Arm ergometer vs. leg ergometer: How to improve cardiorespiratory endurance implementing different techniques

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The purpose of this study was to determine an effective means of improving cardiorespiratory endurance in non-athletic/sedentary adults. The arm and leg ergometers were used as treatment methods to improve endurance using different durations of activity. The goal of this study was to determine how much time must be spent on either machine to achieve improvement in cardiorespiratory endurance. This research attempted to find a comparable substitution for people who are not able to use the leg ergometer. A three-group pretest posttest group design was used for the study. An initial assessment of cardiorespiratory performance was evaluated prior to the study using the Harvard Step Test, followed by the same post-test. Following the pre-test, participants were placed into three groups. The first group used the leg ergometer for a duration of 15 min, the second group used the arm ergometer for 15, and the third used the arm ergometer for 30 minutes. An ANOVA was used to measure differences in the three groups. The ANOVA indicated no significant differences; all three groups showed a decrease in heart rate. It is important to note that the group using the arm ergometer for 30 minutes showed the most improvement. The leg/15 minute and arm/30-minute groups showed higher improvement than the arm/15-minute group. The leg group showed a 9.7% decrease in heart rate and the arm/30-minute group showed an 11.3% decrease in heart rate, compared to only a 4.1% decrease in heart rate for the arm/15-minute group. The average heart rate differences were greater for the arm/30-minute group (15-points) from pretest to post test, and the leg/15-minute group (13.6-points). The arm/15-minute group only showed a 6-point difference from pretest to post test. This shows that using the arm ergometer may provide the opportunity to improve cardiorespiratory endurance by increasing duration.