

KOMKRIT KHAMWUT : STUDY OF APPROPRIATE RAMP STEEPNESS
FOR ELDERLY. THESIS ADVISOR : NARA SAMATTAPAPONG, Ph.D.,
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RAMP STEEPNESS/ PHYSIOLOGICAL CHARACTERISTICS/ ELDERLY

The purposes of this study were to study the effect of ramp steepness on the heart rate, blood pressure and average leg muscle load of the elderly and to study the satisfaction of the elderly with different ramp steepness. This research studied a sample of 100 elderly people aged 60 years and over. The data collection was divided into 2 parts: Part 1 survey research was the collection of basic information and measuring body proportions of the elderly. Part 2 experimental research investigated the effect of ramp steepness (1:6, 1:8, 1:12 and 1:15) on the increase in heart rate, the difference in blood pressure, the time spent, elderly satisfaction, and workload of lower extremity muscles. Analysis of variance was used to analyze data.

Results of this research were as follows: The ramp steepness had an effect on the increase in heart rate and the difference in systolic and diastolic blood pressure was significantly. It was also found that as the ramp steepness was increased, the mean in heart rate increased. The elders spent average time walking down on ramp steepness more than walking up on ramp steepness. The ramp which required shortest time for walking up (10.968 s.) was the ramp with 1:12 steepness. Besides, the ramp which required shortest time for walking down (10.502 s.) was the one with 1:12 steepness. For the satisfaction score of the elderly with the ramp steepness level, it was found that at the 1:12 level steepness showed the maximum of average satisfaction level of 3.85 points. For the analysis of 4 sets of muscle load, it was found

that that walking up and down on ramp had satisfaction effect on all four sets of muscles. The maximum values of mean workload of four muscle groups while walking up and down on the ramp with 1:6 steepness was 36.692 and 33.281 %MVC, respectively.



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