

Arizona Peace Officer Standards and Training

Basic Curriculum Lesson Plan

LESSON TITLE: PHYSICAL TRAINING - PRESCREENING AND FITNESS PROTOCOLS 8.3

SUBJECT: Section 4

AZ POST DESIGNATION: 8.3.4

HOURS: 3

INSTRUCTOR TO STUDENT RATIO:

COURSE CONTENT: Through lecture and demonstration, this course of instruction will address the proper procedures to conduct a fitness pre-screening and administer the fitness test battery. This course will provide the student with the basics of measuring body fat; blood pressure; resting heart rate; and clearance for assessment purposes.

PERFORMANCE OBJECTIVES: Upon completion of the course, using handouts, lecture, and demonstration, the student will be able to:

- 8.3.4.1 Define systolic and diastolic readings.
- 8.3.4.2 Measure heart rate and target heart rate.
- 8.3.4.3 Measure blood pressure.
- 8.3.4.4 Administer a medical questionnaire.
- 8.3.4.5 Identify absolute and relative contraindications.
- 8.3.4.6 Define ACSM guidelines.
- 8.3.4.7 Administer the 3-minute step test.
- 8.3.4.8 Measure body fat.
- 8.3.4.9 Define subcutaneous and visceral fat.
- 8.3.4.10 Safely and accurately administer the fitness protocols.

DATE FIRST PREPARED:	August 2008	
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AZ POST – APPROVAL:	Richard Watling	DATE:
AZ POST – APPROVAL:	Lori Wait	DATE: March 2022

LIST ANY PREREQUISITES:

LEAD INSTRUCTOR:

BACK-UP INSTRUCTOR(S):

INSTRUCTOR REFERENCES: Physical Fitness Specialist Course Manual compiled by the Cooper Institute of Aerobic Research, Dallas, Texas. Revised 2007
FitForce Coordinator Guide, Thomas Collingwood, Robert Hoffman & Patricia Sammann; Human Kinetics 1998

CLASS LEVEL: Instructor

TRAINING AIDS: Blood pressure kits, skin fold calipers, 12 inch step box, metronome or step test CD, computer aided slides on PowerPoint, computer projector, timer or watch, assessment forms, cones, running track, vertical jump tester, sit and reach box.

INSTRUCTIONAL STRATEGY: Instructor-led discussion, lecture, and demonstrative instruction.

SUCCESS CRITERIA: Success in this functional area will be demonstrated through the attainment of a 100% passing grade on a written objective examination and a demonstrative practical test.

COMPUTER FILE NAME: 8.3.4 Sec 4 Fitness Pre-screening and Protocols

DATE RELEASED TO THE SHARE FILE: August 2023

I. INTRODUCTION

A. Purpose of pre-screening.

1. Ensures a safe testing environment.
2. Reduces liability; prevents injury.
3. Identifies those at risk for further screening.

B. Purpose of a fitness assessment.

1. Determines initial level of fitness.
2. Used to set goals and improve performance.

C. Performance objectives – At the end of the instruction, using notes from the lecture and handouts, the student will be able to:

1. Define systolic and diastolic readings.
2. Measure heart rate, target heart rate, and heart rate recovery.
3. Measure blood pressure.
4. Administer a medical questionnaire. (PAR-Q)
5. Identify absolute and relative contraindications.
6. Define ACSM guidelines. (American College of Sports Medicine.)
7. Administer the 3-minute step test.
8. Measure body fat.
9. Define subcutaneous and visceral fat.
10. Safely and accurately administer the fitness protocols.

II. MEDICAL HISTORY AND QUESTIONNAIRE

- A. A questionnaire is not used to diagnose but rather to identify those at risk under the ACSM guidelines.

P. O. 8.3.4.4

1. Low risk – Men under age 45 and women under age 55 who are asymptomatic and have no more than one major risk factor. (No maximum treadmill test necessary.)
 2. Moderate risk – Men aged 45 and older and women aged 55 and older or those with two or more major risk factors. (Maximal treadmill test recommended.)
 3. High risk – Individuals with signs/symptoms of CVD/pulmonary disease or known CVD, pulmonary or metabolic disease. (Do not test in a field environment; refer to a physician for maximal treadmill test.)
- B. Identifies absolute and relative contraindications. **P. O. 8.3.4.5**
- C. Gather data to clear for exercise or refer for further screening.
- D. Check with your organization’s policy on records retention. (HIPPA laws)

INSTRUCTOR NOTE: *Each student will review the questionnaire and complete a fitness profile as tests are administered. (Fitness profile forms located in Addendum C.)*

III. MEASURING BLOOD PRESSURE

P. O. 8.3.4.3

- A. Purpose.
1. Measure the force or pressure that moves blood through the circulatory system.
 2. Reading - Numbers are read systolic (top #) over diastolic. (bottom #)
 - a. Systolic - pressure of the blood against the walls of the arteries during the heart’s contraction. **P. O. 8.3.4.1**
 - b. Diastolic - the pressure of the blood against the walls of the arteries when the heart is relaxed or between beats.
 3. Hypertension – elevated blood pressure; readings are consistently 140/90 and above.
 4. Normal reading is 120/80.
 - a. Women tend to be lower.
 - b. Those with efficient max VO₂ also lower.
- B. Equipment – blood pressure kit.

1. Stethoscope. (May have an on/off feature.)
 2. Blood pressure cuff. (Come in various sizes.)
- C. Procedure.
1. Have the participant free of stimuli. (I.e. caffeine, anxiety, noise)
 2. Have participants sit quietly for a few minutes with both feet flat on the floor, arm at heart level.
 3. Apply the BP cuff approx.. 2.5cm above the inside fold of the elbow.
 4. Tighten the screw on the rubber bulb.
 5. Place the stethoscope over the brachial artery (inside of the arm) and pump the cuff to 200 mm for males and 180 for females.
 6. Slowly loosen the screw and release the air from the cuff. (no faster than 2-3 mm per second)
 7. The first rhythmical beat heard is the systolic pressure.
 8. Continue to deflate until the last beat is heard; this is the diastolic pressure as noted on the gauge.
 9. Do not talk or allow the participant to talk during the measurement.
 10. If the reading is higher than 140/90, have participants relax and sit quietly. Administer again after 15 minutes. If still high, do not let participants continue to the field test without further testing or waiver from the medical doctor. (Ask questions about recent caffeine ingestion, OTC medicines, history, etc.)

INSTRUCTOR NOTE: Students will be afforded practice time each day. Instructors will monitor for accuracy and proper procedure. Students will record at least 10 blood pressure readings by measuring fellow classmates.

IV. MEASURING RESTING HEART RATE

P. O. 8.3.4.2

- A. Purpose – RHR will be used in cardio prescription to determine target training heart rate.
- B. Equipment - stopwatch.
- C. Procedure.
 1. There are two common sites:

- a. Radial artery - thumb side of the wrist.
 - b. Carotid artery - either side of Adam's apple.
2. Use the index and middle finger; not the thumb.
 3. Use a light touch to locate the pulse.
 4. Find pulse and count each beat for 60 seconds; starting with "0".
 5. Resting HR should be taken in the morning prior to getting out of bed.

INSTRUCTOR NOTE: *the instructor will administer this to the entire class.*

V. THREE-MINUTE STEP TEST

P. O. 8.3.4.2

A. Purpose.

1. Measures heart rate recovery.
2. Not a substitute for cardiorespiratory assessment.
3. If a subject cannot complete the test or scores in the poor level, further medical screening should be conducted prior to further assessment. (Chart is located in Addendum A.)
4. Test is invalid for subjects on beta blockers or other medications affecting heart rate.

B. Equipment.

1. 12" bench.
2. Stopwatch or clock with second hand.
3. Metronome or audio tape of metronome set to 96 beats per minute.

C. Procedure.

1. Level 2 screening; should be administered prior to the field assessment.
2. Subject steps up and down for 24 cycles (up, down, up, down) a minute for 3 minutes.
3. Immediately after 3 minutes, the subject sits down and finds a pulse within 5 seconds. Begin counting heart rate for 60 seconds. Refer to the chart.

- D. Instructor will choose a volunteer/s or if room allows, have the entire class conduct the 3 minute step test.

VI. MEASURING BODY FAT

P. O. 8.3.4.9

A. Purpose.

1. Measures skinfold thickness.
2. Estimates percent body fat. (subcutaneous) (To be used in developing a workout and nutrition program.)
 - a. Subcutaneous – the fat stored between the skin and the muscle.
 - b. Visceral – fat surrounding the organs. (Visceral fat accumulation is associated with insulin resistance, glucose intolerance, and dyslipidemia.)
3. Good body composition facilitates efficient movement, reduces chances for injury, and helps officers present a positive image.

B. Equipment.

1. Skinfold caliper.
2. Norms. (Addendum A.)

C. Procedure.

1. Reserve a private area.
2. Use same sex or have another instructor witness. (Females test females, males test males, etc.)
3. Measure on the right side of the body.
4. Identify sites.
5. Pinch from the top, measure from the bottom.
 - a. Create a horseshoe with the left thumb and index finger.
 - b. Invert the horseshoe and pinch approx 1 to 1.5 inches of skin and subcutaneous fat.

- c. Pull away from the muscle.
 - d. Place calipers directly under the pinch, perpendicular to the body; squeeze until the arrows line up. (Do not release until reading is acknowledged.)
6. Measure each site to obtain two like readings.
 7. Record and total the site measurements.
 8. Estimate body fat using the chart. (Addendum A.)
 - a. Find the correct gender and age chart.
 - b. Locate columns for the age range.
 - c. Locate the sum of the skinfold column on the left.
 - d. Track across the sum of the skinfold row until it intersects with the age column.

INSTRUCTOR NOTE: when pinching the skin, ensure the skin and subcutaneous fat is pulled away from the muscle.

- D. Measurement sites.
 1. Chest. (males)
 - a. Diagonal fold on the lateral border of the pectoralis major muscle.
 - b. Halfway between nipple and shoulder crease. (armpit)
 2. Abdomen. (males)
 - a. Vertical fold.
 - b. One inch to the left (facing) of the belly button.
 3. Thigh. (male and female)
 - a. Vertical fold at the middle and front.
 - b. Halfway between greater trochanter and patella.
 4. Tricep. (female)
 - a. Vertical fold over the belly of muscle.

- b. Halfway between acromion and olecranon process. (Top of the shoulder blade and elbow.)
- 5. Suprailiac. (female)
 - a. Diagonal fold just above the iliac crest.
 - b. Slightly anterior to the middle of the side. (Bikini line.)

INSTRUCTOR NOTE: *The instructor will stress the importance of using male to male and female to female. Consider the audience and separate the males and females when students are practicing with each other. Students will be afforded practice time each day. Instructors will monitor for accuracy and proper procedure. Students will record at least 10 body fat readings by measuring fellow classmates. (Forms located in Addendum A.)*

VII. FITNESS TEST (Detailed protocols located in Addendum B.)

- A. Sit and reach.
 - 1. Measures lower back flexibility.
 - 2. Flexibility improves performance and reduces injury.
- B. 300 Meter run.
 - 1. Measures anaerobic capacity.
 - 2. Important for short intense bursts such as foot pursuits.
- C. Agility run.
 - 1. Measures coordinated movement and speed.
 - 2. It is an important area for performing tasks requiring quick movements around obstacles.
- D. Vertical Jump.
 - 1. Measure of jumping or explosive power.
 - 2. An important area for pursuit tasks that require jumping and vaulting.
- E. Maximum Push-up Test.

1. Measures the muscular endurance of the upper body muscles of the shoulders, chest, and back of the upper arms.
 2. Important for use of force involving pushing motion.
- F. One Minute Sit-up Test.
1. Measures the muscular endurance of the abdominal muscles.
 2. An important area for performing tasks that may involve the use of force.
 3. An important area of maintaining good posture and minimizing lower back problems.
- G. 1.5 mile run.
1. Measure of cardiovascular endurance or aerobic power.
 2. Important for performing tasks involving stamina and endurance.
 3. Minimize risk of cardiovascular problems.
- H. POPAT – Peace Officers Physical Aptitude Test. (AZPOST graduation requirement.)
1. Task related tests.
 2. Passing score is 384 points.

VII. CONCLUSION

- A. Review of performance objectives.
1. Define systolic and diastolic readings.
 2. Measure heart rate, target heart rate, and heart rate recovery.
 3. Measure blood pressure.
 4. Administer a medical questionnaire.
 5. Identify absolute and relative contraindications.
 6. Define ACSM guidelines.
 7. Administer the 3-minute step test.

8. Measure body fat.
 9. Define subcutaneous and visceral fat.
 10. Safely and accurately administer the fitness protocols.
- B. Demonstrative practice and learned outcome.
1. Students will record 10 BP and BF measurements.
 2. Students will participate and pass each fitness test. (POPAT, 1.5 mile run, sit ups, and push ups)(Students will have 90 days to comply with fitness standards if unable to meet during the week.)
 3. Students will demonstrate proficiency in administering the fitness protocols at the end of the course.