

Lab Exercise

Designing a Lab

Introduction:

In this lab exercise, the entire class will work together to design a legitimate experiment. Cardiovascular fitness is tied to heart rate and rate of respiration. The more fit an individual is, the lower their resting HR. After a brief period of aerobic exercise, an individual's fitness may be measured using HR. In this exercise, you are going to design a lab based on cardiovascular fitness. This will be accomplished by carrying out a step test.

Procedures:

1. Combine into lab groups of no more than four students
2. As a group, discuss several specific questions that you can ask about an independent variable related to a broad topic of cardiovascular fitness and a step test.
3. List all of your questions on this group lab sheet
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
4. Choose your best question and phrase it as a testable *if...then* statement. Then write your solid hypothesis.
 - a. If...then: _____
 - b. Hypothesis: _____
5. As a class, design the experiment. Record the components of your experiment by answering the questions below
 - Dependant variable(s) = _____
 - Independent variable(s) = _____
 - Controlled variable(s) = _____
6. Procedures for the experiment
 - a. Two members of the group will be subjects, the other two will be investigators
 - b. Investigators should record the pulse rates of the two subjects for one minute.
 - Subject #1 = _____
 - Subject #2 = _____
 - c. One at a time, step up and down from the platform repeatedly at the cadence of the instructor for three minutes
 - d. At the conclusion of three minutes, immediately take pulse rates again and write down the current time.
 - Subject #1 = _____ HR, current time = _____
 - Subject #2 = _____ HR, current time = _____
 - e. Every 2 minutes, Investigators will take the subjects pulse for 60 seconds and rest for 60 seconds and record it
 - f. Stop when the heart rate returns to the starting rate from before the test, this is the resting HR

