Aerobic Exercise and Older Adults

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Background

The benefits of aerobic exercise extend beyond cardiovascular changes. Participation in regular exercise activity helps maintain and improve functional performance, prevents disease, decreases the risk of falling, reduces physical disability, improves sleep, enhances mood, and general well-being. Despite the positive benefits derived from physical activity, motivation problems still exist. A person’s motive or drive factors into if they will complete a task. Efficacy to schedule exercise into daily activity and to overcome barriers to exercise participation were related to intention and exercise behavior.

Description of Project

Flures were put into each of the independent living residents (ILR) mailboxes describing the study. If they were interested they responded via email or a sign-up sheet in the wellness center. Then the wellness director notified of who wanted to participate, to see if there were any medical conditions that might effect the prohibit them from beginning the study. Palisades has a blanket IRB. Once the participants were cleared, they were notified and asked what times and days work best for them. Self Efficacy and Outcome Expectancy surveys were given at this time. The other survey included questions about health goals, physical activity history, and any concerns about using the equipment were given pre-post. They were also informed of potential benefits of participation. Training equipment consisted of the Nu Step, the Excite Top Ergometer and the Wave from Techno gym. Initially, 6 people signed up. They used some or all of the equipment 2 times a week, for bouts of 20-30 minutes for a total of 8 weeks. The first 4 weeks were used to get them accustomed to the exercise program. The last 4 weeks, METS, duration, mileage, steps, and calories were recorded and evaluated. Students who assisted with the study had prior experience working with older adults and received training in safety, cuing, and appropriate language usage.

Participations

• 4 Independent living residents at Broadmoor Park
• 2 females 2 males
• Age: 78-93
• All participants were engaged in at least one exercise program/type of physical activity prior to the study
  o 1 individual had used the equipment for 3 months prior to the study
  o 1 individual had come back from after orthopedic rehab
  o 1 individual had been physically active 2 to 3 times a week
  o 1 individual had been utilizing the equipment inconsistently

Findings...

Participation

The study started out with 6 participants. It ended with three consistent participants that came over 80% of the time and one that due to fatigue from another exercise program would come 30% of the time. The other reasons for drop outs included schedule conflicts and the illness of a spouse. Program implementation Resources that were needed for the study were extra students and time. Often times the participants workout times overlapped. Extra hands to help the residents get on and off the machines was beneficial. At the beginning of the study at least 3 people were needed to run the study by the end only 1 person was needed. The machines can be difficult to adjust and get on and off of. The cuing aspect involved reminding the participants to:
  1. Go at a steady pace
  2. Not to overexert themselves
  3. To breathe in through their nose and out through their mouth
  4. If they felt pain to notify personnel immediately and stop the motion

When the participants would inquire about how they were doing and what was being measured, it was important not to use medical terminology. For instance, one participant asked “What are METS?” The standard reply was that METS are how hard a person is working. In this population allowing extra time for their workout session is needed. It could be because they need to catch their breath when moving from one machine to the next or they have something they would like to express. Motivation: Participants’ motivation and activity level prior to study played a major role in their exercise behavior during the length of the study. They all had high scores on the self efficacy and outcome expectancy surveys that were distributed in the beginning of the study. This created a ceiling effect. All participants who were interested in using the cardio equipment were already physically active. Duration and Intensity: There wasn’t a significant change in the METS or calorie expenditure from beginning to end. This is partly due to the fact that Wave doesn’t register METS until a person is going 50 mph. This cohort group has a hard time achieving this speed. It is not saying that they aren’t putting in enough effort. It is saying that this speed may not reasonable for this population. However, there was an increase in the duration of the exercises 7 minutes being the least and 9 being the most. In the beginning participants used the Nu step for 2 min at level 1, at 2 minutes level was increased to 2 for 7-8 min. The Wave was set at level 1 for 4-5 minutes. The Excite Top Ergometer was set at level 2 for the first 4-5 minutes and at level 1 for the last minute. The total workout was 19-21 minutes. By the end of the study the Nu Step was set at level for the first 2 minutes, level 2 for 7 minutes, and level 3 for 5 minutes. The Wave was set at level 1 for the first 2 minutes, then level 2 for 3 to 4 minutes and back to level 1 for the last minute. The Excite Top Ergometer was set at level 2 for 5 minutes, level 3 for 2 minutes, and level 1 for the last minute. The total time for their workout time for the end of the study was between 26-29 minutes.

Objectives

The purpose of this study was twofold: 1) to identify factors promoting or inhibiting initiation and adherence to aerobic exercise with older adults in an Independent Living Community (ILC), and 2) to determine how older adults in an ILC master the use of cardio equipment in order to benefit their health and/or stamina.

This table represents the participation rates for each resident for the 8 week duration.

Future Recommendations

In future studies looking at the drop out rate and the reasons behind it would be of interest. A 3 month period is considered to be a good time frame for this type of study because by this time 1/3 of those who initiate an exercise program drop out. Another factor when discussing adherence to exercise is interruptions. Interruption of physical activity for pre-existing or acute medical condition in long-term trials of physical activity among older adults has not been well described. What type of factors influence interruptions? How long is too long when an interruption occurs before the participants lose what strength they have gained? These are questions of interest. A point of consideration for the designers who created gym equipment would be to set not a certain speed level that needs to be maintained in order to capture METS. Allowing the user of the gym to put in their age and weight would also be of use to aide in capturing a more accurate net level.

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References