

Women's Strength Training
Anatomy

CORRESPONDENCE EDUCATION PROGRAM # 2013-81.

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LEARNING OBJECTIVES

After reading Women's Strength Training Anatomy, the participant will be able to:

1. Identify the parts of the body derived from the ectoderm, mesoderm and endoderm layers of the embryo.
2. Describe the characteristics of the ectomorph, mesomorph and endomorph body types.
3. Identify the problems that can develop from severe loss of body fat in women.
4. Identify the primary areas of fat deposit in women.
5. Explain how to execute a forward lunge with correct form.
6. Identify the primary muscle groups worked and the primary muscle groups stretched in the performance of a forward lunge.
7. Identify the primary muscle groups worked in the execution of hip abduction exercises.
8. Explain why there is variability in hip mobility among individuals.
9. Identify the primary muscle groups worked in the execution of standing hip abductions.
10. Explain why women are more prone to genu valgum than men.
11. Explain how to perform a barbell squat with correct form.
12. Explain how to perform a squat with bar in front with correct form.
13. Explain how to perform thigh flexions with dumbbells with correct form.
14. Identify the primary muscle groups worked in the execution of thigh flexions with the legs apart.
15. Explain how to perform alternating lateral lunges with correct form.

16. Explain how the knee joint functions when the knee is extended and when the knee is flexed.
17. Identify which thigh flexion exercise is not recommended for people with knee problems.
18. Explain how people with back problems can safely use the incline press.
19. Explain how to perform stiff legged dead lifts with correct form.
20. Explain why women often have ligament hyperlaxity.
21. Explain how to safely perform the stiff legged dead lift.
22. Explain why retraction of the hamstrings can lead to vertebral pathologies.
23. Explain how to perform good mornings with correct form.
24. Identify which muscles make up the triceps surae.
25. Explain how to perform standing barbell calf raises with good form.
26. Explain why performing seated barbell calf raises works the soleus muscle.
27. Explain why the back should be rounded when performing abdominal exercises.
28. Identify which abdominal exercises to recommend to women who have recently give birth.
29. Explain what can cause kyphosis and what can be done to help correct it.
30. Identify what spondylolysis is and what it can lead to.



CEC/CEU TEST FOR: WOMEN'S STRENGTH TRAINING ANATOMY

Please choose the best answer. Put all answers on the answer sheet.

1. Which layer of an embryo forms the bones and muscles, the urogenital organs and the cardiovascular system?
 - a. The inner layer, called the ectoderm
 - b. The middle layer, called the mesoderm
 - c. The outer layer, called the ectoderm
 - d. The deep layer, called the endoderm

2. A person who lacks muscle tone, has a hyperactive thyroid, has lordosis and weak abdominal muscles has which morphological type?
 - a. Endomorph type
 - b. Endoderm type
 - c. Ectoderm type
 - d. Ectomorph type

3. Although a large proportion of mesomorphs are men, women can have a mesomorph body type because of the increased activity of their _____ gland(s) which secrete _____.
 - a. Thyroid; testosterone
 - b. Thyroid; estrogen
 - c. Adrenal; testosterone
 - d. Adrenal; estrogen

4. Which of the following statements regarding the mesomorph type is true?
 - a. Women mesomorphs can develop as much muscle mass as male mesomorphs
 - b. In order to maintain an athletic physique, female mesomorphs must do intense training
 - c. The mesomorph body type is the result of the predominance of the mesoderm layer during development
 - d. Because they are more muscular than the other body types, mesomorphs can consume a lot of calories and never gain weight

5. The endomorph body type tends not to have _____ problems, but frequently have _____ problems.
 - a. Back; knee
 - b. Knee; back
 - c. Joint; digestive
 - d. Digestive; knee

6. Organs derived from the endoderm include all of the following except:
 - a. Internal reproductive organs
 - b. Digestive tract
 - c. Liver and pancreas
 - d. Bladder, urethra and vagina

7. Severe loss of body fat in a woman can lead to _____ problems and _____, which is a temporary absence of ovulation.
 - a. Thyroid; amenorrhea
 - b. Hormonal; menopause
 - c. Thyroid; menopause
 - d. Hormonal; amenorrhea

8. Normal women have a body fat between _____ of body weight
 - a. 18% and 22%
 - b. 20% and 22%
 - c. 18% and 20%
 - d. 20% and 25%

9. The fat deposit located on the superior part of the lateral thigh below the greater trochanter is referred to as _____ and is frequently found in _____ women.
 - a. Riding breeches; African
 - b. Riding breeches; Mediterranean
 - c. Gluteus fat; Asian
 - d. Gluteus fat; European

10. Which of the following statements regarding body types is true?
 - a. The athlete who is a long distance runner is more of an ectomorph body type
 - b. Most people are a combination of all three body types with one or two types predominating
 - c. With appropriate training, one body type can be changed into another
 - d. Both a and b are true

11. Which of the following is not a primary area of fat deposit in women?
 - a. Between the thighs
 - b. Medial region of the knee
 - c. Posterior lateral part of the upper arm
 - d. Superior part of the lateral thigh below the greater trochanter

12. When the gluteal deltoid muscles work together, they _____.
- Abduct the hip
 - Adduct the hip
 - Abduct the shoulder
 - Adduct the shoulder
13. All of the following correctly describe how to perform a static forward lunge except:
- Exhale and flex the forward thigh until it is horizontal
 - Stand with knees slightly flexed, one foot in front of the other with the feet slightly farther apart than a normal step
 - Exhale at the end of the movement
 - Keep the back straight, chest forward and hands resting on the front thigh
14. A static forward lunge is a good stretch for the _____ and the _____.
- Gluteus muscle on the forward leg; iliopsoas muscle of the posterior leg
 - Biceps femoris muscle; iliopsoas muscle of the forward leg
 - Rectus femoris muscle; iliopsoas muscle of the posterior leg
 - Rectus femoris muscle; iliopsoas muscle of the forward leg
15. Taking a short step forward when performing forward lunges with a bar engages which muscle group the most?
- Gluteus maximus
 - Quadriceps
 - Hamstrings
 - Iliopsoas
16. Which of the following best explains why forward lunges with a rod are often included as part of a warm-up routine?
- This exercise helps develop a sense of balance
 - This exercise works all the muscles of the quadriceps and hamstrings
 - This exercise helps build strength for working with weights
 - This exercise can be used to not only work the muscles but also as a stretch for the muscles
17. A forward lunge with dumbbells primarily works the:
- Hamstrings and gluteus muscles
 - Biceps femoris and rectus femoris muscles
 - Gluteus maximus and quadriceps muscles
 - Gluteus maximus and hamstring muscles

18. In order to protect the knee when doing a forward lunge with dumbbells, it is recommended that beginners:
- Take a small step forward
 - Use light weights
 - Take a big step forward
 - Make sure the front thigh always goes below horizontal
19. Which of the following exercises should not be done by people with back or knee problems?
- Forward lunges with a bar
 - Bench steps
 - Forward lunges with dumbbells
 - Static forward lunges
20. Performing standing hip abductions works primarily the:
- Gluteus medius and gluteus minimus muscles
 - Gluteus maximus and gluteus medius muscles
 - Gluteus maximus and quadriceps muscles
 - Gluteus maximus and tensor fascia latae muscles
21. The gluteus medius and minimus muscles play a role in both _____ and _____ by _____.
- Hip adduction; gait; tilting the pelvis sideways when on one foot
 - Hip adduction; gait; preventing the pelvis from tilting sideways when on one foot
 - Hip abduction; gait; tilting the pelvis sideways when on one foot
 - Hip abduction; gait; preventing the pelvis from tilting sideways when on one foot
22. Which of the following statements explain the variability in hip mobility from person to person?
- The shape of the bones at the coxo-femoral joint mainly determine hip mobility
 - A person with a more vertical femoral neck has a greater range of hip abduction
 - The flexibility of the gluteus muscles and ligament laxity in the hip joint determine hip mobility
 - Both a and b
23. Which of the following statements regarding hip abduction exercises is true?
- Perform these exercises in short series with maximum resistance
 - The hip should be abducted forcefully for maximum movement range
 - The hip should not be forcefully abducted since this could cause painful inflammation
 - In order to achieve maximum hip abduction, the pelvis should be tilted as the leg is lifted

24. When performing a seated machine hip abduction exercise, the gluteus maximus muscles can be emphasized more by:
- Positioning the back of the machine as close to vertical as possible
 - Tilting the back of the machine back as far as possible
 - Opening the thighs as wide as possible
 - Maintaining a small range of motion when opening and closing the thighs
25. Which of the following exercises work the external rotator muscle group of the hip?
- Bench steps
 - Lateral thigh raises on the floor
 - Standing hip abductions
 - Floor hip abductions
26. Performing machine hip extensions works mainly the _____ and to a lesser extent the _____.
- Gluteus medius; biceps femoris muscles
 - Gluteus maximum; tensor fascia latae muscles
 - Gluteus maximus; hamstring muscles
 - Gluteus deltoid group; quadriceps muscles
27. Performing floor hip extensions with a bent knee works the _____.
- Hamstring muscles
 - Hamstrings and gluteus medium muscle
 - Hamstrings and gluteus maximus muscle
 - Gluteus maximus muscle
28. The biggest and strongest muscles in the human body are the _____.
- Quadriceps
 - Hamstrings
 - Gluteals
 - Latissimus dorsi
29. Which of the following statements regarding hip extension exercises is false?
- Performing a standing machine hip extension works the gluteus maximus and the hamstrings, particularly the short head of the biceps femoris
 - To work the gluteus maximus and the hamstrings, the leg should be extended
 - An isometric contraction can be sustained for one to two seconds as the end of the movement
 - Extension of the hip during standing hip extensions is limited by Bertin's ligament

30. Which of the following hip extension exercises works the erector spinae muscle group?
- Machine hip extensions lying down
 - Standing hip extensions
 - Prone hip extensions
 - Floor hip extensions
31. Which of the following muscles are not involved in hip extension?
- Gluteus maximus
 - Long head of the biceps femoris
 - Semitendinosus
 - Short head of the biceps femoris
32. Which of the following exercises would be most effective in working the hamstrings?
- Hip extensions with a low pulley
 - Pelvic raises off a bench
 - Floor hip extensions with an elastic band
 - Pelvic raises off the floor
33. In order to feel the gluteus maximus muscle working when performing small lateral thigh flexions, it is recommended that:
- The toes be turned out as far as possible
 - An isometric contraction be held at the end of the series
 - The knees be bent halfway down
 - The exercise be performed at a fast pace
34. The wider pelvis and greater angle of the femur in women make women prone to _____ which can lead to knee and ankle problems
- Genu varum
 - Coxa vera
 - Genu valgum
 - Coxa valga
35. All of the following correctly describe how to perform a barbell squat except:
- Prior to removing the bar from the rack, arch the back slightly with a posterior pelvic tilt
 - Place the bar on the trapezius a little higher than the posterior deltoids
 - When the thighs are parallel to the floor, extend the legs by raising the chest and return to the starting position
 - Start the move with the feet parallel, or toes slightly out, and control the down portion of the squat without rounding the back

36. Which of the following squat variations is recommended for individuals with stiff ankles or long thigh bones?
- Place a block under the heels to avoid too much tilting of the torso
 - Place a block under the toes to avoid too much tilting of the torso
 - Place a block under the heels so the torso can be tilted further forward
 - Increase the range of motion by lowering the thighs below horizontal
37. Which of the following statements regarding how to safely execute a traditional horizontal squat is false?
- The feet should be placed in line with the knees
 - The back should be kept as straight as possible and never rounded
 - If performing squats with heavy weight, blocking should be used to help protect the back
 - If lowering the thighs below horizontal, the back should be rounded slightly as the legs are extended
38. Performing squats with legs wide apart focuses on working which of the following muscles?
- The abductors
 - The hamstrings
 - The adductors
 - The abdominals
39. All of the following correctly describe how to perform a squat with the bar in front except:
- The bar is held with an overhand grip and rested on the upper pectorals
 - The elbows are kept down and close to the sides
 - The chest wall is pushed out so the bar does not slide forward
 - At the start of the squat take a breath in, then exhale at the end of the movement
40. Which of the following statements best explains how squats with an elastic band differ from other squat movements?
- Squats with an elastic band work mainly the quadriceps and gluteus muscles
 - When performing squats with an elastic band the back is slightly arched
 - The hardest phase of a squat with an elastic band is when the legs are extended, not at the beginning of leg extension
 - When performing squats with an elastic band inhale at the start of the squat and exhale at the end of the movement

41. In order to help avoid too much forward tilt of the torso, which of the following squat exercises would be recommended?
- Barbell squats
 - Squats with legs apart
 - Squats with a bar in front
 - Squats at a frame guide
42. When performing squats at a frame guide, spreading the feet farther apart focuses the work on which of the following muscle groups?
- The thigh abductor muscles and the vastus lateralis muscle
 - The thigh abductor muscles and the vastus medialis muscle
 - The thigh adductors muscles and the vastus lateralis muscle
 - The thigh adductors muscles and the vastus intermedius muscle
43. Which of the following statements regarding performing thigh flexions with dumbbells is false?
- This exercise should be performed with lighter weights and more repetitions
 - This exercise works the quadriceps and hamstring muscles
 - A dumbbell is held in each hand with the arms extended and relaxed
 - The thighs are flexed until the femurs reach horizontal
44. All of the following are variations in arm positions for performing thigh flexions except:
- Arms crossed behind the back
 - Arms crossed in front of the chest
 - Arms alongside the body
 - Arms extended to the front
45. When performing thigh flexions with legs apart, the primary muscles used are the:
- Semimembranosus, semitendinosus and biceps femoris
 - Adductor longus, biceps femoris, sartorius and tensor fascia latae
 - Quadriceps, gluteals, gastrocnemius and gracilis
 - Vastus lateralis, adductor magnus, medius and brevis, gluteals, pectineus and gracilis
46. The alternating lateral lunge exercise can also be included as part of a stretching program because it provides a good stretch for the:
- Gluteus maximus and medius and gastrocnemius
 - Adductor longus and magnus, gracilis and pectineus
 - Tensor fascia latae, sartorius and iliopsoas
 - Vastus lateralis, intermedius and medialis and rectus femoris

47. Which of the following statements correctly describes how to perform alternating lateral lunges?
- Stand with the legs slightly apart, toes pointed straight ahead; perform a lateral lunge; when the flexed thigh reaches horizontal, extend it to return to the starting position; exhale at the end of the extension
 - Stand with the legs slightly apart, toes pointed straight ahead; perform a lateral lunge; when the flexed thigh reaches horizontal, extend it to return to the starting position; inhale at the end of the extension
 - Stand with legs slightly apart, toes pointed outward; perform a lateral lunge; when the flexed thigh reaches horizontal, extend it to return to the starting position; exhale at the end of the extension
 - Stand with legs far apart, toes pointed outward; perform a lateral lunge; when the flexed thigh reaches horizontal, extend it to return to the starting position; exhale at the end of the extension
48. Which of the following exercises is not recommended for people with knee problems?
- Thigh flexions with dumbbells
 - Squats with a staff
 - Thigh flexions with legs far apart
 - Flexions on one leg
49. Which of the following statements regarding how the knee functions is true?
- The medial and lateral collateral ligaments stretch and prevent rotations of the knee joint when the knee is in extension
 - The medial and lateral collateral ligaments stretch and prevent rotation of the knee joint when the knee is in flexion
 - The medial and collateral ligaments relax when the knee is flexed and the knee joint is stabilized by muscle action
 - Both a and c
50. The _____ distributes pressure in the knee joint on the surface between the femur on the tibia to help prevent wear of the articular surfaces
- Menisci
 - Patella
 - Anterior cruciate ligament
 - Posterior cruciate ligament
51. When performing a hack squat, the abdominals are contracted to:
- Work the abdominal muscles in an upright position
 - Prevent flexion of the upper torso
 - Prevent lateral displacement of the pelvis and spine
 - Prevent medial displacement of the pelvis and spine

52. In order to emphasize using the gluteal and hamstring muscle groups when using an incline press, the:
- Feet should be spread apart
 - Feet should be placed high on the platform
 - Feet should be placed low on the platform
 - Toes should be pointed slightly outward
53. People with back problems can use the incline press if they:
- Use a lumbar support pad
 - Use their hands to help push their legs into extension
 - Never remove the buttocks from the back support
 - Keep the head elevated off the back rest
54. The safety instruction to never completely extend the knees during exercise applies primarily to women due to _____, which is related to reproduction and can often result in _____.
- Ligament hyperlaxity; knees in recurvatum
 - Ligament hyperlaxity; displacement of the sacroiliac hinge
 - Lateral luxation of the patella; knees in recurvatum
 - Lateral luxation of the patella; displacement of the sacroiliac hinge
55. Which of the following exercises is both a good exercise for beginning exercisers and a good exercise to isolate the quadriceps?
- Thighs at an incline press
 - Thigh raises with weight
 - Hack squats
 - Leg extensions at an incline machine
56. Which of the quadriceps muscles spans both the knee joint and the hip joint?
- Vastus lateralis
 - Vastus medialis
 - Vastus intermedius
 - Rectus femoris
57. Retraction of the hamstring muscles leads to a _____ and _____ which results in poor posture and eventual vertebral pathologies.
- Posterior pelvic tilt; an increase in the lordotic curve
 - Posterior pelvic tilt; a loss of the lordotic curve
 - Anterior pelvic tilt; an increase in the lordotic curve
 - Anterior pelvic tilt; a loss of the lordotic curve

58. When performing adductors on the floor, which of the following muscles is worked the most?
- Pectineus and adductor brevis
 - Adductor minimus and adductor longus
 - Adductor magnus and gracilis
 - Pectineus and gracilis
59. When working the adductor muscles with a machine, it is recommended that:
- Heavy weights be used for best results
 - Perform short series with light weight
 - Stretch the adductor muscles after exercising on the machine
 - Open and close the legs as rapidly as possible
60. In order to avoid the risk of injury, it is recommended that when performing stiff legged dead lifts the:
- Back never be rounded when executing the movement
 - Knees always stay flexed during the movement
 - Back stays slightly rounded when executing the movement
 - Feet be placed higher than the bar
61. In order to better feel the contraction of the hamstrings when performing good morning exercises, it is recommended that:
- The movement be performed rapidly
 - The exercise be performed with light weight
 - The exercise be performed with the legs extended
 - Both b and c
62. Gentle good morning exercises can be used to _____ to help limit _____.
- Work the gluteals; vertebral pathologies
 - Stretch the back of the thigh; retraction of the hamstrings
 - Stretch the front of the thigh; luxation of the patella
 - Work the hamstrings; retraction of the hamstrings

63. Which of the following statements correctly describes how to perform good mornings with a staff?
- Exhale and flex the torso forward until slightly lower than horizontal, keep the legs extended and the back straight; return to the initial position, squeeze the glutes at the end of the movement and exhale
 - Inhale and flex the torso forward until horizontal, keep the legs extended and the back straight; return to the initial position, squeeze the hamstrings at the end of the movement and exhale
 - Inhale and flex the torso forward until horizontal, keep the legs extended and the back straight; return to the initial position, squeeze the glutes at the end of the movement and exhale
 - Exhale and flex the torso forward until slightly less than horizontal, keep the legs extended and the back straight; return to the initial position, squeeze the glutes at the end of the movement and inhale
64. Good mornings with a staff primarily work which of the following muscles?
- Short head of the biceps femoris, semitendinosus and semimembranosus
 - Rectus femoris, semitendinosus and semimembranosus
 - Rectus femoris, vastus lateralis and vastus intermedius
 - Long head of the biceps femoris, semitendinosus and semimembranosus
65. Performing lying leg curls works the hamstring muscle group, the _____ and the _____.
- Gastrocnemius; tibialis anterior
 - Gluteals; gastrocnemius
 - Gastrocnemius; popliteus
 - Tibialis anterior; popliteus
66. When performing lying leg curls, the work of the hamstring muscle group can be emphasized by:
- Performing the exercise with the feet flexed
 - Performing the exercise with the feet extended
 - Performing the exercise flexing one leg at a time
 - Performing the exercise with a weight held between the feet
67. The popliteus muscle is located _____ and functions to _____.
- Deep on the anterior side of the leg at the level of the knee; flex the lower leg
 - Deep on the posterior side of the leg at the level of the knee; flex the lower leg
 - Deep on the anterior side of the leg at the level of the hip; flex the thigh
 - Deep on the posterior side of the leg at the level of the hip; flex the thigh

68. To increase the emphasis on the gastrocnemius muscle when performing standing leg curls, it is recommended that:
- The ankle be flexed during knee flexion
 - The ankle be extended during knee flexion
 - The ankle be flexed during knee extension
 - The ankle be extended during knee extension
69. Which of the following exercises would be recommended to primarily work the semitendinosus, semimembranosus and biceps femoris muscles?
- Good mornings
 - Lying leg curls with the feet flexed
 - Seated leg curls with the feet extended
 - Hamstrings at the bench with feet dorsiflexed
70. Which of the following statements correctly describes how to perform hamstrings at a bench?
- Lie supine on a bench with the head extended and knees off the bench; slowly flex and extend both legs simultaneously
 - Lie prone on a bench with the head down and the knees off the bench; rapidly flex and extend both legs simultaneously
 - Lie prone on a bench with the head extended and the knees off the bench; slowly flex and extend both legs simultaneously
 - None of the above
71. Which of the following exercises works the hamstrings and to a lesser degree the gastrocnemius and the gluteus maximus
- Lying leg curls
 - Hamstrings on the floor
 - Standing leg curls
 - Seated leg curls
72. The triceps surae is made up of the _____ muscles.
- Plantaris; lateral and medial heads of the gastrocnemius
 - Tibialis anterior; lateral and medial heads of the gastrocnemius
 - Soleus; peroneus longus and brevis
 - Soleus; lateral and medial heads of the gastrocnemius
73. When performing standing calf raises, the feet are _____ or _____.
- Flexed; plantar flexed
 - Extended; plantar flexed
 - Flexed; dorsiflexed
 - Extended; dorsiflexed

74. Pointing the toes outward when performing standing calf raises attempts to put more emphasis on working the _____.
- Gastrocnemius, medial head
 - Gastrocnemius, lateral head
 - Hamstring muscles
 - Soleus
75. When performing one-leg toe raises, the foot should be _____ completely in order to _____.
- Extended; work the soleus muscle
 - Flexed; stretch the Achilles tendon
 - Extended; stretch the triceps surae
 - Flexed; stretch the triceps surae
76. Which of the following statements correctly describes how to perform standing barbell calf raises?
- Place the bar slightly lower than the posterior deltoids; remove the bar from its support and step back, keeping the back straight; extend the feet
 - Place the bar on the trapezius; remove the bar from its support and step back, keeping the back straight; extend the feet
 - Place the bar on the trapezius slightly higher than the posterior deltoids; remove the bar from its support and step back, keeping the back slightly arched; extend the feet
 - Place the bar on the trapezius slightly higher than the posterior deltoids; remove the bar from its support and step back, keeping the back slightly arched; flex the feet
77. Which of the following statements is true regarding performing exercises to work primarily the soleus muscle?
- Performing donkey calf raises works the soleus muscle more than the gastrocnemius muscle because the torso is flexed
 - Performing one-leg toe raises on a block with the knee slightly flexed emphasizes working the soleus muscle
 - Performing seated barbell calf raises emphasizes working the soleus muscle because flexing the knee relaxes the gastrocnemius muscles and puts more effort on the soleus as the feet are extended
 - Performing seated calf raises emphasizes working the soleus muscle because this exercise requires ankle flexion and the function of the soleus is to flex the ankles
78. When performing abdominal exercises the back should be _____ in order to help prevent the lumbar spine from being pulled into an arched position by the _____
- Straight; erector spinae
 - Rounded; psoas major
 - Straight; psoas major
 - Rounded; erector spinae

79. In order to work the obliques when performing crunches:
- Alternate rolling up and bringing the right elbow to the right knee and the left elbow to the left knee
 - Alternate rolling up and bringing the right elbow to the left knee and the left elbow to the right knee
 - Alternate rolling up and extending the right leg and then the left leg
 - Alternate rolling up and pulling the knees to the elbows and then extending the legs
80. To increase the intensity of crunches with feet on the floor, the:
- Elbows should be held open
 - Elbows should be held closed and pulled forward
 - Hands should be crossed behind the head
 - Chin should be held away from the chest and the gaze focused upward
81. Which of the following abdominal exercises could be recommended to a person with back problems or to a woman who has recently given birth?
- Torso raises off the floor
 - Leg extensions on the floor
 - Crunches with feet on the floor
 - Suspended crunches at a bench
82. Although the torso raises off the floor exercise works mainly the _____, it also works the _____ and the _____.
- Rectus femoris; rectus abdominus; tensor fascia latae
 - Rectus abdominus; hip extensors; obliques
 - Obliques; hip extensors; rectus femoris
 - Rectus abdominus; hip flexors; obliques
83. Which of the following modifications would make the torso raises off the floor exercise easier for beginners?
- Anchoring the feet under a platform
 - Having a partner hold the feet
 - Performing the exercise on an incline bench
 - Extending the arms forward
84. Which of the following muscles function to flex the hip?
- Gluteus medius; iliopsoas; biceps femoris
 - Biceps femoris; tensor fascia latae; iliopsoas
 - Rectus femoris; tensor fascia latae; iliopsoas
 - Rectus abdominus; tensor fascia latae; iliopsoas

85. In order to properly feel the abdominal muscles when performing half crunches, the:
- Back should be arched slightly while lifting and lowering the torso
 - Back should be rounded slightly while lifting and lowering the torso
 - Hands should be laced behind the head
 - Torso should be lowered quickly and raised slowly
86. In order to lessen the participation of the hip flexors when performing crunches with the feet raised, the:
- Torso should be moved farther from the bench
 - Torso should be moved closer to the bench
 - Heels of the feet and not the legs should be placed on the bench
 - One leg should be lifted slightly off the bench
87. The primary goal of abdominal exercises for women who have recently given birth is to:
- Tone and shorten the abdominal muscles
 - Strengthen and stretch the abdominal muscles
 - Decrease the size of the waist and hips
 - Tone and lengthen the abdominal muscles
88. In order to feel the rectus abdominus working when performing crunches on a bench, it is recommended that:
- The back be held as straight as possible as the move is executed
 - The knees be lifted as rapidly as possible
 - An isometric contraction of the rectus abdominus be held for one or two seconds with the knees lifted to the chest
 - The knees be pulsed up and down several times before returning to the starting position
89. To emphasize the obliques when performing crunches on an incline bench, rotate the torso to the left to work the _____ and the _____; rotate the torso to the right work the _____ and the _____.
- Left internal oblique; tensor fascia latae on the left side; right internal oblique; tensor fascia latae on the right side
 - Right internal oblique; left external oblique; left internal oblique; right external oblique
 - Right external oblique; left internal oblique; left external oblique; right internal oblique
 - Right internal oblique; rectus abdominus on the left side; left internal oblique; rectus abdominus on the right side

90. Which of the following statements regarding crunches on an incline board is true?
- To make the exercise harder to execute, add more incline to the board
 - This exercise can be executed by lowering the torso almost to the board or by keeping the movement smaller and lowering the torso less close to the board
 - This exercise can be performed with the hands beside the head or extended in front
 - All of the above
91. The iliopsoas muscle flexes the hip and _____.
- Internally rotates the thigh
 - Internally rotates the hip
 - Flexes the spine
 - Externally rotates the thigh
92. When performing leg raises from a fixed bar, the obliques can be worked more intensely by:
- Raising the knees as high as possible and pulsing them up and down several times
 - Raising the knees as high as possible and twisting the torso right and left
 - Raising the legs alternately to the right and left sides
 - Raising the legs only to the level of the horizon and never higher
93. The postural fault known as kyphosis can result from _____ and _____, and can be alleviated by _____.
- Hypertonicity of the erector spinae; hypertonicity of the abdominal muscles; strengthening the erector spinae
 - Hypotonicity of the erector spinae; hypertonicity of the abdominal muscles; strengthening the erector spinae
 - Hypotonicity of the erector spinae; hypotonicity of the abdominal muscles; strengthening the abdominal muscles
 - Hypotonicity of the erector spinae; hypertonicity of the abdominal muscles; strengthening of the abdominal muscles
94. Which of the following abdominal exercises focuses the work on the portion of the rectus abdominus muscle located below the naval?
- Leg raises on an incline board with crunches
 - Half crunches
 - Crunches on a bench
 - Crunches on an incline bench

95. In order to properly execute a pelvic rotation on the floor it is recommended that:
- The legs should never be lowered all the way to the floor
 - One leg be extended and one leg be bent as the torso is rotated
 - The head and shoulders be maintained on the floor as the knees are lowered
 - The head turn to the left when the knees rotate left, and the head turn to the right when the knees rotate right
96. All of the following muscles are worked during the cycling on the floor exercise except:
- Biceps femoris
 - Rectus abdominis
 - Internal and external obliques
 - Tensor fascia latae
97. Which of the following statements comparing high pulley crunches to machine crunches is false?
- The back is rounded to bring the sternum as close as possible to the pubis
 - Heavy weights can be used with either exercise
 - The breath is exhaled at the end of the movement
 - Both exercises work the rectus abdominus
98. Which of the following muscles of the back are worked during the execution of lateral torso flexions on a bench?
- Erector spinae
 - Latissimus dorsi
 - Quadratus lumborum
 - Both b and c
99. Which of the following statements describes how to correctly perform the obliques at a high pulley exercise?
- Stand with the legs close together, handle in one hand, the other hand at the waist; perform a lateral side bend with the torso on the side of the handle
 - Stand with the legs slightly apart, handle in one hand, the other hand behind the head; perform a lateral side bend with the torso on the side of the handle
 - Stand with the legs slightly wider than shoulder width apart, handle in one hand, the other hand on the waist; perform a lateral side bend with the torso on the side of the handle
 - Stand with the legs wider than shoulder width apart, handle in one hand, the other hand behind the head; perform lateral flexion of the torso to the side away from the handle

100. When performing broomstick twists either standing or sitting on a bench, with the right shoulder forward the _____ and the _____ are working.

- a. Right internal oblique; deep left internal oblique
- b. Left external oblique; deep left internal oblique
- c. Right external oblique; deep left internal oblique
- d. Left internal oblique; deep left external oblique
- d. Longissimus

