

Muscular strength & endurance exercises

Warm up

Before you do resistance exercises, you need to warm up your muscles with 5-10 minutes of low intensity activity such as walking or marching in place.

Disclaimer: These exercises and recommendations are for healthy individuals. You should discuss any new activity plans with your doctor who may have some additional advice for you.

Men older than 40 years and women older than 50 years who plan a vigorous program or who have either chronic disease or risk factors for chronic disease should consult their physician to design a safe, effective program.

*Muscular strength is how **much** weight you can lift at one time. Muscular endurance is how **many times** you can lift a certain amount of weight. Resistance training (also referred to as weight training or strength training) helps increase muscular strength and endurance.*

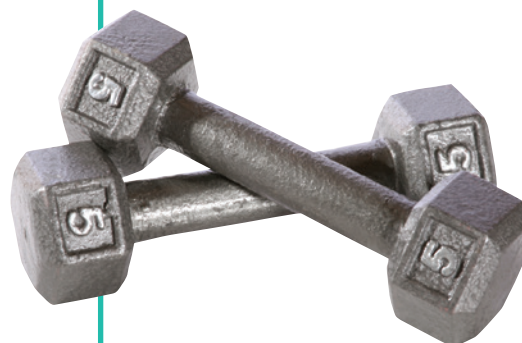
Resistance training tips

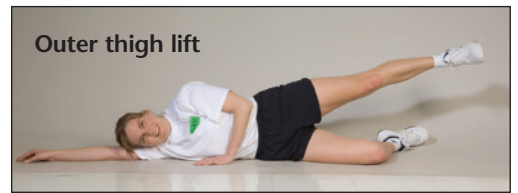
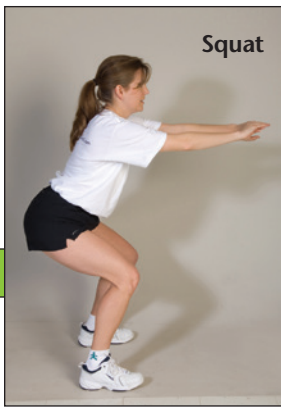
- Perform exercises for each of the major muscle groups: legs, back, chest, shoulders, arms and abdomen.
- Perform each set of exercises to the point where you feel your muscles are fatigued, while maintaining proper form.
- Exercise each muscle group 2 to 3 nonconsecutive days per week if possible.
- Use good form. Using good form is as important as the amount of weight you use!
- Allow enough time between exercises to perform the next exercise in proper form.
- Perform both the lifting and lowering portion of the resistance exercises in a controlled manner.
- Maintain a normal breathing pattern; breath-holding can cause excessive increase in blood pressure. Breathe out during the lifting phase; breath in during the lowering phase.
- If possible, exercise with a training partner who can provide feedback, assistance and motivation.

REPETITION: The number of times an exercise is performed in a row before resting

SET: A group of repetitions

Example: 8 push-ups (repetitions), rest for one minute, 8 push-ups (repetitions) = 2 sets of 8 repetitions of push-ups.





LEGS

Squat

- Start by standing with your feet shoulder-width apart, knees slightly bent.
- Slowly lower your body, with the hips moving back as if sitting in a chair.
- Keep your weight directly over the heels.
- Bend your knees to about 90 degrees.
- Pause, then slowly return to the starting position.
- Do 8-12 repetitions.

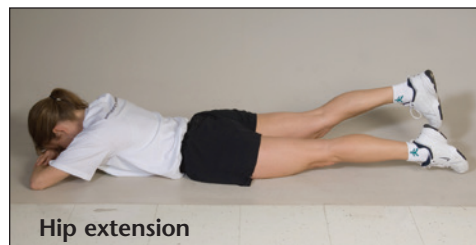
Lunge

- Step your left foot in front of your right foot.
- Look straight ahead, keep your shoulders back.
- Slowly lower your body weight down by bending your right knee.
- Let your right heel lift off the ground.
- Keep the knee of your left leg over your ankle; if you cannot see your toes, shift your body weight back or move your legs farther apart.
- Focus on your front foot during the exercise. Keep your weight in the heel of your left foot.
- Do 8-12 repetitions.
- Repeat with the other leg.

HIPS

Hip extension

- Lie on your stomach with your arms folded and your head down resting on your arms.
- Keep your head in line with your spine.
- Slowly raise your left leg, keeping your right leg on the floor. Pause, then slowly return to starting position.
- Do not arch your back.
- Do 8-12 repetitions.
- Repeat with the opposite leg.



Standing straight leg extension

- Stand with weight on your left foot, keeping knee slightly bent, your right foot flexed and in front.
- Use a wall or chair for balance.
- Slowly lift your right foot, pause and return to the starting position.
- Do 8-12 repetitions.
- Repeat with the opposite leg.

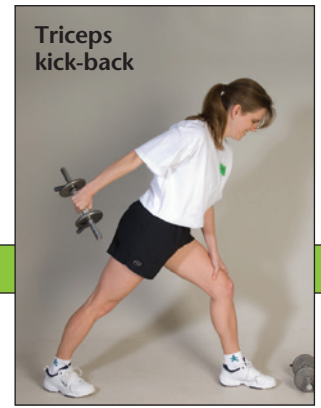
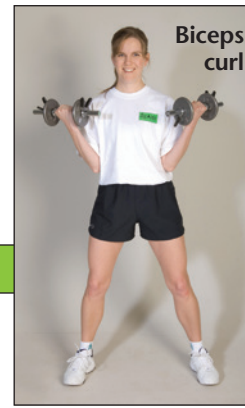
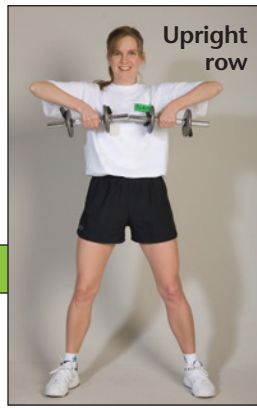
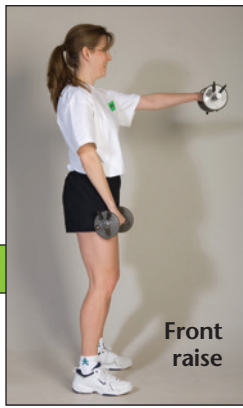
THIGHS

Outer thigh lift

- Lie on your right side. Extend your right arm and rest your head on your arm.
- Keep your neck in line with the rest of the spine.
- Tighten your abdominal muscles so that you do not roll forward or backward.
- Lift your left leg, keeping your foot flexed and knee slightly bent.
- Keep your hips in line; do not turn your hip out. (Hint: if you are lifting your left leg high, your hip is turning out.)
- Pause, then slowly return to the starting position.
- Do 8-12 repetitions.
- Repeat with the other leg.

Inner thigh lift

- Lie on your right side, arm extended, resting your head on your arm.
- Keep your neck in line with the rest of the spine.
- Tighten your abdominal muscles so that you do not roll forward or backward while doing this exercise.
- Straighten your right lower leg.
- Cross your left leg over the right leg and place your foot on the floor.
- Flex your right foot and slowly lift the right leg; pause and then return the leg to the starting position.
- Do 8-12 repetitions.
- Repeat with the other leg.



SHOULDERS

Front raise

- Stand with your feet shoulder-width apart, palms facing toward your thighs.
- Using your shoulders, keeping elbows slightly bent, slowly lift your left weight until your arm is parallel to the floor.
- Pause, then slowly return to the starting position.
- Keep your wrist straight throughout the entire motion.
- Do 8-12 repetitions and repeat with the opposite arm.

Upright row

- Stand with your feet shoulder-width apart, knees slightly bent, palms facing your thighs.
- Using your shoulders, slowly raise your elbows until your palms are at chest level.
- Pause and then slowly lower your arms to the starting position.
- Keep your wrists straight throughout the entire motion.
- Do 8-12 repetitions.

Lateral raise

- Stand with your feet shoulder-width apart, knees slightly bent, palms facing in.
- Using your shoulders, slowly raise your arms to the side until they are parallel to the ground, keeping elbows slightly bent.
- Pause and then slowly lower your arms to the starting position.
- Keep your wrists straight.
- Keep your upper body straight; avoid rocking.
- Do 8-12 repetitions.

CHEST

Modified push-up

- Place your hands on the floor, shoulder-width apart, finger tips facing forward.
- Keep your head, neck and spine in line.
- Bend your knees.
- Slowly lower down to the floor, to the point right before your nose touches the floor.
- Pause and slowly lift your body weight back up to the starting position.
- Do 8-12 repetitions.



ARMS

Biceps curl

- Stand with your feet shoulder-width apart.
- Keep your knees slightly bent.
- If you are using hand weights, do not grip the weights tightly.
- Place your arms at your side, with palms facing up.
- Bend your elbows and slowly lift the weight, keeping your upper arms next to your body.
- Focus on using your bicep, the muscle in the front of the upper arm.
- Pause, then slowly return to the starting position.
- Do 8-12 repetitions.

Triceps kick-back

- Place one leg behind you.
- Use your front leg for balance.
- Lean forward to about a 45-degree angle.
- Hold up the arm you are working, palm turned in.
- Slowly straighten the arm behind you, until your arm is almost straight, keeping a slight bend in the elbow.
- Pause, then slowly bend your arm, returning to the starting position.
- Only your forearm should move during this exercise; keep your shoulders relaxed.
- Do 8-12 repetitions and repeat on the opposite side.



BACK

Rear fly

- Sit on a chair; lean forward slightly.
- Begin with your arms to the side, palms in, slight bend in elbows.
- Pull your shoulder blades back and together.
- Pause and slowly return to the starting position.
- Keep the motion in your shoulder blades, not the arms.
- Keep in mind, this is a small movement.
- Do 8-12 repetitions.

Low back extension

- Lie on your stomach, arms extended behind you at your side so that your hands are at your hips.
- Slowly raise your head and shoulders off the floor.
- Pause and slowly return to the starting position.
- Do 8-12 repetitions.



ABDOMEN

Abdominal crunch

- Lie on your back, finger tips behind your head, elbows to the side.
- Using your abdominal muscles, slowly lift your head and shoulder blades off the floor.
- Pause and slowly lower back down to the floor until your shoulder blades touch the ground.
- Do 8-12 repetitions.
- Do not lace your fingers behind your head.

Oblique crunch

- Lie on your back, finger tips of your left hand behind your head, left elbow to the side, right arm extended out to the side on the floor.
- Cross your right leg over the left leg, keeping the left foot flat on the floor.
- Using your abdominal muscles, slowly lift your head and left shoulder toward the right knee and pause. Slowly return until your shoulder blade touches the floor.
- Do 8-12 repetitions, and repeat on the opposite side.
- Avoid putting pressure on your neck; do not lace your fingers behind your head.
- Start and stop when your shoulder blades touch the ground.

INCREASING RESISTANCE

When you exercise regularly, your body will become stronger. As your body becomes stronger, you will want to increase the resistance to allow your muscles to continue to be challenged.

EXAMPLE: PUSH-UPS



BASIC—Wall push-up

- Stand facing a wall, lean forward, and place your hands on the wall with your fingertips facing up.
- Your hands should be slightly farther than shoulder-width apart on the wall and just below shoulder level.
- Your feet should be about two feet away from the wall.
- Tighten your abdominals, bend your elbows, and bring your chest forward until your forehead nearly touches the wall.
- Make sure that your back is straight, and allow your heels to come off the ground if necessary.
- Now straighten your arms, slowly pushing your body back to the starting position.

Variations

You can also increase resistance by using stretch bands and hand weights.



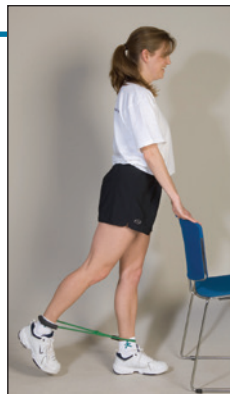
INTERMEDIATE—Modified push-up

- Place your hands on the floor, shoulder-width apart, finger tips facing forward.
- Keep your head, neck and spine in line.
- Bend your knees.
- Slowly lower down to the floor, to the point right before your nose touches the floor.
- Pause and slowly lift your body weight back up to the starting position.



ADVANCED—Push-up

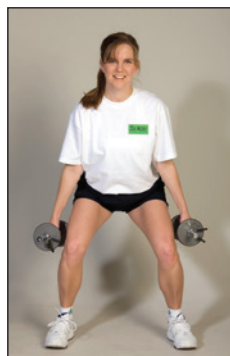
- Place your hands on the floor, shoulder-width apart, finger tips facing forward.
- Keep your head, neck and spine in line.
- Extend your legs behind you, with your toes pointing down and the balls of your feet on the floor.
- Slowly lower your body down to the floor, to the point right before your nose touches the floor.
- Pause and slowly lift back up to the starting position.



EXAMPLES

Leg extension with stretch band

- Stand with stretch band around your ankles. Use a chair for balance, keeping your upper body erect.
- Tighten your abdominal muscles for support.
- Place your right leg behind you, foot flexed.
- Slowly lift your leg; do not arch your back or lean forward. Pause, then return to starting position.
- Do 8-12 repetitions.
- Repeat with the opposite leg.



Squat with weights

- Start by standing with your feet shoulder-width apart, knees slightly bent.
- Slowly lower your body, with the hips moving back as if sitting in a chair.
- Keep your weight directly over the heels.
- Bend your knees to about 90 degrees.
- Pause, then slowly return to the starting position.
- Do 8-12 repetitions.

Flexibility exercises

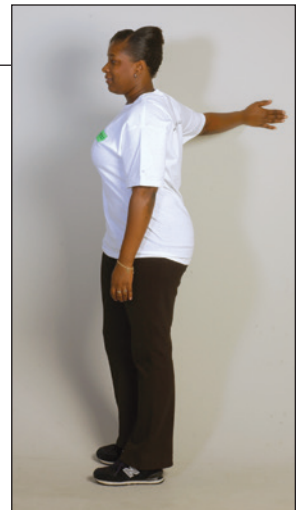
Flexibility is the ability of a joint and a muscle group to move through a range of motion. Stretching helps improve flexibility.

Stretching tips

- Warm your muscles before stretching them by doing at least 5 minutes of low-intensity activity such as walking or marching in place.
- Start each stretch slowly.
- Stretch only to a point of *mild* discomfort. Stop if you feel pain.
- Concentrate on using proper form as you stretch.
- Hold each stretch for 15-30 seconds. Do not bounce.
- Breathe deeply and continuously. Avoid holding your breath.
- For best results, perform each stretch 2-3 times.
- Stretch at least 2 to 3 days a week and before and after exercising.

Chest stretch

- Stand beside a wall with the right side of your body closest to the wall.
- Stand with your feet shoulder-width apart and your knees slightly bent.
- Reach your right arm behind you, and place the palm of your hand on the wall at shoulder level.
- Slowly rotate your hips and upper body to the left until you feel a stretch in your chest and right shoulder.
- Hold this position for 15-30 seconds.
- Slowly return to starting position.
- Turn so that the left side of your body is closest to the wall, and repeat this stretch using the left arm.

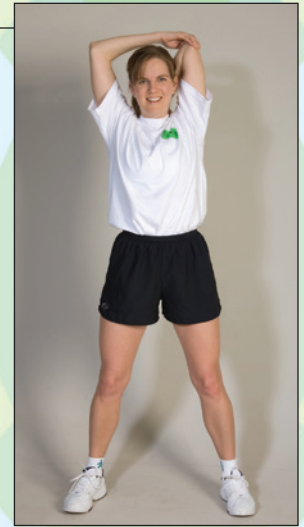


Shoulder stretch

- Stand with your feet shoulder-width apart, knees slightly bent.
- Bend your left arm at the elbow and extend across chest.
- Place your right hand above or below the left crossed elbow and gently press with your right hand until you feel a stretch across your left shoulder.
- Hold position for 15-30 seconds; slowly return to the start position.
- Repeat with the other shoulder.

Triceps stretch

- Stand with your feet shoulder-width apart, knees slightly bent.
- Bend your left arm at elbow joint; lift arm next to your head.
- Position left fingers so they touch your shoulder blade area.
- Place right arm across the top of your head, and place right hand above the left elbow; gently press with the right hand until you feel a stretch in the back of your upper left arm.
- Hold for 15-30 seconds; slowly return to the start position.
- Repeat with the other arm.



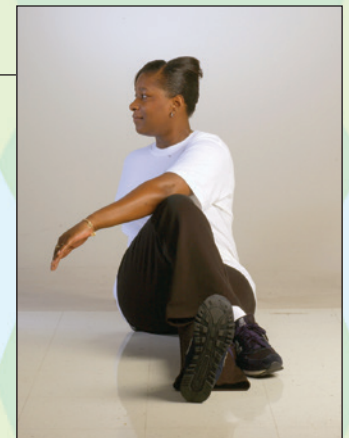
Inner-thigh stretch

- Stand with your feet shoulder-width apart.
- Slowly bend the left knee, shifting your body weight toward the left and keeping your right leg straight.
- Do not let your left knee extend beyond the toes of your left foot.
- You should be able to see the toes of your left foot when you look down at your left knee. If you cannot see your left toes, then move your feet farther apart from each other.
- You should feel a stretch in your inner thigh.
- If you do not feel a stretch, then bend forward slightly at the waist, keeping your back straight.
- Hold this position for 15-30 seconds; slowly return to the start position.
- Repeat on the opposite side.



Outer-thigh stretch

- Sit comfortably on the ground with your legs straight in front of you.
- Bend your right leg, cross it over your left leg, and put your right foot flat on the ground on the left side of your left knee.
- Your left leg should still be straight in front of you.
- Slowly rotate your upper body toward the right.
- As you rotate, reach your right hand behind you, and place it palm-down on the ground behind your right hip.
- Continue to rotate to the right until you can place your left arm on the right side of your right leg. Turn your head, and look to the right.
- You should feel a stretch in your right hip and possibly in your back as well.
- Keep your buttocks flat on the ground.
- Hold this position for 15-30 seconds; slowly return to the start position.
- Repeat on the opposite side.





Modified hurdler hamstring stretch

- Sit on the floor with your right leg extended and your left leg bent in toward your right thigh.
- Keep your chin and chest lifted and gently bend down toward your extended right leg.
- Reach as far as you can toward your toes.
- Hold this position for 15-30 seconds; slowly sit back up.
- Repeat with the other leg.



Quadriceps stretch

- Stand on your left foot, tightening your abdominal muscles to help you balance.
- Bend your right knee, and bring your right foot up behind you.
- Steady yourself by extending your left hand in front of you or placing it on a chair, if necessary, and use your right hand to grab the right ankle, pulling your right foot toward your buttocks until you feel a stretch along the front side of your right thigh.
- Keep your knees as close together as you can, and keep your left knee slightly bent as it supports your body weight.
- Hold this position for 15-30 seconds; slowly return to the start position.
- Repeat with the opposite leg.



Hip flexor

- Step your left foot in front of your right foot.
- Keep weight over your front foot.
- Slowly drop right knee down towards the ground, bending the front knee.
- Press hip of your right leg forward and hold for 15-30 seconds.
- Repeat with the opposite leg.

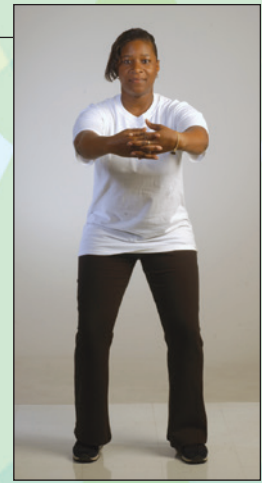


Calf stretch

- Step your left foot in front of your right foot.
- Bend your left knee slightly.
- Make sure that you can see your left toes when you look down toward your left knee.
- If you cannot see your left toes, then move your right foot back farther.
- Keep the heels of both feet on the ground.
- Lean slightly forward so that you feel a stretch in the back of your lower right leg.
- Hold this position for 15-30 seconds; slowly return to the start position.
- Repeat this stretch on the opposite side.

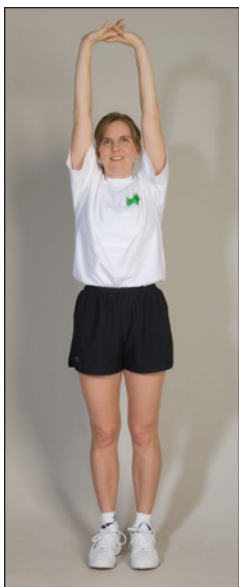
Upper back stretch

- Lift your arms in front of chest, palms facing forward.
- Stretch through your upper back, gently pushing palms forward.
- Hold for 15-30 seconds and slowly return to start position.



Lower back stretch

- Lie on your back with your arms by your side.
- Bend your knees, lift your feet off the ground, and bring your knees toward your chest. Place your hands behind your knees, and continue to pull your knees into your chest until you feel a stretch in your lower back and buttocks.
- Hold this position for 15-30 seconds; slowly return your feet to the ground.



Torso stretch

- Stand with your feet shoulder-width apart, knees slightly bent.
- Lift arms over your head, clasp hands and hold 15-30 seconds.
- Do not arch your back.

Back and abdominal stretch

- Start on "all fours" in the position of a child who is preparing to crawl.
- Round your back by contracting your abdominal muscles and tucking in your hips.
- Keep your head in line with your neck and spine.
- Hold this position for 15-30 seconds to stretch your back.
- Return to starting position.
- Arch your back by gently pushing your stomach toward the floor.
- Keep your head in line with your neck and spine.
- Hold this position for 15-30 seconds to stretch your abdominals.
- Slowly return to starting position.

