extensions and knee curl.

- Stand behind a sturdy chair. Place your feet a little less than shoulder-width apart and face forward.
- Keep your foot flexed and slowly bend your right leg. Bring your heel up toward your buttocks as you count to 2.
- Pause. Then, return to your starting position, lowering your leg as you count to 4.
- Repeat 10 times with your right leg and 10 times with your left leg for one set. Rest for 1 to 2 minutes. Then do a second set of 10 times with each leg.
- Keep the thigh of the working leg in line with the supporting leg at all times.
- Advanced move: Add light weights to your ankles to increase the muscle workout. Follow your doctor's direction about weight limits.

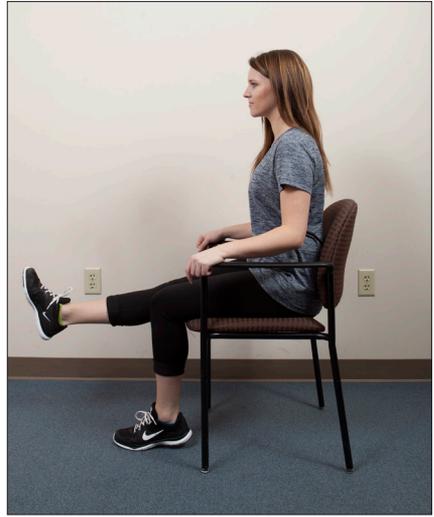
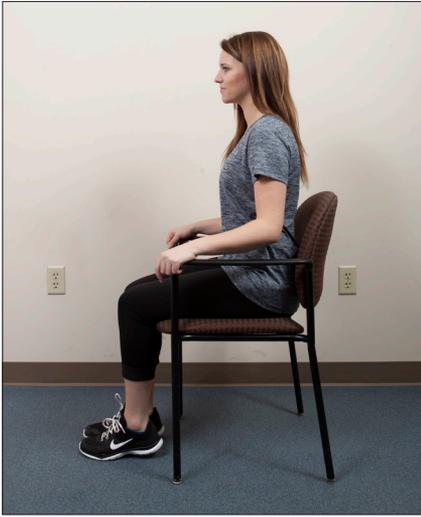


Toe raises/heel raises:

This exercise strengthens the lower legs and improves balance.

- Stand straight with your feet shoulder-width apart. Support yourself by holding onto the back of a steady chair or a counter. Do **not** bend at your waist or knees. During the exercise, support yourself on the chair or counter as little as possible to challenge your balance.
- Slowly rise up on your toes as you count to 4. Hold this position for 2 to 4 seconds and then back onto your flat feet. As you rise up onto your toes, imagine stretching your head toward the ceiling.
- Slowly lower your heels back to the floor as you count to 4.
- Repeat 10 times. Rest for about 1 minute. Then complete a second set of 10.
- Do **not** lean on the counter or chair. This is for balance only.
- Breathe regularly throughout the exercise.
- Advanced move: Perform this exercise on a staircase to increase its intensity.

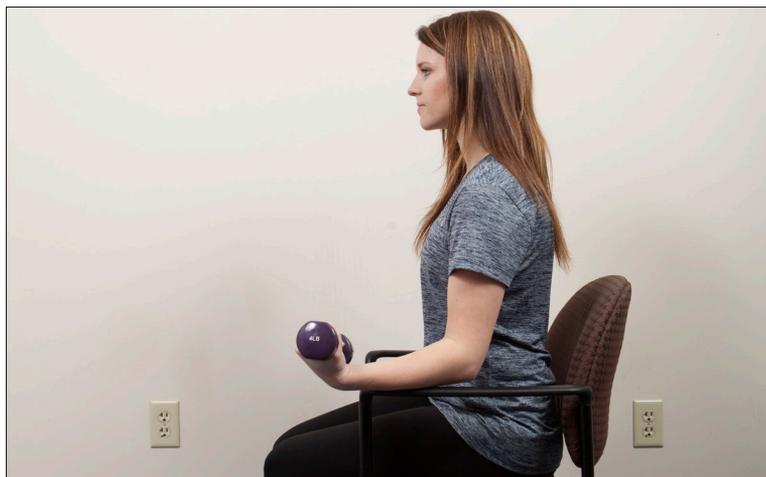
Sitting Exercises



Sitting knee extension:

This exercise strengthens your thigh muscles.

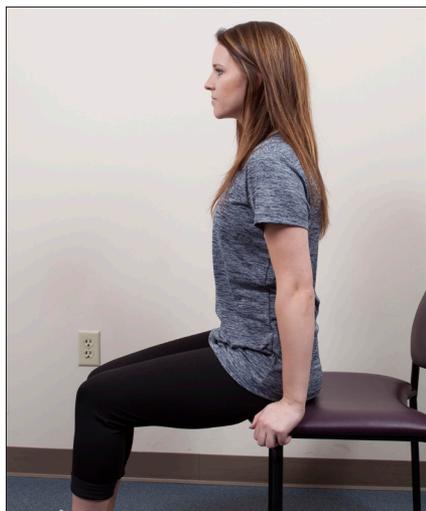
- Sit back in a chair with your feet flat on the floor and toes pointed forward. Straighten your back and sit tall. Place your hands on your thighs. Tighten your stomach muscles and look ahead, chin parallel with the floor.
- Flex your left foot. Slowly straighten one knee as you lift your heel a few inches from the floor as you count to 2. Do **not** slouch or round your back.
- Hold this position for a few seconds while breathing normally. Relax and return to the starting position as you count to 4. Switch to the other leg.
- Repeat 10 times with the left leg and 10 times with the right leg. Rest for 1 to 2 minutes. Do a second set of 10 repetitions with each leg.
- Advanced move: Add weights to your ankles starting with 1 to 2 pounds. Follow your providers direction about weight limits.



Wrist curl:

This exercise helps strengthen your forearm muscles. If you do not have a light weight, use a full water bottle, a can of soup or similar item.

- Sit on the front of a chair with your feet hip-width apart. Keep your knees over your ankles. Your forearm should rest on your thigh, holding a weight in an underhand grip (palm facing upwards). Follow your doctor's direction about weight limits.
- Place your wrists just above your knees.
- Start with your forearm and wrist parallel with the floor. Curl your fingers upward, followed by your wrists as you count to 2. Your forearm will stay resting on your thigh.
- Hold for 2 seconds then slowly lower your wrists and fingers back down as you count to 4.
- Repeat 10 times with the left wrist and 10 times with the right wrist. Rest for 1 to 2 minutes. Do a second set of 10 times with each wrist.
- Keep your elbows in contact with your thighs, parallel to your wrists. This will make the exercise more effective.
- Turn your forearm over and repeat using an overhand grip.



Chair rise exercise:

This exercise improves balance and strength in the stomach and legs.

- Sit on the front edge of a sturdy chair keeping your knees and feet hip-width apart. This exercise should be done without using your arms. Cross your arms or hold them out in front of you to help avoid using your arms.
- Tighten your stomach and stand up. With control, sit back down again. Do **not** sit down quickly. Do **not** lean your weight too far forward or onto your toes when standing up.
- At first, you may find it easier to place a pillow on the seat of the chair. Once you are able to comfortably stand and sit, remove the pillow.
- Stand and sit 10 times.
- If this is a hard exercise, start by using your hands for support.
- If you feel pain or discomfort while sitting back down, place 1 or 2 pillows on the chair or only squat down 4 to 6 inches.
- Do **not** allow your knees to come forward past your toes. This places stress on the knee joint.

Floor Exercises



Tummy tightener:

This exercise strengthens your stomach muscles.

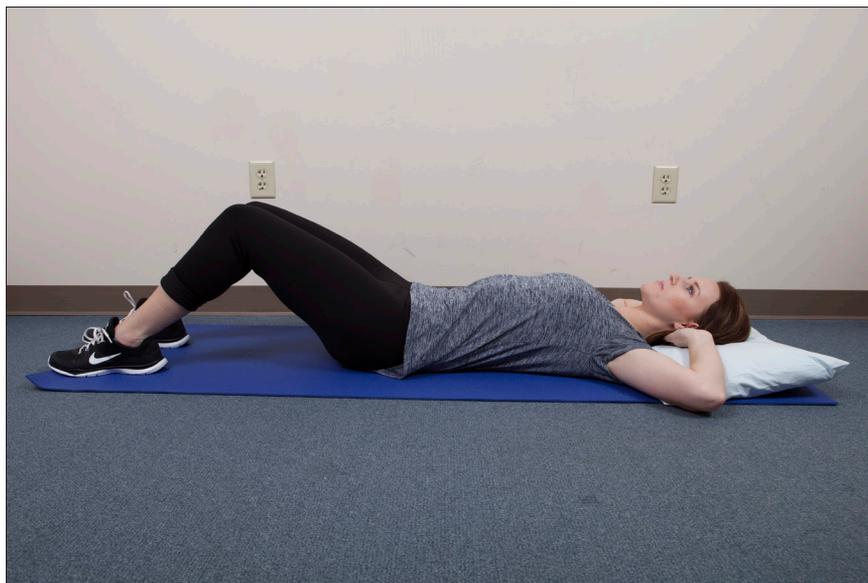
- Lie on your back on the floor or on a firm mattress. Bend your knees. Place your feet flat on the floor or mattress. Keep your arms at your sides with the palms facing the ground. The pillow is optional.
- Tighten stomach muscles as if drawing belly button toward your spine without letting your back move. Hold for 10 seconds. Do **not** hold your breath. Count out loud to avoid holding your breath.
- Do this 10 times. Rest for 1 to 2 minutes. Then do a second set of 10.



Shoulder press:

This exercise strengthens your back muscles.

- Lie on your back on the floor or on a firm mattress. Bend your knees. Place your feet flat on the floor or mattress. Keep your arms at your sides with the palms facing the ground. The pillow is optional.
- Gently press the back of your shoulders into the floor or mattress. Hold for 10 seconds. Do **not** hold your breath. Count out loud to avoid holding your breath.
- Do this 10 times. Rest for 1 to 2 minutes. Then do a second set of 10.



Elbow press:

This exercise strengthens your back muscles.

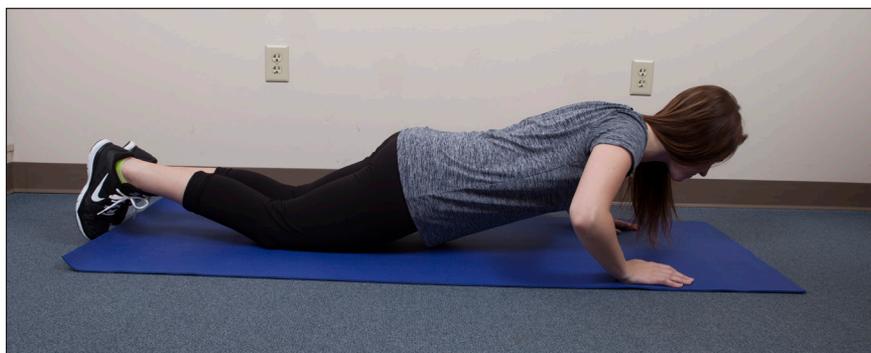
- Lie on your back on the floor or on a firm mattress. Bend your knees. Place your feet flat on the floor or mattress. Keep both knees bent. Place hands behind your head. If your elbow(s) are **not** resting on the floor, place a rolled towel under your elbow(s.). The pillow is optional.
- Press your elbows into the towel or the floor. Hold for 10 seconds. Do **not** hold your breath. Count out loud to avoid holding your breath.
- Do this 10 times. Rest for 1 to 2 minutes. Then do a second set of 10.



Pelvic tilt:

This exercise improves posture and tightens the stomach and buttocks muscles.

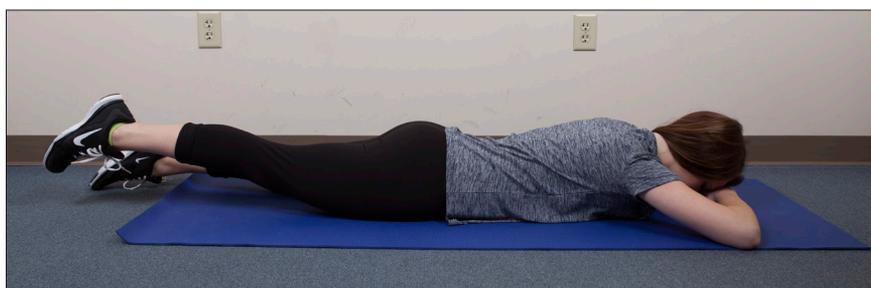
- Lie on your back on the floor or on a firm mattress. Bend your knees. Place your feet flat on the floor or mattress. Keep your arms at your sides with the palms facing the ground. The pillow is optional.
- Slowly push your pelvis toward your stomach. Your hips and lower back will be off the floor as you count to 2. Keep your upper back and shoulders on the floor or mattress.
- Slowly lower your pelvis back to the starting position as you count to 4.
- Do this 10 times. Rest for 1 to 2 minutes. Then do a second set of 10.
- Remember to breathe throughout the exercise.



Modified Push-ups:

This exercise strengthens the arms and upper back.

- Get on your hands and knees with the hands directly below the shoulders. The back and shoulder should be straight, like a plank, throughout the exercise
- Count to 4 as you lower your body to about 6 inches from the ground.
- Count to 4 as you raise your body up again.
- Do this 10 times. Rest for 1 to 2 minutes. Then do a second set of 10.
- Remember to breathe throughout the exercise.



Prone leg lift:

This exercise helps reduce spinal curvature.

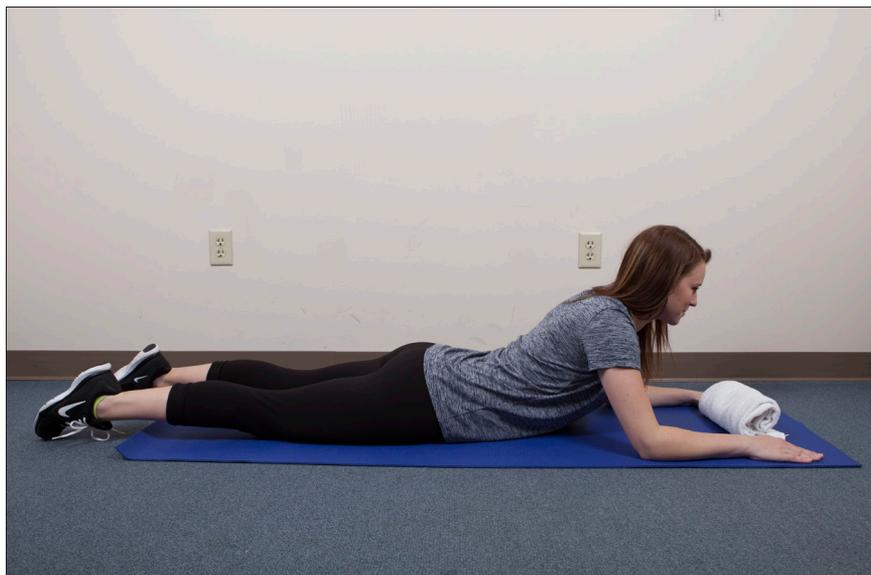
- Lie on your stomach face down on the floor. Rest your head comfortably on crossed arms. Use a pillow under your stomach for comfort if needed.
- Keep your legs straight. Tighten your buttock muscles. Lengthen your left leg as long as you can and raise it slowly off the floor as you count to 5. You only need to lift your foot a few inches.
- Hold for a few seconds. Lower your leg slowly as you count to 5. Keep both hips in contact with the floor throughout.
- Return to the starting position. Relax as you count to 10. Repeat with the right leg.
- Repeat 10 times, depending on your ability.
- If this exercise is hard, try small efforts each time. Keep trying every day.
- Advanced move: Use ankle weights, to increase the effectiveness of this exercise.



Upper back lift or back extension:

This exercise strengthens your back and spine muscles.

- Lie on your stomach face down on the floor with a pillow under your stomach and hips. Use a rolled hand towel to cushion your forehead.
- Place your hands by your hips, palms upwards. Keep your arms resting at your sides as you tighten your stomach muscles.
- Inhale. Gently press your pubic bone into the mat and raise your head and chest a few inches from the floor. Keep your head in line with your neck and torso. Do **not** shrug your shoulders up toward your ears – keep them in line with your spine. **Do not look up as this will strain your neck.**
- Hold for 5 seconds, breathing normally. Return to the starting position.
- Rest for a few seconds. Repeat 5 to 10 times, depending on your ability.



***If you have had a previous fracture or are concerned about your ribs, you may want to place a thin pillow under your ribs.**

- For beginners, start by using your hands and arms to gently lift your forehead off the floor. Rest your head comfortably on crossed arms. Raise your head up. Keep the back of your neck long as you do so and keep your chin in.
- Progress to placing your elbows directly under your shoulders and the palms in line with your elbows. Keep your head in line with your neck and torso. Gently press your back, shoulders and neck up towards the ceiling a few inches by pushing down on your forearms and hands.
- Keep your pelvic bones, knees and feet in contact with the floor throughout. Hold for a count of 5 if possible, breathing normally. Return to the starting position.
- Rest for a few seconds. Repeat 5 to 10 times, depending on your ability.

