Fitness Evaluation: Screening and Cardiorespiratory Fitness

EXS 150
Chap 2

Benefits of Exercise

- How much is enough?
  - Health Vs. Fitness
    - Physical Activity
    - Fitness
  - Surgeon Generals Report (Centers for Disease Control, 1996)
- Effects of Regular Exercise
  - Improved cardiorespiratory function
  - Reduction in Heart Disease Risk Factors
  - Decreased Mortality (death) and Morbidity (disease)
  - Improved psychological functioning

What are the risks of exercise?

- Injury?
- Myocardial Infarction (heart attack)?
- Death?
How do you minimize risk?

- ESTABLISH A PLAN!
  - Medical Clearance and Follow-up
    - Health Screening
    - Physical exam
  - Proper warm-up and cool-down
  - Take special consideration to the environment

How do I screen myself?

- Physical Activity Readiness Questionnaire (PAR-Q)
  - Also referred to as Health Status Questionnaire
  - See also Laboratory 2.1
- Do I need a physical exam?
- What other aspects should I consider?
  - Diagnoses
  - Hospitalizations/ Surgery
  - Medications (action, dose)
    - Taking med regularly
  - Family History
  - Physical Activity History

Revised Physical Activity Readiness Questionnaire (PAR-Q)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>1.</td>
<td>Has a doctor ever said that you have a heart condition and recommended only medically supervised activity?</td>
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<td>2.</td>
<td>Do you have chest pain brought on by physical activity?</td>
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<td>3.</td>
<td>Have you developed chest pain in the past month?</td>
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<td>4.</td>
<td>Have you on one or more occasions lost consciousness or fallen over as a result of dizziness?</td>
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<td>5.</td>
<td>Do you have a bone or joint problem that could be aggravated by the proposed physical activity?</td>
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<td>6.</td>
<td>Has a doctor ever recommended medication for your blood pressure or a heart condition?</td>
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<td>7.</td>
<td>Are you aware, through your own experience or doctor's advice, of any other physical reason that would prohibit you from exercising without medical supervision?</td>
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</tbody>
</table>

If you answered "yes" to any of these questions, call your personal physician or healthcare provider before increasing your physical activity.
How do we measure cardiorespiratory fitness?

- Concept of VO\(_2\max\) (VO\(_2\max\))
  - Criterion measure of cardiorespiratory fitness
  - “endurance capacity of the cardiorespiratory system and the exercising skeletal muscles”
- How is VO\(_2\max\) measured?
  - Maximal Test – VO\(_2\max\) and Stress Testing
  - Submaximal Tests – Use heart rate response to exercise (assumptions) to predict VO\(_2\max\)

VO\(_2\max\) and Stress Testing

- Terminology specifically refers to an exercise test usually conducted on a cycle ergometer or treadmill lasting approximately 8 to 12 minutes in length in which an individual must exercise to “maximal” point.
- VO\(_2\ max\):
  - Amount of oxygen consumed, highest heart rate reached, subjective rating of effort, amount of lactate produced
- Stress Test
  - Looking for abnormal responses in heart rate and rhythm (ECG), blood pressure, and symptoms
  - Physician is usually present
Electrocardiogram (ECG/EKG)
- tells about the electrical activity in the heart and is used as a
tool for diagnosing some types of heart disease

How exercise ECG is used in stress testing

Submaximal tests for measuring cardiorespiratory fitness
- 1.5 mile run test (Table 2.1) – idea is to complete the distance in the shortest time possible
- 1 mile walk test (Table 2.2) – idea is to walk the distance as fast as possible
- Cycle ergometer tests (Table 2.3–2.5) – base fitness on heart rate response to exercise
- Step Test (Fig. 2.2) – fitness is based on recovery heart rate from 3 minutes of stepping
Cardiorespiratory Fitness: What do I do with the results?

- Use normative percentile values to give you an idea of your fitness (Table 2.1 - 2.6)
- Superior rating for any of the tests equates to the top 15% for your age and gender

Discussion: Who or what has the highest cardiorespiratory fitness?