Exercise for Special Populations

Orthopedic and Respiratory Problems

Outline

- Exercise and orthopedic problems
- Exercise and respiratory problems
  - COPD
  - Asthma
  - Restrictive Diseases

Benefits of Exercise for Individuals with Special Concerns

- Increased stamina
- Enhanced quality of life
- Increased energy levels
- Decreased risk of diseases such as heart disease & type II diabetes
- Overall wellness
Orthopedic Problems

- Bone and joint disorders
  - Osteoarthritis – degeneration of cartilage, affects millions of Americans, usually over 40
  - Rheumatoid arthritis – inflammatory arthritis, more common in younger (20’s, 30’s) women, wt control and exercise are important components of treatment
  - Joint injuries
- Use large muscle groups distant from injury
- Avoid weight-bearing exercises at the affected area

Respiratory Problems

- Subtypes of respiratory disease
  - Obstructive
  - Restrictive
  - Mixed
  - Pulmonary Vascular Hypertension
Respiratory Diseases - Pathology

- Ventilatory Impairments
  - Increased airway resistance
  - Reduced compliance
  - Increased work of breathing
  - Ventilatory muscle weakness
  - Ventilatory inefficiency
  - Ventilatory muscle fatigue
  - Ventilatory failure

Obstructive Diseases

- Result of narrowing of the airways leading to uneven distribution of ventilation
- Chronic Bronchitis, Emphysema, Asthma
- “Blue Bloater”
Exercise and Respiratory Problems - COPD

- COPD – Chronic Obstructive Pulmonary Disease
  - Usually a combination of emphysema (a destruction of lung tissue) and chronic bronchitis (chronic inflammation of the airways)
  - Extremely common among long-time smokers
  - Leads to an inability to "catch your breath" – a sensation of breathlessness
  - Limits exercise due to inability to get oxygen into the blood
  - Exercise (e.g., walking) can be used in the treatment of COPD, for example to improve endurance of the respiratory muscles

Exercise and Respiratory Problems - Asthma

- Asthma
  - A condition that reduces the size of the airways leading to the lungs ("bronchoconstriction")
  - Generally, all exercise and sports activities are OK, with caution and planning
  - Approximately 17.6 million adults (18 and over) were told that they had asthma (CDC, 1997)
  - More females (10.1 million) than males (7.4 million) have asthma
  - More people in the South have had Asthma than in any other region (CDC, 1997)
Exercise and Respiratory Problems - Asthma

- Safety concerns with exercise
  - Have asthma medication readily available (inhaler)
  - May need to avoid cold, dry air as that aggravates asthma in some people
  - Avoid air pollution

Restrictive Diseases

- Restriction of lung volume by disease involving the thorax or the lung parenchyma
- Diseases of the rib cage and spine – scoliosis, spinal cord injury, pleuritis, obesity
- Involves inflammation of the interstitial and alveolar tissue w/ accompanying fibrosis
- “Pink Puffer”
Summary

- Orthopedic problems mandate special consideration when prescribing exercise.
- Several different types of respiratory diseases exist.
- Exercise is beneficial in those with respiratory diseases in that it improves respiratory muscle and skeletal muscle function (extremities).
- Asthmatics who can control asthma medically can safely participate in exercise.