

# SES-2350: EXERCISE FOR SPECIAL POPULATIONS

---

## Cuyahoga Community College

**Viewing: SES-2350 : Exercise for Special Populations**

**Board of Trustees:**

December 2023

**Academic Term:**

Fall 2024

**Subject Code**

SES - Sport and Exercise Studies

**Course Number:**

2350

**Title:**

Exercise for Special Populations

**Catalog Description:**

An overview of procedures, concepts, and modifications related to fitness testing and exercise programming for various life stages and chronic diseases. Benefits of exercise and public health implications for each condition will be addressed.

**Credit Hour(s):**

3

**Lecture Hour(s):**

3

## Requisites

**Prerequisite and Corequisite**

SES-1040 Teaching Exercise training Techniques, or concurrent enrollment; or departmental approval.

## Outcomes

**Course Outcome(s):**

Interpret and apply concepts related to the development and progression of chronic conditions and diseases as they relate to exercise testing, exercise prescription, and exercise programming.

**Essential Learning Outcome Mapping:**

Written Communication: Demonstrate effective written communication for an intended audience that follows genre/disciplinary conventions that reflect clarity, organization, and editing skills.

**Objective(s):**

1. Define the various types of cardiovascular, respiratory, metabolic, neuromuscular, skeletal diseases, and other chronic conditions.
2. Discuss risk factors, etiology, and progression of cardiovascular, respiratory, metabolic, neuromuscular, skeletal diseases, and other chronic conditions.
3. Interpret and evaluate physiologic responses to exercise associated with chronic disease and other chronic conditions.
4. Explain the common medical treatments and drugs prescribed for people with cardiovascular, respiratory, metabolic, neuromuscular, skeletal diseases, and other chronic conditions.
5. Analyze the benefits and risks associated with exercise for individuals with risk factors or diagnoses of cardiovascular, respiratory, metabolic, neuromuscular, skeletal diseases, or other chronic conditions.

---

**Course Outcome(s):**

Interpret and apply concepts related to the physiology and specific health-related modifications of human life span stages as they relate to exercise testing, exercise prescription, and exercise programming.

**Objective(s):**

1. Discuss the changes that occur in development from childhood to adulthood as they relate to exercise physiology.

2. Discuss the structural and functional changes that occur during pregnancy and the postpartum period as they relate to single sessions and programmed phases of exercise training.
3. Discuss the aging process as it affects cardiovascular, respiratory, endocrine, nervous, and musculoskeletal systems' responses to acute and chronic exercise.

---

**Course Outcome(s):**

Adapt exercise testing protocols for children, pregnant women, older adults, and individuals with acute and chronic cardiovascular, pulmonary, metabolic, neuromuscular, skeletal, and orthopedic illnesses and diseases.

**Objective(s):**

1. Analyze the importance of a health/medical history and medical clearance before exercise testing and participation.
2. Evaluate contraindications and/or modifications to exercise testing for specific life stages and health conditions.
3. Select appropriate cardiorespiratory, muscular fitness, and flexibility exercise and fitness testing protocols for specific life stages and health conditions.
4. Identify categories of participants who, due to risk factors or existing conditions, require medical clearance and/or physician supervision before undergoing exercise testing.

---

**Course Outcome(s):**

Adapt exercise prescription and programming procedures for children, pregnant and postpartum women, older adults, and individuals with acute and chronic cardiovascular, pulmonary, metabolic, neuromuscular, skeletal, and orthopedic illnesses and diseases.

**Objective(s):**

1. Identify categories of participants who, due to risk factors or existing conditions, require medical clearance before participating in an exercise program.
2. Modify cardiorespiratory exercise activities based on age, physical condition, and health status.
3. Modify muscular fitness exercises based on age, physical condition, and health status.
4. Modify flexibility exercises based on age, physical condition, and health status.
5. Modify overall exercise program design and progression based on age, physical condition, and health status.

---

**Methods of Evaluation:**

1. Written assignment
2. Written examination
3. Case studies
4. Individual presentation
5. Group presentation
6. Class participation

**Course Content Outline:**

1. Review of fundamental concepts and principles of exercise testing, exercise prescription, and exercise programming.
  - a. Health history and Physical Activity Readiness Questionnaire (PAR-Q)
  - b. Risk stratification
  - c. Contraindications to exercise testing
  - d. Terminating exercise testing
  - e. Frequency, Intensity, Time, Type (FITT) principle
  - f. Progressive overload
  - g. Progressing cardiorespiratory, resistance, and flexibility training
2. Exercise testing, prescription, and programming for cardiovascular diseases
  - a. Etiology and treatment of cardiovascular diseases and conditions
    - i. Hypertension
    - ii. Dyslipidemia
    - iii. Coronary artery disease (CAD)
    - iv. Peripheral arterial disease
    - v. Cardiomyopathy and congestive heart disease
    - vi. Arrhythmia
  - b. Epidemiology of cardiovascular illness
  - c. Exercise testing modifications

- d. Exercise prescription modifications
- e. Cardiac rehabilitation
- 3. Exercise testing, prescription, and programming for metabolic conditions
  - a. Etiology and treatment of diabetes mellitus
    - i. Type 1
    - ii. Type 2
    - iii. Gestational
    - iv. Metabolic syndrome
  - b. Epidemiology of diabetes mellitus
  - c. Exercise testing modifications
  - d. Exercise prescription modifications
  - e. Etiology and treatment of obesity
  - f. Epidemiology of obesity
  - g. Exercise testing modifications
  - h. Exercise prescription modifications
- 4. Exercise testing, prescription, and programming for respiratory conditions
  - a. Etiology and treatment of respiratory diseases and conditions
    - i. Chronic obstructive pulmonary disease
    - ii. Asthma
    - iii. Cystic fibrosis
  - b. Epidemiology of respiratory illness
  - c. Exercise testing modifications
  - d. Exercise prescription modifications
- 5. Exercise testing, prescription, and programming for neuromuscular and skeletal conditions
  - a. Arthritis
  - b. Osteoporosis
  - c. Chronic pain states
  - d. Spinal cord injuries
  - e. Orthopedic conditions, injuries, and surgeries
  - f. Exercise testing modifications
  - g. Exercise prescription modifications
- 6. Exercise testing, prescription, and programming for other conditions
  - a. Cancer
  - b. End-stage renal disease
  - c. Low back pain
  - d. Physical and developmental disabilities
  - e. Developmental disabilities
  - f. Exercise testing modifications
  - g. Exercise prescription modifications
- 7. Exercise testing, prescription, and programming for children and adolescents
  - a. Child development
  - b. Benefits of exercise for children
  - c. Childhood obesity
  - d. Guidelines for exercise testing, prescription, and programming for children
  - e. Adolescent development
  - f. Benefits of exercise for adolescents
  - g. Guidelines for exercise testing, prescription, and programming for adolescents
- 8. Exercise testing, prescription, and programming for pregnancy and the postpartum period
  - a. Prenatal development
  - b. Postnatal period specific physiologic structure and function
  - c. Benefits of exercise during pregnancy and postpartum
  - d. Guidelines for exercise testing, prescription, and programming for pregnant and postnatal women
- 9. Exercise testing, prescription, and programming for older adults
  - a. Anatomy and physiology of aging
  - b. Benefits of exercise for older adults
  - c. Common conditions of older adults
    - i. Sensory changes
    - ii. Cognitive changes

- iii. Osteoarthritis
- iv. Osteoporosis
- d. Guidelines for exercise testing, prescription, and programming for older adults

## Resources

Williamson, Peggie. *Exercise For Special Populations*. 2nd ed. Philadelphia PA: Lippencott, Williams & Wilkins, 2019.

---

Leutholtz, B. (2020) *Exercise Prescription for Special Populations*, Jones & Bartlett Learning.

---

American College of Sports Medicine. *Guidelines for Exercise Testing and Prescription*. 11th ed. Lippencott, Williams & Wilkins, 2021.

---

Heyward, V. (2019) *Advanced Exercise Prescription and Fitness Assessment*, Champaign IL: Human Kinetics.

---

American College of Sports Medicine. (2016) *ACSM's Exercise Management for Persons With Chronic Diseases and Disabilities*, Champaign IL: Human Kinetics.

---

Top of page

Key: 4032