Chapter 12: Muscle Fitness: Muscular Endurance and General Muscle Fitness Information

Lesson 12.1: Improving Muscular Endurance

Self-Assessment 12: Muscular Endurance
Lesson 12.1: Improving Muscular Endurance

Lesson Objectives:
• Describe the differences among muscular endurance, cardiovascular fitness, and muscular strength.
• Describe benefits of good muscular endurance.
• Explain the FIT formula for building muscular endurance.
• Describe several guidelines for building muscular endurance.
Lesson 12.1: Improving Muscular Endurance

Question

What does the term *cardiovascular fitness* mean?
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Answer

- Cardiovascular fitness means you can exercise continuously for long periods of time.
- Running, swimming, biking, and soccer are all activities requiring good cardiovascular fitness.
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Question

What does the term *muscular endurance* mean?
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Answer

Muscular endurance refers to how well specific muscles (e.g., the biceps) can continue to work before fatiguing.
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Question

Explain how it might be possible to have good muscular endurance in the arms but not in the lower body.
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Answer

• You might do lots of “high repetition, light weight” exercises for the arms, but not do any for the legs.
• You build only the muscles you use regularly.
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Question

What are some benefits of having good muscular endurance?
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Answer

• Muscular endurance exercise improves appearance, fitness, and physical and mental health.
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Answer (continued)

• Good muscular endurance
  – enables people to work longer without getting tired.
  – enables people to maintain good posture.
  – may decrease chances of backaches, muscle soreness, and muscle injuries.
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Question

What does a machine called an electromyogram do?
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Answer

The electromyogram (EMG) uses special equipment to monitor the amount of electrical activity (indicating force or tension) in a muscle or muscle group.
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Question

What are some guidelines to follow when doing muscular endurance exercises?
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Answer

Guidelines to follow when doing muscular endurance:

• Warm up and stretch.

• Breathe as normally as possible:
  – Exhale when moving against the resistance.
  – Inhale during the relaxed part of the lift.
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Answer (continued)

• Start with low-intensity exercises.
• Use proper form.
• Exercise with a partner if you can.
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Question

What is the FIT formula for muscular endurance?
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Answer

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Target zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>3-6 days/wk</td>
</tr>
<tr>
<td>Intensity</td>
<td>20-55% of 1RM</td>
</tr>
<tr>
<td>Time</td>
<td>1-3 sets of 11-25 reps for each exercise</td>
</tr>
</tbody>
</table>

Rest 2 minutes between sets.
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Question

How does the principle of progression apply to endurance training?
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Answer

From week to week:
• gradually increase the amount or weight, OR
• gradually increase the number of repetitions, OR
• gradually decrease the recovery between sets or reps.
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Question

How does the principle of specificity apply to endurance training?
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Answer

• The exercises you do build endurance for that particular muscle group only.
• Examples:
  – Bench press increases endurance in the chest muscles.
  – Leg extensions increase endurance in the leg muscles.
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Question

Why is variety in a resistance training program important?
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Answer

• Variety in a resistance training program is important because new routines stress your muscles in different ways.

• For example, for one month you might do exercises that focus on high resistance for strength, and the next month you might focus on high reps for muscular endurance.
Self-Assessment 12: Muscular Endurance

Question

How do you perform the side stand test?
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Answer

Side Stand:

• Lie on your side.
• Use both hands to get your body in position so that it is supported by your left hand and the side of your left foot. Keep your body stiff.
• Raise your right arm and leg in the air. Hold.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• Return to starting position and repeat the test on the right side.
• Pass (males) = hold position for 30 seconds on each side
• Pass (females) = hold position for 20 seconds on each side
Self-Assessment 12: Muscular Endurance

Question

How do you perform the trunk extension test?
Self-Assessment 12: Muscular Endurance

Answer

Trunk Extension:
• Lie facedown on a stable weight bench or the end of a bleacher that is 15 to 20 inches high. The top of your hips should be even with the end of the bench and the upper body should hang off the end of the bench. If the surface is hard, cover it with a mat or a towel.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• Have a partner hold your calves using one hand on each leg 12 inches above the ankles.
• Overlap your hands and place them (palms away) in front of your chin.
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Answer (continued)

• Start with the upper body bent at the hip so that the chin is near the floor with the palm of your lower hand against the floor. Place a small mat on the floor below the hands and chin.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• Keeping your head and neck in line with your upper body, slowly lift your head and upper body off the floor until the upper body is in line with your lower body.

• Lower to the starting position so that the palm of the lower hand touches the floor.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• Perform one lift every 3 seconds. You may want to have a partner say “up-down” to help you.
• Caution: Do not lift the upper trunk higher than horizontal (in line with lower body).
• Pass (males) = 20 repetitions.
• Pass (females) = 15 repetitions.
Self-Assessment 12: Muscular Endurance

Question

How do you perform the sitting tuck test?
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Answer

Sitting Tuck:

• Sit on the floor with your knees bent and arms outstretched.

• Lean back and balance on your hips. Keep your knees bent near your chest (feet off the floor).
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Answer (continued)

• Straighten your knees so the body forms a “V.” You may move your arms sideways for balance.
• Bend your knees to your chest again. Repeat as many times as you can. Count each time you push your legs out.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• Pass (males) = 25 repetitions.
• Pass (females) = 20 repetitions.
Self-Assessment 12: Muscular Endurance

Answer (continued)

Safety Tip:

• Avoid arching your lower back repetitively to avoid straining or pulling the muscles in that area.
Self-Assessment 12: Muscular Endurance

Question

How do you perform the leg change test?
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Answer

Leg Change:
- Assume a push-up position with weight on your hands and feet.
- Pull your right knee under your chest, and keep the left leg straight.
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Answer *(continued)*

- Change legs by pulling your left leg forward and pushing your right leg back.
- Continue changing legs.
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Answer (continued)

- Caution: Do not let your lower back sag.
- Repeat this exercise for 1 minute and count the number of leg changes.
- Pass = 25 changes.
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Question

How do you perform the bent arm hang test?
Self-Assessment 12: Muscular Endurance

Answer

Bent Arm Hang:

• Hang from the chinning bar with your palms facing away from your body.
• You may stand on a chair and/or with the help of a partner, lift your chin above the bar.
Self-Assessment 12: Muscular Endurance

Answer (continued)

• On a signal, the partner lets go or removes the chair. Count the time or duration of the hang. The time begins when the chair is removed and ends when the chin touches or goes below the bar, or the head tilts backward.
Self-Assessment 12: Muscular Endurance

Answer (continued)

- Pass (males) = hold for 16 seconds
- Pass (females) = hold for 12 seconds