

Strength Training Past 50 (3rd ed.)

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Learning Objectives

After reading *Strength Training Past 50*, the participant will be able to:

1. Explain the benefits of performing strength training exercises.
2. Identify the first step that should be completed prior to starting a strength training program.
3. Explain the changes to the musculoskeletal system that occur with aging.
4. Identify factors that effect strength fitness.
5. Identify which strength tests to perform to assess upper body strength, endurance and strength of the midsection, and lower body strength.
6. Explain the proper protocol to use to administer a push-up test to men and women.
7. Explain the proper protocol to use to administer a curl-up test.
8. Explain the proper protocol to use to administer the leg extension test.
9. Explain how to use the test results to determine an appropriate beginning strength training program level.
10. Explain the advantages and benefits of using free weights.
11. Explain the advantages and benefits of using weight training machines.
12. Identify points to include on a free-weight safety checklist.
13. Identify points to include on a machine safety checklist
14. Identify what to look for in terms of space requirements in a fitness center.
15. Identify appropriate questions to ask a personal trainer before deciding to work with them.
16. Explain which muscle groups are targeted by the leg extension, leg curl, and leg press machines.
17. Explain which free-weight exercises to use to supplement or replace lower body exercise machines.
18. Identify which exercises require a spotter.
19. Identify which machine and/or free-weight exercises to use to strengthen the midsection and lower back.

20. Identify which machines and/or free-weight exercises to use to strengthen the chest and upper back muscle groups.
21. Identify which machines and/or free weight exercises to use to strengthen the muscle groups in the shoulders and arms.
22. Identify the recommended training frequency and number of sets to use in a strength training program.
23. Explain how to determine when to increase the weight load in a strength program.
24. Explain how to apply the 5 percent rule to determine the amount of weight to use to increase the load.
25. Explain how to use the double-progressive approach to progress a strength training program.
26. Explain how to use the pyramid approach for strength training.
27. Identify the appropriate range of movement to use when performing strength training exercises.
28. Explain the correct way to breathe when performing strength training exercises.
29. Explain why it is important to strengthen the primary muscle groups used in a sport as well as the smaller muscle groups that are not as involved.
30. Explain why older adults should consume more protein, what is considered a serving size, and which fats to avoid in the diet.



CEC/CEU Test for Strength Training Past 50

Choose the best answer. Mark all answers on the answer sheet

1. Which of the following statements regarding strength training is false?
 - a. Strength training helps improve body composition.
 - b. Strength training helps reduce the risk of osteoporosis.
 - c. Strength training helps to increase the metabolic rate.
 - d. Strength training raises resting blood pressure.

2. Which of the following is the first step an older adult should complete before starting a strength training program?
 - a. Measure and record starting weight and body fat.
 - b. Consult with their physician and acquire approval to perform strength exercises.
 - c. Select a gym with a wide variety of weight training equipment.
 - d. Complete a strength training assessment to determine how much starting weight to use.

3. Which of the following statements is false regarding gender and strength development?
 - a. Because men are typically larger than women, they have more muscle mass.
 - b. Men are generally 75% stronger than women when tested for lower body strength
 - c. Men and women, when compared on a muscle-for-muscle basis, are equal in strength
 - d. Women, even though they use lighter weight, experience similar rates of improvement in muscular strength as men

4. As part of the aging process, _____ of muscle tissue is lost every decade of life.
 - a. Ten to twelve pounds
 - b. Two to four pounds
 - c. Four to six pounds
 - d. Five to seven pounds

5. The muscle lost as part of the aging process contributes to:
 - a. Reduction of strength capacity and decreased metabolism
 - b. Weight loss, which helps prevent obesity
 - c. Reduction of strength capacity and increased metabolism
 - d. Weight loss, which helps reduce arthritis pain

6. Three factors that affect strength fitness are:
 - a. Height, weight, and bone density
 - b. Age, gender, and lifestyle
 - c. Age, gender and weight
 - d. Height, gender, and lifestyle

7. Which of the following correctly describes the recommended assessment procedure used to evaluate upper body strength?
 - a. Push-ups are used with both men and women using a push-up position with toes and knees on floor and hands on floor directly under shoulders
 - b. Men use a standard push-up position with toes on floor, knees straight, and hands on floor slightly less than shoulder width apart; women use a modified push-up position with toes and knees on floor and hands on floor slightly less than shoulder width apart
 - c. Men use a standard push-up position with toes on floor; women use a modified push-up position with knees on floor, and hands on floor slightly wider than shoulder width apart
 - d. Push-ups are used with both men and women using a standard push-up position with toes on floor, knees straight, and hands slightly wider than shoulder width apart

8. When performing the trunk curl test to evaluate the strength and endurance of the midsection, the participant should:
 - a. Lift their head off the floor slowly, lower their head to the floor quickly, inhale on the upward movement, and exhale on the downward movement.
 - b. Lift their head and upper back off the floor slowly, lower their upper back and head to the floor slowly, exhale on the upward movement, and inhale on the downward movement.
 - c. Lift their head and upper back off the floor slowly, slightly arch the lower back on the upward movement, lower their upper back and head to the floor slowly, and flatten the lower back on the downward movement.
 - d. Lift their head and upper back off the floor slowly, lower their upper back and head to the floor slowly, inhale on the upward movement, and exhale on the downward movement.

9. All of the following statements regarding using the YMCA Leg Extension to assess lower body strength are true except:
- This test is appropriate for both men and women
 - This test evaluates muscular strength relative to body weight
 - This test is based on data from over 900 men and women
 - This test evaluates muscular strength based on the amount of weight lifted
10. Which of the following correctly describes the correct procedures to use to administer the YMCA Leg Extension test?
- Select an initial weight load that is about 25% of body weight, lift the legs in 4 seconds, lower in 2 seconds for 10 repetitions, then immediately increase the weight 15 pounds and lift the legs again
 - Select an initial weight load that is about 45% of body weight, lift the legs in 4 seconds, lower in 2 seconds for 10 repetitions, then immediately increase the weight another 10% and lift the legs again
 - Select an initial weight load that is about 25% of body weight, lift the legs in 2 seconds, lower in 4 seconds for 10 repetitions, rest, then increase the weight to about 35% of body weight and lift the legs again
 - Select an initial weight load that is about 25% of body weight, lift the legs in 2 seconds, lower in 4 seconds for 12 repetitions, then immediately increase the weight 10 pounds and lift the leg again
11. Using the Leg Extension Classification Chart on page 20, a female who weighs 120 pounds and completes 10 leg extensions with 40 pounds has a leg strength score of _____ and an _____.
- 40%; index score 6
 - 33%; index score 5
 - 33%; index score 6
 - 60%; index score 7
12. Which of the following statements regarding selecting an appropriate strength training program level is false?
- To determine your strength level, add your scores from the strength trainings tests you completed and divide by three.
 - If your overall strength score is low, it is appropriate to start training at a higher level than indicated by the strength tests in order to see improvements quickly.
 - If your average score for the three strength tests was in the range of 6 to 6.6, it is appropriate to start the Experienced Training Program found in Chapter 6.
 - If you only completed two strength tests, add the two scores and divide by two to determine your overall strength score.

13. Every strength training workout should be preceded with a _____ and ended with a _____.
- Warm up of 10 to 20 minutes; cool down of 10 to 15 minutes
 - 20 minutes cardio workout; series of stretches on the floor
 - Warm up activity for 5 to 10 minutes; cool down activity for 5 to 10 minutes
 - Warm up of 5 to 10 minutes of slow stretching; cool down of 15 minutes of cardio workout
14. One of the most important reasons a fitness center should have plenty of space between the machines and the free-weight area is:
- The space helps prevent crowding which can hinder concentration and increase the risk for accidents
 - The open space provides areas for stretching and relaxing
 - The space provides room to wait if all the machines are in use
 - The space makes it easier for equipment to be cleaned and maintained
15. Which of the following is not included in the suggested questions to ask a personal trainer before deciding to work with them?
- What personal training certifications have they earned
 - How long have they been a personal trainer
 - Do they recommend supplements
 - Do they have a fitness or exercise related degree or have they taken courses in personal training and exercise
16. If the leg extension machine is used, the leg curl machine should also be used in order to _____ and prevent _____.
- Work the opposing muscles; developing a strength imbalance
 - Work the opposing muscles; developing large muscles in the front of the thigh
 - Work all the muscle groups of the leg; developing a muscle weakness
 - Work the major muscles of the leg; developing a muscle weakness
17. Which of the following is the recommended order to follow to perform the exercises listed?
- Leg extension, leg curl, bicep curl, chest crossover, tricep press down, and pullover
 - Leg extension, leg curl, chest crossover, pullover, bicep curl, and tricep press down
 - Bicep curl, leg extension, tricep press down, leg curl, pullover, and chest crossover
 - Leg extension, pullover, leg curl, tricep press down, bicep curl, and chest crossover

18. Which of the following statements about strength training frequency is correct?
- It requires a minimum of four training sessions a week to see any strength gains
 - One training session a week will build lean muscle if it is an intensive workout
 - Two strength training sessions a week is not sufficient to build lean muscle or gain strength
 - Two or three strength training sessions a week will produce good results when done consistently
19. Which of the following statements regarding exercise sets is true?
- One set is sufficient to build strength in the upper body but not in the lower body muscles
 - When first starting a strength training program one set of each exercise is recommended
 - One set is sufficient to build strength in the lower body but not in the upper body muscles
 - None of the above is true
20. When completing two or more sets of a strength training exercise, it is generally recommended to rest about _____ between sets
- One minute
 - 30 to 60 seconds
 - One to two minutes
 - 10 to 20 seconds
21. Adding more resistance to increase the workload on a muscle in order to increase muscle strength is known as:
- Overload principle
 - Resistance program
 - Hypertrophy
 - Training effort
22. Which of the following statements is true regarding selecting an appropriate weight load for starting a strength training program?
- If 16 repetitions with a weight can be completed, more weight should be added until only 4 to 6 repetitions can be completed
 - All weight training for anyone over 50 should start with a load light enough to complete 16 to 20 repetitions
 - The starting weight load should be determined by the initial strength assessment program placement
 - The weight load should be at least 80% of the maximal load (1RM)

23. When the end of the repetition range is reached on two workouts in succession, the training workload should be increased by _____ at a time and is known as the _____.
- 5 pounds for the upper body and 10 pounds for the lower body; overload principle
 - 5 percent; 5 percent rule
 - 5 pounds; 5 pound rule
 - 5 pounds or 2.5 pounds for over age 60; age determined rule
24. Which of the following statements regarding a double progressive program is false?
- The number of repetitions is increased and then the weight load
 - The recommended increase for the weight load is 5 percent
 - The weight load should always be increased when 12 repetitions can be completed in two consecutive workout sessions
 - The double progressive program helps prevent injuries and increase strength
25. Which of the following best describes the pyramid approach to strength training when performing the dumbbell bicep curl exercise?
- Complete three sets of 10 curls using 15 pound dumbbells for each set
 - Complete one set of 12 curls with 10 pound dumbbells, one set of 8 curls with 12 pound dumbbells, and one set of 6 curls with 15 pound dumbbells
 - Complete one set of 12 curls with 10 pound dumbbells, one set of 10 curls with 10 pound dumbbells, and one set of 8 curls with 10 pound dumbbells
 - Complete two sets of 12 curls with 12 pound dumbbells for each set, and two sets of 10 curls with 15 pound dumbbells for each set
26. Muscles can be build and strength gains can be made by training:
- Between 50 and 70 percent of maximum resistance
 - Between 80 and 95 percent of maximum resistance
 - Between 50 and 95 percent of maximum resistance
 - Between 60 and 90 percent of maximum resistance
27. All of the following statements are true regarding the advantages of using free-weight equipment except:
- Using free-weight equipment limits the number of exercises that can be performed
 - Free-weight equipment doesn't require a lot of space for use
 - Using free-weights helps increase flexibility by allowing a full range of motion when performing exercises
 - Using free-weight equipment for strength training helps improve muscle coordination

28. When purchasing locks to use on adjustable dumbbells and barbells, it is most important to make sure that:
- The locks will not break easily if a dumbbell or barbell is dropped
 - The locks will not rust if sweat or water gets on them
 - The locks fit loosely on the dumbbell or barbell so then can be removed quickly
 - The locks are easy to tighten and loosen and will keep a weight plate securely in place
29. All of the following are advantages to using fixed-weight dumbbells rather than adjustable dumbbells except:
- Fixed-weight dumbbells do not require locks to secure a weight plate
 - Fixed-weight dumbbells are less expensive to use than adjustable weight since only a few of them are necessary for a workout
 - Fixed-weight dumbbells are easier to use than adjustable dumbbells
 - Fixed-weight dumbbells enhance training efficiency
30. Which of the following statements regarding the use of barbells is false?
- When selecting locks for barbells, make sure they are easy to tighten and loosen
 - Olympic bars are seven feet long with revolving sleeves
 - Since barbells are longer, the use of locks to secure weight plates is optional
 - Most barbells weigh 25 to 30 pounds with no weight plates added
31. The _____ is the most versatile type of weight bench to have.
- Bench press bench
 - Incline bench
 - Flat bench
 - Squat rack bench
32. Which of the following should be included on a free weight safety checklist performed prior to or during an exercise session?
- Ensure that the weight bench is stable before sitting on it or using it for any pressing exercises
 - Move dumbbells or barbells from the floor to the racks using the muscles of the legs not the back
 - A, B, and D are all correct
 - Always make sure each end of the barbell is evenly loaded with weight

33. Which of the following statements is true regarding an older adult who is just starting on a strength training program?
- Use free weights to begin since the starting weight load can be very light
 - Using free weights helps develop strength faster since more muscle groups can be targeted
 - If eight repetitions of an exercise can be completed, increase the weight load by 10 pounds
 - If there are problems with balance, strength training should be started using weight machines
34. All of the following are advantages to using weight-training machines except:
- The body is supported while performing exercises
 - Movement patterns are variable
 - Exercises are easy to perform
 - The amount of weight used to perform exercises can be changed quickly
35. Machines use cams in order to:
- Match the strength curve of the muscle so that the muscle maintains a more consistent level of effort throughout the exercise movement
 - Enable the muscles to vary their level of effort throughout each angle of movement of an exercise
 - Produce a consistent level of resistance so that the muscle has to work harder in some positions of the exercise and work less in other positions
 - Match the shortest pivot point distance with the easiest range of the exercise and the longest pivot point with the most difficult range
36. The term sticking point is used to refer to:
- The point in a strength exercise where the force required to complete an exercise movement is at its most challenging, the muscle reaches fatigue, and a repetition cannot be completed
 - The point on a weight machine where the maximum load for performing an exercise has been reached
 - The point on a weight machine exercise where the ability to perform a movement through a full range of motion is limited
 - The point where the force required to complete an exercise movement in a free weight exercise is at its easiest
37. Which of the following items should be included on a machine safety checklist?
- Check to make sure the machine has a chart showing how to correctly perform an exercise
 - Check the status of the equipment manufacturer to make sure they are reliable
 - Both a and b
 - Check the machine to make sure the plates do not stick or jerk on the guide rods

38. Which of the following statements regarding exercise balls is false?
- A 65 cm (25.5") ball should be selected for use by a person who is 5'10" tall
 - Exercises performed on a ball generally target more of the core muscle groups than exercises performed sitting on a bench
 - Since a ball provides a more stable base of support, heavier weights can be used to perform exercises on a ball
 - Performing exercises sitting on a ball involves use of the stabilizing muscle groups as well as the target muscles
39. When lifting and lowering weights, the downward load movement should be slower than the upward load movement because:
- The best strength gains are made during the lowering phase of an exercise
 - More muscle force can be exerted during the load lowering phase by slowing the movement speed
 - Gravity can cause the downward movement to be faster and less controlled thus increasing the risk of injury
 - Completing the lowering movement slower than the lifting movement helps stretch out the muscles
40. Which of the following statements concerning movement range and strength training is true?
- Full range strength training has been shown to decrease range of motion in joints
 - Keeping the range of joint movement less than full range helps develop stronger muscles
 - To prevent injury to a joint, strength training should never be performed through a full range of joint movement
 - Exercising the muscle through a full range of joint movement develops full range muscle strength
41. Strength training helps prevent low back pain because:
- Developing strong leg muscles helps prevent using the low back for lifting
 - Strong low back muscles developed through back exercises helps to decrease the back pain often caused by weak low back muscles
 - Strong low back muscles make it possible to bend over and lift objects without causing pain
 - Strong low back muscles help absorb the forces on the spinal column caused by running and jumping

42. Which of the following statements describes the correct way to breathe while performing strength training exercises?
- Hold the breath while lifting the weight in order to increase muscle contraction
 - Exhale prior to lifting the weight, hold the breath while lowering the weight, and inhale after the weight is lowered
 - Breathe continuously while exercising, inhaling when lifting the weight, and exhaling when lowering the weight
 - Breathe continuously while exercising, exhaling when lifting the weight and inhaling when lowering the weight
43. A comprehensive strength training program should include both _____ exercises, such as the _____, and _____ exercises, such as the _____.
- Rotary; leg presses; linear; leg extensions
 - Rotary; leg extensions; linear; leg presses
 - Linear; leg presses; rotary; chest presses
 - Linear; leg extensions; rotary; chest presses
44. Which of the following statements regarding the leg extension machine is false?
- Inhale through the upward movement and exhale through the lowering movement
 - The leg extension targets the quadriceps muscles
 - The back should be firmly pressed against the seat back of the machine
 - The ankles are positioned behind the roller pad and the legs are pushed upward until the knees are extended
45. The leg curl machine targets the _____ muscles and is performed by _____ and _____ the knees.
- Hamstring; lying facedown; extending
 - Hamstring; lying facedown; flexing
 - Calf; standing; flexing
 - Gluteal; sitting; extending
46. The leg press machine is considered a _____ exercise that targets the _____, _____, and _____ muscles and activates the _____ and _____ joints.
- Rotary; quadriceps, hamstring, gluteal; hip, knee
 - Linear; quadriceps, hamstring, calf; knee, ankle
 - Linear; quadriceps, hamstring, gluteal; hip, knee
 - Rotary; quadriceps, hamstring, calf; knee, ankle

47. All of the following statements describe the correct technique for performing the low back extension and abdominal flexion machines exercises except;
- The upper back should be placed firmly against the machine pad
 - Secure the seat belt before performing the exercise
 - Return the pad slowly to the starting position
 - Exhale throughout the return movement
48. The inner thigh muscles are targeted by using the _____ machine and _____, and the outer thigh muscles are targeted by using the _____ machine and _____.
- Hip abduction; pulling the movement pads together; hip adduction; pushing the movement pads apart
 - Hip abduction; pushing the movement pads apart; hip adduction; pulling the movement pads together
 - Hip adduction; pushing the movement pads apart; hip abduction; pulling the movement pads together
 - Hip adduction; pulling the movement pads together; hip abduction; pushing the movement pads apart
49. If a Rotary Torso machine is not available, which of the following exercises can be used to work the same muscle groups?
- Ball trunk curl
 - Dumbbell side bend
 - Ball leg lift
 - Dumbbell dead lift
50. The machine chest crossover and the dumbbell chest fly exercises work the pectoralis major and the _____ muscles
- Triceps
 - Trapezius
 - Anterior deltoid
 - Posterior deltoid
51. Which of the following exercises can be used to work the latissimus dorsi muscle?
- Machine back extension
 - Barbell bench press
 - Machine chest crossover
 - Machine pullover
52. Which of the following statements describes the correct technique for performing the machine seated row?
- Adjust the seat so that the handles are at shoulder level
 - Grasp the machine handles with the arms slightly flexed
 - Keep the wrists rounded
 - Exhale throughout the return movement

53. The rowing back machine works which of the following muscle groups?
- Latissimus dorsi, biceps, posterior deltoid
 - Rhomboids, anterior deltoids, latissimus dorsi
 - Latissimus dorsi, rhomboids, biceps
 - Rhomboids, latissimus dorsi, posterior deltoids
54. Which of the following describes the correct technique to use to perform the machine triceps press-down?
- Grasp the bar with an overhand grip
 - Exhale throughout the pushing movement
 - Both a and b are correct
 - Keep the arms away from the sides as the bar is pushed down
55. All of the following describe the correct technique for performing the dumbbell squat exercise except:
- Stand erect with the feet close together
 - Keep the weight on the entire foot throughout the exercise movement
 - Exhale throughout the upward movement
 - Squat slowly until the thighs are parallel to the floor
56. Which of the following statements regarding the barbell squat exercise is false?
- The feet should be shoulder-width apart or slightly wider
 - The head should be kept up, shoulders back, torso erect, and weight on the entire foot
 - The thighs should be parallel to the floor at the end of the downward movement
 - The knees should be pushed slightly beyond the toes on the downward movement
57. Which of the following exercises requires a spotter?
- Dumbbell squat
 - Barbell squat
 - Dumbbell lunge
 - Barbell heel raise with bar on the thighs

58. Which of the following correctly describes the proper technique for performing the dumbbell step-up exercise?
- The dumbbells are held with the arms extended and the palms facing the outside surfaces of the thighs, feet are close together with one foot slightly in front of the other, place one foot on the step followed by the other foot
 - The dumbbells are held with the arms flexed and the palms facing each other, feet are about hip-width apart and parallel, place one foot on the step followed by the other foot
 - The dumbbells are held with the arms extended and the palms facing the outside surfaces of the thighs, feet are about hip-width apart and parallel, place one foot on the step, followed by the other foot
 - The dumbbells are held with the arms extended in front of the thighs and the palms facing each other, feet are in a wide stance and parallel, place one foot on the step followed by the other foot
59. When performing the dumbbell lunge exercise, when the right foot steps forward, the right knee should bend to a _____.
- 60-degree angle
 - 45-degree angle
 - 30-degree angle
 - 90-degree angle
60. The dumbbell heel raise exercise works the _____ muscle(s).
- Gluteus
 - Quadriceps
 - Gastrocnemius
 - Hamstring
61. All of the following describe the correct technique for performing the barbell heel raise exercise except:
- Feet are shoulder width apart
 - Place the heels on an elevated, stable surface
 - The bar is held against the thighs with arms straight
 - Exhale throughout the upward movement
62. Which of the following exercises can be used to target the quadriceps, hamstrings, and gluteus muscles?
- Dumbbell step-up
 - Barbell squat
 - Dumbbell lunge
 - All of the above

63. One important difference between the barbell bench press and the machine bench press is that:
- When performing the barbell bench press a spotter should be used for safety
 - When performing the barbell bench press the palms face away
 - When performing the barbell bench press the barbell is pushed away until the arms are fully extended
 - When performing the barbell bench press the bar is lowered slowly to the starting position
64. All of the following muscles are worked during the incline press exercise except:
- Pectoralis major
 - Posterior deltoids
 - Triceps
 - Anterior deltoid
65. Which of the following exercises does not require a spotter?
- Incline press with dumbbells
 - Lateral raise with dumbbells
 - Incline press with barbell
 - Bench press with barbell
66. When performing lateral raise with dumbbells, how high should the weight be lifted?
- As high as you can
 - Just above shoulder level
 - Just below shoulder level
 - Shoulder level
67. Of the following exercises which one focuses on working the deltoid muscles?
- Deadlift
 - Bicep curl
 - Dumbbell lateral raise
 - Lat pulldown
68. If a lat pulldown machine is not available which of the following free weight exercises can be performed to work the latissimus dorsi muscle?
- Dumbbell lateral raise
 - Dumbbell incline press
 - Dumbbell one-arm row
 - Exercise ball push-up

69. Which of the following statements describes the correct technique to use to perform a dumbbell standing curl?
- Grasp the dumbbells with the palms facing the sides of the thighs
 - Stand erect with the feet about hip-width apart
 - Inhale throughout the upward movement
 - Exhale throughout the downward movement
70. All of the following describe the correct technique for performing the dumbbell lying triceps extension except:
- Lift the dumbbells until the arms are extended and the dumbbells are above the waist
 - Keep the upper arms perpendicular to the floor throughout the exercise
 - Lower the dumbbells until they are next to the ears
 - Inhale throughout the lowering movement and exhale throughout the upward movement
71. All of the following describe the correct technique for performing the barbell shrug exercise except:
- Exhale throughout the shrugging movement
 - Grasp the barbell with an underhand grip
 - Stand erect with feet hip width apart
 - Shrug the shoulders toward the ears as high as possible
72. When performing the ball wall squat exercise, the feet should be:
- Directly under the hips and close together
 - Close together and far enough from the wall that knees are directly over feet in the down position
 - About hip-width apart and far enough from the wall that knees are directly over the feet in the down position
 - Directly under the hips and hip-width apart or slightly more
73. Which of the following exercises can be used to work the quadriceps, hip flexor and rectus abdominus muscle groups
- Ball wall squat
 - Exercise ball heel-pull
 - Exercise ball leg lift
 - Dumbbell side bend
74. All of the following exercises can be used to work the erector spinae muscle group except:
- Low back extension machine
 - Exercise ball trunk curl
 - Dumbbell dead lift
 - Body-weight trunk extension

75. When performing the twisting trunk curl exercise it is important to:
- Flex the knees to 90 degrees
 - Place the hands behind the head to maintain neutral neck position
 - Raise the shoulders off the floor about 45 degrees
 - Hold the breath during the twisting movement
76. Which of the following statements correctly describes differences between the Basic Fitness Programs and the Advanced Fitness Programs?
- The Basic Fitness Programs recommend a training load of 60 to 70 percent of 1RM and the Advanced Training Programs recommend a training load of 70 to 80 percent of 1RM
 - In the Basic Fitness Programs one set of each exercise is recommended, but in the Advanced Fitness Programs two sets can be performed if time and/or fitness level permits
 - In the Basic Fitness Programs only machine exercises are recommended, but in the Advanced Fitness Programs both machine and free weight exercises can be performed
 - Both a and b
77. A _____ is defined as three weeks of training in which no strength improvements are made and usually indicates a need for a change in the program.
- Static fitness progress
 - Repetition plateau
 - Strength plateau
 - Strength regression
78. The Basic Fitness Programs and Advanced Fitness Programs use the _____ for progression.
- Training intensity increase
 - Double-progressive approach
 - Temporary training load
 - Breakdown training approach
79. Which of the following statements correctly describes an appropriate warm up for performing Advanced Training Program exercises?
- Before each exercise perform a warm up set of about eight reps at 50 to 60 percent of the training load
 - Before doing lower body exercises perform a barbell squat with a light load for 12 reps and before doing upper body exercises perform a chest press with a light load for 12 reps
 - Before each exercise perform a warm up set of 8 to 12 reps at 30 to 35 percent of the training load
 - Before each exercise perform a warm up set of eight to ten reps with 60 to 70 percent of the training weight load

80. What is the most common means for performing high-intensity strength training?
- Extending the exercise set with post-fatigue repetitions
 - Doubling up on the frequency
 - Extending the timing on the eccentric phase
 - Reducing the rest time between sets
81. Which of the following statements is true regarding the importance of strength training for improving sports performance?
- Strength training the prime movers involved in a sport strengthens the muscles and this helps increase power performance
 - Strength training helps with weight maintenance which is important for speed and agility
 - Strength training both primary muscles and their opposing muscles helps prevent injuries associated with muscle strength imbalances
 - Both a and c are true
82. All of the following statements are true except:
- One exercise for each major muscle group should be selected for strength training to improve performance for sport activities such as running, tennis, cycling, and swimming
 - To keep the muscle groups in the legs balanced, if an exercise is performed for the quadriceps muscles, an exercise for the hamstring muscles should also be performed
 - It is important to strength train opposing muscle groups like the calf muscles and the shin muscles with the same amount of weight in order to prevent muscle weakness
 - To reduce injury, the muscles less involved in a sport need to be strengthened and stretched and to increase power production the prime mover muscles involved in a sport need to be strengthened and stretched so a strength training program should include exercises to work all the major muscle groups
83. When performing the exercises included in the Sports Performance Strength Programs, moderate movement speed is considered to be:
- Taking 2.5 to 4 seconds to lift and 1.5 to 2 seconds to lower
 - Taking 1.5 to 2 seconds to lift and 2.5 to 4 seconds to lower
 - Taking 4 seconds to lift and 2 seconds to lower
 - Taking 2 seconds to lift and 2 seconds to lower
84. Weakening of the musculoskeletal system can lead to osteoporosis due to deficiencies in any of the following except?
- Calcium
 - Protein
 - Iron
 - Vitamin D

85. All adults over 50 should make sure they consume enough _____ because older adults do not _____.
- Protein; assimilate amino acids efficiently
 - Potassium; contract muscles quickly
 - Carbohydrates; repair tissue quickly
 - Fruits; replace energy stores efficiently
86. Which of the following vegetables would be the best source of vitamin C?
- Carrots
 - Green peas
 - Tomatoes
 - Spinach
87. Which of the following is considered a serving of grains?
- 1 cup of white rice
 - 2 slices of bread
 - 1 cup cooked macaroni
 - ½ English muffin
88. Based on a 4 ounce serving, which of the following meats would be lowest in fat?
- Broiled eye of round steak
 - Fried chicken
 - Fried fish
 - Oil packed tuna
89. Which of the following is not a recommended way to prepare food in order to retain nutrients?
- Bake meats
 - Steam vegetables
 - Add butter during the cooking phase
 - Microwave vegetables
90. _____ is considered the most important nutrient because the body can live only a few days without it.
- Carbohydrates
 - Water
 - Protein
 - Fat