Synopsis of Proposal

The Accuracy of Polar F4 Heart Rate Monitor in Estimating Energy Expenditure during Aerobic Dance Bench Stepping

1. Participants (n~30) will be recruiting from students enrolled in Physical Fitness and Wellness classes offered during Fall 2008 at Texas State University. Typically students are between the ages 18 to 29 years.

This study is intended for apparently healthy adults exhibiting no signs or symptoms suggestive of heart, metabolic (diabetes), and pulmonary disease. To identity who should not participate in the study, a comprehensive health-history survey will be administered to identify volunteers who: 1) have heart disease, diabetes, chronic obstructive pulmonary disease (including asthma) 2) have experience recent musculoskeletal injuries, and 3) are pregnant (or think they are pregnant).

1. At the beginning of the Fall semester, the primary investigator will inform potential participants in enrolled in the PFW’s classes about the components of the study. Interested participants will be instructed to sign up for an initial visit to the lab. They will be given pre-test instructions instructing them, prior to each lab visit, to abstrain:1) from food and beverages for 1 to 2 hours, 2) tobacco products for 3 hours, and 3) alcohol and caffeine for 48 hours. During the first visit, participants will be given a consent form to read, be given the opportunity to ask questions about the study, and will be asked to sign the consent form if they would like to proceed with participation in to the study.
2. Each subject will visit the laboratory on 3 different occasions. During visit # 1, subjects will: 1) sign the consent form, 2) complete a health appraisal, 3) be measured for height and weight, and 4) be measured for aerobic fitness. During the second and third visits subjects will be fitted with a heart rate monitor and mouthpiece (connected to a metabolic cart) and, then, asked to follow a 20 min video-taped aerobic dance bench stepping routine.
3. The potential risks for the study are minimal. The most common risks during exercise testing are delayed onset muscle soreness and/or fatigue. Although there has been no research identifying a college-aged student’s risk of death during graded maximal exercise, the studies on the risk of death during graded maximal exercise for middle-aged men is 1 death per 10,000 tests. In rare cases, people experience heart attack, stroke, or death during exercise. Every effort will be made to ensure that the participants are safe. We will let them know that if they experience a very fast heart rate, very slow heart rate, a pounding sensation in their chest, chest pain, pain in the arms, dizziness, or difficulty breathing, to stop exercising and notify the test administrator immediately. The test administrator will contact 911 if needed. It is important to note that the intensity and duration of the exercises, other than the maximal testing, that will be used in this study are no greater than that employed during typical group exercise (e.g., aerobic dance bench stepping) classes. During exercise, it is normal for heart rate and breathing rate to increase and for sweating to occur.

To ensure participant’s safety, the following statement will be included in the consent form: “This study is intended for apparently healthy female adults exhibiting no signs or symptoms suggestive of heart, metabolic (diabetes), and pulmonary disease. If you have been diagnosed with heart disease, diabetes, and chronic obstructive pulmonary disease (including severe asthma) , have recently experienced a musculoskeletal injury, have been told by a health care provider to not exercise, or are pregnant (or think that you might be pregnant), then you should not participate in the study. ”

1. As mentioned in previous items, volunteers will be completely informed of the risks. In addition, the consent form will instruct volunteers to not participate in the study if they “have been diagnosed with heart disease, diabetes, and chronic obstructive pulmonary disease (including severe asthma), have recently experienced a musculoskeletal injury, have been told by a health care provider to not exercise, or are pregnant (or think they might be pregnant).” The health history form is explicit and requires that volunteers answer whether they have been told by a doctor that they have a heart problem, suffer chest pain, experience dizziness or fainting, have a history of joint or bone problems, take or have been advised to take medication for heart or blood pressure conditions or have any other physical conditions that might impair safety.

As mentioned in item #4, at each testing, It will be advise to participants that if they experience a very fast heart rate, very slow heart rate, a pounding sensation in their chest, chest pain, pain in the arms, dizziness, or difficulty breathing, they are to stop exercising and notify the test administrator immediately. The test administrator will contact 911 if needed

In order to minimize potential risk, each participant is able to withdraw from this study at anytime without any consequences to her course grade. In addition to having self control over termination, other safety measures will be implemented: 1) the aerobics instructor (i.e., the primary investigator) is certified in CPR, 2) the testing room is in close proximity to the athletic training offices, and 3) the building houses an automated external defibrillator unit.

All participants’ personal information will be kept confidential. Data will be kept in a locked cabinet in Dr. Lisa Lloyd’s office. Dr Lloyd (Chair of thesis committee) and Annie Lowe (thesis student) will use this information for research, but the participant’s name will not be given out in any reports.

1. Participants in the study will be provided with knowledge about the testing procedures and about how to carry out a scientific experiment. The results of this experiment will provide each student with the knowledge regarding the accuracy of the Polar F4 heart rate monitor in estimating energy expenditure, as well as there own current fitness level.
2. Participants will be offered extra credit as an incentive. An alternative opportunity for students who are not interested in participating in the study will be offered. Participants will receive an extra 10 points to their total participation points out of 100 possible. The study is limited to female volunteers, but male volunteers will be able to receive extra credit by volunteering to help with the testing process.
3. As previously stated, the risks associated with this proposal are minimal, while the potential benefits are great. In short, the risk/benefit ratio greatly favors the potential benefits for not only the scientific community, but also to the participants, themselves, and anyone who wears a Polar F4 heart rate monitor while exercising. The investigators envision, as a result of this research, a better understanding of the accuracy of the Polar F4 heart rate monitor in estimating energy expenditure, during aerobic dance bench stepping.
4. This study will be conducted in the Human Performance laboratory. It has been approved by Dr. Lloyd, who is the director of the Human Performance Laboratory and the Chair of Annie Lowe (the primary investigator of this study) thesis committee.
5. This project is being conducted for my thesis. My Committee Chair is Dr. Lisa Lloyd, Interim Chair and associate professor in the Department of health, Physical Education, and Recreation Department. She can be reached at (512)-245 – 8358. Other committee members include: Dr. Kevin McCurdy and Dr. Michelle Pope, the Department of Health, Physical Education, and Recreation.
6. This proposed investigation has the approval of the members of my thesis committee: Drs. Lloyd, McCurdy, and Pope.