

ORIGINAL ARTICLE / PRACA ORYGINALNAAlicja Rzepka<sup>1,2</sup>, Krzysztof Radziszewski<sup>1</sup>, Kornelia Kędziora-Kornatowska<sup>2</sup> Wojciech Hagner<sup>3</sup>**PHYSICAL ACTIVITY IN ELDERLY PATIENTS – PRELIMINARY REPORT****AKTYWNOŚĆ FIZYCZNA PACJENTÓW W STARSZYM WIEKU  
– DONIESIENIE WSTĘPNE**<sup>1</sup>Division of Rehabilitation Military Clinical Hospital No. 10 and Polyclinic in Bydgoszcz

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**S u m m a r y**

**B a c k g r o u n d .** The recent increase in the number of people over 60 forces the public opinion to take an interest in the problems of this group of people. One of those problems is physical activity, as it is one of the factors that will influence their health. It should be considered if the elderly have a positive attitude to exercise, what type of exercise is performed and whether they practiced any sport in their youth and what will be the most important goal of exercise.

**A i m o f t h e s t u d y .** The aim of this study was an initial self-assessment of their physical activity of the elderly patients.

**M a t e r i a l a n d m e t h o d s .** The study involved 50 patients from the Geriatric Clinic, University Hospital No. 1 in Bydgoszcz who were above 60 years of age. The subjects took part in an anonymous questionnaire on physical activity.

**R e s u l t s .** 32 (64%) of the patients declared a positive attitude toward exercise, 11 (22%) had a negative attitude, 5

(10%) connected it to their well-being, and 2 (4%) said that they must force themselves to perform physical activity. 16 (32%) of the respondents actively practiced sport in their youth, 28 (56%) did not, and 6 (12%) were not able to remember. The disciplines practiced by the respondents were: running (8, 44%), swimming (5, 28%), football (3, 17%) and gymnastics (2, 11%). The current preferred mode of physical activity in the free time of the respondents is: walking (26, 52%), cycling (18, 36%), Nordic walking (4, 8%), fishing (2, 4%). According to the patients, the purpose of physical exercise is: general fitness (30, 60%), fitness in everyday activities (9, 18%) and independence from others (11, 22%).

**C o n c l u s i o n s .** Elderly patients mostly speak positively of exercise and they state that the primary goal of exercise is maintaining overall fitness, regardless of sex, age, place of residence, marital status or education.

**S t r e s z c z e n i e**

**W s t ę p .** Zwiększająca się w ostatnich latach liczba osób powyżej 60 roku życia wymusza na społeczeństwie zainteresowanie się problemami tej grupy osób. Jednym z nich jest aktywność fizyczna, gdyż to ona będzie między innymi rzutować na późniejszy stan zdrowia. Zastanowić się można zatem czy osoby w starszym wieku są pozytywnie

ustosunkowane do ćwiczeń fizycznych, jaki typ ćwiczeń wykonują najchętniej oraz czy w młodości trenowali sport oraz co będzie najważniejszym celem ćwiczeń.

**C e l e m p r a c y** była wstępna samoocena aktywności fizycznej pacjentów w starszym wieku.

**Materiał i metody.** W badaniu wzięło udział 50 pacjentów Poradni Geriatrycznej Szpitala Uniwersyteckiego Nr 1 im. dr A. Jurasza w Bydgoszczy powyżej 60 roku życia. Badani zostali poddani anonimowej ankiecie na temat aktywności fizycznej.

**Wyniki.** Spośród 50 pacjentów 32 (64%) pacjentów deklarowało pozytywny stosunek do ćwiczeń fizycznych, 11 (22%) było do nich ustosunkowanych negatywnie, 5 (10%) uzależniało je od swojego samopoczucia, a 2 (4%) opowiedziało, że musi się zmuszać do wykonania aktywności fizycznej. Czynniki sport w młodości trenowało 16 (32%) ankietowanych, 28 (56%) nie wykonywało, natomiast 6 (12%) nie jest w stanie sobie przypomnieć. Dyscyplinami trenowanymi w młodości przez ankietowanych było: bie-

ganie 8 (44%), pływanie 5 (28%), piłka nożna 3 (17%) oraz gimnastyka 2 (11%). Aktywnością fizyczną preferowaną obecnie w wolnych chwilach przez ankietowanych są: spacer 26 (52%), jazda na rowerze 18 (36%), 4 (8%) nordic walking, 2 (4%) wędkarstwo. Celem ćwiczeń fizycznych w opinii pacjentów jest całkowita sprawność fizyczna 30 (60%), sprawność na poziomie życia codziennego 9 (18%) oraz niezależność od osób drugich 11 (22%).

**Wnioski.** Pacjenci w starszym wieku w większości pozytywnie wypowiadają się na temat ćwiczeń fizycznych, a za cel główny ćwiczeń stawiają utrzymanie całkowitej sprawności fizycznej bez względu na płeć, wiek, miejsce zamieszkania, stan cywilny czy wykształcenie.

**Key words:** age, physical activity, elderly patients

**Słowa kluczowe:** wiek, aktywność fizyczna, pacjenci w starszym wieku

## INTRODUCTION

Old age, otherwise known as the autumn of life, or the third age, is one of the physiological stages in human life. It is characterized as a period of inevitable, dynamic, evolving under the influence of social, economic and political factors [1,2]. The progression of age-related factors is influenced by biological factors (telomere length, oxidative stress, inflammation), eating habits, dental care, the state of the cardiovascular system (the presence of high blood pressure, high cholesterol), smoking, insulin resistance, previous and existing diseases and most of all health habits and regularity of physical exertion. [3] Physical activity slows down the aging process, reduces the risk of chronic diseases and, consequently, reduces the severity of the disability of the members of the elderly population. Therefore, it is a preventive factor, generating savings in the public health service. This is because fewer disabilities entail less spending related to the treatment and rehabilitation of the elderly [4]. Regular physical activity helps to increase the tolerance for exercise loads and the resistance to fatigue. The benefits of physical activity can be seen in the peripheral blood's biochemical parameters and structural parameters of skeletal muscles, left ventricle and central hemodynamic parameters, the autonomous system and the endothelial function. During physical exertion systolic blood pressure is reduced along with the difference between systolic and diastolic blood pressure in a sitting or standing position. [5] Thanks to the advances in public health and medicine made during the last 100 years, the average life expectancy in Europe, North America and Japan increased by more than 50% [6]. According to data released by the European Commission, by 2025 over 20% of

Europeans will be over 65 years old. The number of people over 80 years of age will dramatically increase and the number of people in younger age will drop [7]. Therefore, it seems reasonable to check the level of physical activity of older people.

## AIM OF THE STUDY

The aim of this study was to evaluate the physical activity of the elderly patients from the Bydgoszcz area with relation to parameters such as sex, place of residence, education, and marital status.

## MATERIALS AND METHODS

The study involved 50 people aged over 60 who are under the care of the Geriatric Clinic of the Antoni Jurasz University Hospital nr 1 in Bydgoszcz. The study was based on an anonymous survey of own authorship. The questions were related to physical activity and sport practiced in youth, the currently preferred forms of physical activity and the goals of physical exercise of the elderly. The results were analyzed according to sex, age, place of residence, marital status and education. The testing was approved by the Bioethics Committee of the Nicolaus Copernicus University Collegium Medicum in Bydgoszcz. Patients gave voluntary consent to participate in the study.

## RESULTS

The study involved 50 patients: 19 men and 31 women above 60 years of age who are under the care

of Geriatric Clinic of the Antoni Jurasz University Hospital No. 1 in Bydgoszcz.

The subjects took part in an anonymous survey. Taking part in the study was voluntary and it was approved by the Bioethics Committee.

An analysis of patients in relation to age groups defined by WHO, taking into consideration early old age (60-74 years) and late old age (75-89 years), was performed. 35 patients (70%, 35/50) were in early old age and 15 (30%, 15/50) late old age. The average age of patients in both age groups was  $69.8 \pm 7.9$  years. Among the patients, 33 people were married (66%, 33/50) and 10 (20%, 10/50) were widowed. There were 5 unmarried patients (10%, 5/50) and only 2 (4%, 2/50) divorced. Most patients declared higher education (17, 34%, 17/50) and secondary education (16, 32%, 16/50). The remaining 12 (24%, 12/50) had vocational education, and only 5 (10%, 5/50) primary. An analysis of the place of residence showed that the majority of respondents lived in cities with more than 50 thousand inhabitants (28, 56%, 28/50) and more than 100 thousand inhabitants (17, 34%, 17/50), and only 5 (10%, 5/50) of the respondents lived in rural areas. This data is shown in Table 1 (Table 1).

Table 1. Characteristics of the study group

Tabela 1. Charakterystyka grupy badanej

Grupa badana [n]/ The study group [n]	Płeć [K/M] Sex [W/M]	Stan cywilny [zameżny/wdowiec/wolny/rozwiędziony] Marital status [Married/Widowed/Single/Divorced]	Wykształcenie [podstawowe/zawodowe/srednie/wyzsze] Education [primary/vocational/secondary/higher]	Miejsce zamieszkania [wieś/miasto 50-100tys./miasto >100tys.] Place of residence [Village/city 50-100k pop., city over 100k pop.]
Grupa I /Group I [60-74]	25/10	22/3/2/2	1/8/11/17	1/7/15
Grupa II/Group II [75-89]	9/6	11/7/3/0	4/4/5/0	4/2/1/2

Analysing the group in terms of physical exercise, more than half of the patients 32 (64%, 32/50) declared a positive attitude toward exercise and takes part in it willingly. 11 patients (22%, 11/50) had a negative attitude and carried out the same exercise reluctantly. Five patients (10%) connected it to their well-being, and only two (4%) said that they must force themselves to perform physical activity (Fig. 1).

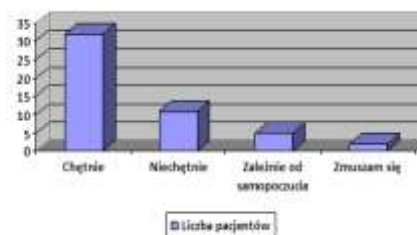


Fig. 1. Elderly patients' attitude towards exercise

Ryc. 1. Stosunek do ćwiczeń fizycznych badanych pacjentów w zależności od grup wiekowych

Table 2. Attitude towards physical exercise depending on a given characteristic

Tabela 2. Stosunek do ćwiczeń fizycznych badanych osób w zależności od danej cechy

Cecha/Characteristic		Chętnie/Willingly	Niechętnie/Reluctantly	Zależnie od samopoczucia/ Depending on the well-being	Jestem zmuszany/I'm forced
Płeć/Sex	Kobiety/Women	19 (61%)	6 (20%)	4 (13%)	2 (6%)
	Mężczyźni/Men	12 (63%)	4 (21%)	2 (11%)	1 (5%)
Wiek/Age	60-74	21 (60%)	3 (9%)	9 (26%)	2 (5%)
	75-89	11 (74%)	2 (14%)	1 (6%)	1 (6%)
Miejsce zamieszkania/ Place of residence	Wieś/Rural area	0 (0%)	5 (100%)	0 (0%)	0 (0%)
	Miasto>50 tys./City >50k	17 (61%)	4 (14%)	7 (25%)	0 (0%)
	Miasto>100 tys./City >100k	12 (70%)	2 (12%)	2 (12%)	1 (6%)
Stan cywilny/ Marital status	Zameżny/Married	20 (61%)	5 (15%)	7 (21%)	1 (3%)
	Wdowiec/Widower	8 (80%)	1 (10%)	1 (10%)	0 (0%)
	Wolny/Single	4 (80%)	1 (20%)	0 (0%)	0 (0%)
	Rozwiędziony/ Divorced	1 (50%)	0 (0%)	1 (50%)	0 (0%)
Wykształcenie/ Education	Podstawowe/Primary	3 (60%)	0 (0%)	2 (40%)	0 (0%)
	Zawodowe/Vocational	5 (42%)	1 (8%)	4 (33%)	2 (17%)
	Srednie/Secondary	10 (62%)	2 (13%)	3 (19%)	1 (6%)
	Wyzsze/Higher	12 (70%)	3 (18%)	2 (12%)	0 (0%)

The authors of the survey sought to find out whether current physical fitness is impacted by the sport practiced in youth. 16 (32%, 16/50) patients admitted to having practiced sport in their youth. 28 patients did not practice any sport in their youth (56%, 28/50) and 6 patients (12%, 6/50) could not remember whether they trained or not (Fig.2, Table 3).

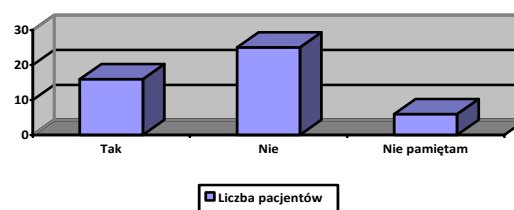


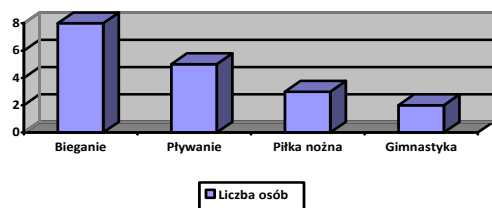
Fig. 2. Sport disciplines trained by the patients in their youth in relations to their age

Ryc. 2. Dyscypliny sportowe uprawiane przez pacjentów w młodości w relacji do ich wieku

Table 3. *Practicing sports by the patients depending on the given characteristic*Tabela 3. *Trenowanie dyscyplin sportowych przez badane osoby w zależności od danej cechy*

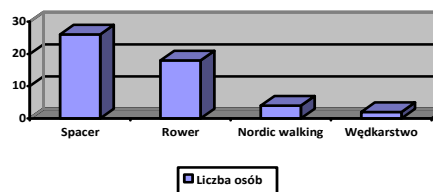
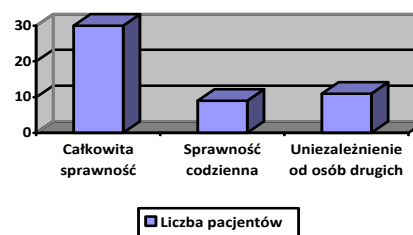
Cecha/Characteristic		Tak/Yes	Nie/No	Nie pamiętam/Don't remember
Płeć/Sex	Kobiety/Women	12 (39%)	16 (51%)	3 (10%)
	Mężczyźni/Men	11 (58%)	8 (42%)	0 (0%)
Wiek/Age	60-74	16 (46%)	10 (29%)	9 (25%)
	75-89	3 (20%)	5 (33%)	7 (47%)
Miejsce zamieszkania/Place of residence	Wieś/Rural area	0 (0%)	5 (100%)	0 (0%)
	Miasto>50 tys./City >50k	10 (36%)	12 (43%)	6 (21%)
	Miasto>100 tys./City >100k	12 (71%)	4 (24%)	1 (5%)
Stan cywilny/Marital status	Zamężny/Married	11 (33%)	9 (27%)	13 (40%)
	Wdowiec/Widower	4 (40%)	3 (30%)	3 (30%)
	Wolny/Single	0 (0%)	4 (80%)	1 (20%)
	Rozwiedzony/Divorced	0 (0%)	1 (50%)	1 (50%)
Wykształcenie/Education	Podstawowe/Primary	3 (60%)	2 (40%)	0 (0%)
	Zawodowe/Vocational	3 (25%)	5 (42%)	4 (33%)
	Srednie/Secondary	7 (44%)	5 (31%)	4 (25%)
	Wyższe/Higher	8 (47%)	8 (47%)	1 (6%)

The sport disciplines practiced by the elderly (36%, 18/50) in their youth were: running (8, 44%, 8/18) and swimming (5, 28%, 5/18). Subsequently, the respondents mentioned soccer (3, 17%, 3/18) as well as gymnastics (2, 11%, 2/18) (Fig. 3).

Fig. 3. *Sports practiced by the patients in their youth*Ryc. 3. *Dyscypliny sportowe trenowane przez badanych pacjentów w młodości*

Physical activity preferred by the respondents in their spare time is mainly walking (26, 52%, 26/50) and cycling (18, 36%, 18/50). Slightly fewer people prefer the Nordic walking training and rehabilitation method (4, 8%, 4/50) and two chose fishing (4%, 2/50) (Fig. 4).

After analysing the goals of physical exercise, the older patients chose mostly physical fitness (30, 60%, 30/50). Others stated a sufficient level of efficiency in everyday life (9, 18%, 9/50) and to be independent of other as long as possible (11, 22%, 11/50) (Fig. 5, Table 4).

Fig. 4. *Physical activity currently preferred by the respondents*Ryc. 4. *Aktywność fizyczna preferowana obecnie przez osoby ankietowane*Fig. 5. *Aim of the physical exercise in the opinion of the patients*Ryc. 5. *Cele ćwiczeń fizycznych w opinii badanych pacjentów*Table 4. *Purpose of physical exercise in the opinion of the elderly based on the test characteristics*Tabela 4. *Cel ćwiczeń fizycznych w opinii osób starszych w zależności od badanej cechy*

Cecha/Characteristic		Całkowita sprawność/total fitness	Sprawność Codzienna/daily fitness	Uniezależnienie od osób drugih/not being dependent on others
Płeć/Sex	Kobiety/Women	4 (13%)	16 (52%)	11 (35%)
	Mężczyźni/Men	2 (11%)	7 (37%)	10 (53%)
Wiek/Age	60-74	21 (60%)	5 (14%)	9 (26%)
	75-89	9 (60%)	4 (27%)	2 (13%)
Miejsce zamieszkania/Place of residence	Wieś/Rural area	2 (50%)	2 (50%)	0 (0%)
	Miasto>50 tys./City >50k	3 (11%)	11 (39%)	14 (50%)
	Miasto>100 tys./City >100k	0 (0%)	9 (53%)	8 (47%)
Stan cywilny/Marital status	Zamężny/Married	6 (18%)	12 (36%)	15 (46%)
	Wdowiec/Widower	0 (0%)	4 (40%)	6 (60%)
	Wolny/Single	1 (20%)	0 (0%)	4 (80%)
	Rozwiedzony/Divorced	1 (20%)	0 (0%)	4 (80%)
Wykształcenie/Education	Podstawowe/Primary	0 (0%)	0 (0%)	5 (100%)
	Zawodowe/Vocational	0 (0%)	4 (33%)	6 (67%)
	Srednie/Secondary	2 (13%)	4 (25%)	10 (62%)
	Wyższe/Higher	3 (18%)	3 (18%)	13 (64%)

## DISSUSION

The recent increase in the number of people over 60 forces the public opinion to take an interest in the problems of this group of people. The media promote healthy lifestyle, including the need to perform regular exercise. Exercises help older people to function better in their environment and to feel independent.

According to Chalé-Rush et al. forms of physical activity include both intentional, organized activity undertaken in order to improve their own health, including a quick march, as well as routine activities, such as shopping or walking [10].

According to Kozak-Szkopek and Galus, regular physical activity affects both physical and mental condition. Endorphins released during exercise reduce pain, trigger feelings of satisfaction, reduce anxiety, improve sleep patterns and mood [2].

However, despite the positive impact of exercise on the human body, data from professional literature indicate that older people often passively spend their free time by reading a book or watching TV [11]. They forget that less physical activity is related to weight gain, which in turn leads to obesity and increased mortality. Due to diseases of the cardiovascular system, a reduction or complete giving up of physical activity becomes an independent death risk factor in case of the elderly [146].

Our study shows that more than a half of the respondents, 32 patients, declared a positive attitude to exercise. Motor activity at a moderate or high level, like regular endurance training, as well as working in the garden, shape seniors' condition at a high level. Walking and other forms of physical activity involve large muscle groups, thus, contribute positively to the circulatory system, and as a result the state of the whole organism [9].

According to our study, patients spend their free time on walking (26) or cycling (18). However, according to Drazin et al. practicing sports at young age is associated with varied axial loads, pain ailments and disturbances of the biomechanics of movement. This results in faster changes and wear on the motor system [8].

In our study, the majority of patients (28) declared not practicing any sport in their youth. But those of patients who practiced sports reported that it was mostly running (8).

Moderate physical activity should therefore be a priority in order to maintain or improve physical fitness. Factors such as gender, obesity, depressive symptoms, age and intake of medications can reduce fitness of the elderly [10].

According to Li et al., difficulties in performing everyday activities make the elderly feel worse and

constitute an important factor of depression in the elderly [12].

That is why, according to own research, more than a half of the respondents (30) choose full fitness as the aim of physical activity.

## CONCLUSIONS

Elderly patients have mostly a positive attitude towards physical exercise and state full fitness to be its aim, regardless of sex, age, place of residence, marital status or education.

## REFERENCES

1. Arias-Merino ED, Mendoza - Ruvalcaba NM, Arias - Merino MJ. et al.: Prevalence of successful aging in the elderly in Western Mexico. *Curr Gerontol. Geriatr. Res.* 2012.
2. Kozak-Szkopek E, Galus K.: Wpływ rehabilitacji ruchowej na sprawność psychofizyczną osób w podeszłym wieku. *Gerontol. Pol.* 2009; 17, 2: 79–84.
3. Łukomska A, Wachowska J: Seniorzy o swojej starości. *Gerontol. Pol.* 2008, 16, 1: 51–55.
4. <http://www.mz.gov.pl/wwwmz/index?mr=&ms=&ml=pl&mi=548&mx=0&ma=6317>
5. Tak E, Kuiper R, Chorus A. et al: Prevention of onset and progression of basic ADL disability by physical activity in community dwelling older adults: a meta - analysis. *Ageing Res Rev.* 2012, S 1568–1637.
6. O'Donnell P.: Aging Under the Microscope in Europe. *Appl. Clin. Trials.* 2010; 19, 2: 28-30.
7. Forman DE, Rich MW, Alexander KP. i wsp.: Opieka kardiologiczna nad osobami w starszym wieku. Czas na nowy model opieki. *Med. wieku podeszłego.* 2011; 1, 2: 49–60.
8. Drazin D, Shirzadi A, Jeswani S et al.: Direct surgical repair of spondylolysis in athletes: indications, techniques, and outcomes. *Neurosurg Focus.* 2011, 31(5):E9.
9. Petersen CB, Eriksen L, Tolstrup JS. et al.: Occupational heavy lifting and risk of ischemic heart disease and all-cause mortality. *BMC Public Health.* 2012; 12: 1070.
10. Chalé-Rush A, Guralnik JM, Walkup MP. et al.: Relationship between physical functioning and physical activity in the lifestyle interventions and independence for elders pilot. *J Am Geriatr Soc.* 2010; 58, 10: 1918-1924.
11. Dogra S, Stathokostas L.: Sedentary behavior and physical activity are independent predictors of successful aging in middle-aged and older adults. *J Aging Res.* 2012.

12. Li X, Wang W, Gao Q. et al.: The trajectories and correlation between physical limitation and depression in elderly residents of Beijing, 1992-2009. PLoS One. 2012; 7, 8:e 42999.

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