

# **Conditioning to the Core**

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## **LEARNING OBJECTIVES:** **CONDITIONING TO THE CORE**

**After completing this course participants will be able to:**

1. Understand the importance of the core, especially in sports and performance
2. Identify the basic anatomy of the core muscles and the connection to other key musculature in the body
3. Know the other important systems in the body that affect core as well as performance
4. Identify essential strength and power sources via the core
5. Address the differences between training for strength, power, and speed while focusing on core
6. Provide various exercises for different fitness levels, sports participation, and training for the core
7. Incorporate safety concerns and modifications to various exercises
8. Design safe and appropriate progressions in core exercises
9. Understand how to select proper anti-movement type exercises such as anti-extension, anti-rotation, etc.
10. Address the connection between the upper and lower crossed syndrome and the ability to list exercises to assist in the correction or improvement of it.
11. Design programs incorporating total core
12. Understand proper implementation of core testing
13. Design a program for core based on the fitness category of a client from the core testing protocol
14. Understand and safely design programs based on stability, power, and strength phases.
15. Select proper advanced core programs when appropriate

## **CEC/CEU Test for Conditioning to the Core**

This is a multiple choice test. Circle the BEST answer for each question

- 1. A baseball player wanting to throw harder needs to generate more force via:**
  - A. Trunk
  - B. Legs
  - C. Upper body
  - D. Arms
  
- 2. What is the proper sequence for training core?**
  - A. Stability, endurance, strength
  - B. Strength, stability, power
  - C. Stability, strength, power
  - D. Power, strength, stability
  
- 3. What is the term given to the developmental process of moving from primitive movements such as in children, to the phase of rudimentary movement patterns?**
  - A. Proximal-to-distal development
  - B. Motor development
  - C. Motor skill
  - D. Developmental growth
  
- 4. What is the name given to a motor neuron and all of the muscle fibers that it innervates?**
  - A. Neurobundle
  - B. Plexus
  - C. Motor unit
  - D. Muscle group
  
- 5. The location within the body where all parts are evenly distributed is called:**
  - A. Umbilicus
  - B. Core
  - C. Center of gravity
  - D. Acetabulum
  
- 6. Which of the following is not a deep stabilizer?**
  - A. External oblique
  - B. Multifidus
  - C. Quadratus lumborum
  - D. Pelvic diaphragm

- 7. The main function of the transverse abdominus is to:**
- A. Flex the trunk
  - B. Rotate the trunk to the opposite side
  - C. Rotate the trunk to the same side
  - D. Brace the core
- 8. What is the main function of the multifidus?**
- A. Take the strain off the vertebral disks
  - B. Rotate the trunk to the opposite side
  - C. Rotate the trunk to the same side
  - D. Extend the spine
- 9. All of the following muscles work with the QL to stabilize the lumbo-pelvic hip complex EXCEPT:**
- A. Gluteus medius
  - B. Adductor complex
  - C. Tensor fascia latae
  - D. Gluteus maximus
- 10. Which of the following is FALSE concerning the lower trapezius?**
- A. It originates on T6-T12
  - B. It works with the upper traps to abduct the scapula during scapular elevation
  - C. It is responsible for scapular elevation
  - D. It works with the serratus anterior to abduct the scapula during scapular elevation
- 11. Which muscle is also known as the “handcuff muscle?”**
- A. Pectoralis major
  - B. Lower trapezius
  - C. Serratus anterior
  - D. Latissimus dorsi
- 12. Which muscle is the most superficial of all lateral abdominal muscles?**
- A. External oblique
  - B. Transversus abdominus
  - C. Internal oblique
  - D. Rectus abdominus

- 13. Which muscle is not considered one of the erector spinae columns?**
- A. Longissimus
  - B. Iliocostalis
  - C. Rotatores
  - D. Spinalis
- 14. Which muscle is only present in 40% of the population?**
- A. Iliacus
  - B. Psoas minor
  - C. Spinalis
  - D. Longissimus
- 15. What muscle is of most importance for training sprinters?**
- A. Iliopsoas
  - B. Hamstrings
  - C. Quadriceps
  - D. Gluteus maximus
- 16. Which of the following muscles does not originate from the thoracolumbar fascia?**
- A. Internal oblique
  - B. TVA
  - C. External oblique
  - D. Latissimus dorsi
- 17. What is the typical order of the cumulative injury cycle?**
- A. Trauma, spasm, adhesion, and inflammation altered neuromuscular control, muscular imbalance
  - B. Trauma, inflammation, spasm, adhesions, altered neuromuscular control, muscular imbalance
  - C. Muscular imbalance, altered neuromuscular control, inflammation, trauma, spasm, adhesions
  - D. Spasm, muscular imbalance, trauma, adhesion, altered neuromuscular control
- 18. What percentage of adults have suffered from low back pain?**
- A. 60%
  - B. 100%
  - C. 70%
  - D. 80%

- 19. Which of the following is not characteristic of the sports hernia?**
- A. Rapid rotational or kicking movements will aggravate it
  - B. Hip flexors and abductors are at the root of involvement
  - C. The most common source of the injury is a weak posterior inguinal wall
  - D. The mechanism of the injury is not fully understood
- 20. What is the likely cause of chronic low-back spasms?**
- A. Tight piriformis
  - B. Tight quadratus lumborum
  - C. Weak abdominals
  - D. Tight hamstrings
- 21. Stuart McGill states that the traditional full sit-up:**
- A. Can be an excellent core strengthening exercise
  - B. Can help reduce the risk of disc herniation
  - C. Places so much stress on the spine that it is equal to the limit set by the National Institute of Occupational Safety and Health.
  - D. Works the superficial core strengtheners, but does not work the deep core strengthener musculature
- 22. Most injuries occur during rotational movements and:**
- A. Acceleration
  - B. Deceleration
  - C. High impact
  - D. Contact sports
- 23. All of the following are reasons women appear to be at higher risk of ACL injuries compared to males EXCEPT:**
- A. Hormonal changes especially during and around menstruation
  - B. Women have a smaller intercondylar notch on the femur
  - C. Women have more ligament dominance
  - D. Women tend to be more hamstring dominate
- 24. Athletes who are standing in a balanced position demonstrate all of the following in an athletic stance EXCEPT:**
- A. The base of support is comfortably wide
  - B. The knees are flexed thus slightly lowering the center of mass
  - C. The center of mass is dynamic
  - D. Body weight is right above the midpoint of the foot

- 25. What structure helps the body be aware of any vertical position deviations?**
- A. Vestibular apparatus
  - B. Golgi tendons
  - C. Muscle spindles
  - D. Motor units
- 26. Power is a combination of:**
- A. Speed and strength
  - B. Strength and endurance
  - C. Endurance and speed
  - D. Frequency and time
- 27. Which statement is false concerning fast twitch muscle fibers?**
- A. They are best for sprinters
  - B. They are power fibers
  - C. They fatigue quickly
  - D. They require oxygen
- 28. What two systems in the body work together to help create power?**
- A. Muscular and nervous
  - B. Golgi tendons and muscle spindles
  - C. Proprioceptors and nervous system
  - D. Muscular and golgi tendons
- 29. The speed component of power is directly influenced by the:**
- A. Stretch reflex
  - B. Motor unit
  - C. Neurons
  - D. Concentric contraction force
- 30. What determines how much energy can be used during the concentric contraction that occurs immediately after the eccentric stretch that is involved in the stored elastic energy phenomenon?**
- A. The force of the eccentric stretch
  - B. The power behind the concentric contraction
  - C. The speed of the eccentric stretch
  - D. The strength of the athlete



- 31. Which is not an exercise category in the book?**
- A. Anti-rotation
  - B. Lumbo-pelvic hip complex
  - C. Scapulothoracic
  - D. Anti-flexion
- 32. Where is the greatest rotation range in the lumbar vertebrae?**
- A. L1-L3
  - B. L2-L4
  - C. L3-L5
  - D. L5-S1
- 33. Which is not a specific benefit of the exercises in the book?**
- A. Suspension apparatus eliminates any advantage of control
  - B. The greater the height of the lower-body incline, the harder the challenge
  - C. A proportionate body position will enhance the rotational demand to the core musculature
  - D. The greater the height of the upper-body incline, the easier the challenge
- 34. Which is not a specific benefit of the exercises in the book?**
- A. Unilateral training will show any asymmetries
  - B. Movement patterns involving cross-body extremities create a rotational response in the body to help maintain structural homeostasis
  - C. Walking will globally challenge the entire kinetic chain
  - D. The farther away from the axis the load is placed on the lever arm, the more challenging the exercise.
- 35. Which is not a benefit to hanging with a secure upper body?**
- A. It increases grip strength
  - B. It increases latissimus dorsi and scapular stabilization
  - C. To maintain a strong position, the scapula must remain protracted
  - D. It requires pelvic control
- 36. Implementing acceleration into power training allows for \_\_\_\_\_ to be added.**
- A. Endurance
  - B. Strength
  - C. Core
  - D. Speed

- 37. When working with suspension apparatus, what determines load demand and exercise difficulty?**
- A. Placement of the anchor
  - B. Weight of the client
  - C. Height of the handles
  - D. Underhand vs overhand grip
- 38. In order to perform the exercise safely, which statement is incorrect and could cause injury?**
- A. Feeling a burning sensation when working core
  - B. Never use iron plates or dumbbells when on a stability ball
  - C. Avoid bilateral straight leg lifts if you are a beginner
  - D. Exhale on the contraction phase
- 39. In order to brace the core, you should:**
- A. Hold your breath and bear down
  - B. Contract the hip flexors and hip extensors simultaneously
  - C. Set the ab area and contract the pelvic floor
  - D. Set the ab area and contract the gluteals
- 40. Which of the following exercises is considered hard? difficulty?**
- A. Elbow plank/unstable upper
  - B. Straight arm plank/unstable upper and lower body
  - C. Straight arm plank/stationary walk out and back
  - D. Mountain climber/unstable lower, Feet elevated, double knee tuck
- 41. Which of the following is not a specific benefit for the elbow plank with an unstable upper body and arms elevated?**
- A. Unilateral action
  - B. Unstable surface
  - C. Upper-body incline
  - D. Axis and lever modification
- 42. Which of the following is a specific benefit for the elbow plank with unstable upper and lower body?**
- A. Upper body incline
  - B. Unstable surface
  - C. Ipsilateral action
  - D. Reaction and response

- 43. What is the proper order of progression for the elbow plank, unstable lower, feet elevated?**
- A. Thighs on ball, ankles on ball, knees on ball
  - B. Elbows on floor, hands on floor, one hand forward/one hand backwards
  - C. Hands/fingers forward, hands/fingers turned outwards, hands/fingers turned inwards
  - D. Knees on ball, ankles on ball, balls of feet/toes on ball
- 44. Which of the following is not a proper modification for the elbow plank, single-leg hip extension?**
- A. Slightly extend the lumbar spine for anti-flexion exercises
  - B. Elbows and forearms are on the floor with the toes of only one foot in contact with the floor
  - C. Engage the gluteal muscles, then extend the hip to raise the opposite leg
  - D. Maintain neutral spine
- 45. Which is not a specific benefit for the straight-arm plank, single-leg hip extension with feet elevated?**
- A. Lower body incline
  - B. Unstable surface
  - C. Single-leg hip extension
  - D. Creation of an asymmetrical base of support
- 46. The client can create greater control when performing the straight-arm plank with unstable upper, single-leg hip extension with arms elevated by:**
- A. Lift the head
  - B. Place the hands higher on the ball
  - C. Slightly flexing the elbows
  - D. Changing the hand positions
- 47. Which is not an appropriate modification to the straight-arm plank on unstable upper with single-leg hip abduction?**
- A. Lift the body so the ball and toes of one foot is in contact with the floor
  - B. Position the hands directly under the shoulders
  - C. Avoid the tendency to rotate in the opposite direction of the abducted leg
  - D. Move the abducted leg laterally within the horizontal plane

48. **Which of the following is not a benefit for the straight-arm plank suspended upper with feet elevated?**
- A. Lower body incline
  - B. Total body displacement
  - C. Suspension
  - D. Lever modification
49. **Which of the following is a benefit to the straight-arm plank ball walk up?**
- A. Lateral shifting to incorporate the upper back and shoulder
  - B. Lower body movement
  - C. Enhancement of the rotational demand
  - D. Contrast sensitivity function
50. **Which of the following is not a proper modification to the elbow plank with full-body walk?**
- A. Ipsilateral step
  - B. Continuous lateral walk
  - C. Lateral walk back and forth
  - D. Walk in a circle
51. **What is typically lacking in most poorly developed training programs for athletes?**
- A. A focus on deceleration
  - B. A focus on absolute strength
  - C. A focus on absolute speed
  - D. A focus on absolute power
52. **What facilitates accelerators the most to increase your velocity?**
- A. Confidence
  - B. Power
  - C. Strength
  - D. Speed
53. **Which of the following is not a correct procedure for Rolling Pattern 1, soft roll, lower body?**
- A. Lift on leg up and across the body
  - B. Keep the upper body relaxed
  - C. Turn the head in the opposite direction of the roll
  - D. Start in the supine position

- 54. The contralateral action of holding the ball between the elbow and knee in the Rolling pattern 1 hard roll with ball will:**
- A. Stimulate the deep stabilizers
  - B. Make the exercise easier for beginners
  - C. Stress the neurological system
  - D. Take pressure off the lower back
- 55. Which of the following is not a proper consideration when performing the lateral elbow plank?**
- A. Slightly laterally tilt the head
  - B. A spotter can place an exercise strap round the athlete's waist
  - C. Stagger the feet a foot or two apart from each other
  - D. Keep the chin pushed back
- 56. Which is not a specific benefit of the lateral elbow plank with unstable upper?**
- A. Lever modification
  - B. Axis modification
  - C. Upper body incline
  - D. Gravity load
- 57. Trying different hand positions during the lateral straight-arm plank with unstable upper and arm elevated will:**
- A. Allow for less pressure to be on the ankle
  - B. Reduce tension on the cervical vertebrae
  - C. provide greater stability or greater control depending on the direction of the fingers
  - D. Reduce pressure on the lumbar vertebrae
- 58. Which is not a specific benefit for the lateral elbow plank, unstable upper, arm and feet elevated?**
- A. Reaction and response
  - B. Upper body incline
  - C. Lower body incline
  - D. Axis and lever modification
- 59. Which exercise should have a spotter?**
- A. Lateral elbow plank unstable lower
  - B. Lateral straight-arm plank, unstable upper, arm and leg abduction feet elevated
  - C. Lateral elbow plank, unstable lower, arm and leg abduction
  - D. Lateral elbow plank, unstable upper, arm and leg abduction, arm elevated

- 60. Which of the following exercises does not have the specific benefit of axis and lever modification?**
- A. Rolling pattern 2 hard roll
  - B. Lateral elbow plank, unstable lower, arm and leg abduction
  - C. Lateral elbow plank, unstable upper, arm and leg abduction, feet elevated
  - D. Lateral elbow plank, unstable lower
- 61. Which of the following modifications is not correct when performing the lateral elbow plank, arm abduction, foot taps?**
- A. Abduct the top arm toward the ceiling in the frontal plane
  - B. ROM of the top leg is dictated by comfort and control
  - C. A slight bend in the knee can be appropriate
  - D. The top arm is aligned with the bottom arm
- 62. Which is not appropriate technique for the lateral straight-arm plank with arm abduction, knee drive to the chest?**
- A. Move the chest towards the knee
  - B. Lift the body so the only contact points are the lateral side of the bottom foot and the bottom hand on the floor.
  - C. Flex the hip of the top leg at the same time that leg is lifted
  - D. Abduct the top arm towards the ceiling
- 63. Which of the following exercises has contralateral action benefits?**
- A. Prone Rotary Stability Progression 1
  - B. Prone Rotary Stability Progression 2
  - C. Prone Rotary Stability Progression 4
  - D. Prone Rotary Stability Progression 3
- 64. When performing the Prone Rotary Stability Progression 4, what movement should be avoided?**
- A. Unilateral action of moving a body part
  - B. Lifting one hand off the floor
  - C. Rolling to one side to counterbalance when one point of the base of support is removed
  - D. Keeping the arms perpendicular to the floor

- 65. Which is not one of the steps when performing the prone rotary stability progression 6?**
- A. Reach down to tap the contralateral hip
  - B. Maintain straight body alignment
  - C. Alternate arms
  - D. Feet are shoulder width apart
- 66. In how many dimensions does the scapula function?**
- A. 4
  - B. 3
  - C. 2
  - D. 1
- 67. The scapula has synergistic relationships with how many muscles?**
- A. 4
  - B. 8
  - C. 12
  - D. 17
- 68. Where is the only true bone attachment for the scapula?**
- A. AC joint
  - B. SC joint
  - C. Scapulothoracic joint
  - D. Coracoid process
- 69. What is the position that the scapula should remain in while doing prone scaption?**
- A. Depressed and protracted
  - B. Depressed and retracted
  - C. Elevated and upwardly rotated
  - D. Elevated and downwardly rotated
- 70. What is the order of movements for the prone scapulothoracic combination exercise?**
- A. T, Y, A
  - B. Y, A, T
  - C. Y, W, T, A
  - D. Y, T, A

- 71. How many muscles attach to the lumbo-pelvic hip complex?**
- A. 32
  - B. 17
  - C. 29
  - D. 14
- 72. Core stabilizers are primarily:**
- A. Isokinetic
  - B. Type II
  - C. Anti-oxidative
  - D. Type I
- 73. What is the name given for “knocked-kneed?”**
- A. Valgus
  - B. Varus
  - C. Recurvatum
  - D. Pronated
- 74. When performing the hip lift on the stability ball, all of the following are proper considerations EXCEPT:**
- A. This is a challenging exercise for the novice
  - B. For better stability, keep the arms close to the core
  - C. Avoid excessive tightening of the upper hamstrings
  - D. For more of a challenge, lift the arms off the floor
- 75. The specific benefit for the Progression 1 Prisoner Squat is:**
- A. Multiplanar movement
  - B. Gravity load
  - C. Axis and lever modification
  - D. Abduction strength
- 76. Which is not a reason for collision sports to focus on the need for core strength?**
- A. Force production
  - B. Force stability
  - C. Force absorption
  - D. Force reduction
- 77. What sport benefits more from being able to gain strength without a gain in muscle size?**
- A. Marathons
  - B. Rugby
  - C. American football
  - D. Basketball



- 78. When stress is placed on the body during exercise in order to have a gradual increase in load, this is referred to as:**
- A. Specificity
  - B. FIT principle
  - C. Progressive overload
  - D. Sports training
- 79. According to the book, what is the major mistake made when athletes try to make exercises more challenging?**
- A. Focusing on speed instead of power
  - B. Focusing on strength more so than power
  - C. Increasing weight too much too fast
  - D. Adding too much time and focus to stability exercises
- 80. An unexpected outside force or movement that is applied to challenge or alter homeostasis, balance, or body control is called:**
- A. Perturbation
  - B. Progressive overload
  - C. Ballistic force
  - D. Dynamic force
- 81. What is the single-most important characteristic of high-level performance?**
- A. Agility
  - B. Core strength
  - C. Speed
  - D. To recognize and rapidly respond to a stimulus
- 82. What is the main difference between perturbations and complex moves?**
- A. Perturbations are consistent in force, load, and line of pull
  - B. Complex moves are pre-established
  - C. Perturbations are only for the advanced athlete
  - D. Complex moves do not need any equipment
- 83. What is important for retention and application of any new learned motor pattern?**
- A. Cognition
  - B. Practice
  - C. Repetition
  - D. Skill

- 84. How do you determine the speed of the step during the band walk exercises?**
- A. Color/tensile strength of the exercise band
  - B. Body control
  - C. Score on the pre-assessment
  - D. Height of the client
- 85. When performing the elbow plank on the stability ball for the Rock the Cradle, where does the movement originate?**
- A. Ankles
  - B. Hips
  - C. Shoulders
  - D. Wrists
- 86. Which of the following Mountain Climber exercises is not working with multiplanar movement?**
- A. Slideboard, single leg
  - B. Slideboard, circular double-leg knee tuck
  - C. Slideboard, double-leg pike, left and right
  - D. Slideboard complex: Pike, mountain climber, push-up
- 87. What will occur naturally in order to help with the knee-tuck during the suspended lower, double-leg knee tuck Mountain Climber?**
- A. An arch in the back
  - B. A lift of the feet
  - C. A lift of the hips
  - D. A tilt of the head
- 88. Which slideboard Mountain Climber exercise has the most special benefits?**
- A. Simultaneous abduction/adduction
  - B. Double-leg knee tuck
  - C. Straight-arm body saw
  - D. Complex: abduction and adduction with pike and push-up
- 89. Which of the following exercises should have a training partner present?**
- A. Unstable lower with medicine ball push up
  - B. Unstable upper with medicine ball, walk across push up
  - C. With box, asymmetrical push-up
  - D. Push-up with hip extension

- 90. When performing the push-up with unstable upper and lower with medicine ball, which of the following is not proper modification?**
- A. Place one hand on the ball and another on the floor
  - B. Place one foot on the ball and another on the floor
  - C. Use a ball that is fully inflated
  - D. Place the shins on the ball
- 91. Which of the following is not considered a parameter of a good core program?**
- A. Proprioception
  - B. Movement force
  - C. Load
  - D. Frequency
- 92. Eversion and inversion movements occur in which plane of motion?**
- A. Frontal
  - B. Sagittal
  - C. Transverse
  - D. Horizontal
- 93. Which plane of motion divides the body into top and bottom?**
- A. Midsagittal
  - B. Sagittal
  - C. Frontal
  - D. Transverse
- 94. Anti-rotation training is about:**
- A. Rotating through T1-L5
  - B. Not rotating through T1-T12
  - C. Rotating through L1-L3
  - D. Not rotating through L1-L5
- 95. Which of the following movements is not appropriate when performing the windshield wiper exercise?**
- A. Flex the hips to 90 degrees
  - B. Slowly lower legs to one side
  - C. Hesitate as long as needed before continuing to the other side
  - D. Lie supine on the mat to start the exercise

- 96. The flutter kick windshield wiper is performed in the:**
- A. Frontal plane
  - B. Sagittal plane
  - C. Horizontal plane
  - D. Transverse plane
- 97. When performing the straight-arm plank complex 2, which is not proper procedure?**
- A. Assume a straight arm plank once the bands are in your hands
  - B. The resistance cable is about 3 inches off the floor
  - C. Two bands can be incorporated
  - D. The arm is raised in the sagittal plane
- 98. Adding resistance to the Straight-arm Plank exercises does all of the following EXCEPT:**
- A. Increase the force required to move the resistance
  - B. Increase force required to slow down the resistance
  - C. Increase force required to speed up the resistance
  - D. Increase the force required to control the resistance
- 99. Which of the following is not part of the order when performing the push-up complex rear deltoid exercise?**
- A. The right arm is aligned with the left arm when the core rotation occurs
  - B. While balanced in the 3-point plank position to start, one arm is raised forward in alignment with the body
  - C. When the core rotation occurs, both feet move outward while fully rotating
  - D. Perform the predetermined repetitions
- 100. Which of the following exercises has fewer than six special benefits?**
- A. Slideboard feet lateral cross
  - B. Slideboard feet, lateral cross with push-up
  - C. Slideboard feet with sandbag pull, abduction and adduction
  - D. Slideboard feet, sandbag pull

- 101. The junction formed by the ribcage and the scapula is called the:**
- A. Sternoclavicular joint
  - B. Scapulothoracic joint
  - C. Acromioclavicular joint
  - D. Costochondral joint
- 102. Besides the glenohumeral joint, what other joint makes up the shoulder complex?**
- A. Sternoclavicular
  - B. Scapulothoracic
  - C. Acromioclavicular
  - D. Costochondral
- 103. What is typically the culprit of lack of strength in the scapulothoracic joint?**
- A. Strong latissimus dorsi and weak external rotators
  - B. Strong internal rotators and weak external rotators
  - C. Strong pectoralis major and weak upper traps
  - D. Strong upper traps and weak middle/lower traps
- 104. What muscle group has a firm base of support in the scapulothoracic structure?**
- A. Rotator cuff
  - B. Serratus anterior
  - C. Internal rotators
  - D. Deltoid/traps complex
- 105. Which exercise has the higher difficulty level**
- A. Suspended supine up and twist
  - B. Suspended prone retract and protract
  - C. Hanging rock-back pull-up
  - D. Prone loaded shoulder abduction (T) on stability ball
- 106. What is the correct hand position for the prone loaded scaption (Y) incline bench exercise?**
- A. Extended
  - B. Supinated
  - C. Pronated
  - D. Neutral

- 107. What is the proper hand position for the prone loaded shoulder abduction (T) incline bench exercise?**
- A. Pronated
  - B. Supinated
  - C. Extended
  - D. Neutral
- 108. Which is not correct procedure for the prone loaded scapular retraction and depression (A) incline bench exercise?**
- A. The scapula should be depressed and retracted
  - B. The weight should be challenging, but not too heavy
  - C. The chest remains on the bench throughout the exercise
  - D. Palms supinated at the start of the exercise
- 109. When performing the suspended prone retract and protract exercise, which of the following is not correct form?**
- A. Drive the chest towards the floor
  - B. Cue using "chest in, chest out" for retract and protract
  - C. The feet are dorsiflexed
  - D. Drop the head slightly while retracting the scapula
- 110. When performing the suspended supine rear pull, what muscles should be engaged?**
- A. Pectoralis major, middle and lower back
  - B. Triceps, upper traps
  - C. Biceps, middle and lower back
  - D. Pectoralis major and biceps
- 111. When performing the hanging rock-back pull-up, the pelvis should only move:**
- A. 6-12 inches
  - B. 6-12 cm
  - C. 15 inches
  - D. None at all
- 112. The first muscle to contract to help brace the core when performing the hip lift with shoulders elevated is the:**
- A. Quadriceps
  - B. Gluteals
  - C. Hamstrings
  - D. Hip flexors

- 113. All of the following are part of the strength spectrum of core power training EXCEPT:**
- A. Isokinetic contractions
  - B. Isometric contractions
  - C. Eccentric contractions
  - D. Concentric contractions
- 114. What is the link between force and power?**
- A. Acceleration
  - B. Mass
  - C. Velocity
  - D. Speed
- 115. Power equals:**
- A. Force x velocity
  - B. Mass x acceleration
  - C. Force x mass
  - D. Velocity x acceleration
- 116. What sets proprioception apart from kinesthesia?**
- A. Only kinesthesia is awareness of where the body is in space
  - B. Proprioception can be taught, but kinesthesia cannot
  - C. Only proprioception includes ear equilibrium
  - D. Only kinesthesia involves visual tracking
- 117. What is the common thread to all sport participation?**
- A. The core is over trained in all sports
  - B. They all use kinesthesia, but not proprioception
  - C. They all involve power, strength, and endurance
  - D. The adaptive situation around the core is always shifting
- 118. What is the control hub of all movement?**
- A. Deep core
  - B. Proximal core
  - C. Superficial core
  - D. Lateral core
- 119. Muscle spindles are also known as:**
- A. GTOs
  - B. Intrafusal fibers
  - C. Type I
  - D. Type II

- 120. What helps to promote the development of the muscle spindle response?**
- A. PNF
  - B. Core training
  - C. Plyometrics
  - D. Isometrics
- 121. Which procedure is incorrect for the box drop and jump, upper body exercise?**
- A. In the starting position, the arms should be slightly angled to perpendicular to the floor
  - B. Place the hands on each mat close to the edge
  - C. Do not land on locked elbows
  - D. Boxes or mats should be 3-15 inches high
- 122. A significant limiting factor in the production of concentric acceleration is:**
- A. The fear of controlling deceleration
  - B. The strength of the muscle during concentric contraction
  - C. The lack of power in the core
  - D. Range of motion of the accessory muscles
- 123. When focusing on stabilization, exercises should last:**
- A. 6-20 seconds
  - B. 15-30 seconds
  - C. 30-45 seconds
  - D. 60 minutes or more
- 124. What is the most common mistake made during the Around the World exercise?**
- A. Shifting body weight
  - B. Flexing the neck
  - C. Lazy elbows
  - D. Extending the back
- 125. All of the following variables might affect the outcome of repeated testing EXCEPT:**
- A. Having the same tester
  - B. Time of day
  - C. Hydration
  - D. Equipment



- 126. Three of the most important indicators related directly to injury include all of the following EXCEPT:**
- A. Level of motor control
  - B. Stress levels
  - C. Injury history
  - D. Bilateral asymmetries
- 127. How many repetitions are performed during the bird-dog anti-rotation test?**
- A. As many as they can do in 60 seconds
  - B. 6 on each side
  - C. 10 on each side
  - D. 20 on each side
- 128. When does the thumbs-up scapulothoracic musculature test end?**
- A. If the fingers straighten
  - B. If the thumbs are pointing straight forward
  - C. If the thumbs are pointing at the hips
  - D. If the elbows flex
- 129. The lumbo-pelvic hip complex test 1 should be held how long in order to pass?**
- A. 10 secs
  - B. 60 secs
  - C. 30 secs
  - D. 15 secs
- 130. How can you, the trainer, ensure quality of movement during the lumbo-pelvic hip complex test 2?**
- A. Hold the leg on the shin when pulling the knee towards the chest
  - B. Dorsiflex the foot on the floor
  - C. Keep both feet on the floor during the test at all times
  - D. Place a tennis ball near the bottom of the client's rib cage and hold it in place with the thigh of the up leg
- 131. Which statement is false concerning the complete core program?**
- A. The program is sequential
  - B. The workouts begin at a pre-determined point
  - C. The system is progressively challenging
  - D. You will never exhaust your exercise options

- 132. When should you retest or reassess your client?**
- A. 4-6 weeks
  - B. 1 month
  - C. 3 months
  - D. 6 months
- 133. When the three cyclical phases are complete, the client goes back to which phase?**
- A. Strength
  - B. Endurance
  - C. Power
  - D. Stability
- 134. When you get into your second round what will ensure progressive adaptation?**
- A. Add more frequency
  - B. Add variety
  - C. Take a 1 week rest
  - D. Go into your sport in-season
- 135. Which of the following variables will not be manipulated, but predicted instead?**
- A. Planes of movement
  - B. Body positioning
  - C. Progression
  - D. Load considerations
- 136. Many people, especially beginners, incorrectly plunge into which phase of core training?**
- A. Power
  - B. Strength
  - C. Endurance
  - D. Speed
- 137. Which phase is always the most important phase in the core training program?**
- A. The stability phase because it is first
  - B. The phase you just completed
  - C. The one you are currently in
  - D. The power phase if you are an athlete

- 138. What is the crucial aspect of the core training program?**
- A. Proper form before resistance increases
  - B. The rest period after the previous phases
  - C. The completion of each phase in its entirety collectively
  - D. The fitness assessments to find the baseline
- 139. What is the most neglected part of the body in the other standard core training programs?**
- A. The shoulders
  - B. The chest
  - C. The legs
  - D. The back
- 140. Which of the following guidelines is incorrect for the stability phase?**
- A. Frequency should be 3-6 times per week
  - B. If an exercise is timed, it should last 15 seconds minimum
  - C. Rest for 60 seconds between cycles
  - D. Drills can vary from session to session
- 141. How is the strength phase of the core program designed?**
- A. With more repetitions than the stability phase
  - B. With as many rotations that can be completed in 20 minutes
  - C. With breaks of 3-5 minutes
  - D. In a circuit of 3-4 rotations
- 142. How long is the strength phase duration?**
- A. 4-6 weeks
  - B. 3-6 weeks
  - C. 2 weeks
  - D. 2 months
- 143. Why is high volume training warranted for the core?**
- A. Because the exercises are easy, so more can be done
  - B. Because the exercises are held for a short length of time
  - C. Because it is usually weak in most individuals
  - D. Because it has a large blood supply and can recover quickly
- 144. What is the most important element in the power phase of core training?**
- A. Volume of movement
  - B. Speed of movement
  - C. Duration of movement
  - D. Frequency of movement

- 145. What area of the body is not worked during the power phase?**
- A. Deep stabilizers
  - B. Low back
  - C. Scapulothoracic
  - D. Lateral stabilizers
- 146. Which of the following guidelines is incorrect for the power phase?**
- A. Rest between cycles is 60 seconds
  - B. Set recover is 90 seconds
  - C. Repetition range is 5-10
  - D. Session frequency should not exceed 6 times per week
- 147. Which of the following is not a focus for American football offensive linemen?**
- A. Increased extension forces that occur in the lumbar spine
  - B. Reducing the tightness of the posterior hip girdle musculature
  - C. Torso-based anti-extension exercises
  - D. Increasing gluteal complex action
- 148. Basketball players tend to have all of the following characteristics EXCEPT:**
- A. Wider hips
  - B. Ectomorph features
  - C. Mesomorph features
  - D. Narrow chest and shoulders
- 149. The focus of the functional core program for basketball players should be on:**
- A. Avoiding the wearing of high top shoes in order to increase ankle mobility
  - B. Increasing the levers of the extremities
  - C. Rotational forces and limited lumbar movements
  - D. Correcting kyphotic posture and hip imbalances
- 150. Swimmers should focus their core program on all of the following EXCEPT:**
- A. Increasing the stability of the scapulae
  - B. Isometric core activities for hypermobile joints
  - C. The fact that the gluteals tend to be overdeveloped
  - D. Addressing the upper-crossed syndrome