

Optimal Muscle Training

CORRESPONDENCE EDUCATION PROGRAM # 92.

**Check your receipt for course expiration date.
After that date no credit will be awarded for this program.**

E X E R C I S E

E T C . I N C .



How to Complete this Program

Thank you for choosing an Exercise ETC correspondence program for your continuing education needs. **To earn your CECs/CEUs you will need to complete the test which follows.** The test is entirely based on the book whose title appears on the cover sheet of this test package. After you have completed the book, **take the test that follows.** Write your answers on the test itself or on a separate sheet of paper. Remember to choose the best or most correct answer for each question.

When you are done with the test, you are ready to submit your test for grading on our website: www.exerciseetc.com At the top, RIGHT corner of your screen you will see a blue bar with a list of options; click on **“Administration”** and then click **“Correspondence Course Answer Sheets.”** From the drop-down box choose the EXACT title of the test that you are completing and then enter the EXACT email address you used when you ordered the program. (Make sure to choose the exact title for your exam; many titles are very similar, especially if there are different editions of the same text.) After you hit the “Begin” button **your purchase will be verified.** **If we are unable to verify your purchase, you will receive a message requesting that you call our office for instructions.**

Once you see the “bubble” answer sheet, simply transfer your handwritten answers from your paper to the answer sheet. **Complete the evaluation and hit “Submit”** and your test will be corrected instantly; **if you score at least 70% you will be notified that you passed** and your certificate of completion will instantly be emailed to you. (If you have less than 70% correct, you will need to take test over again in order to qualify for the CECs/CEUs.) **If you do not see the email from us instantly, check your “spam” or “junk” folder.**

Good luck! If you have any questions or comments, please feel free to call us any time at 1-800-244-1344 or e-mail us at: info@exerciseetc.com

LEARNING OBJECTIVES

After reading Optimal Muscle Training, the participant will be able to:

1. Understand an in-depth and educational review of effective treatments for weight training dysfunctions.
2. Identify the biomechanics of lifting for maximum growth and strength.
3. Recognize the three levels of functional muscle testing through screens and exams.
4. Understand the proper technique for over 100 exercises on various body parts.
5. Identify single joint and multi-joint compound exercises.
6. Recognize corrective training techniques, flexibility and strength exercises for optimal results.
7. Know the qualitative and quantitative scoring system to identify muscle dysfunctions.
8. Easily understand and identify all of the muscle's functions during exercise.
9. Understand about pain free symmetrical strength while performing various weight training exercises.
10. Learn the protocols to determine an individual's level of functionality for advanced strength training.
11. Identify the best isometric agonist –antagonist exercise and tubing exercises.

12. Recognize how to create a well-designed training program despite any limitations or injuries.
13. Understand the exact needs of refueling your muscles after strength training.
14. Identify the differences and advantages of exercise duration, and the number of training days per week to ensure training success.
15. Understand the specific roles of adenosine triphosphate as the primary source of fuel for the muscles.
16. Know how to determine the risk to benefit ratio of specific weight training exercise techniques.
17. Recognize structural aberrations such as scoliosis and the solutions required to design the programs needed for body alignment compensation.
18. Understand active PNF, and how normal neurological firing patterns occur through a dynamic range of motion under tension.
19. Understand functional anatomy and muscle biomechanics to make sure that muscles, joints and nerves are all working and have no dysfunction.
20. Know the safety, efficacy and positions of performance exercises according to current sports science research.



CEC/CEU TEST FOR:
Optimal Muscle Training

1. The goal of a strength training program is to optimize:

- a. Mitochondria
- b. Recovery time
- c. Function and conditioning
- d. Protein synthesis

2. Weight-training injuries can be the result of:

- a. Lactic Acid
- b. Thermogenesis
- c. PNF
- d. Poor lifting technique

3. Restricted range of motion in a joint can occur if the muscles are is damaged from _____?

- a. Hydration
- b. Vitamin B-12
- c. Lactic acid
- d. Build-up of scar tissue

4. A chemical dysfunction occurs when one or more _____ are deficient.

- a. Nutrients
- b. Trigger points
- c. Mitochondria
- d. All of the above

5. An injured muscle will NOT have:

- a. Inflammation
- b. Adhesions
- c. Pain-free range of motion (ROM)
- d. Scar tissue

6. The first sign of a muscle dysfunction is usually:

- a. Pain and weakness in the muscle
- b. Increased range of motion
- c. Swelling
- d. Loss of balance

7. Chronic muscle inflammation can be reduced by:

- a. Increasing reps, decreasing loads
- b. Physical therapy
- c. Taking some time off from lifting
- d. None of the above

8. Many muscle injuries are the result of:

- a. Tearing or compressive forces
- b. Cortisol surplus
- c. Testosterone deficiency
- d. Pantothenic acid build-up

9. Compressive injuries can result from:

- a. A ligament tear
- b. A tendon rupture
- c. Sprain or strain
- d. Excessive downward pressure on the spine

10. A tearing injury can be the result of:

- a. Squats
- b. Biceps curls
- c. Deadlifts
- d. Any of the above

11. Compressing or stretching a nerve generally will NOT result in:

- a. Muscle weakness
- b. Paralysis
- c. Muscle pain
- d. Tingling sensation

12. A classic sign of overtraining may include:

- a. Weakness
- b. Pain
- c. Injury
- d. Any of the above

13. Tingling or numbness during or after weight training may be a sign of:

- a. A central nervous system problem
- b. Nerve damage
- c. A synapse collapse
- d. A dendrite problem

14. Overtraining may cause the adrenal gland to increase production of this stress hormone:

- a. Epinephrine
- b. Estrogen
- c. Cortisol
- d. Growth hormone

15. Weight training dysfunction is NOT caused by:

- a. Poor lifting technique
- b. Overtraining
- c. Consuming a sports beverage
- d. Insufficient rest

16. The shortening phase of a muscular contraction is called:

- a. Isometric
- b. Concentric
- c. Isotonic
- d. PNF

17. Which of the following is within the scope of practice of a Fitness Professional?

- a. Goal setting
- b. Myofascial release
- c. Acupuncture
- d. Massage therapy

18. Functional anatomy does NOT examine:

- a. A muscle's origin
- b. A muscle's insertion
- c. Muscle fiber classification
- d. How a muscle moves a joint

19. Muscles work in pairs which keep movements smooth, powerful and precise. These pairs are called:

- a. Anterior/posterior
- b. Yin/yang
- c. Agonist/antagonist
- d. Any of the above

20. The three heads of the deltoid muscle are:

- a. Lateral, proximal, distal
- b. Anterior, posterior, lateral
- c. Major, medial, minor
- d. Supra, infra, sub

21. Deltoid dysfunction would be most likely to result in pain while doing:

- a. Overhead presses
- b. Deep squats
- c. Horizontal rows
- d. Bicep curls

22. Which of the following is NOT a rotator cuff muscle?

- a. Teres minor
- b. Supraspinatus
- c. Pectoralis major
- d. Subscapularis

23. To prevent fatigue, the rotator cuff muscles should be exercised:

- a. At the beginning of an exercise session
- b. Towards the end of an exercise session
- c. On "core training" day
- d. Daily

24. These two muscles comprise what is generically called "the chest".

- a. Rhomboids and trapezius
- b. Gluteus medius and minimus
- c. Anterior and posterior deltoid
- d. Pectoralis major and pectoralis minor

25. Weak pectoral muscles may result in pain or discomfort especially while performing:

- a. Walking lunges
- b. Decline presses
- c. Triceps extensions
- d. Supine flyes

26. A bench press done with a narrow grip puts more emphasis on the:

- a. Triceps
- b. Pec minor
- c. Latissimus dorsi
- d. Serratus anterior

27. An incline bench press puts more emphasis on the:

- a. "Lower" pecs
- b. "Upper" pecs
- c. Bicep brachii
- d. Rhomboids

28. The biceps brachii muscle has two heads called:

- a. Anterior and posterior
- b. Major and minor
- c. Long and short
- d. Medial and lateral

29. To effectively work the biceps group, three separate grips should be used for biceps curls. They are called:

- a. Open, closed, neutral
- b. Anterior, posterior, neutral
- c. Pronated, supinated, neutral
- d. Loose, tight, neutral

30. Which of the following is NOT one of the heads of the triceps brachii muscle?

- a. Posterior
- b. Long
- c. Medial
- d. Lateral

31. To effectively work the triceps muscle, the muscle should reach fatigue within _____ reps.

- a. 12 - 15
- b. 5 - 8
- c. 1 - 3
- d. 1 - 12

32. The upper back muscles include the:

- a. Brachioradialis, serratus anterior, coracobrachialis
- b. Soleus, gastrocnemius, tibialis anterior
- c. Latissimus dorsi, trapezius and rhomboids
- d. Erector spinae, quadratus lumborum, piriformis

33. Weak upper back muscles may cause:

- a. Rounded shoulders
- b. Adduction of the scapula
- c. Elevated shoulders
- d. Spinal stenosis

34. The most effective exercise for the upper trapezius is the:

- a. Overhead press
- b. Shrug
- c. Dip
- d. Push-up

35. Which muscle is mainly used for dumbbell kickbacks and rope press downs?

- a. Triceps brachii
- b. Biceps brachii
- c. Pectoralis minor
- d. Pectoralis major

36. The main function of the biceps group is to:

- a. Neutralize the elbow
- b. Flex the elbow
- c. Adduct the elbow
- d. Abduct of the elbow

37. The flexor carpi radialis muscle in the forearm flexes which joint?

- a. Shoulder joint
- b. Elbow
- c. Shoulder girdle
- d. Wrist

38. If you develop "lateral epicondylitis", pain occurs in which joint?

- a. Knee
- b. Wrist
- c. Elbow
- d. Ankle

39. To increase the development of the biceps brachii, you should_____?

- a. Do biceps curls with the palm down
- b. Do biceps curls with the palm up
- c. Do biceps curls with the wrist pronated
- d. Any of the above

40. Which is NOT one of the upper back muscles?

- a. Trapezius
- b. Rhomboid
- c. Latissimus dorsi
- d. Erector spinae

41. Which of the following exercises is high risk for the pectoralis major?

- a. Pec deck and supine flye
- b. Supine flye
- c. pec deck
- d. Neither of the above

42. Which of the following exercises is low risk for the pectoralis major?

- a. Chest flye
- b. Decline chest press
- c. "Clap" push-ups
- d. Both B and C

43. The main action of the rhomboid muscle is to elevate, retract and give stability to the_____?

- a. Shoulder
- b. Spine
- c. Scapula
- d. Elbow

44. Weakness in the middle trapezius muscles gives a _____ shoulder appearance?

- a. Elevated
- b. Retracted
- c. Rounded
- d. Depressed

45. To develop the upper trapezius, the best exercise is _____?

- a. Upright rows
- b. One-arm rows
- c. Lateral raise
- d. Dumbbell shrugs

46. To best work the upper back you would NOT choose:

- a. Dips
- b. Lat pull downs
- c. Horizontal rows
- d. Pull ups

47. The lower portion of the trapezius muscle is usually the _____ part of the upper back?

- a. Biggest
- b. Smallest
- c. Weakest
- d. Strongest

48. The most effective exercise for the latissimus dorsi is to perform _____?

- a. Forward shrugs
- b. Lat pull downs, bar to the chest
- c. Lat pull downs, bar behind the head
- d. Push ups

49. To work the rhomboids more effectively while doing a one-arm row, position the upper arm at _____ degrees of flexion?

- a. 50
- b. 75
- c. 90
- d. 10

50. Which of the following is NOT a "core" muscle?

- a. Transverse abdominus
- b. Rectus abdominus
- c. Flexor carpi radialis
- d. Erector spinae

51. The quadratus lumborum is responsible for spinal _____?

- a. Flexion
- b. Lateral flexion
- c. Rotation
- d. Extension

52. The gluteus medius is one of the primary abductors of the_____?

- a. Ankle
- b. Spine
- c. Knee
- d. Hip

53. Weakness of the erector spinae decreases _____ strength and causes instability of the lumbar vertebrae.

- a. Cervical
- b. Lumbar
- c. Thoracic
- d. Sacral

54. Lumbar flexion can cause muscle spasms if which muscle is weak?

- a. Quadratus lumborum
- b. Gluteus maximus
- c. Psoas
- d. Upper rhomboid

55. If the gluteus maximus is too tight, this could lead to increased lumbar_____?

- a. Scoliosis
- b. Kyphosis
- c. Lordosis
- d. None of the above

56. Weakness of the tensor fascia latae can cause pain in the _____?

- a. Knee and hip
- b. Lower back and ankle
- c. Ankle and knee
- d. Upper back and hip

57. What is arguably the most effective exercise for lower back and hips?

- a. Walking lunges
- b. Seated hamstring curls
- c. Deadlifts
- d. Adduction

58. What exercise is less effective for increasing strength of the gluteal muscles?

- a. Seated leg extension
- b. Deadlifts
- c. Walking lunges
- d. Squats

59. Which is NOT one of the four muscles of the quadriceps femoris?

- a. Rectus femoris
- b. Vastus medialis
- c. Vastus lateralis
- d. Biceps femoris

60. In addition to extending the knee, the rectus femoris also _____ the hip.

- a. Abducts
- b. Adducts
- c. Flexes
- d. Rotates

61. Which muscle of the quadriceps group also flexes the hip??

- a. Rectus femoris
- b. Vastus medialis
- c. Vastus intermedius
- d. Vastus lateralis

62. An example of a compound movement for training the hip and knee joints is the:

- a. Leg extension
- b. Leg press
- c. Donkey raise
- d. Hip Abduction

63. An example of an isolated single joint exercise is a _____?

- a. Leg extension
- b. Squat
- c. Deadlift
- d. Upright row

64. The hamstring muscle group is made up of _____ separate muscles?

- a. Two
- b. One
- c. Four
- d. Three

65. When the hamstring muscles contract, they extend the thigh and _____ the knee?

- a. Stabilize
- b. Flex
- c. Rotate
- d. Extend

66. To most effectively train the latissimus dorsi select:

- a. Squats
- b. Upright rows
- c. Push-ups
- d. Horizontal rows

67. Which of the following is NOT one of the hip abductor muscles?

- a. Gluteus medius
- b. Tensor fasciae latae
- c. Gluteus minimus
- d. Gastrocnemius

68. One of the most effective exercises for the lower back and hips is the:

- a. Deadlift
- b. Prisoner walking lunge
- c. Donkey lift
- d. Side shuffle

69. Which of the following is one of the quadriceps muscles?

- a. Peroneus
- b. Vastus medialis
- c. Tibialis anterior
- d. Piriformis

70. Which of the following is NOT a "functional" exercise for the quadriceps?

- a. Leg extension
- b. Squat
- c. Lunge
- d. Deadlift

71. Which of the following should be avoided after an ACL injury?

- a. Half squats
- b. Cycling
- c. Seated knee extensions
- d. Leg presses

72. A narrow squat emphasizes the _____ while a wide squat emphasizes the _____.

- a. Quadriceps, gastrocnemius
- b. Hamstrings, gluteals
- c. Quadriceps, gluteals
- d. None of the above

73. Which of the following is one of the hamstring muscles??

- a. Rectus femoris
- b. Biceps femoris
- c. Piriformis
- d. Tibialis posterior

74. The hamstring group has two major functions:

- a. Hip extension and knee flexion
- b. Hip and knee flexion
- c. Hip flexion and knee extension
- d. Hip and knee extension

75. The calf muscle group includes the:

- a. Pectoralis major and minor
- b. Psoas major and minor
- c. Tibialis anterior and posterior
- d. Soleus and gastrocnemius

76. The gastrocnemius is not able to lift the heel when:

- a. The knee is flexed
- b. The hip is flexed
- c. The knee is extended
- d. The knee is extended

77. The _____ is generally regarded as one of the most effective exercises for the gastrocnemius and soleus.

- a. Seated heel lift
- b. Donkey lift
- c. Standing heel lift
- d. Seated toe lift

78. The hamstrings have two major functions. One is knee flexion, and the other is _____?

- a. Thigh flexion
- b. Thigh isolation
- c. Thigh extension
- d. Thigh pronation

79. To strengthen the rectus abdominus, the client should:

- a. Rotate the spine
- b. Flex the spine
- c. Abduct the spine
- d. Extend the spine

80. The main action of which of these muscles is plantar flexion of the ankle?

- a. Soleus
- b. Piriformis
- c. Tibialis anterior
- d. Posterior tibialis

81. Which of the following core muscles is NOT part of the abdominal group?

- a. Rectus abdominus
- b. Erector spinae
- c. Internal oblique
- d. Transverse abdominus

82. If the transverse abdominis is weak, the lumbar spine tends to:

- a. Extend
- b. Rotate
- c. Flex
- d. Supinate

83. Extreme spinal flexion with rotation increases the risk of :

- a. A slipped vertebrae
- b. Spinal stenosis
- c. A herniated disc
- d. Disc lamination

84. Which of the following muscles is NOT part of the abdominal group?

- a. Transverse abdominus
- b. Obliques
- c. Rectus abdominus
- d. Erector spinae

85. Which of the following statements is true?

- a. All exercises carry a risk
- b. Some exercises guarantee injury
- c. Some exercises are risk free
- d. All of the above are true

86. Evaluating the pros and cons of an exercise is called a:

- a. Waiver
- b. Objective assessment
- c. Risk to benefit ratio
- d. Needs analysis

87. Which of the following statements is not true?

- a. A "high risk" exercise guarantees injury
- b. A "low risk" exercise is always effective
- c. A "high risk" exercise is never effective
- d. A "low risk" exercise is 100% safe

88. Which is true for a beginning exerciser?

- a. Resistance is more important than repetitions
- b. Go slowly and focus on form
- c. There is very low risk of injury to the beginner
- d. All of the above are true

89. Which is true for an intermediate exerciser?

- a. Four to six sets at 85% of the 1RM offers medium risk and high benefits
- b. Three to four sets of 8 – 12 reps offer medium risk and high benefits
- c. The intermediate exerciser is ready to start lifting maximal or near-maximal weights.
- d. One set of 14 reps at 65% of the 1 RM is safe and effective

90. Which is true for an advanced exerciser?

- a. Strength is more important than experience
- b. Experience is more important than form
- c. A client becomes an "advanced" exerciser after at least a year or more of progressive lifting experience
- d. None of the above are true

91. When initiating a risk-benefit analysis, the first step is to:

- a. Determine the person's experience
- b. Determine the desired outcome
- c. Understand the individual's biomechanics
- d. Review the body's structural alignment

92. When performing a dead lift or a power clean, make sure the bar _____ the body at all times?

- a. Is far away from
- b. Is a few inches away from
- c. Is near to
- d. None of the above

93. For a beginning client, select:

- a. More repetitions
- b. Fewer sets
- c. Lower weights
- d. All of the above

94. If you do exercises with one to five repetitions at 85% to 100% of your 1RM, you are exercising at a _____ risk?

- a. Low
- b. Medium
- c. High
- d. Very high

95. Doing exercises where you can control all the movements at a slow to medium speed yields a _____ risk with _____ benefits?

- a. Low; low
- b. High, medium
- c. High; high
- d. Medium, medium

96. A progressive weight training routine increases the overload on:

- a. Joints
- b. Ligaments
- c. Muscles
- d. Tendons

97. Which type of stretch is most commonly used in a fitness environment?

- a. Static
- b. Trainer assisted
- c. PNF
- d. Ballistic

98. A _____ training program is designed to improve function and remedy dysfunctions.

- a. Corrective
- b. Functional
- c. Rehabilitation
- d. Strength& conditioning

99. To restore optimal function, which of the following does NOT need to be considered?

- a. Joint mobility
- b. Gender
- c. Muscle strength
- d. These must ALL be considered

100. Which of the following is NOT a weight-training variable/parameter?

- a. Rest between sets
- b. Number of training days per week
- c. Client's level of motivation
- d. Exercise selection