**Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH**
Vol. XV, ISSUE 2, 2015, Romania
**The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories**

**Science, Movement and Health, Vol. XV, ISSUE 2, 2015**
**June 2015, 15 (2): 105-110**
***Original article***

# REVIEW OF PHYSICAL ACTIVITY LEVELS OF ELDERLY PEOPLE LIVING IN NURSING HOME

**BEKIR MEHTAP[1] , ERDAL TASGIN[1], NESLIHAN LOK[2], SEFA LOK[1]**

**Abstract**

*Objective*. Maintain an active life pyhsically in old age term improves cognitive functions, reduces the risk of thinking, increases social interactions, helps to protect from diseases and to strengthen independence of old individuals. To determine the physical activity levels of elderly individuals is important for planning services will be presented to them. Therefore, to determine the physical activity levels of elders living in nursing homes was aimed in this research. The study is descriptive and was conducted with 153 old individuals living in nursing home associated family and social policy ministry. In collecting the datas; "International Physical Activity Questionnaire" was used to evaluate the physical activity levels and information form prepared by the researchers was used to questioning the socio-demographic informations of individuals.

*Methods.* The average age of participants is 78.4±2.36 years, 48.6% of woman, 58.4% of primary school graduates and 72.7% has at least once chronic disease.When the physical activity levels of individuals were examined in the study, it was found that 28.8% in the very active (>3000 MET-min/week), 53.6% of minimal active (600-3000 MET- min/week), and 17.6% in inactive. In terms of physical activity levels compared with socio-demographic characteristics of individuals the socio-demographic characteristics of individuals towards, the woman of 30.7%, 25.5% of those in the 65-69 age group and 39.2% of individuals with chronic diseases are in minimal active level. However the difference was found statistically significant (p=0,001).

*Result.* As a result of research the vast majority of individuals were found to be in minimal level in terms of physical activity. When the socio-demogaphic characteristics of individuals affect their physical activity levels examined, gender, age group, educational status and health perception was observed to affect the physical activity level.

*Conclusion.* As long as exercises performed by elderly individuals were regular and rhythmic, protection and maintenance of cognitive functions may be increased proportionally. Physical exercises have an important place in protection from chronic diseases in the senility period and this is an inevitable fact. Recommendations may be given to elderly individual and working profession members regarding information of individuals in regard to physical activities, encouragement of these individuals and planning appropriate exercise programs

*Key words* : Physical Activity Level, Elderly, Nursing Home.

## Introduction

Physical activity is a strong drug which can change the life and any body movement made with skeletal muscle, resulted in energy consumption. Active aging means using all opportunities required for individuals to maintain a qualified life throughout the life (Shaw et al., 2014). Being active in the life means continuity of participation into social, economic, cultural, moral and individual. When individuals maintain their life actively, they fell themselves better, they become healthier and they become self-sufficient. However, this self-sufficiency and the ability of moving independently in the life is only possible with regular and planned physical activity and exercises (Sun et al. 2013). Regular physical activity is important in improvement and development of both physical and mental health of individuals. It was noted in studies conducted that individuals are able to be protected from chronic diseases when they are physically active (Sofi et al., 2011). Individuals may generally prefer to keep away from exercises due to reasons such as heavy working conditions, lack of time. Active life increases social interactions of all individuals by developing their cognitive functions and helps individuals to strengthen the independency as much as possible. Thus, as long as individuals continue to be active physically, the risk of catching diseases and medical expenses arising from diseases would be reduced in a considerable

[1] Selcuk University, Faculty of Sport Sciences, 42075, Konya, TURKEY
[2] Mediterranean University, Faculty of Nursing, 07058, Antalya, TURKEY
Received 11.03.2015 / Accepted 13.04.2015

extent (Etgen et al., 2010). Importance of regular and purposeful exercises is great in protection and improvement of physical and mental health. As long as exercises performed by individuals are regular and rhythmic, protection and maintenance of cognitive functions would increase proportionally. Physical activity and exercises have an important place for individuals to perceive the available potentials for providing lifetime well-being state physically, socially and mentally and when they need assistance, for them to participate into the society by their needs, requirements, desires and capacities by providing the proper protection and maintenance (Vermeulen et al. 2011).

Benefits and effects of regular physical activity and exercises which elderly people perform are increase in muscle strength and flexibility, prevention of fracture risks depending on reduction in bone loss and increase in bone mineral density, reduction in obesity and increase in fat-free body mass, increase in glucose tolerance, reduction in high-density lipoprotein (HDL) and lipid concentrations, vascular resistance decrease, more pulse volume and A-VO2 difference, increase in maximum aerobic capacity and voluntary ventilation and development in cardiovascular function and reduction in risk of diseases (Brown et al. 2012).

Exercises are also important for improving and developing both physical and mental health of individuals. It is noted that exercises protect the individuals particularly from neurodegenerative diseases such as dementia by directly increasing the production of neurotrophic (growth) factors in the brain (Dishman et al. 2006). However, individuals may generally prefer to keep away from exercises in the senility. Exercises to be performed in the senility period may be discussed in a wide range from walking in room to regular body movements to be performed in the garden or living room (Rovio et al. 2005; Etgen et al. 2010). An effective physical activity program improves the strength, endurance, balance, physical-mental function and life quality (Colbert et al. 2011). Determining the physical activity level in elderly people is difficulty and complicated. Demographical properties such as culture, gender and age, diseases, motivation and cognitive functions are effective in determination of physical activity (Şahin 2010). Establishment of physical activity level of elderly people is important in planning of services to be offered. For this reason, it was aimed to determined physical activity levels of elderly people living in the nursing homes in this research.

**Methods**

The research is descriptive and conducted in a nursing home based on Antalya Family and Social Policies Directorate. Sampling selection was not resorted in the research, all individuals above the age of 65 living in the nursing home were included into the study. Sampling of the research was consisted of 153 individuals who accepted to participate into the research. An information form prepared by researchers questioning the socio-demographical information of individuals and "International Physical Activity Questionnaire" which assess the physical activity levels of elderly people were used in collection of data. Pre-application was performed onto 3 elderly people in order to evaluate the clarity of questions before the collection of data was started. Data of elders who were taken into pre-application were not included into the research.

***International Physical Activity Questionnaire (IPAQ)***

In this study short form of International Physical Activity Questionnaire (IPAQ) was used in order to determine the physical activity levels of the individuals. The validity and the reliability studies of this questionnaire in Turkey, of which the international validity and reliability studies were performed by Craig et al, were performed by Öztürk (2005) and they were applied to university students. The questionnaire consisted of seven questions in total. The first and second ones question the time spent regarding vigorous-intensity activities, the third and fourth regarding moderate-intensity activities, the fifth and sixth regarding walking and the seventh questions the time spent regarding sitting. All activities are required to be at least 10 minutes in one go in order to be evaluated. Minute, day and MET value were multiplied (multiplies of resting oxygen expenditure) and a score of MET-min/week was obtained. The physical activity levels were classified as inactive (<600 MET-min/week), minimally active (600-3000 MET-min/week) and active (health-wise physical activity ( >3000-min/week). In order to calculate the energy expenditures regarding physical activities weekly duration of each activity (minute) was multiplied by MET energy values constituted for International Physical Activity Questionnaire. Thus, the energy expenditures regarding vigorous and moderate intensity activities, walking, sitting and total physical activities were obtained as MET-min/week unit.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XV, ISSUE 2, 2015, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

**Collection of Data**

Data of research were collected from individuals above the age of 65 living in the nursing home. The research was started after the ethnic approval and corporate permission staying in the nursing home. Data were collected by researchers with face-to-face interview method in the nursing home. Consent form was read by individuals who accepted to participate into the research during the data collection, it was provided for them to understand the aim and scope of the research and informed consent form was signed by those who accepted to participate into the research and it was paid attention for creating a quiet environment where stimulant number is low during the application.

**Evaluation of Data**

Data of the research were evaluated by using SPSS 17.0 (Statistical Package for Social Science) statistical package program. After data were collected, the choice which each individual stated for each item included into the scales was entered into SPSS program by researchers and total points which elderly individuals earned from scales were calculated. In evaluation of demographical data of the research, chi square test was used for evaluating the relation between number and percentage distributions, socio-demographical properties and International Physical Activity questionnaire. Results were evaluated in significance level of $p<0,05$.

**Limitations of the Research**

This research is limited with individuals above the age of 65 who live in a nursing home registered to Antalya Province Family and Social Policies Directorate, are open to communication, have no problem in speech and accepted to participate into the research.

**Findings**

Mean age of participants is 78.4±2.36, 48.6% of whom is female, 58.4% of whom is primary school graduate and 72.7% of whom has at least one chronic disease. Also, it was determined that 46.3% of individuals is smoker, 76.4% of whom perceives their health in medium-level and 53.7% of whose Body Mass Index (BMI) is in the normal weight.

When physical activity levels of elder people participating into the research were examined, it was found that 28.8% of whom is very active (>3000 MET-min/week), 53.6% of whom is minimal active (600-3000 MET-min/week) and 17.6% of whom is inactive (<600 MET-min/week) (Table 1).

Table 1. Evaluation of the individual physical activity levels.

| **Physical Activity Levels** | **N** | **% (percentage)** |
|---|---|---|
| **Inactive** (<600 MET-min/week) | 27 | 17.6 |
| **Minimal Activity** (600-3000 MET-min/week) | 82 | 53.6 |
| **Very Active** (>3000 MET-min/week) | 44 | 28.8 |
| **Total** | 153 | 100,0 |

n = number of subjects, MET = multiplies of resting oxygen expenditure

When socio-demographical properties of individuals were compared in terms of physical activity levels, 30.7% of women (p=0.00), 25.5% of those included into 65-69 age group (p=0.03), %32.7 of those who perceived the health in medium-level (p=0.001), 34.0% of non-smokers (p=0.051) and 39.2% of individuals having a chronic disease is minimal active and difference is statistically significant (p=0,001) (Table 2).

**Table 2**. Relationship between socio-demographic characteristics and physical activity levels of individuals.

| **Variables** | **Inactive** (<600 MET-min/week) **n (%)** | **Minimal Active** (600-3000 MET-min/week) **n (%)** | **Very active** (>3000 MET-min/week) **n (%)** | **Test Values** |
|---|---|---|---|---|
| **Gender** | | | | |
| Woman | 15 (9.8) | 47 (30.7) | 23 (15.0) | **$x^2$=1.017** |
| Man | 12 (7.8) | 35 (22.9) | 21 (13.8) | **p=0.00*** |

| | | | | |
|---|---|---|---|---|
| **Age (year)** | | | | |
| 65-69 | 7 (4.6) | 39 (25.5) | 27 (17.6) | **$x^2$=5.124** |
| 70-74 | 10 (6.5) | 24 (15.7) | 11 (7.2) | **p=0.03*** |
| >75 age older | 10 (6.5) | 19 (12.4) | 6 (4.1) | |
| **Education** | | | | |
| Elemantary/secondary | 7 (4.5) | 50 (32.7) | 18 (11.8) | **$x^2$=7.734** |
| High School > | 20 (13.1) | 32 (20.9) | 26 (17.0) | **p=0.410** |
| **Health Perception** | | | | |
| Very good/good | 10 (6.5) | 12 (7.8) | 25 (16.3) | **$x^2$=32.657** |
| Middle | 17 (11.1) | 70 (45.7) | 19 (12.5) | **p=0.001*** |
| **Smoking** | | | | |
| Smokers | 17 (11.1) | 30 (19.6) | 13 (8.5) | **$x^2$=7.289** |
| Non-smokers | 10 (6.5) | 52 (34.0) | 31 (20.3) | **p=0.051*** |
| **Body Mass Index** | | | | |
| Normal (18,5-24,9) | 19 (12.4) | 63 (41.2) | 34 (22.2) | **$x^2$=12.603** |
| Overweight (25,0-29,9) | 8 (5.2) | 19 (12.5) | 10 (6.5) | **p=0,000*** |
| **Chronic Disease** | | | | |
| Yes | 15 (9.8) | 60 (39.2) | 15 (9.8) | **$x^2$=7.603** |
| No | 12 (7.8) | 22 (14.4) | 29 (19.0) | **p=0.001*** |

* differences between variables, ($p<0.05$), n (%) = percentage of objects

**Discussion**

This research was conducted for the purpose of determining the physical activity levels of elderly people living in the nursing home. Mean age of participants is 78.4±2.36, 48.6% of whom is female, 58.4% of whom is primary school graduate and 72.7% of whom has at least one chronic disease. Also, it was determined that 46.3% of individuals is smoker, 76.4% of whom perceives their health in medium-level and 53.7% of whose Body Mass Index (BMI) is in the normal weight. Shaw et al. (2014) found the mean age of elder people as 81.24±3.52 in their study, Buchman et al. (2012) as 77.82±4.65, Lök and Lök (2014) as 73.4±4.13 and Sun et al. (2013) as 75.32±62. When studies determining the physical activity level of elderly people were evaluated, it was seen that age averages of sampling groups are close to age averages of elder people we included into our study.

When physical activity levels of elderly individuals were examined in the research, it was found that 28.8% of whom is very active, 53.6% of whom is minimal active and 17.6% of whom is inactive (Table 1). Vermeulen et al. (2011) noted in their study in which physical activity levels of elderly people were systematically examined that elder people maintain a physically active life in rate of 47.9%. In similar way, Brown et al. (2012) evaluated physical activity level of elder women in their study and found women as physically active in rate of 69.3%. Lök and Lök noted in their study in which relation between physical activity levels and cognitive functions of elderly people was evaluated that 62.2% of elder people is inactive. While studies conducted by Vermeulen et al. (2011) and Brown et al. (2012) show similarity with findings of our study with this aspect, it does not show similarity with finding of study conducted by Lök and Lök (2014).

When socio-demographic properties of individuals were compared in terms of physical-activity levels, it was found that 30.7% of women is minimal active and this difference is statistically significant (p=0.00). Lök and Lök (2014) found women as minimal active in rate of 18.0% and evaluated minimal activity level of women higher than the rate of men. Vermeulen et al. (2011) reported the rate of women evaluated as minimal active as 26.4% and evaluated women more active compared with men.

When physical activity levels of individuals were evaluated by age groups, it was found that 25.5% of those included into 65-69 age group is minimal active and the difference is statistically significant (p=0.03). Shaw et al. (2014) evaluated elderly people included into 65-69 age group as minimal active in rate of 33.4% in terms of physical activity in the study in which they evaluated the physical activity levels of elderly people. Brown et al. (2012) evaluated the physical activity levels of elderly people included into 65-69 age group as minimal active in rate of 21.4% in their study.

When we examined the physical activity levels of elderly people by socio-demographic variables, it was found that 32.7 of those who perceived their

health as medium (p=0.001), 34.0% of non-smokers (p=0.051) and 39.2% of individuals having a chronic disease are minimal active and the difference is statistically significant (p=0,001) (Table 2). Lök and Lök (2014) found in the study they examined the physical activity level that elderly people who perceived their health in medium level have minimal activity level in rate of 19.9%. Sun et al. (2013) found that non-smoker elderly people have minimal activity level in rate of 36.5%. Buchman et al. (2012) evaluated 27.3% of individuals having chronic disease as minimal active in terms of physical activity in their study.

**Conclusion**

When physical activity level of elderly people living in the nursing home was evaluated, we can say that 53.6% of whom is minimal active. Under the light of findings obtained from the research; it was seen that gender, age average, health perception level, smoking habit and existence of any chronic disease affect the physical activity level of elderly people living in the nursing home. To customize this further, we can say that being woman in terms of physical activity, being included into 65-69 age group, perception of health as medium and being non-smoker affect the physical activity level positively. As long as exercises performed by elderly individuals were regular and rhythmic, protection and maintenance of cognitive functions may be increased proportionally. Physical exercises have an important place in protection from chronic diseases in the senility period and this is an inevitable fact. Recommendations may be given to elderly individual and working profession members regarding information of individuals in regard to physical activities, encouragement of these individuals and planning appropriate exercise programs.

**Acknowledgments**

Thank primary school students who participated in this study.

**References**

Brown, W. J., McLaughlin, D., Leung, J., McCaul, K. A., Flicker, L., Almeida, O. P., & Dobson, A. J. (2012). Physical activity and all-cause mortality in older women and men. British journal of sports medicine, 46(9), 664-668.

Buchman, A. S., Boyle, P. A., Yu, L., Shah, R. C., Wilson, R. S., & Bennett, D. A. (2012). Total daily physical activity and the risk of AD and cognitive decline in older adults. Neurology, 78(17), 1323-1329.

Colbert, L. H., Matthews, C. E., Havighurst, T. C., Kim, K., & Schoeller, D. A. (2011). Comparative validity of physical activity measures in older adults.Medicine and science in sports and exercise, 43(5), 867.

Dishman RK, Berthoud HR, Booth FW, Cotman CW, Edgerton VR, Fleshner MR, Gandevia SC, Gomez-Pinilla F, Greenwood BN, Hillman CH, Kramer AF,Levin BE, Moran TH, Russo-Neustadt AA, Salamone JD, Van Hoomissen JD, Wade CE, York DA, Zigmond MJ. Neurobiology of exercise. Obesity (Silver Spring). 2006 Mar;14(3):345-56.

Etgen, T., Sander, D., Huntgeburth, U., Poppert, H., Förstl, H., & Bickel, H. (2010). Physical activity and incident cognitive impairment in elderly persons: the INVADE study. Archives of Internal Medicine, 170, 186-93.

Lök N., Lök S (2014). "The Relationship Between Physical Activity And Cognitive Status In The Elderly" 13 th Intenational Sport Sciences Congress, Oral presentation, 7-9 November, Konya, Turkey ss 253.

Öztürk M. The validity of the International Physical Activity Questionnaire for students in the university education and reliability, and to determine the level of physical activity. Master Thesis. Ankara: Hacettepe University, Institute of Health Sciences 2005. (In Turkish).

Rovio, S., Kåreholt, I., Helkala, E. L., Viitanen, M., Winblad, B., et al. (2005). Leisure-time physical activity at midlife and the risk of dementia and Alzheimer's disease. The Lancet Neurology, 4(11), 705-711.

Shaw, B., Leung, W. C., Tapp, H. S., Fitzpatrick, A. L., Saxton, J. M., & Belshaw, N. J. (2014). A change in physical activity level affects leukocyte DNA methylation of genes implicated in cardiovascular disease in the elderly. In Proceedings of The Physiological Society. The Physiological Society.

Sofi, F., Valecchi, D., Bacci, D., Abbate, R., Gensini, G. F., Casini, A., & Macchi, C. (2011). Physical activity and risk of cognitive decline: a meta-analysis of prospective studies. Journal of Internal Medicine, 269, 107-117.

Sun, F., Norman, I. J., & While, A. E. (2013). Physical activity in older people: a systematic review. BMC Public Health, 13(1), 449.

Şahin G (2010). Yaşlılarda Fiziksel Aktivite Düzeyi Değerlendirme Yöntemleri. Turkish Journal of Geriatrics. 14(2):172-178.

Vermeulen, J., Neyens, J. C., van Rossum, E., Spreeuwenberg, M. D., & de Witte, L. P. (2011). Predicting ADL disability in community-dwelling elderly people using physical frailty indicators: a systematic review. BMC geriatrics,11(1), 33.