

Exercises

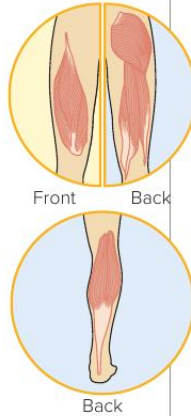
WEIGHT TRAINING EXERCISES Body Weight

EXERCISE 1

Air Squats

Instructions: (a) Keep your back straight and head level; stand with feet slightly more than shoulder-width apart and toes pointed slightly outward. Hold your hands out in front of you. (b) Squat down until your thighs are below parallel with the floor. Let your thighs move laterally (outward) so that you “squat between your legs.” Hinge at your hips and don’t let your back sag. This will help keep your back straight and your heels on the floor. Drive upward toward the starting position, hinging at the hips and keeping your back in a fixed position throughout the exercise.

Muscles developed: Quadriceps, gluteals, hamstrings, calf



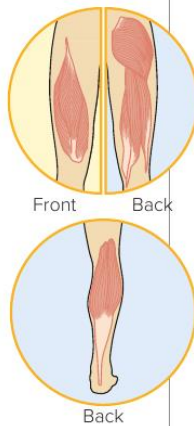
(a-b): ©Taylor Robertson Photography

EXERCISE 2

Lunges

Instructions: (a) Stand with one foot about two feet in front of the other. (b) Lunge forward with the front leg, bending it until the thigh is parallel to the floor. The heel of the lead leg should stay on the ground. Do not shift your weight so far forward that the knee moves out past the toes. Repeat the exercise using the other leg. Keep your back and head as straight as possible and maintain control while performing the exercise.

Muscles developed: Quadriceps, gluteals, hamstrings, calf



(a-b): ©Taylor Robertson Photography

EXERCISE 3

Burpees with a Push-up



(a-c): ©Taylor Robertson Photography

Instructions: From a standing position, squat down and place your hands on the floor; and then (a) kick your legs behind you and land in the “up” push-up position. Do a push-up. (b) Then move your knees forward returning to the squat position; (c) spring up as high as you can into a full jump. Repeat.

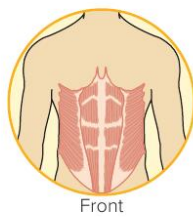
Muscles developed: Quadriceps, gluteals, hamstrings, calf, deltoids, pectoralis major, triceps

EXERCISE 4

McGill Curl-Up

Instructions: (a) Lie on your back on the floor with one leg bent, foot placed flat on the floor, and the other leg straight. Place your hands under the small of your back or fold your arms across your chest. (b) Slowly raise the chest, shoulders, and head as a unit while maintaining a neutral spine. Try to isolate the rectus abdominis. Do not grasp your hands around your head when doing crunches because you might injure your neck.

Muscles developed: Rectus abdominis, obliques



Front



Courtesy Tom Fahey

EXERCISE 5

Spine Extension (“Bird Dog”) (Isometric Exercise)

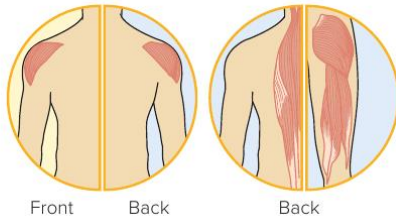
Instructions: Begin on all fours with your knees below your hips and your hands below your shoulders.

Unilateral spine extension: (a) Extend your right leg to the rear and reach forward with your right arm. Keep your spine neutral and your raised arm and leg in line with your torso. Don’t arch your back or let your hip or shoulder sag. Hold this position for 10–30 seconds. Repeat with your left leg and left arm.

Bilateral spine extension: (b) Extend your left leg to the rear and reach forward with your right arm. Keep your spine neutral and your raised arm and leg in line with your torso. Don’t arch your back or let your hip or shoulder sag. Hold this position for 10–30 seconds. Repeat with your right leg and left arm.

You can make this exercise more difficult by making box patterns with your arms and legs.

Muscles developed: Erector spinae, gluteus maximus, hamstrings, deltoids



(a-b): ©Wayne Glusker

EXERCISE 6

Isometric Side Bridge

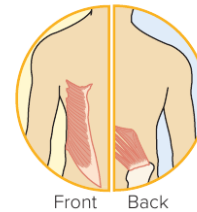


Courtesy Joseph Quever

Instructions: Lie on the floor on your side with your knees bent and your top arm lying alongside your body. Lift and drive your hips forward so that your weight is supported by your forearm and knee. Hold this position for 3–10 seconds, breathing normally. Repeat on the other side. Perform 3–10 repetitions on each side.

Variation: You can make the exercise more difficult by keeping your legs straight and supporting yourself with your feet and forearm (see Lab 5.3) or with your feet and hand (with elbow straight). An advanced version of this exercise that builds the core and shoulder muscles is to do a side bridge on the right side, rotate to a front plank, and then rotate to a side bridge on the left side. Hold each position for 3 seconds.

Muscles developed: Obliques, quadratus lumborum

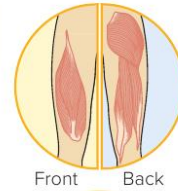


EXERCISE 7

Thrusters



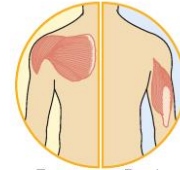
Muscles developed: Quadriceps, gluteus maximus, hamstrings, gastrocnemius, deltoids, pectoralis major, triceps



Front Back



Back



Front Back

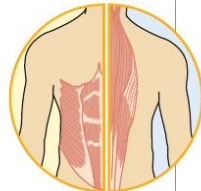
(a-c): ©Taylor Robertson Photography

Instructions: (a) From a standing position, hold stones, soup cans, dumbbells, or barbells (or a single rock with both hands) at chest level with palms facing outward. (b) Squat down until your thighs are parallel with the floor. (c) Immediately stand and press the objects overhead in one continuous motion. Lower the objects to the starting position and immediately repeat the exercise.

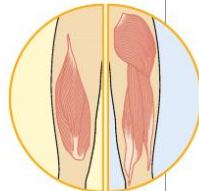
EXERCISE 8

Overhead squats

Instructions: (a) Stand holding a broom handle, stones, barbell, or soup cans overhead with straight arms, feet placed slightly more than shoulder-width apart, toes pointed out slightly, head neutral, and back straight. Center your weight over your arches or slightly behind. (b) Squat down, keeping your weight centered over your arches, and actively flex the hips (hinge at the hips with buttocks back) until your legs break parallel (hips below knees). During the movement, keep your spine neutral, shoulders back, and chest out, and let your thighs part to the side so that you are “squatting between your legs.” Try to “spread the floor” with your feet. Push up to the starting position, maximizing the use of the posterior hip and thigh muscles, and maintaining a straight back and neutral head position.



Front Back



Front Back



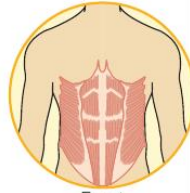
(a-b): ©Taylor Robertson Photography

Muscles developed: Quadriceps, hamstrings, gluteal muscles, core muscles

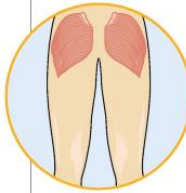
EXERCISE 9**Front Plank**

Instructions: Lying on your front with body straight, raise your body upward, supporting your weight on forearms and toes. Hold the position. Begin with 10-second holds and progress until you can hold the plank for at least two minutes. Breathe normally. Tighten your abs, glutes, and quads as you do this exercise.

Muscles developed: Rectus abdominis, erector spinae, trapezius, rhomboids, deltoids, pectorals, gluteal muscles



Front



Back



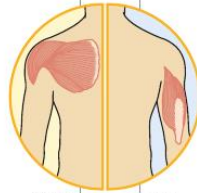
©Taylor Robertson Photography

EXERCISE 10**Push-ups**

Instructions: (a) Start in the push-up position with your body weight supported by your hands and feet. Your arms and back should be straight and your fingers pointed forward. Lower your chest to the floor with your back straight, and then return to the starting position.

Variation: (b) Do modified push-ups if you can't do at least 10 regular push-ups. Start with your body weight supported by your hands and knees. Your arms and back should be straight and your fingers pointed forward. Lower your chest to the floor with your back straight, and then return to the starting position.

Muscles developed: Pectorals, triceps, deltoids



Front

Back



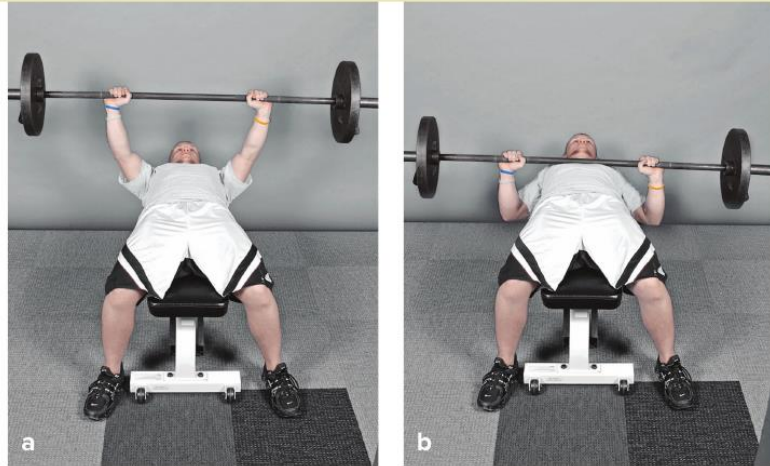
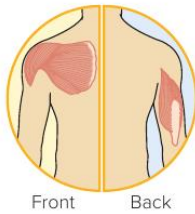
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WEIGHT TRAINING EXERCISES Free Weights

EXERCISE 1

Bench Press

Instructions: (a) Lying on a bench on your back with your feet on the floor, grasp the bar with palms upward and hands shoulder-width apart. If the weight is on a rack, move the bar carefully from the supports to a point over the middle of your chest or slightly above it (at the lower part of the sternum). (b) Lower the bar to your chest. Then press it in a straight line to the starting position. Don't arch your back or bounce the bar off your chest. You can also do this exercise with dumbbells or one arm at a time (unilateral training).



(a-b): ©Wayne Glusker

Muscles developed: Pectoralis major, triceps, deltoids

Note: To allow an optimal view of exercise technique, a spotter does not appear in these demonstration photographs; however, spotters should be used for this exercise.

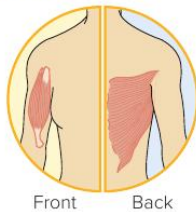
EXERCISE 2

Pull-Up

Instructions: (a) Begin by grasping the pull-up bar with both hands, palms facing forward and elbows extended fully. (b) Pull yourself upward until your chin goes above the bar. Then return to the starting position.

Assisted pull-up: (c) This is done as described for a pull-up, except that a spotter assists the person by pushing upward at the waist, hips, or legs during the exercise.

Muscles developed: Latissimus dorsi, biceps



(a-c): ©Neil Tanner Photography

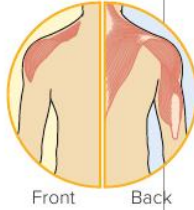
EXERCISE 3

Shoulder Press (Overhead or Military Press)

Instructions: This exercise can be done standing or seated, with dumbbells or a barbell. The shoulder press begins with the weight at your chest, preferably on a rack. **(a)** Grasp the weight with your palms facing away from you. **(b)** Push the weight overhead until your arms are extended. Then return to the starting position (weight at chest). Be careful not to arch your back excessively.

If you are a more advanced weight trainer, you can “clean” the weight (lift it from the floor to your chest). The clean should be attempted only after instruction from a knowledgeable coach; otherwise, it can lead to injury.

Muscles developed:
Deltoids, triceps, trapezius



(a-b): Courtesy Joseph Quever

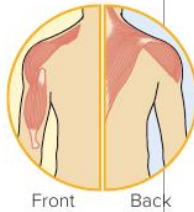
EXERCISE 4

Upright Rowing

Instructions: **(a)** From a standing position with arms extended fully, grasp a barbell with a close grip (hands about 6–12 inches apart) and palms facing the body. **(b)** Raise the bar to about the level of your collarbone, keeping your elbows above bar level at all times. Return to the starting position.

This exercise can be done using dumbbells, a weighted bar (shown), or a barbell.

Muscles developed:
Trapezius, deltoids, biceps



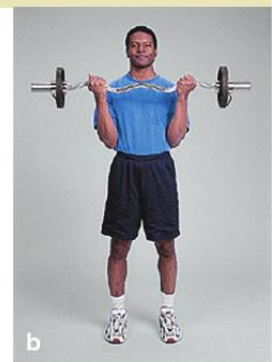
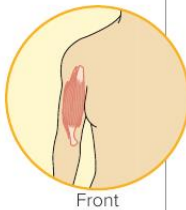
EXERCISE 5

Biceps Curl

Instructions: **(a)** From a standing position, grasp the bar with your palms facing away from you and your hands shoulder-width apart. **(b)** Keeping your upper body rigid, flex (bend) your elbows until the bar reaches a level slightly below the collarbone. Return the bar to the starting position.

This exercise can be done using dumbbells, a curl bar (shown), or a barbell; some people find that using a curl bar places less stress on the wrists.

Muscles developed:
Biceps, brachialis



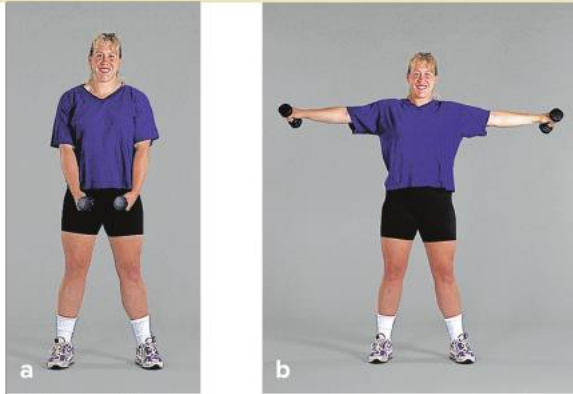
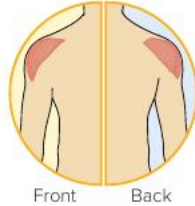
(a-b): Courtesy Joseph Quever

EXERCISE 6

Lateral Raise

Instructions: (a) Stand with feet shoulder-width apart and a dumbbell in each hand. Hold the dumbbells in front of you and parallel to each other. (b) With elbows slightly bent, slowly lift both weights to the side until they reach shoulder level. Keep your wrists in a neutral position, in line with your forearms. Return to the starting position.

Muscles developed: Deltoids



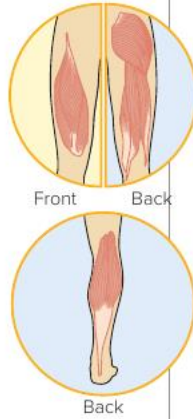
(a-b): Courtesy Neil A. Tanner

EXERCISE 7

Squat

Instructions: (a) If the bar is racked, place the bar on the fleshy part of your upper back and grasp the bar at shoulder width. Keeping your back straight and head level, remove the bar from the rack and take a step back. Stand with feet slightly more than shoulder-width apart and toes pointed slightly outward. Rest the bar on the back of your shoulders, holding it there with palms facing forward. (b) Keeping your head level and lower back straight and pelvis back, squat down until your thighs are below parallel with the floor. Let your thighs move laterally (outward) so that you “squat between your legs.” This will help keep your back straight and keep your heels on the floor. Drive upward toward the starting position, hinging at the hips and keeping your back in a fixed position throughout the exercise.

Muscles developed: Quadriceps, gluteals, hamstrings, calf



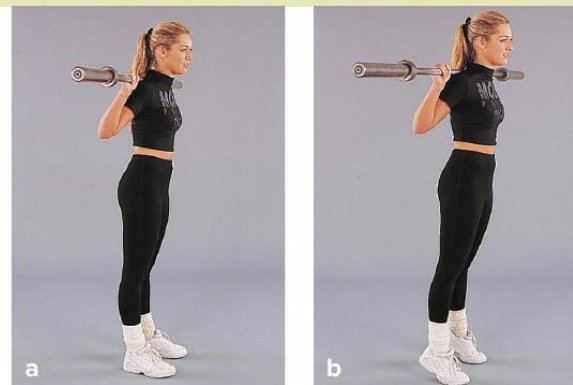
(a-b): ©Taylor Robertson Photography

EXERCISE 8

Heel Raise

Instructions: Stand with feet shoulder-width apart and toes pointed straight ahead. (a) Rest the bar on the back of your shoulders, holding it there with palms facing forward. (b) Press down with your toes while lifting your heels. Return to the starting position.

Muscle developed: Calf

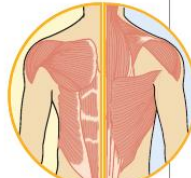


(a-b): Courtesy Neil Tanner

EXERCISE 9

Kettlebell Swing

Instructions: (a) Begin by holding the kettlebell in both hands with palms facing toward you, in a standing position with knees bent, feet placed slightly more than shoulder-width apart, hips flexed, back straight, chest out, and head in a neutral position. (b) Holding the kettlebell at knee level, swing the weight to a horizontal position by initiating the motion with the hips, thighs, and abs (tighten the quads, glutes, and ab muscles as hard as you can), keeping your arm straight and relaxed during the movement. Let the weight swing back between your legs in a “football hiking motion” and then repeat the exercise. During the movement, hinge at the hips and not at the spine.



Front Back



Front Back



(a-b): ©Taylor Robertson Photography



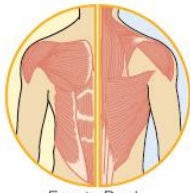
Muscles developed: Quadriceps, hamstrings, latissimus dorsi, erector spinae, gluteals, core

EXERCISE 10

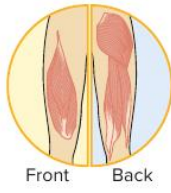
Kettlebell One-Arm Snatch

Instructions: (a) Begin by holding the kettlebell in one hand with your palm facing toward you, in a standing position with knees bent, feet placed slightly more than shoulder-width apart, hips flexed, back straight, chest out, and head in a neutral position.

Hold the kettlebell at knee level. (b) Swing the weight to a horizontal position by initiating the motion with the hips, thighs, and abs (tighten the quads, glutes, and ab muscles as hard as you can), bending your arm as it approaches the chest and continuing the motion until straightening it overhead.



Front Back



Front Back



(a-c): ©Taylor Robertson Photography



The kettlebell should rotate from the front of your hand to the back during the motion. Use an upward punching motion at the top of the movement to prevent injuring your forearm. (c) Let the weight swing back between your legs in a “football hiking motion” and then repeat the exercise. During the movement, hinge at the hips and not at the spine.

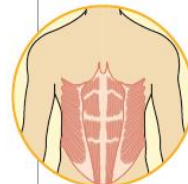
Muscles developed: Quadriceps, gluteals, hamstrings, core, deltoids, trapezius, erector spinae, latissimus dorsi, pectoralis major

EXERCISE 11

Kettlebell or Dumbbell Carry (“Suitcase Carry”)

Instructions: This is an excellent exercise for building the core muscles. Pick up a dumbbell or kettlebell in one or both hands. Maintaining good posture, walk 20 to 100 yards carrying the weight. Carry 10 to several hundred pounds, depending on your fitness.

Muscles developed: Core, trapezius, quadriceps, gluteals



Front



WEIGHT TRAINING EXERCISES Weight Machines

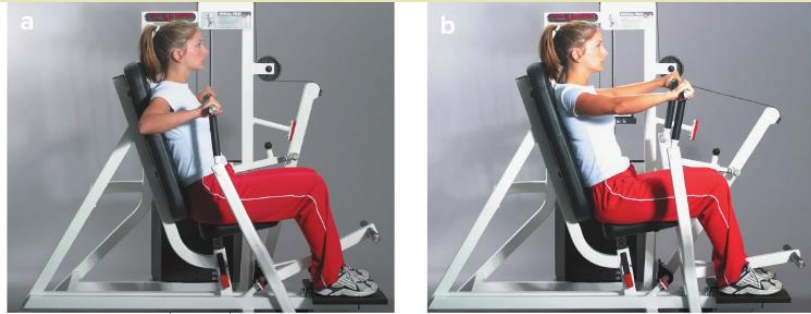
EXERCISE 1

Bench Press (Chest or Vertical Press) Weight Machines

Instructions: Sit or lie on the seat or bench, depending on the type of machine and the manufacturer's instructions. Your back, hips, and buttocks should be pressed against the machine pads. Place your feet on the floor or the foot supports.

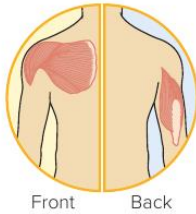
(a) Grasp the handles with your palms facing away from you; the handles should be aligned with your armpits.

(b) Push the bars until your arms are fully extended, but don't lock your elbows. Return to the starting position.



(a-b): ©Taylor Robertson Photography

Muscles developed: Pectoralis major, anterior deltoids, triceps



Front Back

EXERCISE 2

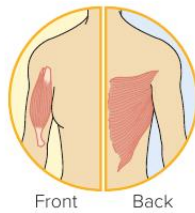
Lat Pull

Instructions: Begin in a seated or kneeling position, depending on the type of lat machine and the manufacturer's instructions.

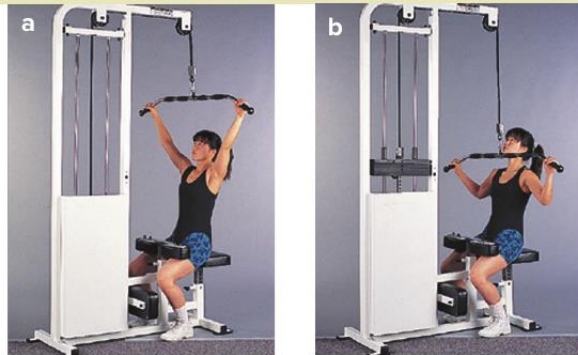
(a) Grasp the bar of the machine with arms fully extended.

(b) Slowly pull the weight down until it reaches the top of your chest. Slowly return to the starting position.

Muscles developed: Latissimus dorsi, biceps



Front Back



(a-b): Courtesy Neil A. Tanner

Note: This exercise focuses on the same major muscles as the assisted pull-up (Exercise 3); choose an appropriate exercise for your program based on your preferences and equipment availability.

EXERCISE 3

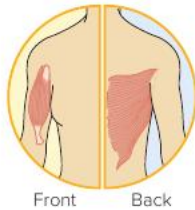
Assisted Pull-Up

Instructions: Set the weight according to the amount of assistance you need to complete a set of pull-ups—the heavier the weight, the more assistance provided.

(a) Stand or kneel on the assist platform, and grasp the pull-up bar with your elbows fully extended and your palms facing away.

(b) Pull up until your chin goes above the bar, and then return to the starting position.

Muscles developed: Latissimus dorsi, biceps



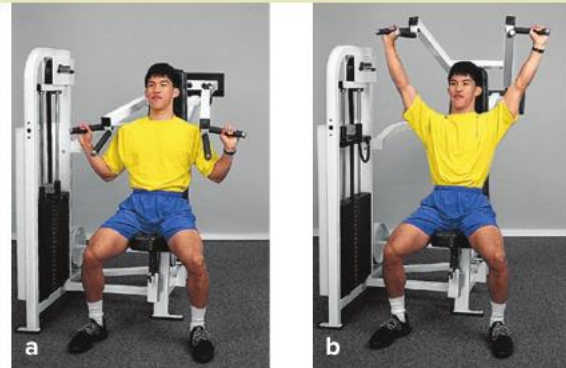
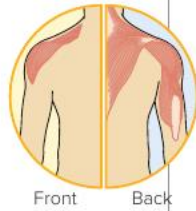
(a-b): ©Wayne Glusker

EXERCISE 4

Overhead Press (Shoulder Press)

Instructions: Adjust the seat so that your feet are flat on the ground and the hand grips are slightly above your shoulders. (a) Sit down, facing away from the machine, and grasp the hand grips with your palms facing forward. (b) Press the weight upward until your arms are extended. Return to the starting position.

Muscles developed: Trapezius, triceps, deltoids, pectoralis major, rotator cuff



(a-b): Courtesy Joseph Quever

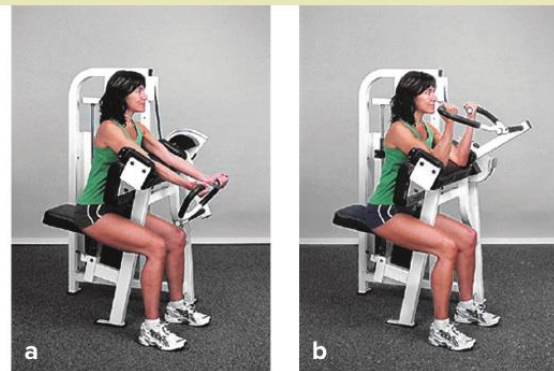
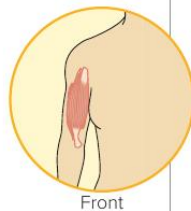
EXERCISE 5

Biceps Curl

Instructions: (a) Adjust the seat so that your back is straight and your arms rest comfortably against the top and side pads. Place your arms on the support cushions and grasp the hand grips with your palms facing up. (b) Keeping your upper body still, flex (bend) your elbows until the hand grips almost reach your collarbone. Return to the starting position.

Muscles developed:

Biceps, brachialis



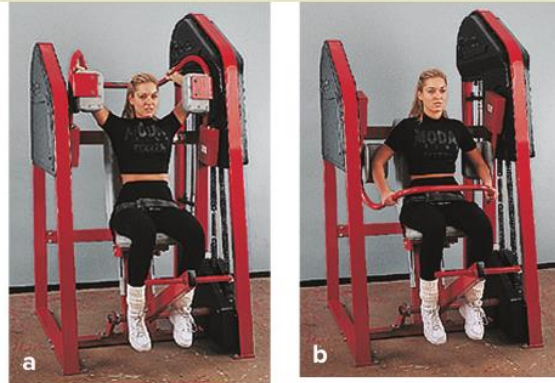
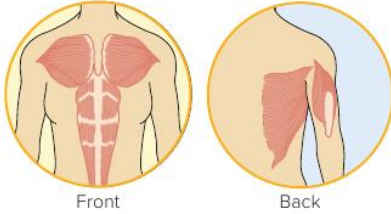
(a-b): Courtesy Joseph Quever

EXERCISE 6

Pullover

Instructions: Adjust the seat so that your shoulders are aligned with the cams. Push down on the foot pads with your feet to bring the bar forward until you can place your elbows on the pads. Rest your hands lightly on the bar. If possible, place your feet flat on the floor. **(a)** To get into the starting position, let your arms go backward as far as possible. **(b)** Pull your elbows forward until the bar almost touches your abdomen. Return to the starting position.

Muscles developed: Latissimus dorsi, pectorals, triceps, rectus abdominis



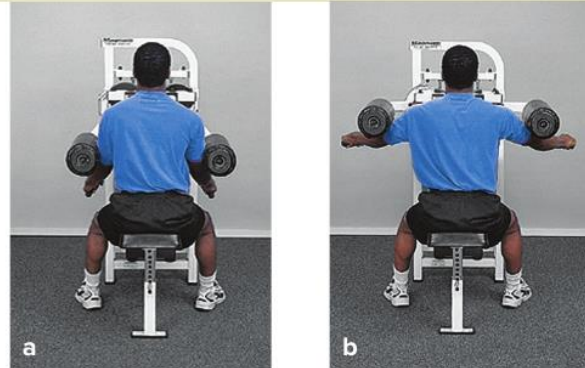
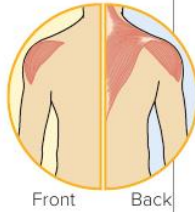
(a-b): Courtesy Neil A. Tanner

EXERCISE 7

Lateral Raise

Instructions: **(a)** Adjust the seat so that the pads rest just above your elbows when your upper arms are at your sides, your elbows are bent, and your forearms are parallel to the floor. Lightly grasp the handles. **(b)** Push outward and up with your arms until the pads are at shoulder height. Lead with your elbows rather than trying to lift the bars with your hands. Return to the starting position.

Muscles developed: Deltoids, trapezius



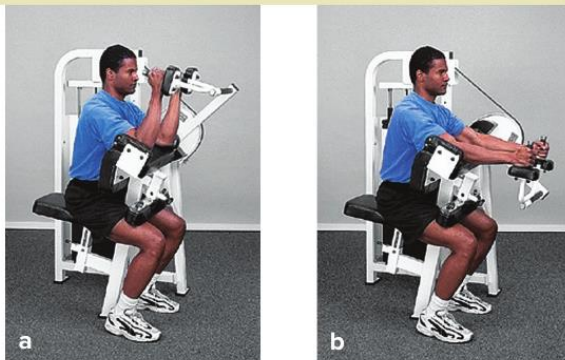
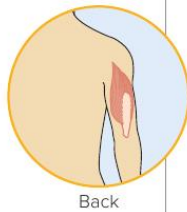
(a-b): Courtesy Joseph Quever

EXERCISE 8

Triceps Extension

Instructions: **(a)** Adjust the seat so that your back is straight and your arms rest comfortably against the top and side pads. Place your arms on the support cushions and grasp the hand grips with palms facing inward. **(b)** Keeping your upper body still, extend your elbows as much as possible. Return to the starting position.

Muscles developed: Triceps



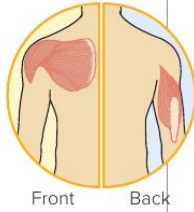
(a-b): Courtesy Joseph Quever

Note: This exercise focuses on some of the same muscles as the Assisted Dip (Exercise 9); choose an appropriate exercise for your program based on your preferences and equipment availability.

EXERCISE 9

Assisted Dip

Instructions: Set the weight according to the amount of assistance you need to complete a set of dips—the heavier the weight, the more assistance provided. **(a)** Stand or kneel on the assist platform with your body between the dip bars. With your elbows fully extended and palms facing your body, support your weight on your hands. **(b)** Lower your body until your upper arms are almost parallel with the bars. Then push up until you reach the starting position.



Muscles developed: Triceps, deltoids, pectoralis major



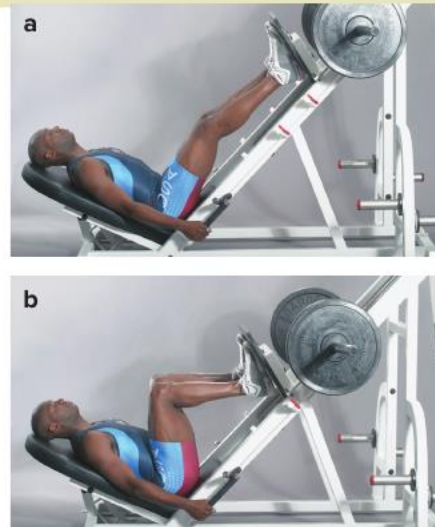
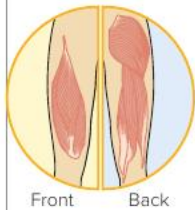
(a-b): ©Taylor Robertson Photography

EXERCISE 10

Leg Press

Instructions: Sit or lie on the seat or bench, depending on the type of machine and the manufacturer's instructions. Your head, back, hips, and buttocks should be pressed against the machine pads. Loosely grasp the handles at the side of the machine. **(a)** Begin with your feet flat on the foot platform about shoulder-width apart. Extend your legs, but do not forcefully lock your knees. **(b)** Slowly lower the weight by bending your knees and flexing your hips until your knees are bent at about a 90-degree angle or your heels start to lift off the foot platform. Keep your lower back flat against the support pad. Then extend your knees and return to the starting position.

Muscles developed: Gluteals, quadriceps, hamstrings



(a-b): ©Taylor Robertson Photography

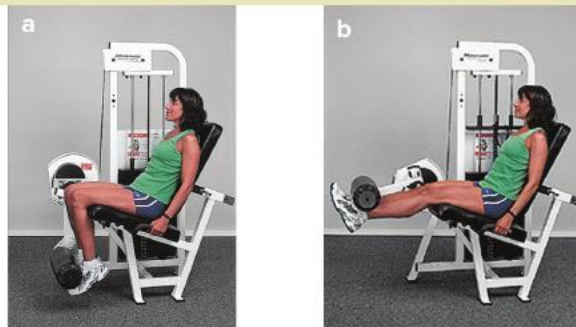
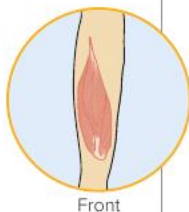
EXERCISE 11

Leg Extension (Knee Extension)

Instructions: **(a)** Adjust the seat so that the pads rest comfortably on top of your lower shins. Loosely grasp the handles. **(b)** Extend your knees until they are almost straight. Return to the starting position.

Knee extensions cause kneecap pain in some people. If you have kneecap pain during this exercise, check with an orthopedic specialist before repeating it.

Muscles developed: Quadriceps



(a-b): Courtesy Joseph Quever

EXERCISE 12

Seated Leg Curl

Instructions: (a) Sit on the seat with your back against the back pad and the leg pad below your calf muscles. (b) Flex your knees until your lower and upper legs form a 90-degree angle. Return to the starting position.

Muscles developed: Hamstrings, calf



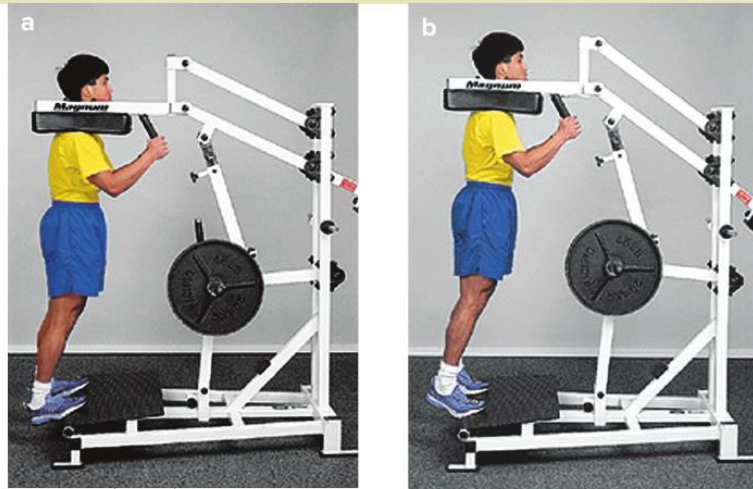
(a-b): ©Wayne Glusker

EXERCISE 13

Heel Raise

Instructions: (a) Stand with your head between the pads and one pad on each shoulder. The balls of your feet should be on the platform. Lightly grasp the handles. (b) Press down with your toes while lifting your heels. Return to the starting position. Changing the direction your feet are pointing (straight ahead, inward, and outward) will work different portions of your calf muscles.

Muscle developed: Calf



(a-b): Courtesy Joseph Quever

Note: Abdominal machines, low-back machines, and trunk rotation machines are not recommended because of injury risk. Refer to the "Body Weight" and "Free Weights" exercise sections for appropriate exercises to strengthen the abdominal and low-back muscles. For the rectus abdominis, obliques, and transverse abdominis, perform curl-ups (Exercise 4 in

the "Body Weight" section) and the stir-the-pot exercise (Exercise 11 in the "Flexibility and Low-Back Health" chapter), and for the erector spinae and quadratus lumborum, perform the spine extension and the isometric side bridge (Exercises 5 and 6 in the "Body Weight" section).