

# Arizona Peace Officer Standards and Training

## Basic Curriculum Lesson Plan

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**LESSON TITLE: PHYSICAL TRAINING - CORONARY RISK FACTORS 8.3**

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SUBJECT: Section 7

AZ POST DESIGNATION: 8.3.7

HOUR: 1.5

INSTRUCTOR TO STUDENT RATIO:

COURSE CONTENT: Through lecture and discussion, this course of instruction covers primary and secondary risk factors leading to coronary heart disease.

PERFORMANCE OBJECTIVES: Upon completion of this course of instruction, students using notes, handouts and other support materials as references, within the allotted time, will be able to:

- 8.3.7.1. Identify primary risk factors leading to coronary heart disease.
- 8.3.7.2. Identify contributing risk factors leading to coronary heart disease.
- 8.3.7.3. Identify the leading cause of death in males and females.
- 8.4.7.4. Identify the four major types of Cardiovascular Disease.

DATE FIRST PREPARED: August 2008  
PREPARED BY: Lt. Angela Kwan, Phoenix P.D.  
REVIEWED – **REVISED**: AZPOST (DocX) DATE: April 2022  
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REVIEWED – REVISED: DATE:  
AZ POST – APPROVAL: Richard Watling DATE: September 2008  
AZ POST – APPROVAL: Lori Wait DATE: April 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.

CLASS LEVEL: Instructor

TRAINING AIDS: Computer-aided slides on PowerPoint software, computer and projector or overhead projector, AND handouts.

INSTRUCTIONAL STRATEGY: Instructional objectives will be obtained through the use of lecture and reading assignments

SUCCESS CRITERIA: Success in this functional area will be demonstrated through the attainment of a 100% passing grade on a written objective examination comprised of multiple choice, true/false, and/or short answer questions.

COMPUTER FILE NAME: 8.3.7 Sec 7 Coronary Risk Factors

DATE RELEASED TO THE SHARE FILE: August 2023

**I. INTRODUCTION**

- A. Instructor(s) – (self) introduction.
- B. Preview of performance objectives.

**II. MAJOR CAUSES OF DEATH**

**P. O. 8.3.7.3**

A. Males:

1. All cardiovascular diseases.
2. All cancers. (Usually thought to be #1.)
3. Accidents.
4. Chronic Obstructive Pulmonary Disease. (COPD)
5. Diabetes Mellitus.

B. Females:

1. All cardiovascular diseases.
2. All cancers.
3. Chronic Obstructive Pulmonary Disease.
3. Diabetes Mellitus.
5. Alzheimer's disease.

C. Law Enforcement versus General Population.

1. Studies indicate law enforcement personnel are far less fit than the general population.
2. Average age of death for a police officer is 59 years old (approx... 7 years after retirement).
3. Major cause of death is coronary heart disease.
4. Major cause of early retirement is cardiovascular in nature.

**III. FOUR MAJOR TYPES OF CARDIOVASCULAR DISEASE**

**P. O. 8.3.7.4**

**A. Coronary Heart Disease.**

1. Buildup of fatty plaque in the coronary arteries.
2. Plaque rupture followed by a blood clot leads to a heart attack.
3. 1million+ heart attacks occur annually in the U.S.
4. Coronary Heart Disease causes over half a million deaths annually.

**B. Cerebral vascular Disease.**

1. Buildup of fatty plaque in the arteries leading to or within the brain.
2. Leads to a stroke.
3. Cause of serious long-term disability .
4. Over 700K strokes occur; approx 170K resulting in death annually.

**C. Congestive Heart Failure.**

1. Failure of the heart to pump as much blood as it receives.
2. Leads to buildup of fluid around the heart, lungs, and ankles, enlargement of the heart.
3. Approx. 5 million diagnosed with CHF.
4. Approx. 50k deaths annually.

**D. Peripheral Vascular Disease.**

1. Buildup of fatty plaque in the arteries leading to the extremities.
2. Leads to limb pain, gangrene and amputation.
3. Approx 8 million affected.
4. Occurs mostly in smokers and diabetics.

**IV. PRIMARY RISK FACTORS OF CORONARY HEART DISEASE**

**P. O. 8.3.7.1**

**A. Elevated Blood Cholesterol.**

1. A third to a half of all Americans have elevated cholesterol levels.
2. Carried in the blood as HDL, LDL and VLDL.
3. Total cholesterol = HDL + LDL + VLDL.
4. LDL (the bad cholesterol) can damage/penetrate through arterial walls.
5. Total cholesterol >200 is borderline elevation; >240 are significantly elevated.
6. Ideal total cholesterol is <200.
7. HDL ratio to total cholesterol is a more precise indicator of risk. The higher the ratio, the greater the risk of CHD.
8. Ideal ratio for;
  - a. men : 4.0 or less.
  - b. women: 3.5 or less.

**B. Elevated Blood Pressure.**

1. Approx. 58 million Americans are hypertensive.
2. Defined as having a resting BP in excess of 140/90 on a consistent basis.
3. Hypertension damages the arterial walls, leading to plaque buildup.
4. Known as the “silent killer”.

**C. Smoking.**

1. Smoking damages arterial walls by making them “sticky”.
2. Decreases HDL levels.
3. Increases blood clot formation.
4. Quitting smoking is the most significant lifestyle change to decrease risk of CVD.

5. *“Tobacco is the only product that when used as directed, results in death and disability.”*  
- Antonia Novell, MD, former Surgeon General.
- D. Diabetes.
1. Affects approx. 21 million Americans; many are unaware of the condition.
  2. Fasting blood glucose is >125 on two separate occasions.
  3. Two types of diabetes:
    - a. Non-insulin dependent (95%).
    - b. Insulin dependent (5%).
  4. Over 200,000 die from complications each year.
- E. Family History.
1. Strong genetic link to CHD.
  2. Those at most risk:
    - a. Male blood relative with history of MI prior to age 55.
    - b. Female blood relative with history of MI prior to age 65.
- F. Sedentary Lifestyle.
1. Regular aerobic activity plays a significant role in primary and secondary prevention of CHD.
  2. Suggested 30 minutes or more of moderate-intensity on most days of the week.
  3. Cardiovascular fitness has an inverse relationship to blood pressure, LDL levels, glucose, triglycerides and body fat.
- G. Obesity. **INSTRUCTOR NOTE:** *Slides depict the Obesity trend from the U.S. from 1985 to present.*
1. Over 64% of American adults classified as overweight or obese (30%).
  2. Males >25% body fat, females >31% body fat.
  3. BMI>25=overweight, BMI>30=obese.

4. Waist circumference >35 or >40 inches.
5. Visceral obesity poses a greater risk.
6. Inactivity, excess caloric intake and genetics are factors to obesity.
7. According to CDC, 32 % (about 24 million) of American children between the ages of 2 and 19 are overweight or obese, with roughly half considered obese.

**V. CONTRIBUTING RISK FACTORS FOR CHD**

A. Stress.

**P. O. 8.3.7.2**

1. Chronic stress has an adverse impact on blood pressure and blood lipid values.
2. Stress is an everyday occurrence and can be relieved by exercise.

B. High triglyceride levels.

1. A type of fat found in adipose tissue, bloodstream and muscle.
2. High levels caused by obesity, high saturated fat intake, high alcohol intake, inactivity and genetics.

**VI. CONCLUSION**

- A. Review of performance objectives.
- B. Final questions and answers.
- C. Instructor closing comment(s).