Adapting to Aging in Place: An Assessment of Residential Living Facility Resident's Frequency of Physical Activity

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ADAPTING TO AGING IN PLACE: AN ASSESSMENT OF RESIDENTIAL LIVING FACILITY RESIDENT'S FREQUENCY OF PHYSICAL ACTIVITY

A Capstone Experience/Thesis Project Presented in Partial Fulfillment of the Requirement for the Degree Bachelor of Science with Honors College Graduate Distinction at Western Kentucky University

By
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* * * * *

Western Kentucky University
2010

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ABSTRACT

Village Manor is medium sized independent retirement community in rural Kentucky. When the community was built in 1995, designers did not anticipate residents’ long term physical activity needs. In order to meet the needs of current and future residents, both resident physical activity levels and their expectations were examined. The Physical Activity Scale for Elderly (PASE) was administered (n = 23) to develop a profile of current physical activity. One focus group was held to develop themes relating to residents’ current physical activity program desires. Results showed that compared to the theoretical physical activity recommendations for this age group (mean age = 90; 83-104), resident’s current activity levels were less. At the same time, their desires for specific physical activity programs (type, length, intensity) were not being met. This presentation concludes with recommendations for fitness area enhancement to increase the likelihood of residents meeting proposed physical activity levels.

Keywords: physical activity, long term care community, PASE, fitness area assessment, older adults, recommendations
Dedicated to my family and friends
ACKNOWLEDGMENTS

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CHAPTER 1

INTRODUCTION

In order to frame the study appropriately the following review of related literature was conducted. First, aging in the United States must be understood. Aging can be defined in several different ways. One way to define aging is the process of growing old, especially acquiring the physical and mental characteristics of old age (Encarta World English Dictionary). Aging or being old can also be defined as how a person feels, looks, and numerical age.

An aging phenomenon is occurring in the United States and other industrialized countries in which the population and proportion of older adults is increasing. According to the Federal Interagency Forum on Aging Related Statistics (2008), in 2006, 37 million people age 65 and over lived in the United States, accounting for just over 12 percent of the total population. By 2030, the older population is expected to be twice as large as in 2000, growing from 35 million to 71.5 million and representing nearly 20 percent of the total U.S. population (Federal Interagency Forum on Aging Related Statistics, 2008). Figure 1.1 displays that the oldest old (those 85 and older) will be the fastest growing group even after the youngest (65-74) and older old (75-84) becomes stable.
With these astonishing projections, the health status of older adults needs to be considered by those in the health industry to better help care for them. The health status of older adults encompasses physical, emotional, spiritual, mental/intellectual, environmental and social aspects of health and well-being. According to the Federal Interagency Forum on Aging Related Statistics (2008), during the period 2004-2006, 74 percent of people age 65 and over rated their health as good or better. However, the proportion of people reporting good to excellent health decreased among the older age groups. Also regardless of age, older Non-Hispanic white men and women are more
likely to report good health than their Non-Hispanic black and Hispanic counterparts (Federal Interagency Forum on Aging Related Statistics, 2008). These statistics can be found in Figure 1.2. The statistics show the percentage of people age 65 and over who reported having good to excellent health, by age group and race and Hispanic origin from 2004 to 2006.

As mentioned above, health statuses decrease as age increases and one reason for this may be due to functional limitations. Functioning may be diminished if illness, chronic disease, or injury limits physical and/or mental abilities. Levels of functioning can be defined in multiple ways, but are most often defined as Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). According to the Federal Interagency Forum on Aging Related Statistics (2008), ADL limitations refer to difficulty performing (or inability to perform for a health reason) one or more of the following tasks: bathing, dressing, eating, getting in/out of chairs, walking, or using the toilet. IADL limitations refer to difficulty performing (or inability to perform for a health reason) one or more of the following tasks: using the telephone, light housework, heavy housework, meal preparation, shopping, or managing money.
Changes in functional limitation rates have important implications for work and retirement policies, health and long-term care needs, and the social well-being of the older population (Federal Interagency Forum on Aging Related Statistics, 2008). Figure 1.3 shows the percentage of Medicare enrollees age 65 and over who reported functional limitations by year. According to the Federal Interagency Forum on Aging Related Statistics (2008), in 2005, more than 42 percent of people age 65 and over reported a functional limitation. Twelve percent of people age 65 and older had difficulty performing one or more IADLs (but no ADL limitation). Eighteen percent had difficulty with 1–2 ADLs, 5 percent had difficulty with 3–4 ADLs, 3 percent had difficulty with 5–6 ADLs, and 4 percent were in a facility. The study also reported that women have higher
levels of functional limitations than men, with 47 percent of female Medicare enrollees had difficulty with ADLs or IADLs, or were in an institution, compared with 35 percent of male Medicare enrollees (Federal Interagency Forum on Aging Related Statistics, 2008).

Figure 3.3. Percentage of Medicare enrollees age 65 and over who have limitations in activities of daily living (ADLs) or instrumental activities of daily living (IADLs), or who are in a facility, selected years 1992–2005.

There are different indicators other than ADLs and IADLs that are used to monitor physical functioning, such as the ability to lift heavy objects, walk 2-3 blocks, write, stoop/kneel or reach up over one’s head. These physical functions were reported by
Medicare enrollees and are shown in Figure 1.4. As with the ADLs and IADLs statistics in Figure 1.3, older women reported more problems with physical functioning than older men (Federal Interagency Forum on Aging Related Statistics, 2008). According to the Federal Interagency Forum on Aging Related Statistics (2008), among men aged 65-74, 14 percent reported they were unable to perform at least one of five activities, compared with 38 percent of men aged 85 and over. Among women, 22 percent of those aged 65-74 were unable to perform at least one activity, compared with 56 percent of those aged 85 and over.

Specifically, Kentucky ranked 5th in 2005 in terms of the least active 65+ populations, with only 38.8% reporting frequent and adequate activity (Kentucky Aging Research & Information Service, 2005). This is definitely an indicator of the health status of older Kentucky adults and indicates the need to increase physical activity of this age group. With these astonishing projections of an increasing elderly population and declining functional capabilities, developments in long term living facilities as well as other aspects of our society will be necessary to meet the needs of an aging population.

Functional capacity and health status in older adults can affect their living arrangements, whether that is who they live with or where they live. Worobey and Angel (1990) examined the impact of functional capacity, gender, race and ethnicity, and various socioeconomic characteristics on changes in living arrangements among unmarried elderly persons over a two-year period. The findings of the study indicated a decline in functional capacity greatly increases the likelihood that an elderly person will move in with others or become institutionalized. Nevertheless, even when they experience significant declines in health, most single elderly persons who were living alone at the initial interview continued to live alone two years later (Worobey and Angel,
Lastly, Worobey and Angel’s (1990) multivariate analyses showed that women who suffer declines in functional capacity are somewhat less likely than men who experience declines to live alone at time two.

The Federal Interagency Forum on Aging Related Statistics (2008) also presents similar data in Figure 1.5 on the next page, which shows the living arrangements of the population age 65 and over, by sex and race and Hispanic origin for 2007. The study analyzed the percentage of older adults that live with a spouse, with other relatives (no spouse), with nonrelatives (no spouse or relatives) and alone. Older men were more likely to live with their spouses than were older women. According to the Federal Interagency Forum on Aging Related Statistics (2008), in 2007, 73 percent of older men lived with their spouse while only 42 percent of older women. In contrast, older women were more than twice as likely as older men to live alone (39 percent and 19 percent, respectively).

![Figure 5.5. Living arrangements of the population age 65 and over, by sex and race and Hispanic origin, 2007. Source: Federal Interagency Forum on Aging Related Statistics (2008).](chart)

Note: Living with other relatives indicates no spouse present. Living with nonrelatives indicates no spouse or other relatives present. The term “Non-Hispanic White alone” is used to refer to people who reported being white and no other race and who are not Hispanic. The term “Black alone” is used to refer to people who reported being black or African American and no other race. The term “Asian alone” is used to refer to people who reported only Asian as their race. The use of single-race populations in this report does not imply that this is the preferred method of presenting or analyzing data. The U.S. Census Bureau uses a variety of approaches.

Reference population: These data refer to the civilian noninstitutionalized population.

**Older Americans 2008: Key Indicators of Well-Being.**
The state of Kentucky ranked 4th highest (36.7%) nationally, of the number of women over the age of 65 living alone. While the state ranks 12th highest (17.8%) nationally, of the number of men over the age of 65 living alone (Kentucky Aging Research & Information Service, 2005). Whether, older adults are living alone, with a spouse or relatives there are multiple types of housing available to fit their needs.

According to the Commission on Affordable Housing and Health Facility (2002), more than 80% of senior householders will be homeowners. While almost 44% of senior householders will be age 75 and older. Seniors currently occupy a diverse array of housing types. The senior’s housing reflects both economic decisions and life circumstances such as the purchase of a house in middle age, new retirement lifestyles, the disability or death of a spouse, and/or changes in financial well being, personal health, and mobility (Commission, 2002).

The North Carolina Division of Aging and Adult Services (NCDAAS) (2009) places the various types of housing into three categories. These categories are nursing homes, assisted living and independent living housing. The most familiar type of housing for older adults is nursing homes, which is defined as providing long term care of chronic conditions or short term convalescent or rehabilitative care of remedial ailments, for which medical and nursing care are indicated (NCDAAS, 2009). Assisted living can consist of adult care homes and multi-unit assisted housing with services. While independent living housing consists of a variety of types and is not limited to, elderly apartments, congregate housing, multi-unit assisted housing with services, public
According to the American Association of Retired Persons (2009), a Continuing Care Retirement Community (CCRC) is a large campus that includes separate housing for those who live very independently, assisted living facilities that offer more support, and nursing homes for those needing skilled nursing care. Generally, prospective residents must be capable of independent living when they enter the community and once their health status changes they are able to move from one sector to the other. CCRCs provide community dining, social and recreational areas, and a wide range of services including meals, housekeeping, transportation, and health-related services for life or for a period in excess of one year (NCDAAS, 2009). According to the NCDAAS (2009), usually a substantial entrance fee is charged in addition to monthly fees. The majority of CCRCs are private pay with contractual agreements, although a few have some subsidized units. Over 818,962 persons 65 and older live in independent living centers in the United States, such as CCRCs (Commission, 2002).

Christian Care Communities is Kentucky’s largest faith-based, not-for-profit provider of affordable housing and long-term care for Older Adults (Christian Care Communities, 2006). Village Manor is a CCRC that is part of the Older Adults Program of Christian Care Communities. Located in Bowling Green, Kentucky, Village Manor I was built in 1995 and Village Manor II opened in 2001.
At Village Manor, approximately 92 residents over the age of 60 reside until they are no longer able to function independently. The average age of entrance into the facility is 81 years old and the facility does not check the health status of the residents as they enter as long as they can maintain independence, whether that is through assistance from family or caregivers. When the facility first opened the average length of stay was estimated at two to two and a half years. Village Manor was originally designed to house older adults for a short period of time until independence diminished. Then residents could move on to the adjacent nursing care facility, Christian Health Center (Christian Care Communities, 2006).

However, as residents aged healthily, leisure stay continued far past the initial estimate of years. There are twelve residents in the Village Manor I building that have been there since the first day and eleven in Village Manor II that have been there since it opened. On average, the length of stay is around eight to ten years. This phenomenon has occurred around the nation and is referred to as “aging in place” and has increased with the number of older people residing in CCRCs. Aging in place is defined as, “The ability to continue to live in one’s home safely, independently, and comfortably, regardless of age, income, or ability level. It means living in a familiar environment, and being able to participate in family and other community activities” (National Aging in Place Council, 2008). This has caused a real challenge for communities, like Village Manor located in Bowling Green, KY because their facilities do not meet the needs of current residents. These facilities need help in reassessing their buildings to see what updates are necessary.
When Village Manor was built in the 1990s, the designers did not anticipate the long-term physical activity needs of residents, due to the lack of emphasis on physical activity as a benefit to long term health. As life expectancy increased, a cohort effect and change of interest in exercise has also occurred. With the change in cohorts, the benefits of physical activity were recognized by healthcare providers and interest in exercise became more prominent. Therefore, the resident’s needs and wants for a fitness area were addressed by installing fitness equipment and offering classes in the basement. However, in order to meet the needs of current and future residents, resident expectation must be assessed concerning the fitness area to encourage more physical activity and healthier lifestyles. Therefore, physical activity in older adults must be understood.

Physical activity is defined as any activity or movement that causes your body to work harder than normal. This can be anything beyond daily activities, such as slow walking, standing, sitting or climbing of stairs. Physical activity is essential in helping older adults live longer and healthier lives. Previous studies have shown reduced risk of several chronic diseases such as coronary heart disease, stroke, diabetes mellitus, cancer, hypertension, depression and osteoporosis with regular physical activity (Hu et al., 2000; Nied & Franklin, 2002; Warburton, Nicol, & Bredin, 2006). Cognitive loss and impairment, specifically memory and risk of Alzheimer’s disease can also be delayed through physical interventions (Laurin, Verrault, Lindsay, MacPherson, & Rockwood, 2001). Since the 1990s, knowledge of the links between physical activity and healthy aging has increased.
Physical activity can also help with daily activities, such as mobility, cooking, and bathing. These activities are essential for ensuring independent living and contribute importantly to overall quality of life (Drewnowski & Evans, 2001). Whether the physical activity has been a consistent pleasure throughout life or the older person began an exercise regimen later in life the benefits can make a remarkable difference in the person’s health and well being.

Recommendations for physical activity have changed over the years with the increase of knowledge of healthcare and research studies. There is no one standard for current recommendations for exercise although many contain the same types of activities, but vary on the intensity or duration. However, the Centers for Disease Control and Prevention (CDC), American College of Sports Medicine (ACSM), National Institute on Aging and U.S. Department of Health & Human Services are all reputable organizations that lead the way in aging research and its relationship to physical activity. Therefore, their recommendations are often highly regarded and respected. The CDC (2008) recommends aerobic activity and muscle-strengthening activities as the core areas for physical activity for older adults. They recommend two days or more of these activities, but depending on the skill level of the older adult, the type and duration of activity may vary (CDC, 2008).

The ACSM’s (2009) position is cardiovascular endurance training and strength training as well, but they also recommend balance/coordination and flexibility training to prevent falls and increase range of motion (Lim, 1999). The ACSM recommends older adults perform moderately intense aerobic exercise three to five times per week.
Strength training should also be performed two to three times per week. Stretching to help flexibility should be done every day along with balance training two times a week (Nied & Franklin, 2002). The National Institute on Aging (2009) and the U.S. Department of Health & Human Services (2008) also advocates the aforementioned physical activities for the elderly population. From these accepted standards a program of four core areas for physical activity for older adults will be used as the theoretical basis for this study: aerobic activity, resistance training, balance/coordination and flexibility training.

Aerobic activity for older adults can include brisk walking, jogging, swimming, water aerobics, stair climbing and recumbent biking. The benefits specifically related to aerobic activity is to the cardiovascular and cardiorespiratory system. According to the American College of Sports Medicine (2009), the most consistently reported adaptations of aerobic exercise training include the following: 1) a lower heart rate at rest and at any submaximal exercise workload; 2) smaller rises in systolic, diastolic, and mean blood pressures during submaximal exercise; 3) improvements in the vasodilator and O₂ uptake capacities of the trained muscle groups; and 4) numerous cardioprotective effects, including reductions in atherogenic risk factors, reductions in large elastic artery stiffness, improved endothelial and baroreflex function, and increased vagal tone (ACSM, 2009).

Aerobic exercise training can also provide benefits to bone health. Studies involving higher-intensity bone loading activities such as stair climbing/descending, brisk walking, walking with weighted vests, or jogging, generally report more significant
effects on bone mass density in postmenopausal women at least during the short term (ACSM, 2009). Research on effectiveness of exercise on bone health in older men is still emerging. According to Michel, Lane, Bjorkengren, Block and Fries (1992), “Middle aged and older men who ran nine or more times per month exhibited lower rates of lumbar bone loss than men who jogged less frequently”.

Resistance exercise training is weight bearing exercises that include walking and weight lifting. With aging, sarcopenia (loss of muscle mass) occurs along with loss of bone mass especially in post-menopausal women that can lead to osteoporosis. Resistance exercise training benefits can be described in multiple areas, such as muscle strength, power, and endurance. According to Nied and Franklin (2002), “Resistance training can result in 25 to 100 percent, or more, strength gains in older adults through muscle hypertrophy and, presumably, increased motor unit recruitment”.

Studies suggest that power-producing capabilities are more strongly associated with functional performance than muscle strength in older adults (ACSM, 2009). According to the ACSM (2009), moreover, the age-related loss of muscle power occurs at a greater rate than the loss of strength most likely owing to a disproportionate reduction in the size of Type II fibers. However, substantial increases in power (measured using isokinetic, isotonic, stair climbing, and vertical jumping protocols) are demonstrated after resistance exercise training in older adults. Although the ability to repeatedly produce muscular force and power over an extended period may determine an older adult’s travel range and functional independence, the effects of resistance exercise training on muscular endurance are relatively understudied (ACSM, 2009). Resistance
exercise training has significant positive effects on bone mass density in most sites in both pre- and postmenopausal women, similar to aerobic exercise training (ACSM, 2009).

Balance/coordination is the stability of the body to keep itself upright. A lack of balance/coordination can have some serious consequences for older adults, specifically related to falls. According to the ACSM, several studies have examined relationships among age, exercise, and balance with the most research having been conducted in populations at risk for falling (i.e., osteoporotic women, frail older adults, subjects with a previous fall history). Several large prospective cohort studies link higher levels of physical activity, particularly walking, with 30%-50% reduction in the risk of osteoporotic fractures (Gillespie et al., 2003). To prevent falls, participation in walking, dancing, Tai Chi, resistance and strength exercises is imperative. According to the ACSM (2009), balance training activities such as lower body strengthening and walking over difficult terrain have been shown to significantly improve balance in many studies, and are thus recommended as part of an exercise prevention to prevent falls.

Flexibility is also related to balance/coordination, but differs in that it is involved in the range of motion of single or multiple joints and ability to perform tasks. Declines in flexibility occur with aging and can diminish an older adult’s ability to reach objects on a shelf or open cans. According to the ACSM (2009), despite decrements in joint range of motion with age and established links among poor flexibility, mobility, and physical independence, there remains a surprisingly small number of studies that have documented or compared the effects of specific range of motion exercises on flexibility.
outcomes in older populations. However, in Rider and Daly’s (1991) study 70-yr-old women reported significant improvements in low back/hamstring flexibility (+25%) and spinal extension (+40%) after 10 week of a supervised static stretching program (3 days per week) that involved a series of low back and hip exercises. Exercise prevention includes stretching every day along with Yoga classes and Tai Chi.

These four core areas described above must be considered when a fitness area is designed, but in the case of Village Manor the fitness room was an afterthought; therefore space availability hindered this. However, in the fitness industry facility design for special populations, such as older adults and those with disabilities has become more important. Facility design has improved in the hopes of attracting older adults to exercise. Informational booklets, such as, “Removing Barriers to Health Clubs and Fitness Facilities: A Guide for Accommodating All Members, Including People with Disabilities and Older Adults” help to show facility managers designs that are Americans with Disabilities Act (ADA) compatible or universally designed (North Carolina Office on Disability and Health, 2008).

ADA compatibility is the minimum requirements for a building to accommodate those with disabilities, such as space for wheelchair users to approach and to maneuver between exercise equipment. Universal design takes the ADA a step further by increasing the usability for a broader population, such as exercise equipment with small weight increments is easier for someone with limited strength and is safer for someone who is just starting to exercise (North Carolina Office on Disability and Health, 2008). These recommendations have been instrumental in design for new fitness facilities, but should
also be considered for older facilities that transform rooms or build additional spaces on to the existing building.

The purpose of this study was to assess a continuing care retirement community’s fitness program to determine how closely the program relates to recommendations made by national health related organizations (ACSM, CDC, NIA and DHHS) for older adult’s physical health. The research question for this study is, “Residents would not meet the theoretical four core areas and that the fitness area would not meet their needs and wants.” Data were collected through a survey and resident’s participation in a focus group. A description of the methodology follows along with analyses and discussion of the study’s results. Lastly, recommendations were made to the facility’s director.
Quantitative and qualitative methodologies were used in order to fully understand the physical activity levels of residents and how they conceptualized their needs in a fitness area. The quantitative methodology provided baseline data that helped frame the questions asked for the qualitative methodology. The quantitative methodology used in this study was a paper and pencil survey. A survey is a simple way to collect quantitative data on a variety of subjects. Surveys can be administered in different settings and allows the participants to remain anonymous.

The qualitative methodology used in this study was a focus group. According to Kitzinger (1995), “Focus groups are a form of group interview that capitalizes on communication between research participants in order to generate data.” This means that instead of the researcher asking each person to respond to a question in turn, people are encouraged to talk to one another: asking questions, exchanging anecdotes and commenting on each others’ experiences and points of view. The method is particularly useful for exploring people’s knowledge and experiences and can be used to examine not
only what people think but how they think and why they think that way (Kitzinger, 1995).

Also group discussion is particularly appropriate when the interviewer has a series of open ended questions and wishes to encourage research participants to explore the issues of importance to them, in their own vocabulary, generating their own questions and pursuing their own priorities (Kitzinger, 1995).

In this study, all the participants reside in the same building and therefore know each other because of daily social interaction. This may be a positive factor for this study because it might increase the discussion for the focus group even more. As such, residents should feel completely comfortable with each other and with discussing the topics given to them.

SURVEY

Twenty three residents voluntarily participated in the two survey administrations. Of the 23 participants, 18 were females and five were males. The median age of the participants was 86.9 years of age, with eight participants between 75 and 84 years of age and 15 participants over 85 years of age. Of the survey participants, 11 are married and 12 are widowed. All participants read and signed an informed consent approved by the Western Kentucky University Human Subjects Review Board.

The survey used for this study was the Physical Activity Scale for the Elderly (PASE), a research instrument of the New England Research Institutes. It was developed by Washburn, R.A., et. al, 1993. After contact with the New England Research Institute,
the PASE survey was provided for free for this study. The PASE is an easily administered and scored instrument that measures the level of physical activity in individuals aged 65 years and older (Washburn). The PASE has been used with all persons aged 65 years and older living in their own households without serious mental or physical impairments. It was also originally validated through comparisons with physiologic and health status data measured in the home, such as balance, grip strength, leg strength, self-assessed health status, and Sickness Impact Profile scores (Washburn).

The survey used was administered on two separate occasions to any Village Manor residents that volunteered. The first administration of the survey was at an event advertised as an “activity” by the facility’s Fitness/Event Director and a total of 14 residents volunteered to complete the survey. The second administration was at a Women’s Breakfast event where another nine residents volunteered to complete the survey.

The informed consent was explained and participants completed it before starting the survey. Three residents read the informed consent document and agreed to participate, but once they saw the actual survey questions chose not to complete it. They explained that the reason that they did not want to complete it was due to the size of print or their lack of physical activity recently. Five participants asked for assistance in completing the survey due to their inability to read the print size or wanting to finish quicker. The researcher read the questions and answer choices to the participants. Then the participants verbally stated the answer they wanted to be marked. All surveys were administered by
the primary researcher and no assistance was provided from the Village Manor staff or personal nurses care assistants or nurses.

The PASE assesses the occurrence of a variety of physical activity that occurred within the past week. It consists of ten questions regarding leisure time activity, household activity and work-related activity. Within leisure time activity, there are six questions regarding sitting activities, walking outside the home, light sport, moderate sport, strenuous sport and muscle strength/endurance. These answer choices for these questions were, zero (Never), one (Seldom 1-2 days), two (Sometimes 3-4 days) and three (Often 5-7 days). If zero was chosen, then the respondent could move on to the next question. If one through three were chosen, then the respondent could volunteer to answer two sub-questions. The sub-questions related to what the activities were and the average hours per day spent on those activities.

In household activity, there were three questions with the last one having four parts. These questions referenced light housework, heavy housework, home repairs, lawn work, outdoor gardening and caring for another person. The answer choices consisted of yes or no responses. Lastly, the work-related activity consisted of one question related to work for pay or volunteering. This question is also a yes or no response. If yes is chosen, there are two sub-questions referring to the hours per week and the category of amount of physical activity required. Data from the survey were analyzed for descriptive measures and presented in Chapter 3. The PASE survey can be found in the appendix.
FOCUS GROUP

After analyses of the PASE results, questions were developed in order to gain more information about the resident’s views on physical activity and their fitness area. There were 12 participants for the focus group. Of the 12 participants, all were Caucasian, eight were females and four were males. The median age of the participants was 90.17 years of age, with three participants between 75 and 84 years of age and nine participants over 85 years of age. Of the focus group participants, six are married and six are widowed. All participants read and voluntarily signed an informed consent passed by the Western Kentucky University Human Subjects Review Board.

The focus group was conducted at an advertised event, in which all residents were invited. The administrator designed posters that were displayed throughout Village Manor and personal invitations were sent to those that completed the paper and pencil surveys. These materials were given to Village Manor’s Fitness/Event Director who proceeded to display the posters and publicize the event to residents as an informational session and not research related. The Fitness/Event Director organized the event and provided donuts and coffee. The event was advertised as a WKU student’s research project and that she would be the administrator.

The title of the event was a “Physical Activity Discussion”, however participants interpreted it as a presentation on physical activity. Therefore, many of the residents were not prepared to give their opinions or advice to the researcher. This was evident as the participants signed in and completed the informed consent if they had not previously done so. Three out of the twelve focus group participants did not complete the survey.
Initially, participants were seated at tables facing the front of the room. In order to provide a more intimate environment, participants were moved to an inclusive circular seating. The researcher introduced herself and the second researcher who was there to transcribe the comments made by participants to ensure accurate information was gained. It was quickly realized that talking in a group setting is challenging with an older population due to hearing loss.

According to Dalton, “Hearing loss is one of the most prevalent chronic conditions affecting older adults. The Epidemiology of Hearing Loss Study, a population-based study of age-related hearing loss conducted in 1993-1995, found that 46% of adults aged 48-87 years had a hearing loss.” In the 1990-1991 Health Interview Survey, only 9.7% of the respondents over the age of 65 had normal hearing and nearly 50% of the individuals who could not hear and understand normal speech had activity limitations caused by chronic conditions (Dalton, 661). In order to assist with the hearing impairment of participants in the focus group, a microphone was made available by the facility.

At the beginning, the researcher gave feedback to participants about the PASE results and asked further questions to clarify some information. Five main questions were asked along with one to four alternate questions to maximize input from participants. The predetermined questions were asked, but participants were welcome to comment and make suggestions about anything related to physical activity. At one point during the conversation, the fitness/event director of Village Manor stopped by to talk with the
residents. She told the researchers that a couple of the residents were very active in playing the Wii console and other tournament activities.

In order to facilitate the conversation, modifications were made throughout to reiterate peoples’ comments and questions to reinforce understanding. The conversation was not forced to stay within the original schedule, but to discuss topics that participants thought relevant to their personal experiences. However, all predetermined questions were answered along with other comments made by participants. The transcript data from the focus group were analyzed for reoccurring themes and presented in Chapter 3. A copy of the focus group questions follows.

What I learned

- Do you walk inside, outside or at the mall?
- How many of you play the Wii?
- Do you participate in muscle strength/endurance in your home or exercise class?
- How many of you go to other fitness centers, such as BAC or BG parks & recreation?

1. How has your physical activity changed as you have gotten older?

2. So tell me a little bit about how you exercise now?

- What part of your exercise routine do you enjoy the most?
- What part of your exercise routine do you enjoy the least?
- Who do you like to exercise with?
- Some of you may have lost a spouse, did this affect when or if you exercise?
3. What keeps you from exercising?
   o Is it the distance downstairs, the stairs/elevator that you have to use (the placement of the exercise room)?
   o Is it the people that attend the classes?
   o Is it the music or instructor?
   o Is it the lack of courses offered that you enjoy?

4. What aspect of the current fitness area would you change and why?
   o Would you like more flexibility/stretching areas?
   o Would you like chairs with side arms?
   o Would you like a swimming pool/water aerobics area?

5. Should money be no object, what would you think about having a training circuit set up around the building similar to this picture?

   Both quantitative and qualitative methodologies helped this study to gain the most information from Village Manor residents about their physical activity level and fitness area. The survey and focus group results when combined provided well-rounded data for the study researchers. The results for both the survey and focus group can be found in Chapter 3.
CHAPTER 3

RESULTS

SURVEY

The data from the survey were analyzed for descriptive measures using Microsoft Excel. Statistical significance was not determined due to the results being baseline measurements for reference. The statistical results for the PASE are shown in Table 1.6 and Figures 1.7 and 1.8.

<table>
<thead>
<tr>
<th>Table 1.6</th>
<th>Descriptive Statistics for Survey Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Participants</td>
</tr>
<tr>
<td>All Participants</td>
<td>23</td>
</tr>
<tr>
<td>Female Participants</td>
<td>18</td>
</tr>
<tr>
<td>Male Participants</td>
<td>5</td>
</tr>
<tr>
<td>Married Participants</td>
<td>11</td>
</tr>
<tr>
<td>Widowed Participants</td>
<td>12</td>
</tr>
<tr>
<td>75-84 aged Participants</td>
<td>8</td>
</tr>
<tr>
<td>85+ aged Participants</td>
<td>15</td>
</tr>
</tbody>
</table>

Figure 1.6 identifies the results of the descriptive statistics for the survey. Gender, marital status and age were chosen because they were more applicable to the resident.
population, than income or disability status. The total scores range from 25-265 for the participants at Village Manor. PASE scores can range from 0-above 400. The participants in this study had a mean score of 89 and this falls slightly below the norm values of 90 set by the development of the PASE.

Gender: Female scores range from 25-265, same as the total participants, and the male scores range from 52-121. The female participants mean is 89.6, higher than the total mean, and the male participants mean is 87.2, lower than the total mean and the lowest out of all the groups.

Marital Status: The married participant’s range of scores was 27-130 and the mean score was 87.8. The widowed participant’s range was 63-265 and the mean score was 90.2, which was higher than the married participants and this mean was also higher than the total mean.

Chronological Age: Those participants age 75-84 years had a score range of 25-265 and a mean of 91.5, the highest out of all groups. Participants age 85+ years had a score range of 30-164 and a mean of 87.7.
Figure 1.7 shows the individual total scores for each participant at Village Manor. The higher the score, the more physically active the participant. In the original development paper, about two-thirds of the subjects had PASE scores between 39 and 167. In this study, the first quartile range was 25-63. The second quartile range was 66-102 and the third quartile range was 102-265. Therefore, in this study two-thirds of the subjects had PASE scores between 66 and 265, which is higher than that of the PASE norms.
In Figure 1.8, the higher the scores the more frequently the resident participated in that activity. These results indicate the participants on a weekly basis took part in walking outside the home, muscle strengthening activities, light housework, heavy housework and caregiving the most. Not surprisingly, the respondents took part in home repairs the least because it is not applicable to their living arrangements. This figure also shows the difference between the age groups and their physical activity status. Those residents between the age of 75 and 84 on average participate in light housework, muscle strength and walk outside the home the most. While those residents older than 85 on average participate in light housework, muscle strength and caregiving the most. Therefore, these indicate that the residents participate in two out of the four recommended core areas:
aerobic activity and resistance training. The figure also shows that the older residents in general participate in more physical activity than the younger residents.

**FOCUS GROUP**

The data from the focus group was analyzed for thematic values. Researchers assessed the focus group transcript and noted the comments that were made most often. The analyses of the focus group showed two major themes.

The first theme was satisfaction and dissatisfaction with the current fitness area. Participants would like to have a therapeutic swimming pool, weight equipment specifically designed for older population and more Wii activities. The swimming pool was the first item mentioned that everyone wanted so as to help those with arthritis that cannot do weight bearing exercise. The weight equipment that is currently in the fitness area is geared more toward the employees of Village Manor and do not fit the range of motion that older adults have. When the Wii activities were mentioned, none of the participants responded until the Fitness/Event Director stopped by and reminded them of the specific tournaments that they had participated in. Then they described how they enjoyed the Wii activities because it fueled their competitiveness.

Participants also expressed that the only hindrance to resident’s exercise is health problems, not the fitness area placement, which is in the basement of the building, and residents have to use either the stairs or elevator to get there. The type, amount or timing of classes offered did not seem to hinder the resident’s exercise routines either. An indoor circuit training course to be placed throughout the halls of Village Manor was suggested.
to the residents. They liked the concept, but were worried about the logistics of its upkeep and the safety of equipment and residents. Residents thought there would have to be someone to go through the circuit everyday to clean and pick up the equipment. They also thought that if the equipment was not secured at night then someone might steal it. Residents also worried that the equipment would protrude too far in the hallways and could cause someone to fall and hurt themselves. Participants also believed that the Fitness/Event Director is an important factor in their physical activity regimen. The residents believe she motivates them to exercise and the classes she teaches adequately meet their needs.

The second theme of the focus group was that physical activity status has changed over the years. The residents believed that the setting has changed since Village Manor was established. The original residents entered the facility with a better health status and have continued to stay healthy through regular exercise. Residents believed that those people that enter the facility now are less healthy and independent.

Newer residents usually enter because they have lost a spouse or their spouse is in the adjacent nursing home rather than entering because they want to. This change has reduced the amount of people that participate in exercise classes because they are unable to. Most of the residents who participate in the physical activity are those original, older residents of the facility who maintain a better health status. With the number of original residents decreasing, the amount of participants in exercise classes or physical activities has also declined. For example, a quote from one of the residents was, “Line dancing was offered at one point and they liked that, but few could participate. When it started up
there was a lot of people, but slowly they dropped out one by one for reasons like their ankles.” With a lack of participation, there are not as many classes offered to residents.
CHAPTER 4

DISCUSSION

This study attempted to assess Village Manor resident’s physical activity levels and the quality of the fitness area. The research question for this study was, “Residents would not meet the theoretical four core areas and that the fitness area would not meet their needs and wants.” A paper and pencil survey titled The Physical Activity Scale for the Elderly (PASE) which measures the level of physical activity in individuals aged 65 years and older was used to collect data for this study. The PASE survey can be used to measure physical activity levels in epidemiologic surveys of older people as well as to assess the effectiveness of exercise interventions (Washburn).

Overall, the PASE survey scores indicated that Village Manor residents’ physical activity levels were slightly below the norm set by the development of the PASE. Among the subgroups that were analyzed, those residents 75-84 years of age had the highest mean score of 90.2 and the male residents had the lowest mean score of 87.2. Therefore, according to the PASE, residents 75-84 years of age were the most physically active and male residents were the least physically active. A part of the results that were most surprising was the higher mean score for widowed participants. Widowed participants had a mean score of 90.2 and married participants’ mean score was 87.8. It was
anticipated that widowed participants would not be as physically active because they
would not have the support and drive to exercise as their married participants would.
According to Chad et. al (2005), overall significantly higher mean PASE scores were
seen in those individuals that were married or common-law and not living alone.

For this study the theoretical basis for physical activity included four core areas:
aerobic activity, strength training, balance/cooperation and flexibility. These core areas
are recommended by many organizations, such as American College of Sports Medicine,
Center for Disease Control and Prevention, National Institute on Aging and the U.S.
Department of Health & Human Services to help older adults stay healthy and
independent. The survey results showed that residents only participate in two out of the
four core areas: aerobic activity and strength training. It was expected that residents did
not meet all four core areas need to live a physically active lifestyle. However, it was
surprising that residents participated in resistance training exercises more often than
aerobic activity or at all. Due to the lack of equipment adequate for their needs and
classes offered in the fitness area, it was speculated that they would not meet the
recommendations of the four core areas, especially resistance training.

The focus group results indicated that residents would like a therapeutic
swimming pool, weight equipment designed for older population and more Wii activities.
Residents also pointed out the difference in health status associated with the timing of
entrance into the facility. Although this difference was hypothesized by the researchers,
the resident’s awareness of the group physical activity level was interesting. Researchers
were not expecting residents to comment on this shift in activity level seen in the newer
residents compared to the original residents. According to one of the residents, “Now the scenery has changed and people like their walkers and need them to be stable. Now people only come after a spouse has gotten ill or died, so people are now becoming residents with a lot more disabilities and health issues.”

The resident’s statement shows an awareness of their environment since they see each other on a daily basis, especially the people. According to the Housing Manager at Village Manor, there are twelve residents that have been there since 1995 and eleven since 2001. The Housing Manager also stated that most people wish they had moved there earlier because it adds years to their life. Therefore, the original residents seem to be healthier because they have participated in all of the activities earlier than the most recently admitted residents.

There seemed to be a disconnect between the results received from the survey and the focus group. Although the survey results indicated a lack of physical activity, residents did not believe as though there was a hindrance to exercise caused by the fitness area. Given that one of the purposes of this research was to make recommendations about the fitness area and resources, this was interesting and concerning.

It is postulated that the Fitness/Event Director influenced the focus group discussion through her presence. According to the residents during the focus group, “The Fitness/Event Director is very good at sensing what the resident’s limitations are. Residents also stated the Fitness/Event Director is a very important aspect as to why they exercise.” Residents have a close relationship with the Fitness/Event Director and by her stopping by for a short time period it could have caused them to direct their answers in a
positive manner related to the Fitness/Event Director’s responsibilities and the fitness area. It is also possible that the residents wanted to please the researcher as well by positively manipulating their answers, which is called “social desirability”. It is believed that the survey answers are the most accurate due to their anonymity.

Throughout this study, the researcher learned a lot about conducting research with an older population. Adapting to the situation is key to successful data collection because sometimes older adults do not understand what the researcher is trying to achieve. Also awareness of the environment that will be used in conducting research is important because it can affect participation.

Although the Fitness/Event Director may have influenced the focus group results of this study, facility employees can play a key role in driving the research process for data collection. However, if they do not understand the methodology it is important that they are notified of the protocol and what needs to occur to get accurate results. Research is a team effort, but facility employees are skilled in their area not in research methods. To help facilitate cohesiveness, a detailed account of every procedure or method being used should be explained to the employees helping.

The researcher also learned that it is best to not assume that participants understand the researchers’ intentions and what is expected out of them. Specificity and clarity is important, such as explaining that the form needs to be completed in its entirety or that their opinions are wanted in the form of a discussion. This may seem basic, but not every population is educated in research methods and even if they were that is not what they are interested in now.
Lastly, the role of trust is very important in dealing with an older population. Older adults are very hesitant to sign or participate in anything because they do not want to be conned or deceived. Therefore, researchers should gain the trust of participants through previous contact. This could be as simple as volunteering or visiting for social events. These are some tips for other young researchers that are interested in conducting research within the older population.

The limitations that occurred in this study are the limited number of residents that were willing to participate. The survey and focus groups were a sample of convenience, thus likely that the participants were those that were the most physically active at Village Manor. Therefore, we weren’t able to fully analyze the range of physical activity at the facility. Approximately, 39% of residents participated in the study. However, Village Manor staff did cite that many residents are not active and do require personal care assistants. Another way to quantify this would be to ask a follow up question from the staff, such as how many residents have paid caregivers (sitters or nurses)?

Another limitation is that the survey only focused on a week in time and some of the residents had recently been injured, which lowered their score. The time of year could also have been a limitation, since the study was conducted during the summer and early fall, some of the residents could have been on vacation. Also the survey did not ask specific questions about flexibility or balance/coordination relative to the norms for that age group. If there had not been time restrictions, a self-developed survey would have been a better option in regards to the four core theoretical areas.
Initially, a self-designed survey was contemplated, but issues with validity and reliability could have occurred. Therefore, this option was avoided and previously validated surveys were preferred. Multiple other surveys were considered for this study, but were rejected due to inability to get copies, were not easy to complete by participants, and they did not assess all of the physical activity characteristics needed. The physical activity characteristics that were needed related to the four core areas: aerobic activity, resistance training, balance/coordination and flexibility training. Other surveys would only assess one or two of these characteristics, rather than all four. The PASE survey was chosen for this study because of easy accessibility to the product, length and duration needed to complete it (the PASE takes five to ten minutes for participants to complete), its validity and reliability, and its original assessment of the same population. However, the PASE did have two problems for this study because it only assessed a short period of time of a resident’s physical activity level and despite its claims to have large print size it did not.

One possible way to recruit more participants would be to go to every resident’s apartment unit and physically ask them to complete the survey and answer questions. However, this takes out the dynamic of the focus group participation and makes it more of an interview style setting. Also this does not guarantee that more residents will agree to participate, but increases the likelihood.

A follow-up to this study could involve Village Manor implementing one or more of the recommendations given to the facility director from this study. After a certain period of time, researchers could conduct the PASE survey again or multiple times. Once
the new data was collected it could be compared to the baseline measurement obtained in this study and then correlated with marital status, age and gender. This would allow researchers to assess the outcomes of the intervention on how each scale item changed.

Future studies may entail more focus groups in which each discussion was based on the four core areas. Also a population with varied ethnic groups and a more in depth assessment based on gender could be analyzed. Another study could analyze multiple continuing care retirement communities across a state.

This study assessed the physical activity levels of residents at a continuing care retirement communities and the role a fitness area plays in inhibiting or promoting exercise. The results showed that the resident’s physical activity level was inadequate and the fitness area could be enhanced to meet the needs and wants of residents. Therefore, recommendations will be submitted to the facility director and the memorandum can be found in the appendix. Recommendations are necessary for the facility because it provides information that they can use in the future to design a new fitness area for residents.


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APPENDIX

MEMO TO VILLAGE MANOR

April 5, 2010

Dear Ms. Eaton,

Thank you for allowing me to conduct my Honors thesis research at Village Manor. Both the staff and residents have been very helpful and supportive throughout the whole process. I would like to share the results of my research and suggest some recommendations for you and your staff to consider.

Twenty-three residents participated in the pencil and paper survey, called the Physical Activity Scale for the Elderly (PASE) that was administered on two separate occasions. The results indicated that residents participated in walking outside their home, muscle strengthening activities, light housework, heavy housework and caregiving the most. Not surprisingly, they participated in home repairs the least.

Four core areas of physical activity were established for this study based on recommendations from reputable organizations (Centers for Disease Control and Prevention, American College of Sports Medicine and National Institute on Aging). These four core areas are: aerobic activity, resistance training, flexibility and
balance/coordination. The survey results showed that residents only participated in two of the four recommended core areas: aerobic activity and resistance training.

A focus group discussion was also conducted at Village Manor with twelve residents. Throughout the discussion the residents expressed the want for a therapeutic swimming pool, weight equipment specifically designed for older population and more Wii activities. Residents also mentioned that the physical activity status has changed over the years due to newer residents entering the facility less healthy and independent. The original residents are those that participate in physical activity the most but as those residents get older, the amount of participants in exercise classes or physical activities has also declined. With a lack of participation, there are not as many classes offered to residents.

Recommendations to the facility include updating or building a new fitness area that will encourage residents to exercise and therefore increase their physical activity levels and health status. Changes to the fitness area include adding a circuit walking track with strength training stations, a therapeutic swimming pool, and weight equipment specifically designed for older adults.

In terms of cost, the circuit walking track could be the least expensive followed by special weight equipment and a therapeutic swimming pool. A circuit walking track can either be done inside or outside depending on your and the resident’s preference. It can be very cost effective, by posting signs stating the distance of the track throughout the circuit so that residents know how far they have walked. The strength training stations
can include free weights, resistance bands and benches with signs as well to instruct residents of the specific exercise that can be completed at that station.

Also, offering more classes despite the lack of participation helps those that are willing to participate and care about exercise. I would also suggest regular trips to external fitness walking areas, like the water park due to its level surface and easy access by bus. Making this trip a weekly event will encourage residents to exercise and allow them to spend time outside of their homes in the community.

I hope that these recommendations will assist Village Manor in the future when trying to increase the physical activity levels of residents. If an intervention is made in the future, the PASE survey could be conducted again to assess the changes in physical activity of residents. As well as other focus groups directed towards certain topics of physical activity could be conducted.

Again, thank you for allowing me to conduct my research at Village Manor. I hope the results of this study will help the facility to improve resident’s physical activity levels and health status.

Sincerely,

Maggie L. Roe
WKU Honors College Student
PHYSICAL ACTIVITY SCALE
FOR THE ELDERLY

(P A S E )

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INSTRUCTIONS:

Please complete this questionnaire by either circling the correct response or filling in the blank. Here is an example:

During the past 7 days, how often have you seen the sun?

[0.] NEVER   [1.] Seldom   [2.] Sometimes   [3.] Often
(1-2 Days)   (3-4 Days)   (5-7 Days)

Answer all items as accurately as possible. All information is strictly confidential.
LEISURE TIME ACTIVITY

1. Over the past 7 days, how often did you participate in sitting activities such as reading, watching TV or doing handcrafts?

   [0.] NEVER  
   ↓
   GO TO Q.#2

   [1.] SELLDOM (1-2 DAYS)  
   ↓

   [2.] SOMETIMES (3-4 DAYS)  
   ↓

   [3.] OFTEN (5-7 DAYS)  
   ↓

   1a. What were these activities?
   ____________________________________________

   1b. On average, how many hours per day did you engage in these sitting activities?

   [1.] LESS THAN 1 HOUR  
   [2.] 1 BUT LESS THAN 2 HOURS

   [3.] 2-4 HOURS  
   [4.] MORE THAN 4 HOURS

2. Over the past 7 days, how often did you take a walk outside your home or yard for any reason? For example, for fun or exercise, walking to work, walking the dog, etc.?

   [0.] NEVER  
   ↓
   GO TO Q.#3

   [1.] SELLDOM (1-2 DAYS)  
   ↓

   [2.] SOMETIMES (3-4 DAYS)  
   ↓

   [3.] OFTEN (5-7 DAYS)  
   ↓

   2a. On average, how many hours per day did you spend walking?

   [1.] LESS THAN 1 HOUR  
   [2.] 1 BUT LESS THAN 2 HOURS

   [3.] 2-4 HOURS  
   [4.] MORE THAN 4 HOURS
3. Over the past 7 days, how often did you engage in light sport or recreational activities such as bowling, golf with a cart, shuffleboard, fishing from a boat or pier or other similar activities?

<table>
<thead>
<tr>
<th>0.</th>
<th>NEVER (\uparrow)</th>
<th>1.</th>
<th>SELDOM (\uparrow) (1-2 DAYS)</th>
<th>2.</th>
<th>SOMETIMES (\uparrow) (3-4 DAYS)</th>
<th>3.</th>
<th>OFTEN (\uparrow) (5-7 DAYS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO TO Q. #4</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
</tr>
</tbody>
</table>

3a. What were these activities?

_____________________________

3b. On average, how many hours per day did you engage in these light sport or recreational activities?

<table>
<thead>
<tr>
<th>1.</th>
<th>LESS THAN 1 HOUR</th>
<th>2.</th>
<th>1 BUT LESS THAN 2 HOURS</th>
<th>3.</th>
<th>2-4 HOURS</th>
<th>4.</th>
<th>MORE THAN 4 HOURS</th>
</tr>
</thead>
</table>

4. Over the past 7 days, how often did you engage in moderate sport and recreational activities such as doubles tennis, ballroom dancing, hunting, ice skating, golf without a cart, softball or other similar activities?

<table>
<thead>
<tr>
<th>0.</th>
<th>NEVER (\uparrow)</th>
<th>1.</th>
<th>SELDOM (\uparrow) (1-2 DAYS)</th>
<th>2.</th>
<th>SOMETIMES (\uparrow) (3-4 DAYS)</th>
<th>3.</th>
<th>OFTEN (\uparrow) (5-7 DAYS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO TO Q. #5</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
<td>(\uparrow)</td>
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<td>(\uparrow)</td>
</tr>
</tbody>
</table>

4a. What were these activities?

_____________________________

4b. On average, how many hours per day did you engage in these moderate sport and recreational activities?

<table>
<thead>
<tr>
<th>1.</th>
<th>LESS THAN 1 HOUR</th>
<th>2.</th>
<th>1 BUT LESS THAN 2 HOURS</th>
<th>3.</th>
<th>2-4 HOURS</th>
<th>4.</th>
<th>MORE THAN 4 HOURS</th>
</tr>
</thead>
</table>
5. Over the past 7 days, how often did you engage in strenuous sport and recreational activities such as jogging, swimming, cycling, singles tennis, aerobic dance, skiing (downhill or cross-country) or other similar activities?

[0.] NEVER ↓ [1.] SELDOM (1-2 DAYS) ↓ [2.] SOMETIMES (3-4 DAYS) ↓ [3.] OFTEN (5-7 DAYS) ↓ GO TO Q.#6

5a. What were these activities?

5b. On average, how many hours per day did you engage in these strenuous sport and recreational activities?

[1.] LESS THAN 1 HOUR [2.] 1 BUT LESS THAN 2 HOURS
[3.] 2-4 HOURS [4.] MORE THAN 4 HOURS

6. Over the past 7 days, how often did you do any exercises specifically to increase muscle strength and endurance, such as lifting weights or pushups, etc.?

[0.] NEVER ↓ [1.] SELDOM (1-2 DAYS) ↓ [2.] SOMETIMES (3-4 DAYS) ↓ [3.] OFTEN (5-7 DAYS) ↓ GO TO Q.#7

6a. What were these activities?

6b. On average, how many hours per day did you engage in exercises to increase muscle strength and endurance?

[1.] LESS THAN 1 HOUR [2.] 1 BUT LESS THAN 2 HOURS
[3.] 2-4 HOURS [4.] MORE THAN 4 HOURS
HOUSEHOLD ACTIVITY

7. During the past 7 days, have you done any light housework, such as dusting or washing dishes?

[1.] NO  [2.] YES

8. During the past 7 days, have you done any heavy housework or chores, such as vacuuming, scrubbing floors, washing windows, or carrying wood?

[1.] NO  [2.] YES

9. During the past 7 days, did you engage in any of the following activities?

Please answer YES or NO for each item.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Home repairs like painting, wallpapering, electrical work, etc.</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Lawn work or yard care, including snow or leaf removal, wood chopping, etc.</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Outdoor gardening</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Caring for an other person, such as children, dependent spouse, or an other adult</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
WORK-RELATED ACTIVITY

10. During the past 7 days, did you work for pay or as a volunteer?

[1.] NO  [2.] YES

10a. How many hours per week did you work for pay and/or as a volunteer?

____________________ HOURS

10b. Which of the following categories best describes the amount of physical activity required on your job and/or volunteer work?

[Examples: office worker, watchmaker, seated assembly line worker, bus driver, etc.]

[2] Sitting or standing with some walking.  
[Examples: cashier, general office worker, light tool and machinery worker.]

[3] Walking, with some handling of materials generally weighing less than 50 pounds.  
[Examples: mailman, waiter/waitress, construction worker, heavy tool and machinery worker.]

[Examples: lumberjack, stone mason, farm or general laborer.]
THANK YOU FOR TAKING THE TIME AND EFFORT

TO COMPLETE THIS QUESTIONNAIRE!