

早稲田大学審査学位論文  
博士（スポーツ科学）  
概要書

Association of daily walking time with  
the perceived benefit of energy conservation  
due to walking for health promotion

ウォーキングによる省エネルギー効果の認知と  
日常歩行時間との関連

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In this dissertation, Research 1 determined the relationship between perceived benefit of energy conservation due to walking and daily walking time. From the Research 2, we found the association between one year longitudinal changed perceived benefit of energy conservation due to walking and daily walking time. The dissertation composed with 4 Chapters.

Chapter 1 is Introduction which composed with background, purpose and structure of this dissertation. From background of this study, physical activity and public health, older adults and health, perceived benefits of exercise and physical activity, and environmental sustainability as co-benefits due to physical activity are presented. The Toronto Charter for Physical Activity stated physical activity as a powerful investment for environmental sustainability. Recently, pro-environmental attitude has reported as related factor to active commuting which represents daily routine physical activity. However, the comprehensive analyze on the association between perceived benefit of energy conservation due to walking and daily walking time has not been reported. The purpose of this dissertation was to determine the association between perceived benefit of energy conservation due to walking and daily walking time by cross-sectional and longitudinal researches.

Chapter 2 is [The relationship between the perceived benefit of energy conservation due to walking and daily walking time] (Research 1). To determine the relationship between the levels of perceived benefit of energy conservation due to walking and recommended walking time, internet based self-reported survey was conducted. The perceived benefit of energy conservation due to walking was categorized into 3 values as low, mid and high by tertiles as the criteria. Daily walking time was divided into two values as individuals who walk same or more than recommended physical activity ( $\geq 150$ mins/week) and individuals who walk less than recommended physical activity ( $< 150$ mins/week). The main result of Research 1 was that there was significantly positive relationship between the perceived benefit of energy conservation due to walking and daily walking time. We found that with increased levels of energy conservation as perceived benefit due to walking, individuals have more possibility to meet the recommended walking time.

Chapter 3 is [The association between perceived benefit of energy conservation due to walking and daily walking time: one year longitudinal study] (Research 2). While most of people have not changed their behavior during one year, there are only approximately 16% of individuals who increased their daily walking time level (low into mid or high) in the people who have not met the recommended walking time. A possible explanation for these results might be that not only it is very difficult to increase individuals' daily walking time, but also the difficulty of the adherence. The main result of this study was that there was higher proportion of increased daily walking time and lower proportion of decreased daily walking time in increased perceived benefit of energy conservation due to walking. The different proportion of changed daily walking time between the people who increased perceived benefit of energy conservation due to walking, and the people who decreased perceived benefit of energy conservation was determined. The results provide the insight of potential to promote physical activity by increasing the perceived benefit of energy conservation due to walking.

In Chapter 4 [General Discussion], generally discussed the results that association between perceived benefit of energy conservation due to walking and daily walking time. The research 1 and 2 showed cross-sectional and longitudinal association between perceived benefit of energy conservation due to walking and daily walking time. This study was the first study that conduct comprehensive analyze to reveal the effects of perceived benefit of energy conservation due to walking on daily walking time. In summary, individuals who are highly perceived benefit of energy conservation due to walking have higher recommended daily walking time. Moreover, there was higher proportion of increased daily walking time in increased perceived co-benefit of energy conservation due to walking. The implication of this dissertation was the possibility of perceived benefit of energy conservation due to walking to promote the daily walking time.