Sacramento Police Department- 2320
PHYSICAL TRAINING (PT) INSTRUCTOR COURSE

Statement of Purpose: The purpose of this course is to provide officers with the skill and expertise to design, implement, apply and instruct a physical training program in an Academy setting.

I. Introductions

A. Participants
B. Instructors

II. Orientation

A. Housekeeping
B. Review safety policy
C. Role of PT Instructors
D. PT Instructor skills
E. Purpose and training strategies
    1. Assess operational fitness
    2. Mitigate injuries
    3. Improve performance
F. Key strategies
    1. Create effective periodized training programs
    2. Develop physical training specific to job demands
    3. Coordinate daily PT to meet program goals
G. Job Specific Benefits of Fitness

III. Course Objectives

A. Review course objectives, review course content, and understand the idea of training an Academy Recruit
B. Role of science in PT programming and instruction
C. Course Objectives include presentations of the following:
    1. Anatomy and Physiology
    2. Biomechanics
    3. Warm up and Warm Down or Recovery
    4. Conditioning Principles: Cardiovascular and Strength Training
    5. Exercise Prescription: Cardiovascular and Strength Training Applications
    6. Energy System training
    7. Circuit Training
    8. Calisthenics
    9. Mobility and Stability and Core training
    10. Nutrition
    11. Power, Acceleration, Speed and Agility Training
    12. Injury Prevention and Assessment
    13. Suspension Training
    14. Body Composition
    15. Testing
    16. Post Requirement
    17. Safety Protocols

18. Legal Issues
19. Leadership
20. Performance Evaluation Techniques
21. Adult Learning Concepts
22. Motivation
23. Program Design

D. Course Objectives include Written, Oral and/or Demonstrated Assessments of participants as part of a learning activity for the following sections:
    1. Warm up and Recovery
    2. Conditioning Principles
    3. Strength Training Application and Pattens of Movement
    4. Circuit Training
    5. Corrective Exercise Training
    6. Power, Acceleration, Speed and Agility training
    7. Body Composition
    8. Work Sample Test Battery
    9. Exercise Prescription - Program Design

IV. Anatomy and Physiology

A. Explain terminology and function of the respiratory system
    1. Oxygen Intake
    2. Carbon Dioxide Expulsion

B. Explain terminology and function of the Cardiovascular system (the heart)
    1. Oxygenated Blood Circulation
    2. De-Oxygenated Blood Circulation

C. Explain terminology and function of the skeletal and muscular system
    1. Axial and Appendicular
    2. Oxygen extraction
    3. Energy Production
    4. Muscle Fiber Types

D. Explain terminology and function of the nervous system
    1. Process
    2. Ratios

E. Explain terminology and function of the neuromuscular system
    1. Motor Unit
    2. Regulation of muscle force
    3. Recruitment patterns
    4. Application

F. Explain terminology and function of the musculoskeletal system
    1. Purpose
    2. Axial and Appendicular
    3. Connective tissue
    4. Muscle action
    5. Muscle balance

V. Biomechanics

A. Explain terminology and function related the body's biomechanics as it relates to training for performance
    1. Key principles and terminology
    2. Lever System
        a. Forces
        b. Components
        c. Function
        d. Classifications
    3. Factors in human strength
        a. Implements
        b. Training curves
        c. Production of force
        d. Muscle contraction velocity
        e. Joint angle
        f. Strength to mass ratio and body size
    4. Types of forces and stability
    5. Safety considerations
        a. Valsalva maneuver
        b. Injuries – back, shoulder and knee
        c. Form
        d. Types of forces acting on joints
    6. Center and line of Gravity
        a. Stability

VI. Warm-up and Recovery

A. Explain physiological reasons for warm-up:
    1. Core temperature
    2. Heart rate and blood flow to skeletal tissues
    3. Activation of the Central Nervous System
    4. Rate and force of muscle contraction
    5. Suppleness of connective tissue
B. Review elements, prescription and cues of Dynamic Stretching
C. Explain why recovery is critical for physical performance improvement.
    1. Improved training response
    2. Stay healthy
    3. Better effectiveness
D. Explain fatigue theories, causes, symptoms, nutrition elements, recovery strategies and monitoring.
    1. Metabolic
    2. Neuromuscular
    3. Neurological (brain)
    4. Psychological
E. Explain the interaction of fatigue, stress and hormones
    1. Positive aspects
    2. Negative aspects

3. Cortisol

F. Explain the importance of flexibility and specific warm up content
   1. Definitions
   2. Importance of flexibility
   2. Factors affecting flexibility
   4. Range of Motion
   5. Instructional cues

G. **Learning Activity –** Students will complete a hands-on demonstration of warm up and warm down stretching techniques

VII. Conditioning Principles: Cardiovascular and Strength Training

A. Explain the principles of training - Specificity
   1. Principle
   2. Physiological
   3. Job Application

B. Explain the principles of training - Overload
   1. Principle
   2. Training Consideration
   3. Periodization

C. Explain the principles of training - Adaptation
   1. Principle
   2. Skeletal Muscular Adaptation
   3. Neuromuscular Adaptation
   4. Cardiovascular Adaptation
   5. Training Elements to Optimize Adaptation
   6. Overtraining

D. Explain the principles of training - Reversibility
   1. Principle
   2. Strength vs Cardiovascular
   3. Maintenance
   4. Variability

E. **Learning Activity –** Students will complete a writing assignment associating conditioning principles with a workout scenario

VIII. Exercise Prescription: Cardiovascular and Strength Training Applications

A. Training applications
   1. Structured vs Unstructured training
   2. Elements of training
   3. Benefits – the advantaged gained from this type of training
   4. Importance – the significance and value of this type of training
   5. Foundation – the training applications associated with this type of training
   6. Execution – the course of action and instructional cues needed for this type of training
   7. Programming – the parameters necessary to carry out this type of training

C. **Learning Activity –** Students will review and complete a workout and exercise scenarios and their relationship to exercise progression.

IX. Exercise Prescription: Strength Training Patterns of Movement

A. Progressive of lifting patterns
B. Review and explain strength training patterns of movement and the instructional cues involved with each movement.
    1. Hip Hing
    2. Squat
    3. Lunge
    4. Push
    5. Pull
    6. Rotation
    7. Gait
C. Exercise applications
D. Review, demonstrate and practice push, pull and squat sets and combinations sets with instructional cues
    1. Push
    2. Pull
    3. Squat
E. Review, demonstrate and practice Olympic Lift technique with instructional cues
    1. Clean
    2. Push Press
F. Review, demonstrate and practice deadlift technique with instructional cues
    1. Dead lift
    2. Squats – back, front
    3. Bench press
G. Review, demonstrate and practice assisted lift technique with instructional cues
    1. Presses: alternate, single arm
    2. Pulls: pull-ups, rows, machine pulls
H. **Learning Activity –** Students will complete a hands-on demonstration of strength training movement patterns

X. Injury Prevention, Recognition, Assessment and Recovery

A. Injury Prevention
    1. Warm-up/warm down and remain flexible
    2. Strength and/or Cross train
    3. Avoid dramatic training changes in volume and intensity
    4. Replace worn shoes, equipment
    5. Year-round conditioning and consistency
    6. Environment and training on even surfaces
    7. Let old injuries completely heal
B. Injury Recognition
    1. Increased temperature

2. Increased redness
3. Swelling
4. Pain
5. Loss of Function

C. Injury Assessment
1. Is there pain, tingling, numbness and/or stiffness?
2. Is the pain dull, or sharp, deep or superficial?
3. What was the mechanism of how the injury occurred?
4. Was the injury acute or chronic?
5. Was the injury associated with a pop or click?
6. Was the injury from a pre-existing condition?

D. Injury recovery - Explain the RICE methodology
1. Rest
2. Ice
3. Compression
4. Elevation

E. Common injuries and association to RICE
1. Plantar Fasciitis
2. Shin Splints
3. Ankle/Knee Sprains
4. Muscle strains/pulls
5. IT Band
6. Low Back/Sciatic Nerve

XI. Corrective Exercise Training - Mobility, Stability, and Core

A. Recognize joints where mobility or stability is a concern
1. Gleno-humeral – Mobility
2. Scapular – Stability
3. Thoracic spine – Mobility
4. Lumbar spine – Stability
5. Hip – Mobility
6. Knee – Stability
7. Ankle – Mobility
8. Foot – Stability

B. Recognize the relationship between the hip and adjacent musculoskeletal areas.
1. Anterior-oblique system
2. Lateral system
3. Posterior oblique system
4. Inner unit
5. Deep longitudinal system

C. Mobility vs Stability
1. Create Balance
2. Stretch and Strengthen
3. Corrective exercises

D. Mobility/stability training concepts – regional body segments

1. Flexibility
2. Activation / strength
3. Mobility / strength
4. Multi-plane
5. Progressions
6. Lengthen – strengthen
7. Above / below hip
8. Common cause of injury

E. Explain progression and technique guidelines
   1. General volume & loading methods
   2. Order of progressing variables
   3. Technique coaching points
F. Define and explain the purpose of core strength
   1. Core = area from chest to mid-thigh
   2. Core muscles groups
   3. Importance and benefits of core strength
G. Key Concepts – Kinetic Chain
   1. Interplay of body segments
   2. Spine and pelvis stability
   3. Functional strength and movement
H. Explain core strength considerations
   1. Foundation of all movement
   2. Multiplan
   3. Stabilizer
   4. Developed from various modes
   5. Technique is important
   6. Segmented for stability
   7. Areas of stability and control
I. Explain key training components
   1. Training protocols for stability
   2. Modalities core training
   3. Unilateral loading protocols
   4. Levels of core training
   5. Training parameters
   6. Stabilization training protocols
J. Review, demonstrate and practice corrective training techniques with instructional cues
   1. Stability
   2. Core
   3. Mobility
K. Recognize exercises for various stability/mobility functions.
   1. Glute driver
   2. Low ab control
   3. Abductor-quadratus
   4. Abductor-glute med
   5. Rectus function

6. Overactive upper abs
7. Oblique function
8. Stance progressions
9. Posterior oblique system
10. Anterior flexibility
11. Posterior flexibility
12. Lateral flexibility
13. Medial flexibility
14. Rotational flexibility
15. Internal rotation

L. **Learning Activity –** Students will complete a hands-on demonstration mobility, stability and /or care exercises.

XII. Circuit Training

A. Benefits
   1. Interval based training
   2. Enhances various metabolic capabilities
   3. Benefits combined in one workout
   4. Calisthenic (Body weight) options – see Calisthenics
   5. Highly adaptable to Academy and Law Enforcement setting

B. Explain prerequisites to successful circuit training.
   1. Work capacity base
   2. Core strength
   3. No Mobility issues
   4. Proper movement patterns
   5. Not currently managing injuries

C. Training Considerations
   1. Fitness/Cardio (Aerobic and Anaerobic)
   2. Impact and non-impact vs Strength, Aerobic or Anaerobic
      a. vs Plyometric or Acceleration/Agility
   3. Combo/Full Body - balance
   4. Small Group
   5. Single Station
   6. Multi-station

D. Training Foundations
   1. Training Component Combinations
   2. Overload Volume vs intensity
   3. Core – always
   4. MultiJoint Exercises – good choices
   5. Technical - progress – less to more
   6. Resistance level
   7. Total reps, time and rounds
   8. Order of exercises
   9. Adjusting the work to rest ratios
   10. Rest periods + Plus station movement

11. Corrective Exercises/Rehab
12. Intensity vs Form – Don't sacrifice form for reps!!
13. Work to Rest Ratios

E. Programming Considerations
   1. AMRAP
   2. For Time
   3. Super Sets
   4. EMOM
   5. Tabata
   6. Standard Circuit (Total Rounds)
   7. Traditional (Sets & Reps)

F. Suspension Training
   1. Training Elements
   2. Principles
   3. Applications
   4. Multi- user
   5. Integration vs Isolation
   6. Instructional Cues

XIII. Calisthenics

A. Benefits
   1. All body weight exercises – no equipment needed
   2. Develops functional strength
   3. Better balance and movement control
   4. Reduce impact on joints
   5. Workout anywhere

B. Training Considerations
   1. Fitness/Cardio (Aerobic and Anaerobic)
   2. Impact and non-impact vs Strength, Aerobic or Anaerobic vs Plyometric or Acceleration/Agility
   3. Combo/Full Body - balance
   4. Small Group
   5. Single Station
   6. Multi-station

C. Training Foundations
   1. Training Component Combinations
   2. Overload Volume vs intensity
   3. Core – always
   4. MultiJoint Exercises – good choices
   5. Technical - progress – less to more
   6. Resistance level
   7. Total reps, time and rounds
   8. Order of exercises
   9. Adjusting the work to rest ratios
   10. Rest periods + Plus station movement

11. Corrective Exercises/Rehab
12. Intensity vs Form – Don't sacrifice form for reps!!
13. Work to Rest Ratios

D. Programming Considerations
   1. AMRAP
   2. For Time
   3. Super Sets
   4. EMOM
   5. Tabata
   6. Standard Circuit (Total Rounds)
   7. Traditional (Sets & Reps)

E. Review, demonstrate and practice circuit training with instructional cues using the following modes
   1. Body weight
   2. Resistance based
   3. Suspension Training
   4. Combination

F. **Learning Activity –** Students will design and complete a hands-on demonstration of a circuit routine which includes calisthenics.

XIV. Power/Plyometric, Acceleration, Speed and Agility Training

A. Training applications
   1. Benefits – the advantaged gained from this type of training
   2. Importance – the significance and value of this type of training
   3. Foundation – the training applications associated with this type of training
   4. Execution – the course of action and instructional cues needed for this type of training
   5. Programming – the parameters necessary to carry out this type of training

B. **Learning Activity –** Students will design and complete a hands-on demonstration of a circuit that includes two of the following training modalities: Power/Plyometric, Acceleration, Speed and Agility.

XV. Energy Systems

A. Primarily focus on the source of energy for muscular contraction.
B. Three physiological systems in the body that produce energy:
   1. Phosphagen (ATP-CP)
   2. Glycolytic
   3. Oxidative
C. Explain Energy System Interaction
   1. System
   2. Duration
   3. Classification
   4. Energy Sources

XVI. Testing

A. Categories
   1. Post Required
   2. Post Approved
   3. Internal Approved

B. Parameters
   1. Job or Task related
   2. Standards
   3. Legal requirements
   4. Age and gender requirements
   5. Scientifically valid
   6. Reliability
   7. Selection
   8. Administration
   9. Preparation

C. Job Factors
   1. Sustained Pursuit
   2. Sprints
   3. Dodging
   4. Jumping & Vaulting
   5. Crawling

D. Testing Factors
   1. Legal
   2. Age-Gender
   3. Validity
   4. Reliability
   5. Standards
   6. Variables
   7. Administration
   8. Preparation
   9. Field Tests

XVII. Body Composition

A. Purpose
   1. Performance
   2. Disease prevention
   3. Energy intake assessment

B. Body Composition
   1. Bones
   2. Protein
   3. Water
   4. Fat

C. Fat vs Lean Mass

D. Body Fat assessment tools
   1. Skin Folds
   2. Bioelectrical impedance

3. Hydrostatic Weighing
4. Dexa Scan

E. **Learning Activity** – Students will demonstrate and practice Body composition measurement techniques using two different Bioelectrical impedance instruments
   1. Equipment and materials
   2. Set up
   3. Test procedures
   4. Reviewing Computations

XVIII. Nutrition

A. Purpose and importance of basic macro nutrition requirements necessary for physical training and physical performance.
   1. Protein
   2. Carbohydrate
   3. Fat
   4. Nutrition Intake levels
   5. Micronutrition
      a. Vitamins
      b. minerals
   6. Hydration

B. Nutrition labels
   1. Serving Size and calories
   2. Fat %
   3. Protein and carbohydrate content
   4. Fiber and salt content

C. Popular or Fad Diets
   1. Pros
   2. Cons

D. Calorie Intake and Expenditure
   1. Basil Metabolic Rate (BMR)
   2. Activity levels

E. Nutrition for performance
   1. Carbohydrates
   2. Protein
   3. Fat
   4. Pre – workouts
   5. During workouts
   6. Post- workout
   7. Rhabdomyolysis
   8. Female Triad
   9. Sample meal and snack ideas on the go

F. Explain pros and cons of supplements
   1. Pros
   2. Cons

XIX. Works Sample Test Battery (WSTB) – Hands-On

A. WSTB
   1. POST-required final exam
   2. Timing
   3. Proctor training
   4. Test administration
   5. Scoring
   6. Job relatedness
      a. Related to FTO success
      b. Based on job analysis

B. **Learning Activity** - Review and demonstrate Work Sample Test Battery administration.
   1. Equipment requirements
   2. Set up
   3. Stations
   4. Testing
   5. Scoring
   6. Common errors
   7. Information resources

XX. Leadership

A. Recognize characteristics of winners
   1. Commitment / consistency
   2. Sacrifice / discipline
   3. Focus / intensity
   4. Psychology of Winning

B. Explain the characteristics and elements of leadership
   1. Leading by influence vs. authority
   2. Leaders are made, not born
   3. Traits of a leader
   4. Responsibilities of the leader to the team
   5. Leadership principles
   6. How leaders are created
   7. Setting the standards
   8. Empowering the leaders to lead

C. Explain leadership techniques
   1. More is expected from the leader
   2. Leading from the front
   3. Encourager vs. discourager
   4. Communication
   5. Focus
   6. Positive and negative reinforcement
   7. Words and mental pictures
   8. Excellence
   9. Building leaders – creating winners
   10. Winners and champions

XXI. Safety Protocols

A. Recognize the content of POST Safety Guidelines
   1. Facility
   2. Equipment
   3. Instructor
   4. Staff-to-student ratios
   5. Presentation
   6. Specific safety rules
   7. Reporting requirements

XXII. Legal Issues

A. Understand physical conditioning and testing related legal issues
   1. Personal injury lawsuits
   2. Negligence
   3. Standards of practice
   4. Practice of medicine without a license

XXIII. POST Physical Training (PT) Requirements

A. Identify reference material containing POST requirements
   1. Training and Testing Specifications
   2. POST Administrative Manual
   3. Course Binder
   4. Basic Course Informational Web Site
B. Explain important requirements
   1. PT Scheduling
   2. Modified PT
   3. Conditioning Goals
   4. Testing
   5. Learning Activities
   6. Program Modification

XXIV. Performance Evaluation Techniques

A. Course participants will be learning evaluation performance techniques during the learning activities held throughout this course. The techniques include:
   1. Cardiovascular performance evaluation protocols
   2. Cardiovascular Intensity evaluation:
      a) RPE
      b) heart rate monitoring
   3. Strength training performance evaluation protocols
   4. Strength training exercise form evaluation

XXV. Adult Learning Concepts

A. Personal Benefit
   1. Provides an opportunity or increased status and personal growth.
B. Experience
   1. Involves them in sharing what they know

2. Validates their expertise

C. Self-Direction
   1. Take charge of the learning process
   2. Have some degree of independence in the learning process.

D. Application & Action
   1. There is immediate application for the learning
   2. They participate actively in the learning process

E. Learning Styles
   1. Multiple means are used to represent the material being learned.

F. **Learning Activity –** Students will be assessed on their motivation skills during all the hands-on portions of this course.

XXVI. Motivation

A. Environment
   1. Create accepting yet professional atmosphere
   2. Use visual aids

B. Incentives
   1. Extrinsic incentives

C. Internal motivation
   1. Create experiences that drive feelings of satisfaction.

D. Readiness to learn
   1. Encourage learning development

E. Material organization
   1. Relate new tasks to those already known
   2. Assess understanding

F. Students will be assessed on their motivation skills during all the hands-on portions of this course

XXVII. Program Design

A. Physical training instructors will work in teams to develop an Academy PT program encompassing exercise prescriptions at various stages of the Academy and including the relevant elements of the PT instructor course.

B. **Learning Activity –** Students will complete a writing assignment associating exercise progression with a workout routine scenario.

XXVIII. Final Exam Scoring and Evaluations

A. Final Written Exam
B. Exam Scoring
C. Course Evaluations
D. Certificates