

Fitness Professional's Guide to **Strength Training Older Adults**

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Learning Objectives for Fitness Professional's Guide for Strength Training Older Adults

Once the material has been read and the test completed, the student should be able to:

1. To gain knowledge as to why seniors need strength training
2. To understand the parameters and strategies for modifying protocol for various diseases and needs of seniors
3. To learn instruction techniques that are beneficial for various needs of seniors
4. To design and implement appropriate exercises based on individual needs and goals
5. To know and understand exercise form, musculature, and exercises beneficial and appropriate to each individual client
6. To understand and incorporate the use of elastic bands, bodyweight and other alternative exercises and when to utilize them in a workout for seniors
7. To design progressive programs for strength training and utilize testing procedures appropriate for each client.
8. To understand modifications necessary for those seniors with special considerations
9. To gain knowledge in the design of sports specific training programs for the senior athlete whether competitive or recreational.
10. To gain basic knowledge in the dietary needs of seniors that are within the trainer's scope of practice.



Test for Fitness Professional's Guide for Strength Training Older Adults

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

- 1. According to the American College of Sports Medicine (ACSM) what is considered "moderate intensity for older adults?"**
 - A. 3 sets of 8-12 reps for a circuit of strength 8-10 training exercises 2-3 days/week
 - B. 150 minutes of cardio 3x per week
 - C. 1 set of 10-15 reps for a circuit of strength 8-10 training exercises 2-3 days/week
 - D. 20-30 minutes of cardio exercise 6 days/week

- 2. Men and women tend to lose how much muscle tissue each decade from age 25-55?**
 - A. 5 lbs. or more
 - B. 2.3 lbs.
 - C. 1 lbs. per year after age 25
 - D. 3 lbs. per year after age 25

- 3. As people approach their 50's, what does the rate of tissue loss do in individuals who do not exercise?**
 - A. it stays the same
 - B. it triples
 - C. it doubles
 - D. it increases by 50%

- 4. With most diets, what percentage of weight loss is muscle tissue?**
 - A. 10%
 - B. 15%
 - C. 20%
 - D. 25%

- 5. Which statement is incorrect about strength training effects?**
 - A. Muscles that are stronger tend to burn about 7-8% more calories all day long than those not strength trained.
 - B. Improvements are made in reliance on the aerobic energy system which is referred to as pre-exercise energy expenditure
 - C. Strength training produces increases in energy used during exercise
 - D. Post-exercise metabolism increases with strength training

- 6. Which statement is true regarding strength training for diabetics?**
 - A. Muscles that are stronger have lower glucose uptakes which help to control blood glucose levels and insulin injection needs.
 - B. While the glucose utilization is not affected much, strength training does reduce fat which in turn helps with diabetes control.
 - C. Repetitions must be high (15-20) with the weight set low (between 40-50% 1 RM) in order to see any significant changes in glucose utilization
 - D. Strength training helps to preserve lean body mass which is important in maintaining glucose utilization in those reducing calories to lose weight and control their diabetes.

7. According to studies done on blood pressure responses and exercise, the general consensus for people with hypertension is:

- A. Low weights and high reps are required because of the post exercise blood pressure reading increase after strength training that occurs
- B. Strength training is safe for hypertensives, but not for hypertensives that have CAD
- C. Strength training can be safe and effective for patients with controlled hypertension
- D. While oxygen consumption at maximal levels improves in aerobic training, it does not improve with strength training.

8. Which of the following statements about osteoporosis is incorrect?

- A. Osteoporosis is highly related to muscle weakness
- B. Osteoporosis has several signs and symptoms of which a trainer should be aware
- C. Good genes and good eating habits help in the prevention of osteoporosis
- D. Thinning of bones can lead to fractures, but it's the deterioration of muscle leading to frailty that leads to falls.

9. What did the University of Florida's low-back pain studies show?

- A. Strengthening low back muscles reduced low back discomfort in about 80% of their patients
- B. One set of back exercises is not enough in order to improve back discomfort
- C. The rectus abdominus and erector spinae are the only muscles that need to be strengthened to reduce pain
- D. Most low back strengthening programs are not as helpful in reducing low back pain

10. Which statement is incorrect concerning arthritis?

- A. Rheumatoid arthritis affects blood vessels, skin, and the cardiorespiratory system
- B. The Arthritis Foundation recognizes three types of arthritis: fibromyalgia, rheumatoid, and osteoarthritis
- C. Strength training helps ease the pain of arthritis sufferers even though the exact reason why is not well understood
- D. Osteoarthritis is a degenerative disease

11. Fibromyalgia is:

- A. Often accompanied by sensitivity to noise
- B. An acute disorder
- C. Not typically benefited by strength training programs
- D. Predominately affects men

12. What is considered the first priority when working with older adults according to ACSM?

- A. To use machines before free weights in a strength training program
- B. To focus on cardiovascular fitness before starting a strength training program
- C. To have properly trained fitness professionals in the specific needs of older adults
- D. To focus on frequency before increasing training load or resistance

13. What can a trainer do in order to provide the best experience for older adults when strength training?

- A. Talk in gentle, slow tones with your client
- B. Add in at least 2 activities in order to encourage multi-tasking
- C. Provide detailed instructions
- D. Provide the correct combination of training principles with teaching strategies

14. How long does it typically take for older adults' muscles to rebuild after strength training?

- A. 24 hrs
- B. 1 month
- C. 3-4 days
- D. 48 – 72 hrs

15. What is the best way to determine appropriate frequency for strength training older adults?

- A. trial and error
- B. Karvonen formula
- C. RPE charts
- D. Talk Test

16. What did the Westcott et al, 2009 study show as far as appropriate frequency for weight training in older adults?

- A. Seniors need to strength training at least 3x/week in order to see improvements in muscle development
- B. Strength training 1 day per week is sufficient for seniors
- C. There is no difference in muscle development in 2x/week vs.3x/week
- D. As long as weights and reps are appropriate, seniors do not need to worry about strength training on a regular basis

17. How long should seniors rest in between sets?

- A. 1 minute
- B. 2 minutes
- C. 3 minutes
- D. 4 minutes

18. Why is it important to start older adults just beginning a strength-training program with higher reps and lower weights?

- A. Because studies show that training with heavier loads has a higher risk of injury even when each repetition is performed correctly
- B. Because they will not enjoy lower reps with higher weights
- C. It should not make a difference if they can perform the full set
- D. Older adults benefit from having more time to develop motor learning skills with weight training

19. Which of the following is not a general guideline when determining resistance for older adults?

- A. 70 – 80% of 1 RM is appropriate for frail older adults since percentage is relative
- B. Working at different percentages of 1 RM is good to do with healthy adults in order to provide a change of pace.
- C. The general guideline for 1RM percentage is 60-90% for older adults
- D. Trial and error is the best course of action for determining resistance

20. What is the “preferred-exercise approach” when discussing exercise selection?

- A. When exercises are selected based on fitness evaluations
- B. When exercises are selected based on popularity or convenience
- C. When exercises are selected based on need of the client
- D. When exercises are selected based on ACSM standards

- 21. Which muscles group(s) should be worked last in the workout?**
- A. Biceps and triceps
 - B. Core and neck
 - C. Low back
 - D. Abdominals
- 22. For frail or poorly conditioned older adults, what type of exercises are best for them?**
- A. Back extensions
 - B. Bicep curls
 - C. Leg extensions
 - D. Body weight squats
- 23. What is the “Double Progressive Program”?**
- A. When reps are increased first before weight is increased
 - B. When frequency is increased before weight is increased
 - C. When both reps and weight are increased simultaneously
 - D. When frequency and weight is increased simultaneously
- 24. How much should dumbbell sets be increased for older adults?**
- A. 15%
 - B. 10%
 - C. By 5 lb increments
 - D. By 1-15 lbs.
- 25. The Four Key Focus Phrases include all of the following EXCEPT:**
- A. The trainer’s name
 - B. Hello
 - C. Thank You
 - D. Good Bye
- 26. Which statement is correct when utilizing interactive teaching techniques?**
- A. Telling is usually more effective
 - B. Doing is usually more effective
 - C. Showing is usually more effective
 - D. Precise instructions with concise demonstrations is most effective
- 27. Which is a good example of appropriate feedback?**
- A. Evelyn, it is so great to see you today!
 - B. Martha, your hair really looks nice today!
 - C. Looking good Mr. Findley!
 - D. You are lifting on a 2 count and lowering on a 4 count – Good job David!
- 28. The three-tiered strength training approach includes all of the following EXCEPT:**
- A. Foundational motor learning
 - B. Fundamental strength training
 - C. Functional strength training
 - D. Foundational strength training

29. Which of the following is considered an appropriate method for power training with most older adults?

- A. Fast lifting movements with machines
- B. Medicine balls and resistance band power exercises
- C. Fast lifting movements with dumbbells
- D. None because older adults do not need power and it can raise their blood pressure too high while increasing their risk of injury.

30. At what speed does ACSM recommend in order to keep strength training movements controlled?

- A. 6 seconds for the lifting phase
- B. 6 seconds total to lift and lower the weight
- C. 6 seconds for the lowering phase
- D. 3 seconds total to lift and lower the weight

31. The “stop test” allows trainers and clients to:

- A. Discontinue their workout based on blood pressure readings
- B. Determine whether the client is breathing properly
- C. Determine whether the client is lifting and lowering the weights too fast
- D. Determine whether the client is performing power exercises

32. What is affected most by age-related muscle atrophy?

- A. Type II muscle fibers
- B. Smooth muscle
- C. Type I muscle fibers
- D. Neuromuscular fibers

33. All of the following are considered proper form for the leg extension EXCEPT:

- A. Stop the lifting action short of full extension of the knee
- B. Exhale as the weight is lifted
- C. The starting position is with the knees bent past 90 degrees in order to work the deep quadriceps muscles
- D. Avoid painful ranges of motion

34. What is the appropriate angle of the knee for the starting position of the leg press?

- A. 100 degrees
- B. 90 degrees or less
- C. 90 degrees or more
- D. 65 degrees

35. Which of the following is incorrect form when performing heel raises?

- A. Hold the top position for just a moment
- B. Keep the knees straight in order to focus on the gastrocnemius
- C. Lower the heels as far as comfortable
- D. Bending the knees to focus on the medial fibers of the gastrocnemius

36. Which of the following is incorrect when performing the dumbbell squat?

- A. Grasp the dumbbells with an overhand grip
- B. Keep the feet hip width apart
- C. Lift the heels off the floor
- D. Bend the knees to where the thighs are parallel to the floor

37. Because of the short movement when performing dumbbell heel raises, what should be done in order to best work the gastrocnemius?

- A. The client should angle the toes inward
- B. The client should hold the position where the heels are raised for a moment on each repetition
- C. The client should angle the toes outward
- D. The client should bend his knees as he lowers the heels

38. Proper form for the exercise ball wall squat includes all of the following EXCEPT:

- A. Maintain body weight on the entire foot throughout the range of motion
- B. Inhale on the upward movement
- C. Squat until the thighs are parallel to the floor
- D. Roll the ball between the back and the wall as you stand up

39. What muscle is not worked during the exercise ball heel pull?

- A. Gluteus maximus
- B. Iliopsoas
- C. Semitendinosus
- D. Biceps femoris

40. What muscles are worked when performing the exercise ball leg lift exercise?

- A. Quadriceps, hip flexors, rectus abdominus
- B. Quadriceps, hip flexors, erector spinae
- C. Hamstrings, hip extensors, erector spinae
- D. Gluteus maximus, quadriceps, core muscles

41. Common errors when performing the abdominal flexion exercise include all of the following EXCEPT:

- A. Using the arms to pull the down instead of the rectus abdominus
- B. Holding the contraction for 15 seconds or more
- C. Moving the hips during the motion
- D. Pausing for a moment once the abdomen is fully contracted

42. How far should your client rotate when performing the rotary torso exercise?

- A. 30 degrees
- B. 45 degrees
- C. 60 degrees
- D. 90 degrees

43. What is the most important thing for your client to remember when performing the dumbbell deadlift?

- A. Round the back as he stands up so as not to put pressure on the vertebral disc
- B. Keep the back straight throughout the exercise
- C. Return slowly to the start position
- D. Keep the shoulders square

44. Which of the following is not considered proper form for the twisting trunk curl?

- A. Breathe continuously throughout the exercise
- B. Complete as many repetitions as you can
- C. Lift both legs off the floor with one leg straight and the other bent
- D. Raise the upper back as far as you can off the floor

- 45. What makes the exercise ball trunk curl different from the floor abdominal exercises?**
- A. The client lifts the chest off the floor more
 - B. The exercise ball requires the client to use more stabilizing muscles
 - C. The exercise ball makes the abdominal exercises easier
 - D. Range of motion is greater when performed on the floor instead of the ball
- 46. What is the proper starting position for the chest crossover exercise?**
- A. Shoulders should be in line with the axis of rotation
 - B. Shoulders should be slightly higher than the axis of rotation
 - C. Shoulders should be slightly lower than the axis of rotation
 - D. Upper arms should be perpendicular to the floor
- 47. Which statement is correct concerning handgrip position on the chest press?**
- A. The vertical handles work the pectoralis minor best
 - B. While the vertical handles work the pectoralis major muscle better, it may aggravate the rotator cuff
 - C. The horizontal handles work the pectoralis minor best
 - D. While the horizontal handles work the pectoralis major muscle better, it may aggravate the rotator cuff
- 48. Which of the following is incorrect when performing the lateral raise?**
- A. Exhale on the concentric phase
 - B. Keep the wrist straight
 - C. Raise the arms to slightly above shoulder level
 - D. Use the arm pads to lift the weight more so than the hands
- 49. How does a client safely get into and out of the pullover machine?**
- A. Using the foot pedal
 - B. Maneuvering the arms into place
 - C. Arching the back in order to place the arms into pads
 - D. Lowering the weight as far back as it will go
- 50. When performing the lat pull-down, what should trainers warn their clients about?**
- A. Overstretching the triceps brachii
 - B. Overstretching the biceps brachii
 - C. Overstretching the upper trapezius
 - D. Overstretching the latissimus dorsi
- 51. Which statement is correct when performing the weight-assisted pull-up?**
- A. It is ok to arch the back in order to get the chin above the bar
 - B. Always have clients get on the machine when the platform is closest to the floor
 - C. Always have clients dismount the machine when the platform is in the highest position
 - D. Use an overhand grip
- 52. When performing the weight-assisted bar dip, it is not correct to:**
- A. Push the body upward until the arms are fully extended
 - B. Add weight in order to make the exercise harder
 - C. Keep the wrist straight
 - D. Dismount the machine when the platform is up as high as it will go

- 53. What two exercises require a spotter according to the authors?**
- A. Dumbbell dead lift and squats
 - B. Squats and exercise ball leg lift
 - C. Dumbbell flyes and dumbbell dead lift
 - D. Dumbbell flyes and squats
- 54. Proper form for the dumbbell one-arm row include all of the following EXCEPT:**
- A. Maintain a straight back
 - B. Keep the support leg on the floor bent at the knee
 - C. Do not rotate the shoulder during the concentric phase
 - D. Pull the dumbbell towards the chest
- 55. What is the proper handgrip when performing the dumbbell incline press?**
- A. Overhand grip
 - B. Underhand grip
 - C. Neutral grip
 - D. Handshake grip
- 56. What is the main difference in performing the dumbbell seated press vs. the dumbbell incline press?**
- A. The incline press works the deltoids while the seated press does not
 - B. The incline press works the pectoralis major while the seated press does not
 - C. The seated press works the pectoralis major while the incline press does not
 - D. The seated press works the pectoralis minor while the incline press does not
- 57. When performing the bar dip, proper form includes all of the following EXCEPT:**
- A. Grasp the bars in a pronated grip
 - B. Inhale during the eccentric movement
 - C. Exhale during the concentric movement
 - D. Lower the body until the elbows are flexed slightly beyond 90 degrees
- 58. What muscle is not worked when performing the triceps press exercise?**
- A. Triceps brachii
 - B. Pectoralis major
 - C. Middle trapezius
 - D. Anterior deltoid
- 59. In order to avoid wrist problems, how far should the client lower the dumbbells when performing biceps exercises on the preacher curl?**
- A. To full extension
 - B. 30 degrees short of full extension
 - C. 45 degrees short of full extension
 - D. 90 degrees
- 60. Which of the following is incorrect procedure when performing dumbbell shoulder shrugs?**
- A. Roll the shoulders slightly in order to work the rotator cuff
 - B. Momentarily hold the exercise at the top of the movement
 - C. Grasp the dumbbells in the overhand grip
 - D. Feet should be shoulder-width apart

61. All of the following must be considered when trying to determine training loads for older adults EXCEPT:

- A. Age
- B. Equipment
- C. Previous experience
- D. Gender

62. The beginner workout starts with how many exercises?

- A. 3
- B. 4
- C. 5
- D. 6

63. In week 3 and 4, what machine exercises are recommended to add to the client's workout?

- A. Leg press and chest press
- B. Dumbbell curls and triceps extensions
- C. Hip abduction and hip adduction
- D. Leg press and triceps extensions

64. In week 5 and 6, what free weight exercises should be added to the client's workout?

- A. Dumbbell shrugs and dumbbell heel raises
- B. Dumbbell triceps extension and trunk curls
- C. Dumbbell squat and dumbbell heel raises
- D. Trunk extension and trunk curls

65. Which of the following are in proper performance order for weeks 9 and 10?

- A. leg press, leg extension, leg curl
- B. Lateral raise, seated row, triceps extension
- C. Chest press, chest crossover, seated row
- D. Lateral raise, biceps curl, triceps extension

66. What should be incorporated into the intermediate programs in order to prevent the chance of doing too much too soon?

- A. Fewer repetitions
- B. Longer rest periods between sets
- C. 1 week rest period
- D. 4 week transition phase

67. When should clients increase their workload during the intermediate workout programs?

- A. When the client feels that they are ready to increase the weight
- B. Every 4 weeks after the first transition phase
- C. When the client can perform more than the recommended reps in the final set on two consecutive workouts
- D. When it looks like the client is getting bored with the workout

68. To emphasize muscle size, how long should rest periods between sets be in the intermediate or advanced programs?

- A. 1 minute
- B. 30 seconds
- C. 2 minutes
- D. as long as needed

- 69. To emphasize muscular endurance, you client will benefit from a week of less intense training after each training cycle. How much should training load be reduced?**
- A. 5 lbs.
 - B. 10 lbs.
 - C. 5 reps
 - D. 1 set
- 70 How many repetitions should your client perform during the first two weeks of the 4-week advanced muscular strength program?**
- A. 6-8 reps
 - B. 8-12 reps
 - C. 8-10 reps
 - D. 12-15 reps
- 71. In order for a client with very low strength, what is the minimum number of reps they should be able to perform correctly in order to safely add that exercise to their routine?**
- A. 1
 - B. 5
 - C. 3
 - D. 8
- 72. For body weight exercises, how long should the client rest in between sets to increase muscle size?**
- A. 1 minute
 - B. 30 seconds
 - C. 2 minutes
 - D. 1.5 minutes
- 73. When should the feet on the chair be added to push ups?**
- A. When the client is ready to try it
 - B. When the client can complete 10 floor pushups with proper form and control
 - C. When the client's core strength is strong enough for them to maintain form
 - D. When the client can complete 15 floor pushups with proper form and control
- 74. Which statement is NOT correct regarding elastic bands?**
- A. Appropriate length of the tube can be difficult to determine for your client's needs
 - B. Appropriate thickness of the tube can difficult to determine for your client's needs
 - C. Follow the standards in order to classify resistance levels
 - D. Improvements in strength are easier to recognize while maintaining the same repetition range
- 75. All of the following are proper safety precautions for using elastic bands EXCEPT:**
- A. Using a partner to oppose pulling actions makes it fun and challenging
 - B. Types and shapes of handles should be considered for each client
 - C. Proper anchoring and angle of pull are important in order to work muscles properly
 - D. Using a partner to anchor the elastic tube should be a last resort

76. Which of the following was not found to be true in studies comparing strength among gender and age groups?

- A. Absolutely speaking, men are stronger than women
- B. Relatively speaking, men and women's strength is similar
- C. We start losing muscle strength at a rate of 5 – 10 percent every decade after age 50
- D. Men's 10-rep load tends to be higher than women's

77. All of the following are correct protocol for the YMCA Leg Extension Test EXCEPT:

- A. Take a 2-minute rest before increasing the load
- B. Lift the weight for 2 seconds, hold for 2 seconds, and lower for 2 seconds to get a total of 6 seconds per rep
- C. Continue trying to find your client's 10 rep maximum load
- D. Start with a weight that is no more than 35 % of your client's body weight

78. What percentile ranking would a woman who is 63 be in if she lifted 30% of her body weight for the 1-RM Bench Press Test?

- A. 40%
- B. 50%
- C. 60%
- D. 70%

79. Your male client was able to reach 10.5 inches on the Sit-and-Reach Test. What fitness category would he fall into?

- A. Below average
- B. Average
- C. Above Average
- D. Poor

80. What is the ideal body fat percentage for adult males?

- A. 25%
- B. 10%
- C. 20%
- D. 15%

81. Which form best assesses the client's personal perceptions of exercise

- A. Health History Questionnaire
- B. Par-Q
- C. Lifestyle Questionnaire
- D. Fitness Evaluation

82. What is considered appropriate body-fat percentage for women age 50-59 years of age according to ACSM?

- A. 10-22%
- B. 14-19%
- C. 20-29.9%
- D. 20-32%

83. Which of the following would be the best cardiovascular exercise for the obese client?

- A. Recumbent bike
- B. Treadmill
- C. Stairmaster
- D. Elliptical

84. What would be the best choice for strength training exercises for the obese client?

- A. Leg extension machine
- B. Lunges
- C. Hip abduction/adduction machine
- D. Leg Press

85. All of the following are definite predisposing factors to Type II diabetes EXCEPT:

- A. Age
- B. Impaired glucose tolerance
- C. Genetics
- D. Inactivity

86. What are proper protocols for those with diabetes who are beginning a strength program?

- A. 8-12 reps at 75-80% of 1 RM
- B. 10-15 reps at 75-80% of 1 RM
- C. 8-12 reps at 65-75% of 1 RM
- D. 10-15 reps at 65-75% of 1 RM

87. What type of medications may mimic certain hypoglycemic symptoms?

- A. ACE inhibitors
- B. Beta blockers
- C. Antibiotics
- D. Nitroglycerine

88. At what rate do Americans die of cardiovascular disease?

- A. 7.9 million per year
- B. Every minute per week
- C. Every 25 seconds of each day
- D. Every minute of each day

89. What is the first step in working with a new post-cardiac rehab client who is cleared for exercise?

- A. Obtain a copy of the exercises performed in cardiac rehab
- B. A fitness evaluation to help find current levels of fitness
- C. A strength assessment using a 10-rep max test
- D. A graded exercise stress test

90. When and how should loads be increased in clients with cardiovascular disease?

- A. Increase 5% for upper body and 10% for lower body once the client can perform more than 15 reps with good form of that particular exercise
- B. Increase 1 lb for upper body and 2.5 lbs. for lower body once the client can perform more than 15 reps with good form of that particular exercise
- C. Increase 1 lb for upper body and 2.5 lbs. for lower body once the client can perform more than 15 reps of all exercises
- D. Increase 1 lb for upper body and 2.5 lbs. for lower body once the client can perform 10 reps for all exercises

- 91. The first step in working with the client who has osteoporosis is:**
- A. Use very light resistance
 - B. Get a medical clearance from her doctor
 - C. Start the client with 50-60% of 1 RM
 - D. Start the client with 8-12 repetitions
- 92. Which statement is the first step when working with clients who have low-back pain?**
- A. Have the client sign a waiver
 - B. Use full range trunk extension
 - C. Get a medical clearance from his physician prior to starting the program
 - D. Focus on core exercises
- 93. If joint discomfort last longer than ____ post-exercise for your client with arthritis, the exercise should be replaced with something else.**
- A. 2 hours
 - B. ½ an hour
 - C. 20 minutes
 - D. 1 hour
- 94. What is ideal protocol when starting a client with arthritis on a strength-training program?**
- A. Begin with only 6 exercises
 - B. Begin with 6-10 reps
 - C. Begin with cardiovascular exercises and work your way to strength training
 - D. Maintain repetitions but decrease load when acute flare-ups occur
- 95. What is the best way to determine when to increase intensity when working with a client with fibromyalgia?**
- A. Follow the same protocol as you would for osteoporosis
 - B. When the client can perform more than 15 reps for a particular exercise
 - C. When joint pain does not last longer than 1 hour post-exercise
 - D. Increase intensity when the client is able to recover from previous workouts within 2-3 days
- 96. According to ACSM, how much space should be around exercise equipment in a gym in order to allow all people (even those with disabilities and assistive devices or animals) to maneuver safely?**
- A. enough for members to have an aisle
 - B. 1 foot
 - C. 2 feet
 - D. 3 feet
- 97. All of the following are recommended to do for visual or auditory impaired clients EXCEPT:**
- A. Focus on balance and postural alignment exercises
 - B. Introduce new exercises one at a time
 - C. Mix up the workout and order of machines in order to challenge muscle memory
 - D. Avoid exercises where the head is below the heart for the visually impaired

98. All of the following must be the focus of each session for a client who has had a stroke EXCEPT:

- A. Balance exercises
- B. Isometric exercises
- C. Posture training exercises
- D. Functional exercises

99. What area of the body is of most concern when strength training frail clients?

- A. Shoulders
- B. Neck
- C. Back
- D. Knees

100. What are the two main objectives when designing sports specific training programs for the competitive or active older adult?

- A. Improve muscle force and movement speed
- B. Avoid strength imbalances and strengthen prime movers for the activity
- C. Improve neuromuscular training and muscle memory
- D. Increase muscle force while improving flexibility

101. Which of the following are the two main focuses for strength training in order to reduce injuries among sports competitive older adults?

- A. Strengthen muscles more involved in the athletic activity while focusing on power in those same muscles
- B. Strengthen muscles more involved in the athletic activity, and focus on increasing endurance in the muscles less involved in the activity
- C. Strengthen all muscles in the athletic activity, and focus on increasing endurance in the muscles less involved in the activity
- D. Strengthen muscles less involved in the athletic activity, and focus on increasing power in those muscles more involved in the activity

102. Why is running such a high-risk activity?

- A. Because 3x the body weight is placed on the lower body joints per stride
- B. Because it is a contact sport
- C. Because balance is an issue with older adults and they might fall
- D. Because older adults lose the ability to develop power in their muscles, thus running places too much stress on the lower body joints

103. All of the following are factors that may interfere with normal recovery from running in older adults EXCEPT:

- A. Hard-surface running
- B. More running uphill
- C. Participating in too many races
- D. Faster running paces

104. All of the following are concerns that cause runners to avoid strength training EXCEPT:

- A. Decrease in fluidity in form
- B. Slower movement speeds
- C. Weight loss
- D. Fatigued muscles

105. Why do distance runners get better results with strength training programs that use 12-16 reps rather than 8-12 reps?

- A. Because distance runners generally have a higher percentage of fast twitch muscle fibers
- B. Because distance runners generally have a higher percentage of slow twitch muscle fibers
- C. Because older adults need to stay within the range of 12-16 reps regardless of their athletic activity
- D. Because older adults typically have high blood pressure therefore they need to focus on lower weights and higher reps

106. What area of the body is the greatest concern for older adult cyclists?

- A. Back and neck
- B. Shoulders and wrists
- C. Hips and knees
- D. Neck and shoulders

107. Why should cyclists perform rotary type exercises before linear exercises?

- A. It ensures that single joint exercises are performed without fatiguing them before multi-joint exercises
- B. Because linear exercises fatigues a specific muscle and the rotary exercises will further fatigue those muscles
- C. Because it is easier than regular types of strength training programs
- D. It allows more focus on the high-risk areas that are more commonly injured in older adult cyclists

108. What is considered recommended protocol for strength programs for cyclists according to the book?

- A. 8-12 reps at 85% 1 RM with each set completed within 30 seconds
- B. 12-16 reps at 60% 1 RM with each set completed within 30 seconds
- C. 12-16 reps at 75% 1RM with each set completed within 60-90 seconds
- D. 8-12 reps at 75% 1RM with each set completed in 60-90 seconds

109. When should intensity be increased for your older adult cyclists?

- A. When the trainer feels it is time
- B. When the client feels 12 reps is too easy
- C. When the client can complete 16 reps with proper form
- D. When the client completes a race and is ready to get back into strength training

110. Which statement is correct when discussing speed training for cyclist?

- A. Lifting weights fast will help focus training on fast twitch muscle fibers
- B. The concentric phase is where muscles are stronger rather than the eccentric phase
- C. Lifting weights fast will convert slow twitch muscle fibers into fast twitch fibers
- D. Lift the weight on a 2 count and lower the weight on a 4 count to maximize strength in order to lower the risk of injury when training for speed on the bike.

111. All of the following statements are correct concerning swimming EXCEPT:

- A. Let muscles work through a short, repetitive range of motion
- B. Swimming provides cardiovascular and strength benefit
- C. Swimming is not best for those with osteoporosis
- D. Although you are buoyant, swimming still has injury risks

112. What joint is most commonly injured in swimming?

- A. Shoulder
- B. Back
- C. Hip
- D. Knee

113. Which of the following exercises is not a part of the “8 recommended exercises” for swimming?

- A. Seated row
- B. Leg extension
- C. Bicep curl
- D. Shoulder press

114. All of the following are recommended for strength training senior swimmers EXCEPT:

- A. Should include work up to 11 exercises taking about 1 minute per exercise
- B. Should take about 20 minutes to complete
- C. Strength workouts should be scheduled on swimming days
- D. The last muscles to be worked in a session should be neck

115. Why is strength training a good complimentary workout for swimmers?

- A. Because it mimics the speed at which the limbs move through water
- B. Because it helps improve bone strength since swimming itself does not
- C. Because the range of movement for the legs is not enough to strengthen those muscles in the pool although upper body is strengthened by swimming
- D. Because strength training will increase the likelihood of muscular imbalances

116. What activity and type of energy system is used in downhill skiing?

- A. Power: anaerobic
- B. Strength: anaerobic
- C. Power: aerobic
- D. Strength: aerobic

117. What muscles are at risk of injury and discomfort after skiing?

- A. Upper body
- B. Quadriceps
- C. Gluteals
- D. Low back

118. All of the following are a part of the “big six” for ski strength training EXCEPT:

- A. Back extension
- B. Seated row
- C. Chest press
- D. Leg press

119. What type of muscle contractions are used by the primary movers in skiing?

- A. Concentric
- B. Eccentric
- C. Isokinetic
- D. Isometric

120. What is considered to be proper intensity for a strength-training program for an older adult playing tennis?

- A. Enough to achieve momentary muscle fatigue within 50 seconds
- B. Enough to fatigue the muscle groups within 50-70% of 1 RM
- C. Enough to achieve momentary muscle fatigue working towards 85% 1 RM
- D. Enough to fatigue the muscle groups within 50-70 seconds

121. What is considered appropriate frequency for strength training during the client's competitive season?

- A. 1-2x/week
- B. 2-3x/week
- C. 3-4x/week
- D. Clients should not taper during their competitive season because of the increase risk of shoulder and wrist injuries during this time frame.

122. When might a tennis client be ready to begin advance strength training?

- A. After the competitive season is over
- B. When the client can perform 12 reps with ease
- C. After 2 months of basic training
- D. After 1 month of basic training

123. All of the following are basic exercises for tennis EXCEPT?

- A. Low back extension
- B. Chest press
- C. Abdominal flexion
- D. Neck extension

124. Which of the following rotator cuff muscles neither performs external nor internal rotation?

- A. Teres minor
- B. Subscapularis
- C. Supraspinatus
- D. Infraspinatus

125. What frequency is recommended for strength training golfers?

- A. 2 brief sessions
- B. 3 brief sessions
- C. 1 long session
- D. 2-3 moderate sessions

126. All of the following were found to be true in the Westcott, Dolan, and Cavicchi study of older adult golfers and strength training (1996) EXCEPT:

- A. Clients lost about 4 lbs. of body fat
- B. Clients gained about 4 lbs. of muscle weight
- C. Muscle strength increased by 50%
- D. Resting blood pressures increased

127. According to the book, what is considered the best way to increase golf swing distance?

- A. Stretching
- B. Strength training
- C. Power training
- D. Endurance training

128. Why do golfers tend to have lower back problems?

- A. Because golfers swing in the same direction repeatedly
- B. Because of the rotary movement of the swing
- C. Because the core muscles are weak
- D. Because of improper form

129. Why is it important to strengthen neck muscles in golfers?

- A. To reduce shoulder injuries due to the swinging motion
- B. To maintain head stability to improve hand-eye coordination
- C. To increase the power of the swing
- D. To increase distance of the swing

130. Westcott's study in 1992 on older adult rock climbers and hikers found all of the following benefits with the Treadwell revolving climbing machines EXCEPT:

- A. An increase in muscle strength
- B. An increase in cardiovascular endurance
- C. An increase in joint flexibility
- D. An increase in muscular power

131. Muscles that are at a greater risk of injury for rock climbers are:

- A. Rotator cuff
- B. Wrist flexors and extensors
- C. Low back and core muscles
- D. Gluteals and quadriceps

132. All of the following are recommended single-joint exercises for rock climbers EXCEPT:

- A. Leg curl
- B. Triceps extension
- C. Abdominal curl
- D. Forearm extension

133. Multi-joint exercises that are recommended for rock climbing include all of the following EXCEPT:

- A. Weight assisted pull-up
- B. Pullover
- C. Bench press
- D. Bar dip

134. Downhill hiking will cause:

- A. An eccentric contraction of the quadriceps
- B. A concentric contraction of the quadriceps
- C. An eccentric contraction of the hamstrings
- D. A concentric contraction of the gluteals

- 135. What body type do top triathletes typically have?**
- A. Mesomorph
 - B. Endomorph
 - C. Ectomorph
 - D. Muscular
- 136. How much do strength-training programs typically increase basal metabolic rate?**
- A. 50 calories per day
 - B. about 10%
 - C. 200 calories per day
 - D. about 7%
- 137. What is the main disadvantage for strength training older adult triathletes?**
- A. Finding a balance between training and recovery time
 - B. Even when properly done, it hurts performance
 - C. It does not tend to benefit performance
 - D. While it benefits the running portion, it decreases cycling performance
- 138. Which of the following is recommended for strength training triathletes?**
- A. Low reps, high weights
 - B. Concentric phase should take 4 seconds, eccentric should take 2 seconds
 - C. Single sets
 - D. Strength workouts 3x/week
- 139. What is proper sequence of movement when analyzing rowing?**
- A. Back extension, hip extension, knee extension, arm pull
 - B. Knee extension, hip extension, back extension, arm pull
 - C. Arm pull, knee extension, hip extension, back extension
 - D. Hip extension, knee extension, arm pull, back extension
- 140. The first phase of a softball throw involves what muscles?**
- A. Back muscles
 - B. Arm muscles
 - C. Shoulder muscles
 - D. Leg muscles
- 141. Which muscle supplies the most force exertion in a left handed batter in softball?**
- A. Right posterior deltoid
 - B. Left pectoralis major
 - C. Right anterior deltoid
 - D. Left triceps brachii
- 142. When is the latest that senior softball players should begin their strength training program?**
- A. 1 month prior to the season
 - B. 2 months prior to the season
 - C. 3 months prior to the season
 - D. When the season starts

143. Excess body fat increases the risk of developing all of the following EXCEPT:

- A. Type II diabetes
- B. Colon cancer
- C. Lung cancer
- D. Stroke

144. How much of weight loss did Ballor and Poehlman find was muscle tissue in their 1994 study on low calorie diets?

- A. 15%
- B. 25%
- C. 10%
- D. 50%

145. How much more protein than the RDA levels did Wayne Campbell find older adults need to maintain muscle mass?

- A. 10%
- B. 15%
- C. 20%
- D. 25%

146. How many servings of grains should older adults get per day?

- A. 6-11
- B. 5-8
- C. 6-9
- D. 11-14

147. What vegetables tend to be high in Vitamin C?

- A. Orange vegetables
- B. Green vegetables
- C. Red vegetables
- D. Yellow vegetables

148. What types of fruits are typically higher in potassium?

- A. Those that are white on the inside
- B. Dried fruits
- C. Yellow fruits
- D. Citrus fruits

149. Which of the following meats are lower in fat?

- A. Ground pork
- B. Canned salmon
- C. Turkey with skin
- D. Rabbit

150. Why does it become harder for older adults to stay hydrated?

- A. They are losing more muscle mass
- B. They begin to lose the ability to recognize they are thirsty
- C. They tend to drink more teas and coffees that contain caffeine which is a diuretic
- D. The kidney function declines as we age therefore regulation of fluids is affected