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Nordic walking as a type of physical activity in the population of elderly people

Nordic walking jako rodzaj aktywności ruchowej w populacji osób starszych

Summary

Introduction

The process aging of the body is associated with a gradual decrease of physical fitness and increase occurring in this age of chronic disease. Commonly the elderly may be accompanied by the weakening of immunity, weaker ability to adapt to environmental changes and a number of lifestyle diseases. The phenomenon of aging is an individual process, and its rate determined not only by genetic factors. In addition, a significant impact have among other lifestyle and a history of early diseases and injuries.

Purpose of the study

The aim of this study was to assess the physical activity of the participants of the University of the Third Age in Szczecin on the example of Nordic Walking and their physical recreation interests with regard to nutritional status.

Material and research methods

The participants of the study were female students (n = 60) of the University of the Third Age in Szczecin. Material collected by diagnostic survey. The information collected included data on socio-economic status, on education, place of residence, current employment situation, as well as knowledge of diet, frequency, form and duration of undertaken physical activity and the use of stimulants. For the purposes of this study were used select answers given by the female students of the University of the Third Age. Anthropometric measurements of some morphological characteristics were also performed. For the evaluation of statistical analysis was used chi – square test (χ^2), assuming the significance level of 0.05.

Results

The study have allowed to make the general characteristics of a group of students of the University of the Third Age in Szczecin in terms of physical activity in relation to their nutritional status. Insufficient quantity of motion was observed in 75.8% of women, moderate in only 12.9%, and a high of 11.3%. Most elected forms of physical activity was in the order of walking, Nordic Walking, cycling and swimming. Based on the results concluded that there is a correlation between physical activity and quantitative nutritional status.

Conclusions

Based on the survey can draw the following conclusions:

1. All the examined female students of the University of the Third Age were among the physically active people.
2. The level of physical activity of women surveyed were variable (75.8% reported low activity).
3. It was found that there is a correlation between physical activity and nutritional status.
4. Most frequently taken recreational forms of physical activity were successively walk (29.3%), exercise (19.0%) and Nordic Walking (12.6%).
5. Persons who reported Nordic Walking in 25.8% marched with sticks throughout the year.
6. Nordic Walking most practiced in the spring, then summer and autumn the least.
7. Only one person chose daily walk with sticks.
8. Nordic Walking is one of the most frequently indicated form of physical activities, especially for the elderly.

Key words: age, aging, Nordic Walking, physical activity, physical recreation, nutritional status

Streszczenie

Wstęp

Proces starzenia się organizmu związany jest ze stopniowym spadkiem sprawności fizycznej i wzrostem pojawiających się w tym wieku chorób przewlekłych. Powszechnie osobom starszym mogą towarzyszyć również osłabienie odporności, słabsza zdolność przystosowania do zmian środowiska oraz szereg chorób cywilizacyjnych. Zjawisko starzenia się jest procesem indywidualnym, a o jego szybkości decydują nie tylko czynniki genetyczne. Dodatkowo istotny wpływ mają między innymi tryb życia oraz przebyte wcześniej choroby i urazy.

Cel pracy

Celem podjętych badań była ocena aktywności fizycznej słuchaczek Uniwersytetu Trzeciego Wieku w Szczecinie na przykładzie Nordic Walking i ich zainteresowań rekreacją ruchową z uwzględnieniem stanu odżywienia.

Materiał i metody badawcze

Uczestnikami prowadzonych badań były słuchaczki ($n=60$) Uniwersytetu Trzeciego Wieku w Szczecinie. Materiał zgromadzono metodą sondażu diagnostycznego z wykorzystaniem techniki pomiaru ankietowego. Zebrane informacje obejmowały dane o statusie społeczno-ekonomicznym, dotyczącym wykształcenia, miejsca zamieszkania, aktualnej sytuacji zawodowej, a także wiadomości z zakresu sposobu żywienia, częstotliwości, form i czasu trwania podejmowanej aktywności ruchowej i stosowania używek. Na potrzeby tej pracy posłużono się wybranymi odpowiedziami udzielonymi przez słuchaczki Uniwersytetu Trzeciego Wieku. Wykonano również pomiary antropometryczne wybranych cech morfologicznych. Do oceny zależności statystycznych posłużono się testem chi – kwadrat (χ^2), przyjmując poziom istotności 0,05.

Wyniki

Przeprowadzone badania pozwoliły dokonać ogólnej charakterystyki grupy słuchaczek Uniwersytetu Trzeciego Wieku w Szczecinie pod względem aktywności ruchowej w powiązaniu z ich stanem odżywienia. Niedostateczną ilość

ruchu stwierdzono u 75,8% pań, umiarkowaną jedynie u 12,9%, zaś dużą u 11,3%. Najchętniej wybieranymi formami aktywności ruchowej były w kolejności spacer, Nordic Walking, wycieczki rowerowe i pływanie. Na podstawie uzyskanych wyników stwierdzono, że zachodzi korelacja między aktywnością ruchową a ilościowym stanem odżywienia.

Wnioski

Na podstawie przeprowadzonych badań można sformułować następujące wnioski:

1. Wszystkie badane słuchaczki Uniwersytetu Trzeciego Wieku należały do osób aktywnych ruchowo.
2. Poziom aktywności fizycznej badanych kobiet był zróżnicowany (75,8% zadeklarowało niską aktywność).
3. Stwierdzono, że zachodzi korelacja między aktywnością ruchową a stanem odżywienia.
4. Najczęściej podejmowanymi rekreacyjnymi formami aktywności ruchowej były kolejno spacer (29,3%), gimnastyka (19,0%) i Nordic Walking (12,6%).
5. Osoby, które deklarowały Nordic Walking w 25,8% maszerowały z kijami przez cały rok.
6. Nordic Walking najchętniej uprawiano wiosną, następnie latem a najrzadziej jesienią.
7. Tylko jedna osoba wybierała codzienny marsz z kijami.
8. Nordic Walking to jedna z najbardziej wskazanych form zajęć ruchowych, zwłaszcza dla osób starszych.

Słowa kluczowe: podeszły wiek, starzenie, Nordic Walking, aktywność fizyczna, rekreacja ruchowa, stan odżywienia.

Intruduction

Demographic research in our country shows the progressive aging of the Polish population. The reason for these changes is a decrease in the number of births, with longer duration of life. Therefore, the problem of increase in the number of people in retirement age is one of the most topical issues of modern civilization (Wróblewska et al. 2012). The reasons for this phenomenon should be looked, inter alia, the development of medicine and health care, as well as in the improvement of living conditions, method of nutrition and access to information and a deepening awareness of a healthy lifestyle (Szarak, Żukowska, 2010). Aging is a natural consequence of the sequence of stages in the ontogeny of human beings which is associated with a gradual decline in physical fitness (senility), mental and frequently occurring chronic diseases, often aggravating the ability to live independently. During this time, the elderly are often accompanied by weaker immunity and less ability to adapt to environmental changes and a number of lifestyle diseases (Łuczak, 2010). As pointed Kozdroń and Szczypiorski (2001) "intensity of the aging process often coincides with retirement." For many people, this fact is a major stress that arises due to the deterioration of the economic situation, which is an important factor for life-threatening.

The phenomenon of aging is the process of spontaneous, complex and inevitable, which consists of a constant reduction of the biological activity of the body. Most often it manifests itself in less capacity to regenerate tissues and overall adaptability of the organism (Górka, 2012). The most common chronic diseases, which can accelerate

the aging process of the body are atherosclerosis and its complications, hypertension, coronary heart disease, diabetes, obesity and all the health ailments within the central nervous system including modifications and psychiatric disorders (Wróblewska, 2012). Therefore proper lifestyle is becoming an important element in determining the length and quality of life of every human being, shaped (preferred) over many years. It should be noted that aging is an individual process, the speed of which is determined not only biological but also the lifestyle and past diseases and injuries.

In XXI century has seen significant progress in the biomedical sciences, gerontology and geriatrics, which is the last resort to help and give hope to effectively solve health problems for the elderly (Grzanka-Tykwińska, Kędziora-Kornatowska, 2010). Current efforts are aimed at strengthening the health of older people, and thus influencing the delay in their aging process.

The purpose of broadly understood health promotion is among other things, to encourage the systematic increase overall mental and physical condition of each person. Successful aging is consistent with the achievement of old age with the lowest possible risk of disease and disability and the appropriate level of social skills, intellectual, and especially the physical (Morgulec-Adamowicz et al. 2011). Therefore, active aging is one of the most important factors that determine not only the quality but also the life of every human being. The lower level of activity, both physical and intellectual, the less stimulation of the body, and therefore is not sufficient to mobilize the immune (Bronikowska, 2012).

Physical activity, regardless of its form strengthens the biological potential of the human body. The transformation of socio - political in our country in the last 20 years has seen many positive changes in the attitude of the entity in terms of increased attention to their own health (Michnik et al 2010). Regular exercise increases not only the defense forces and human adaptive capacity, but also shape his personality and develop interest. The movement greatly improves the function of the various systems: respiratory, cardiovascular and musculoskeletal system, reducing the risk of osteoporosis (Krajewska-Pędzik et al. 2010, Bojkowski, 2012). Accelerates the combustion of the energy, which prevents obesity, diabetes, atherosclerosis and hypertension (Krajewska-Pędzik et al 2010).

Regular and well planned physical activity undertaken by the elderly brings a lot of positive aspects, among others improves overall health, helps you stay fit, mentally relaxing, oxygenates the brain and prevents depression. The recommended daily dose of movement slows or stops for a long time the inevitable processes of involution, limiting efficiency (Bojkowski, 2012).

One of the possibilities of physical activity for seniors can be Nordic Walking (Arem, 2008). It is a special form of recreational activity, which in recent years has broad interest of many people because of its versatile effects on the human body and, preferably, affecting the health and well-being. Nordic Walking is one of the most effective forms of recreation and can be used either for prevention, treatment and rehabilitation (Sokołowski et al. 2010). Through rhythmic and aerobic activity in skeletal muscle, a beneficial effect on the cardiovascular system, without too much load on the body (Arem, 2008). This intensive training is a combination of cross-country skiing techniques and brisk walking

with specially designed poles (Figurska, Figurski, 2008). Improves the condition, shaping figure and relieves the spine, which is especially important for the elderly (Sikorski et al. 2010). In addition, training with poles cause a decrease in symptoms of depression and mental and physical tiredness. The health benefits of walking include, among other things to strengthen the muscles of the lower limbs, waist belt and the lower part of the body, improve lipoprotein metabolism and increase strength and bone density especially of the lower limbs, regardless of age. In addition, regular training with poles lowers cholesterol (LDL) and increases muscle mass (Sokołowski et al. 2010). Regular training improves cardiovascular fitness, reduce blood pressure, blood sugar and blood cholesterol, promote mitigate or eradicate stiffness around the neck and shoulders. In addition, regular marches reduce stress and have an impact in correcting poor posture with orthopedic injuries (Krajewska-Pędzik et al 2010). Nordic Walking is safe physical activity led not only to those who prefer a sedentary lifestyle, but also to the less active older people for whom the training is an excellent opportunity to maintain health and well-being (Sikorski et al. 2010, Sokołowski et al. 2010).

In fact, there are no medical contraindications to Nordic Walking, only strong orthopedic injuries (fractures, dislocations), acute conditions of chronic diseases eliminate participants from training. Nordic Walking can be practiced anywhere, on any terrain. The rhythmic march with poles involved nearly 90% of the muscles of the body. Practicing even popular sports such as soccer, is riding, activated mainly the lower parts of the muscle. It is therefore important to use the correct technique of walk. Putting appropriate steps (from the heel to the active reflection with the big toe) activates unused, every day, groups of muscles of the foot and lower leg. In addition, alternating movements of the arms and push back exercise neck muscles, shoulders and arms. This allows you to get rid of the tension caused by stress, localized in these muscle groups. Nordic Walking is an excellent aerobic training for cardio - vascular, respiratory and circulatory systems. All muscle groups are loaded at the same time which is beneficial to improve their endurance and strength. Among the health advantages of Nordic Walking marches should be replaced improvement of the general physical condition, as well as biological regeneration of the body and relax the nervous system (Figurska, Figurski, 2008).

In view of the above outlined advantages of Nordic Walking it becomes essential that efforts be made to increase the physical activity of women who are in menopause. In the adult population movement activities of a sporting nature are rarely implemented, and therefore becomes increasingly important physical recreation carried out through various forms of physical activity. This justifies the collection of information and perform research aimed at establishing such conditions that will increase physical activity for older people.

Aim of the study

Therefore, the aim of this study was to assess physical activity listeners University of the Third Age in Szczecin on the example of Nordic Walking, their interest in physical recreation, including nutritional status.

Material and research methods

Material collected by diagnostic survey survey techniques (Pilch, Bauman, 2001). The study was performed in May 2010 among listeners (n = 60) of the University of the Third Age in Szczecin. Age women ranged in 58 - 84 years. Listeners provides detailed information about the conduct of the study and gave their written consent to taking it. Information collected included data on socio-economic status, on education, place of residence, current employment situation, as well as knowledge of diet, frequency, form and duration of physical activity undertaken and the use of stimulants. For the purposes of this study were used selected answers given by the female students of the University of the Third Age. Anthropometric measurements were also performed some morphological (height and weight) in accordance with the principles laid down by Drozdowski (1998).

Based on the collected data set:

1. nutritional status of the respondents,
2. volume of daily physical activity,
3. preferred forms of tourist activity,
4. level of involvement in Nordic Walking.

Level of involvement in tourism was evaluated based on the frequency of participation in its various forms. The size of physical activity established on the basis number of hours in motion throughout the day. Arbitrarily assumed the following criteria:

- Low physical activity: less than 3 hours movement a day,
- Average physical activity: 3 - 4 hours movement per day,
- High physical activity: more than 4 hours movement per day.

On this basis it was determined:

- The level of physical activity,
- The relationship of physical activity on the nutritional status,
- Preferred forms of tourist activity,
- Interest in Nordic Walking.

Nutritional status was assessed using the Quetelet index - BMI (Body Mass Index) based on the following formula:

$$\text{BMI} = [\text{weight (kg)}]: [\text{height (m)}]^2$$

Data classification was based on the division into categories according to nutritional status. Interpretation of the results was made according to the scheme adopted by the WHO in 2003 (Gertig and Przysławski, 2006).

malnutrition	BMI < 18,5 kg/m ²
norm	BMI = 18,5-24,9 kg/m ²
overweight	BMI = 25,0-29,9 kg/m ²
obesity	BMI > 30,0 kg/m ²

To assess the statistical relationships test chi - square (χ^2), was used assuming the level of significance of 0.05 (Arska-Kotlińska et al 2002).

Discussion of results

The structure of the group was dominated by women aged 68-77 (56.7%), the next 36.7% were persons aged 58-67, and the remaining percentage of listeners had more than 78 years, the oldest of the women had 84 years. The studies show the general characteristics of a group of listeners at the University of the Third Age in Szczecin in terms of physical activity (Fig. 1). Little activity was declared by as much as 75% of women only moderate - 13.3%, and high - 11.7%.

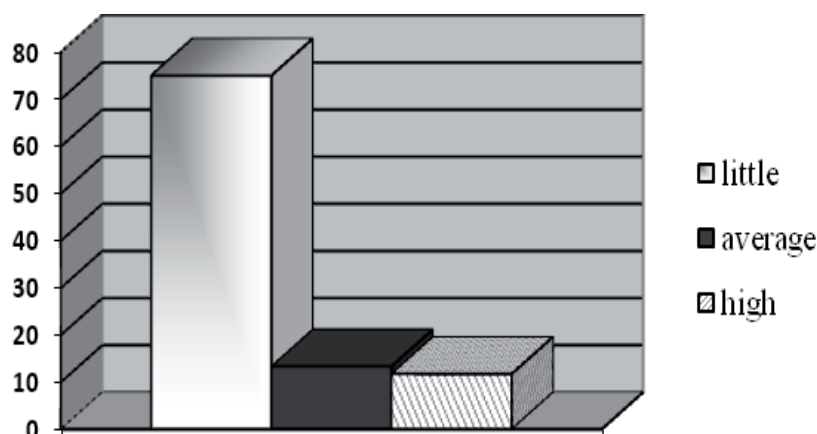


Fig. 1. Physical activity and listeners of the University of the Third Age in Szczecin.

The main morphological features are height and weight, which were used to determine the nutritional status among listeners of the University of the Third Age. For the correct numerical range of nutritional status (BMI = 18.5-24.9 kg/m²) enrolled 20 women, representing 33.3% of the entire group. Overweight condition occurred in 24 women - 38.4%, and the degree of obesity was observed and the remaining 28.3% of people. The results did not indicate a reduced BMI among listeners (Fig. 2).

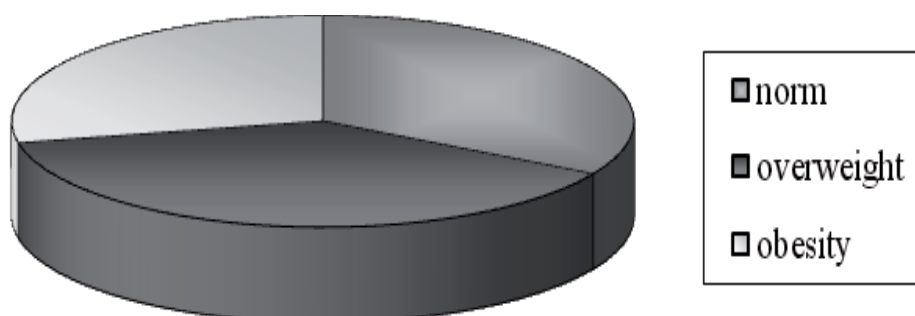


Fig. 2. Nutritional status of students surveyed.

The gathered material was found that there is a correlation between physical activity and quantitative nutritional status. Chi2 test ($\chi^2 = 16.280 > 9.488$ at a significance level of 0.05) confirmed significant statistical relationship between the studied variables (Table 2).

Tab. 1. Nutritional status of listeners at the University of the Third Age, depending on physical activity.

Physical Activity	number of people	Nutritional status BMI					
		norm		overweight		obesity	
		n	%	n	%	n	%
low	45	9	20,0	21	46,7	15	33,3
moderate	8	7	87,5	-	-	1	12,5
high	7	4	57,1	2	28,6	1	14,3
total	60	20	33,3	23	38,4	17	28,3

Most of respondents as the most physical activity undertaken, declared in the order of a walk (29.3%), gymnastics (19.0%), Nordic Walking (12.6%), fitness activities (9.8%), dance (7, 5%) and bicycle (6.9%). Work in the garden have preferred (6.3%), as well as cycling. Nobody declared team games. Occasionally, in individual cases, female students decide to take yoga and exercise in the gym. Two people practiced climbing, the first of these two times a year, and another 3-4 times per year (Fig. 3).

Among the women surveyed who reported practicing Nordic Walking - only 25.8% marched with poles throughout the year, the remaining percentage of people chose the way of physical activity most often in the spring, then summer and fall less often. Given the frequency of Nordic Walking is among all the listeners of the University of the Third Age, only one of the ladies chose daily walk with poles throughout the year.

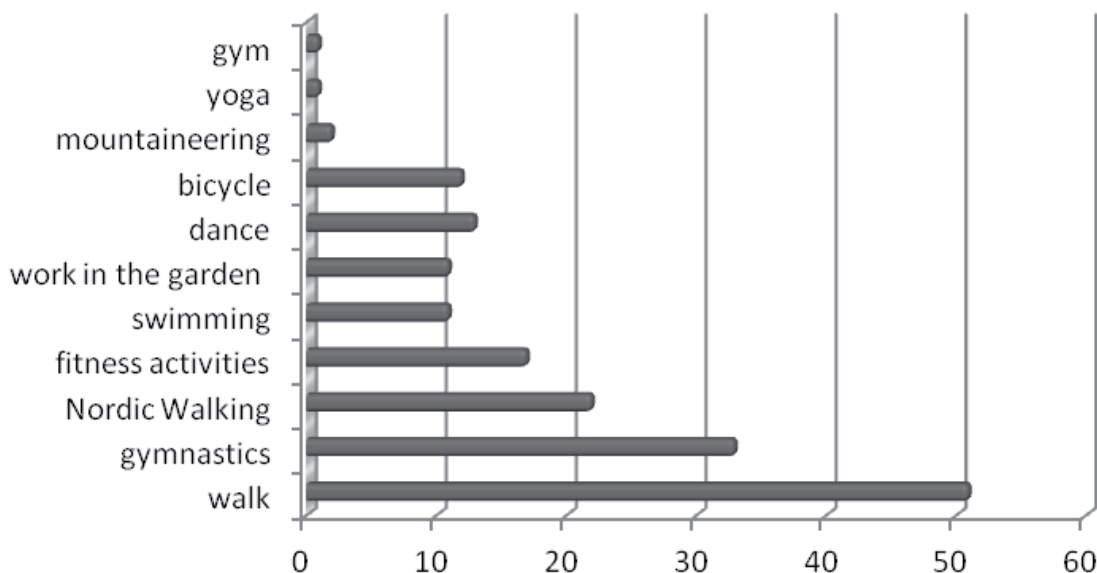


Fig. 3. Preferred forms of physical activity listeners University of the Third Age.

In the opinion of students, the correct technique walking Nordic Walking can be regarded as 71% for easy, and 29% for medium difficult. The most commonly mentioned problems in mastering walking with poles group exchanged successively coordination, gripping hands on the handles while repelling and incorrectly held pole and arm misconduct. Occasionally, female students showed too little range of motion in the joints

of the limbs and the adoption of bad figure at the time of exercise (Fig. 4). Single people have a problem with too much range of motion in the joints of the limbs and walking “the Spider” (stick before hammering a right angle, that is, between the upright and outstretched hand to the front, instead of at an angle of 60 degrees).

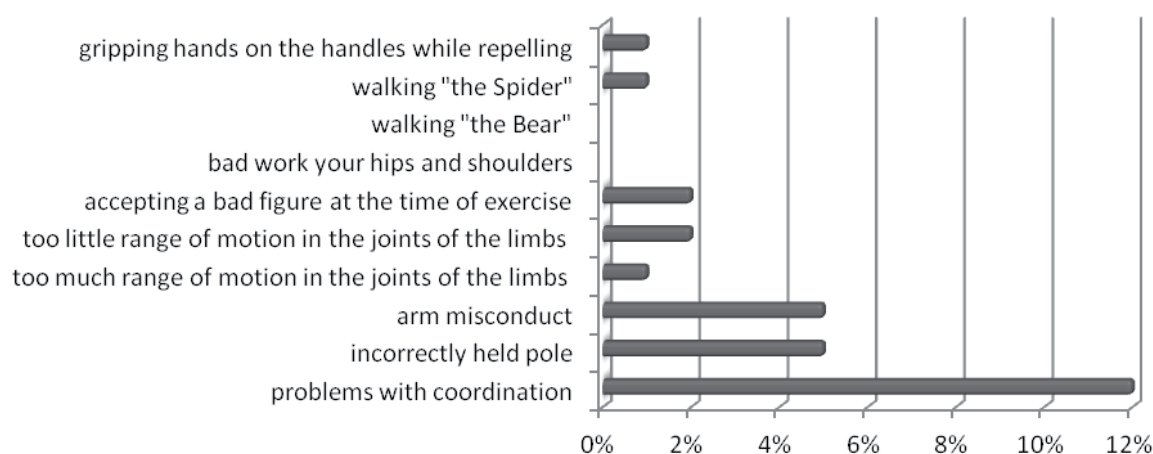


Fig. 4. The most common problems in mastering the correct Nordic Walking technique.

Discussion

Physical activity is one of the most important lifestyle elements at each stage of ontogeny. The demand for physical activity decreases with age. However, older people who already belong to groups oral exercising (TKKF, UTA, Clubs Senior) occasionally voluntarily refrain from physical activities (Kozdroń, Szczypiorski, 2001). A major problem is the recruitment to the team carrying out a specific program of physical activity by individually preferred form of recreation and maintain regular meetings in this regard. The requirements of modern life draw attention to the importance of physical recreation, which is a necessity and a duty of every person regardless of age, as her regular practice has a significant impact on health. Both excessive physical activity and its deficiency can lead to organ dysfunction and increased susceptibility to pathogenic effects of negative environmental factors.

Physical activity, regardless of its form strengthens the biological potential of the human body. Systematic physical efforts and, therefore, exercise increases not only the defense forces and human adaptive capacity, but also to shape his personality and develop interest (Krajewska-Pędzik et al. 2010). The movement greatly improves the function of systems: respiratory, cardiovascular and musculoskeletal system, reducing the risk of osteoporosis (Łuczak, 2010). Accelerates the combustion of the energy, which prevents obesity (Bahrynowska-Fic, 1999).

The problem of scarcity of movement: covering all age groups, is one of the most difficult activities in the field of preventive health care. Hypokinesia may lead to acceleration of the aging process and infirmity, and even in some cases, physical disability (Grzanka-Tykwińska, Kędziora-Kornatowska, 2010). People remaining physically active throughout life in old age are more efficient, more robust, and therefore healthier. As previously shown, a better mood and increased self-esteem, are some of the benefits that it offers us a physical activity.

The study shows that the nutritional status of the elderly is related to the adoption of physical activity. Listeners with normal BMI allocated their movements more than four hours a day.

The research presented in this paper shows that the time spent on physical activity by female students of the University of the Third Age in Szczecin is varied. All the tested women were active, and for 75.8% the level of physical activity remained at a low level (less than three hours of movement per day). The research results correspond to findings of other authors, who point to the active participation of older people in recreational activity (Górka, 2012, Wróblewska et al. 2012). Among the respondents there was no person who does not show any physical activity. Probably has to do with the ability to participate in a wide range of physical activities offered by the University of the Third Age.

Shaping physical culture from an early age, the introduction of healthy eating habits and hygiene at all stages of ontogeny should contribute to making regular physical activity throughout life regardless of their age.

Conclusions

Based on the survey can draw the following conclusions:

1. All the examined female students at the University of the Third Age were among the physically active people.
2. The level of physical activity of women surveyed were variable (75.8% reported low activity).
3. It was found that there is a correlation between physical activity and nutritional status.
4. Frequently taken recreational forms of physical activity were successively walk (29.3%), exercise (19.0%) and Nordic Walking (12.6%).
5. People who reported Nordic Walking in 25.8% marched with poles throughout the year.
6. Nordic Walking most grown in the spring, then summer and autumn the least.
7. Only one person chose daily walk with poles.
8. Nordic Walking is one with the most suitable forms of physical activities, especially for the elderly.

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