Overview

In pairs, students will perform a comprehensive fitness assessment on each other and develop and exercise prescriptions for each other. Each student will serve as the “technician” and the “client”. Each student will turn in a three-ring binder with the completed project which contains the fitness assessment and exercise prescription of the partner (client). You must complete all the required assessments. If data exists from a previous laboratory experience, this data is NOT to be used. I expect that you will perform each of the assessments using proper techniques as discussed in the course.

Binder Requirements

1. Three-Ring Binder with clear sleeve for cover page
2. Cover Page Requirements:
   a. “HPER 4450 Exercise Testing and Prescription”
   b. “Fitness Assessment and Exercise Prescription Project”
   c. “Technician:  [Your name]”
   d. “Client:  [Client/Partner name]”
3. Tabbed Dividers between sections
   a. Health Screening/Risk Stratification
   b. Cardiovascular/Aerobic Fitness
   c. Body Composition
   d. Muscular Strength and Endurance
   e. Flexibility
   f. Fitness Assessment Interpretation
   g. Exercise Prescription

Required Elements for Each Section

A. Health Screening/Risk Stratification

Each student will complete a comprehensive health screening/risk stratification on his or her client. You will turn in:

1. Completed PAR-Q form
2. Completed ACSM/AHA Pre-Participation Screening Form
3. A completed ACSM Risk Stratification (like the case studies)
   a. Go through every risk factor and determine if the person is “Low/Moderate/High Risk”
b. Make recommendations for the need for a medical exam or exercise test prior to participation in moderate and vigorous exercise.
c. Make recommendations for the need for physician supervision of a submaximal and a maximal exercise test.

B. Cardiovascular/Aerobic Fitness

Each student will administer either the YMCA Submaximal Cycle Test, the Astrand Submaximal Cycle Test, or the Bruce Submaximal Treadmill Test to his or her client. You will turn in:

1. Completed data sheet for the submaximal exercise test
2. Completed calculations for the submaximal exercise test
3. A percentile ranking based on the results of the test

C. Body Composition

Each student will perform a comprehensive body composition assessment on his or her client. You will turn in:

1. Determination of Body Mass Index (BMI)
   a. Include calculations
   b. Include classification
2. Determination of Waist Circumference and Waist to Hip Ratio
   a. Include circumference data sheet (only have to do waist and hip)
   b. Include classifications for waist circumference and waist to hip ratio
3. Completion of Skinfold Thickness Assessment
   a. Use the Jackson and Pollock 7-site and Brozek equations
   b. Include skinfold thickness data sheet
   c. Include calculations for body density, percent body fat, fat-weight, and fat-free weight
   d. Include percentile ranking for percent body fat
4. Calculation of Ideal Body Weight
   a. Recommend a desired percent body fat
      i. Justify why you chose this recommended percent body fat
      ii. If the client already has an ideal percent body, for the purposes of this project recommend a percent body fat that is 2% lower than the client’s present body fat and state this.
   b. Calculate ideal body weight and the weight loss necessary to achieve this ideal body weight.
D. Muscular Strength and Endurance

Each student will perform multiple assessments of muscle strength and endurance on his or her client. You will turn in:

1. Determination of 1-RM for Bench Press and Leg Press (Muscle Strength)
   a. Include data sheets for all repetitions
   b. Determine Strength-to-Weight Ratio for both tests
   c. Include percentile rankings for both tests
2. Completion of the YMCA Bench Press Test (Muscle Endurance)
   a. Include data sheet
   b. Include classification/category
3. Completion of the Push-Up Test (Muscle Endurance)
   a. Include data sheet
   b. Include classification/category
4. Completion of the Curl-Up Test (Muscle Endurance)
   a. Include data sheet
   b. Include classification/category

E. Flexibility

Each student will perform multiple assessments of flexibility on his or her client. You will turn in:

1. Completion of the Standard Sit and Reach Test
   a. Include data sheet
   b. Include classification/category
2. Completion of the YMCA Sit and Reach Test
   a. Include data sheet
   b. Include classification/category
3. Assessment of Lumbar Flexion and Extension
   a. Include data sheet
   b. Include comparisons to “average healthy range”

F. Fitness Assessment Interpretation

Provide an overall assessment of the results of the fitness assessment. What are the client’s strengths, what are the weaknesses, what should the goals be for the exercise program? Make sure to refer back to the percentile rankings or classifications to support your statements.
G. Exercise Prescription

Each student will develop an aerobically-based exercise program adhering to ACSM Guidelines for his or her client: You will provide the following information:

1. Make a statement with respect to whether your exercise prescription is going to be based on “moderate intensity exercise” or “vigorous intensity exercise”. Justify the reasons why you chose which intensity of exercise.
2. Recommend a frequency of exercise (how many days per week)
3. Recommend a duration of the exercise (minutes per day/session)
4. Recommend a specific intensity for the exercise sessions
   a. Make a recommendation based on predicted heart rate maximum
      i. Include the percentage range for the intensity
      ii. Include the actual heart rate values for this percentage range (show calculations).
   b. Make a recommendation based on heart rate reserve
      i. Include the percentage range for the intensity
      ii. Include the actual heart rate values for this percentage range (show calculations).
   c. Make a recommendation based on VO₂ reserve
      i. Include the percentage range for the intensity
      ii. Include the actual VO₂ values for this percentage range (show calculations).
5. Provide exercise device settings for the intensity based on the VO₂ reserve calculations
   a. Cycle Ergometry Exercise
      i. What should the Monark bike be set at to elicit the desired VO₂ range based on the VO₂ reserve calculations (make sure to provide setting for the low end of the VO₂ range and the high end of the VO₂ range) (Show all calculations)
         1. Provide workload (kgm/min and Watts)
         2. Provide the resistance (kg)
         3. Provide the RPM’s
   b. Treadmill Exercise
      i. What should the treadmill be set at to elicit the desired VO₂ range based on the VO₂ reserve calculations (make sure to provide setting for the low end of the VO₂ range and the high end of the VO₂ range) (show all calculations)
         1. Provide the speed of the treadmill
         2. Provide the percent grade (if any) of the treadmill
6. Provide calculations of caloric expenditure
   a. Assume the client wants to expend 300 kcal during an exercise session, how long does the client need to exercise at the low and high end of the VO₂ range based on the VO₂ reserve calculations to expend 300 kcal? (show calculations)
**Other Information**

- Your project will also be graded on its neatness and organization.
- All information including calculations must be typed. The only exception to this is that you can hand-write your data into the data sheets.
- You must complete the write-up for this assignment independently. I do not want to see projects from partners that are formatted the exact same way. If this happens, you will be guilty of plagiarism and receive a 0 for the assignment.
- I expect that you will respect the laboratory and the equipment. Please treat the equipment with care and clean up the lab area and put equipment back when you are finished. I expect that the lab will look like you were never there after you leave.
- The lab is usually available during normal hours (i.e. 9AM till 5PM). If there is a research project being conducted in the lab, you may not be able to use that part of the lab. Also, there are classes that typically use the lab from 9AM till 1PM on Fridays). The lab is not open at night or on weekends. So, plan accordingly.
- The project is due on Friday, December 9 by 5PM. There are no exceptions to this deadline. Any projects received after this deadline will result in a 0. You will be able pick up your binders after 12PM on Thursday, December 15. I will keep the binders until January 13, 2012 after which I will discard the materials.
- Lastly, if you have questions ASK. I am happy to help. But, do not wait until the last second.