

Comparison of Functional Physical Fitness between Migrants and Non-Migrants in Poland

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ABSTRACT

After the Second World War Polish borders were shifted into west and it forced large number of people to migrate from the east and central Poland to the western areas in the 1940s and 1950s, which dramatically changed the living conditions. The aim of the study was to compare functional physical fitness of migrants and non-migrants in older ages. Body height and weight were measured and 6 tests of the Senior Functional Fitness Test set were carried out in 785 men and women aged 60–80, during 2015–2016 years in two regions of Poland: the south-western (Dolnośląskie) and south-eastern (Podkarpackie), regarded as migrant and non-migrant areas respectively. Sex and regional differences were assessed by ANOVA, with NIR post hoc test. Additionally, Pearson's χ^2 test and *t*-Student tests for independent groups were also used. The seniors of south-western Poland are characterized by a significantly higher level of functional physical fitness as compared to seniors from south-eastern Poland. It can be assumed that a higher level of education, more favourable socio-economic conditions and a more proactive approach to one's own health of Lower Silesians (migrants) allowed them to remain independent in everyday life and age with dignity.

Keywords: adults 60+, BMI, senior functional fitness test, migration, health

Introduction

The factors of the living environment and socio-economic conditions have a decisive impact on the level of biological condition at all stages of human life. The dynamically changing environment is related to the development of civilization, but it also has a large historical background. The historical situation resulting from the Second World War not only changed the borders of the state, but also make people move mainly from the east and central Poland to the western areas in the 1940s and 1950s, following the earlier mass deportation of Germans^{23,28}. Rokita²³ states that by the decision of the Polish authorities, the resettlements were carried out according to the region of origin. And so, the south-western region (including the Lower Silesia Voivodship) was inhabited with the population from the south-eastern borderlands, and the north-west region - with the population from the north-eastern borderlands. The nationality

structure of Poland in the 1960s consisted mainly of Poles (98.4%)²⁸. This resulted in a high ethnic homogeneity of the post-war Poland. According to research carried out by Bielicki et al.^{2,3}, the population of the post-war Poland has become a very homogeneous population also in terms of serological studies, polygenetic features and genetic study of males from 6 regions of Poland, in the sense of reducing regional and social differences^{8,9,20}. Thus, in the present population of older people, the level of biological condition and possible differences are rather related to the level of social and economic development, living standards and lifestyle.

Many reports indicate significant socio-economic differences between western and eastern Poland. It is not without significance that these massive internal migrations of the 1940s and 1950s concerned young people, mainly (around 80%) farmers from small farms²³. The reasons for changing the place of residence and lifestyle

were then very complex, often imposed (repatriation), but the main reason was of economic nature. Thum²⁸ extensively describes the extremely difficult travel conditions, which often lasted many weeks, and the slow process of adapting to new living conditions in the first post-settlement period.

It can therefore be assumed that these dramatic circumstances of migration gave a chance of survival to people with a very high biological potential and high psychophysical immunity. At the same time, it should be emphasized that the difficulties of wartime and post-war times concerned the entire Polish population. Children and adolescents suffered the largest biological costs, considering that development processes show a special sensitivity to living conditions, quality and quantity of food as well as medical care. The following years in the People's Republic of Poland caused a deepening of contrasts in the economic development and living conditions between the east and the west of Poland¹⁰.

Systemic transformation and the introduction of a free market economy in the early 1990s resulted in very large changes in the living conditions of the entire society²⁹. In the last 25 years the standard of living in Poland has significantly improved as a result of dynamic economic development. For the elderly, significant features include raising pensions, various forms of social assistance, satisfying food needs, a higher level of medical care and a greater emphasis of decision-making centres on health promotion and prevention as well as education (third-age universities, senior clubs, etc.). At the same time, the contrasts (differences) between the regions of Eastern and Western Poland in socio-economic and cultural terms are balanced. The same applies to the level of knowledge and awareness of one's health and its determinants. In many studies devoted to the issue of migration, the most frequently analysed reasons and motives for change of place of residence include health problems, somatic development, economic, political, ethnic or cultural factors^{4,10,12,16-18,22}. There are no works assessing the biological condition in terms of functional physical fitness of migrants or their descendants and the population not changing the place / region of residence for generations (non-migrants).

This raises a question about the assessment of differences or their absence in the level of functional physical fitness of elderly people from two distant Polish regions: south-west (settled entirely by migrants) and south-east (same population for generations, non-migrants) considering to diverse technical and economic, social and, in a sense, also historical conditions. The childhood and youth of this group of people occurred in the pre-war and post-war years (1935-1955).

The aim of the study is to evaluate the basic somatic parameters and functional physical fitness of elderly people from two regions of southern Poland - the Lower Silesia Voivodship and the Podkarpackie Voivodship (Fig. 1). These regions are separated by a distance of around 500 kilometres.



Fig. 1. Administrative division of Poland.

Materials and methods

The analysis was based on the results of health examinations of 785 men and women aged 60-80 collected in the years 2015-2016 in two regions of Poland: the south-wester Lower Silesia (Dolnośląskie) and south-eastern (Podkarpackie) one. Among 222 men, 122 persons came from western Poland and 100 people from eastern Poland. The group of women included 563 persons, including 269 from western Poland and 294 from eastern Poland. For both sexes two age groups were separated: younger: 60-69 years and older: 70-80 years. Participants were recruited through advertisements in the media (local radio and TV, press), information in senior clubs third-age universities.

The Dolnośląskie voivodship is part of the "Recovered Territories", which became part of the administrative territory of Poland after WWII. This region, during the years 1945-47 were settled by Poles from other territories of pre-war Poland, after eviction of Germans. Thus, inhabitants of this voivodship are regarded as a migrants, whereas inhabitants Podkarpackie voivodship as non-migrants, since this region before and after belong to Poland.

The basis for inclusion in the study was subjectively good health, no medical contraindications to perform physical fitness tests, written voluntary consent to participate in the project and filling out a personal questionnaire. The research project was approved by the Senate Ethics Committee for Scientific Research at the University of Physical Education in Wrocław in 2015.

The body height measurements were accurate to 0.1 cm, the body weight measurements to 0.1 kg. The measurements were made with the SECA 764 machine. On the basis of these parameters, the relative body mass index (BMI) was calculated.

Functional physical fitness was assessed by the Senior Functional Fitness Test²¹. The tests assess muscle strength and flexibility of the upper and lower body, aerobic capacity as well as agility and dynamic balance. Physical fitness tests were carried out in enclosed spaces, as recommended by the authors Rikli and Jones²¹. The research was conducted by the employees of the Academy of Physical Education in Wrocław and the University of Rzeszów after previous detailed training. The research was conducted in accordance with the principles of ethics specified in the Helsinki Declaration⁷.

The statistical elaboration took into account the basic characteristics of the measured parameters, while the significance of differences between regions, age groups and sexes was evaluated by the analysis of variance, the NIR test, as well as the Pearson's χ^2 test and t-Student tests for independent groups. The calculations were made using the STATISTICA13.1⁶.

Results

The persons surveyed were divided on the basis of marital status into two groups: free persons (divorce, widowhood) and persons in relation with another person (marriage, partnerships). The division into only two groups was caused by a small number of detailed civil status categories. It turned out that in both men and women, marital status in percentage terms was similar in both regions and gender groups. High percentage (80%) of men from both communities declared a stable relationship, while among women, a stable relationship was indicated by about 50% of respondents (Tab. 1).

TABLE 1
MARITAL STATUS AND EDUCATIONAL LEVEL OF MEN AND WOMEN FROM BOTH REGION

Region	south-western Poland		south-eastern Poland		test
Males					
Variable	n	%	n	%	Pearson's Chi ²
Education level					
university	66	54.10	24	26.37	32.17***
college	46	37.70	32	35.16	
trade+ elementary	10	8.20	35	38.46	
Marital status					
married	97	80.17	73	80.22	<0.01
divorced/widow	24	19.83	18	19.78	
Females					
Education level					
university	90	34.88	90	34.22	12.53*
college	145	56.20	122	46.39	
trade+ elementary	23	8.91	51	19.39	
Marital status					
married	130	50.58	146	55.09	1.07
divorced/widow	127	49.42	119	44.91	

* p<0.05

*** p<0.001

Education turned out to be a diversifying factor for the seniors in the two regions of Poland. Among men from western Poland, the percentage of people with basic and vocational education is very low (8.2%), and the highest number of respondents in this group (54%) has a university degree. The opposite situation can be observed among men from the east of Poland - the most people have basic and vocational education (38.5%), and the least people have university education (26.4%). On the other hand, regional differences in the level of education of women mainly concern the levels of basic and secondary education, as the percentage of women with higher education in both regions is similar. The basic level of education is indicated by 9% of women from the west of Poland and 19.4% from the east of Poland. The largest fraction in both groups are women with secondary education, however there are about 10% more of them in the group from western Poland compared to their peers from the east (Tab. 1).

Among the somatic features analysed, only the body height of the studied men and women did not show regional differentiation. Significant differences were found in body weight and BMI between younger men (60-70 years) from the compared regions. The body mass and the BMI of men from western Poland were on average higher than in the case of their peers from the east of the country. Regardless of age and gender, the average BMI of seniors was located in the category of overweight, and in the case of younger seniors in the west - in the 1st degree of obesity (Tab. 2).

Descriptive statistics of the functional physical fitness parameters by age group, sex and region are presented in table 3.

The analysis of variance indicates a significant differentiation of the functional physical fitness of the seniors in question, taking into account all three factors - age, sex and region of residence (Tab. 4 and 5).

When analysing the average values of functional tests of physical fitness of the studied groups, a clearly more favourable level of physical fitness of men from the west of Poland in comparison with their eastern peers can be observed (Tab.3). Older men from western Poland (migrants) showed a significantly higher level of functional efficiency compared to their peers from eastern Poland (non-migrants). Younger men from the west achieved significantly higher results only in the level of muscular strength of the upper body, aerobic capacity and in the test of dynamic balance, agility and speed in comparison with the group from the east of Poland. The level of functional strength of the lower body and the flexibility of the lower and upper body were at a similar level in both regions.

Among the surveyed women of both regions, a significantly higher level of functional physical fitness is presented by women, both younger and older, from the west of Poland (migrants) compared to their eastern peers (non-migrants). The exception is the test evaluating the dynamic balance, agility and speed of movement, which showed similar results in both regions (Tab.3).

TABLE 2
 STATISTICAL CHARACTERISTICS OF AGE AND SOMATIC PARAMETERS IN THE GROUP OF MEN AND WOMEN FROM BOTH REGIONS

Region Age group	South-western Poland				South-eastern Poland				test t	
	younger (1)		older (2)		younger (3)		older (4)		younger (1) – (3)	older (2) – (4)
Variable	mean	SD	mean	SD	mean	SD	mean	SD	p	p
Males										
Age [years]	65.72	2.77	72.63	2.91	64.93	2.87	73.19	2.78	ns	ns
Height [cm]	173.86	6.62	171.52	5.63	172.50	6.64	170.87	6.70	ns	ns
Weight [kg]	91.78	14.59	84.77	14.04	85.11	14.15	82.64	10.09	<0.05	ns
BMI [kg/m ²]	30.30	4.13	28.74	4.13	28.34	4.15	28.23	2.91	<0.05	ns
Females										
Age [years]	65.06	2.52	73.20	2.86	64.81	2.70	73.92	3.25	ns	ns
Height [cm]	158.34	5.68	156.73	5.96	159.00	5.90	158.27	5.46	ns	ns
Weight [kg]	73.86	13.86	71.81	11.43	72.66	14.16	70.42	9.82	ns	ns
BMI [kg/m ²]	29.42	5.24	29.05	4.40	28.74	5.27	28.13	4.10	ns	ns

ns – nonsignificant

TABLE 3
 STATISTICAL CHARACTERISTICS OF FUNCTIONAL PHYSICAL FITNESS TESTS IN THE GROUP OF MEN AND WOMEN FROM BOTH REGIONS

Region Age group	South-western Poland				South-eastern Poland			
	younger		older		younger		older	
Variable	mean	SD	mean	SD	mean	SD	mean	SD
Males								
30-second chair stand [n]	18.47	5.00	19.95	5.53	17.77	5.72	14.80	6.11
Arm curl [n]	23.62	5.03	22.51	5.37	19.05	4.70	15.50	3.99
6-minute walk [m]	614.92	88.05	607.10	96.22	565.07	102.62	464.34	146.16
Chair sit and reach [cm]	1.01	9.27	1.44	7.31	-1.82	9.70	-6.02	10.20
Back scratch [cm]	-9.84	10.96	-11.15	11.61	-10.25	11.22	-17.23	13.63
8-foot up-and-go [s]	5.09	0.79	5.15	0.70	5.62	1.56	6.78	1.86
Females								
30-second chair stand [n]	17.33	4.11	15.78	3.73	14.53	3.60	13.77	3.66
Arm curl [n]	21.22	4.37	19.97	3.69	15.74	3.65	14.76	3.77
6-minute walk [m]	553.15	78.85	496.48	88.57	495.20	98.90	453.61	84.74
Chair sit and reach [cm]	3.81	7.96	2.66	6.19	1.41	8.14	-3.25	9.40
Back scratch [cm]	-2.43	8.01	-2.96	9.55	-5.93	10.56	-7.27	9.82
8-foot up-and-go [s]	6.01	0.88	6.60	0.951	5.10	1.23	6.81	1.29

Discussion

The effects of migration have been the subject of historical, political and social interests, and above all the subject of scientific research. The analysis of the shaping of the migration policy of the 20th century Polish state is based on the historical heritage of Polish society. Political and economic migration were intertwining for decades. The change of Poland's borders after the Second World

War caused an unprecedented movement of the population - to the so-called Recovered territories, i.e. the areas of western and northern Poland^{23,28}. Rapid transformation of the socio-economic system in Poland at the turn of the 1980s and 1990s caused an increase in migration movements and, like in the case of post-war migration, significant changes in the social structure. This was mainly the movement from rural areas to large cities, very visible in

TABLE 4
ANALYSIS OF VARIANCE (3 FACTORS - VARIABLES: AGE, SEX, ENVIRONMENT, COVARIATES - FUNCTIONAL FITNESS TESTS)

Effect	test	30-second chair stand	arm curl	6-minute walk	chair sit-and-reach	back scratch	8-food up-and-go
Sex	F	46.94	41.57	64.83	9.97	74.49	58.39
	p	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001
Region	F	40.11	223.68	71.60	37.12	16.06	27.48
	p	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Age	F	4.93	24.01	35.11	10.17	6.33	39.54
	p	<0.05	<0.001	<0.001	<0.01	<0.05	<0.001

TABLE 5
EVALUATION OF THE REGIONAL DIFFERENCES IN THE NIR TEST AMONG THE MEN AND WOMEN IN TERMS OF FUNCTIONAL PHYSICAL FITNESS

Functional tests	Significance of regional differences: South-western v. South-western Poland (p-value)			
	males		females	
	younger	older	younger	younger
30-sec chair stand [n]	ns	<0.001	<0.001	<0.01
Arm curl [n]	<0.001	<0.001	<0.001	<0.001
6-minute walk [m]	<0.01	<0.001	<0.001	<0.01
Chair sit and reach [cm]	ns	<0.001	<0.05	<0.001
Back scratch [cm]	ns	<0.05	<0.01	<0.01
8-food up-and-go [s]	<0.05	<0.001	ns	ns

ns – non significant

south-western Poland, which showed a higher economic status in relation to the south-eastern part of the country^{2,24}.

The number of inhabitants of the Western Territories after the Second World War was constantly increasing. For example, Wrocław in 1950 already had 315 thousand inhabitants and in 1981 their number amounted to 622 thousand²⁸. In western Poland, there was a total population exchange, which combined with the loss of local knowledge and tradition. Due to that fact, the Polish authorities wanted to make western areas of Poland exemplary, demonstrating that the integration of the incorporated German lands has been successful. The main political goal was to regain and maintain in the city of Wrocław and in the region a high level of civilization. According to official data, in 1949 only 1% of Wrocław's inhabitants were autochthons²⁸. A large percentage of the city's population were people displaced from the Greater Poland region, constituting 19.5% in 1947, followed by newcomers from central Poland (approx.13.6%), and from south and east Poland (7-8% each). The remaining population (about 40%) came from the eastern borderlands of the pre-war Poland (currently Lithuania, Belarus and Ukraine)²⁸.

The results of the research confirmed the higher economic status of the regions of western Poland, which has a better level of industrialization, a more favourable net-

work of roads, a higher urbanization status and is characterized by further dynamic development^{1,10}. One of the effects is the significantly higher level of education of the inhabitants of Wrocław and the surrounding areas compared to the inhabitants of the eastern regions. This applies to both women and men. Some studies, based on many years of observations, emphasize the relationship of education, social position and lifestyle with health^{2,11,17,25}. Lower level of education is often associated with an unhealthy lifestyle, poor diet, addictions, low level of physical activity. Systematic physical activity determines physical fitness and independence in everyday life. Physical fitness is characterized by low heritability²⁶ and depends to a significant extent on the physically active lifestyle, also in the late adulthood. At the same time, it is conditioned by many factors, such as personality, subjective sense of health, as well as the living and cultural environment. Mudrak et al.¹⁹ analysed the relationships of physical activity with different income in different cultural environments. After comparison of older people from post-communist countries with their peers from western Europe countries, the worse socio-economic conditions of the former were pointed out, which are less beneficial to their health and life. Environmental diversity resulting from the socio-economic status of residents, sports infrastructure or approach to education can also be observed in Poland. It may contribute to increasing disparities between regions in the field of pro-health activities affecting the

overall biological condition of human. This is confirmed by our own research, where in the group of older men from western Poland, higher education and at the same time a definitely higher level of functional efficiency were demonstrated in relation to a comparable group from Eastern Poland. Our results reveal differences in the functional state of physical fitness of the inhabitants of these two regions. These differences may result, on the one hand, from the high migration activity of the inhabitants of western Poland after the Second World War and, on the other hand, from the active lifestyle associated with higher education, healthier lifestyle, better economic situation. Of course, education or urbanization only indirectly affect human biological characteristics. They affect the living conditions and lifestyle and only they directly affect the body's biology². Thus, the environmental factor is responsible for almost 70% of the variance of relative body mass in the population, while inheritance is estimated at 30%⁵.

Good economic conditions mean that the fraction of overweight people in Polish society is growing. The observed overweight and obesity, observed especially among younger seniors, may be associated with an increased risk of civilization diseases, especially dysfunctions in the cardiovascular system, metabolic disorders, cancer and, consequently, increased mortality. Overweight probably also discourages to undertake regular physical activity that would improve functional physical fitness, which seems to be one of the reasons for the absence of significant regional differences in the level of lower body muscle strength and flexibility among younger seniors.

The first anthropological picture of Poland carried out by the Institute of Anthropology of the Polish Academy of Sciences in 1955 served Hulanicka et al.¹⁰ to carry out the analysis of body height of boys in school age from western and northern Poland and compare this parameter with their peers from other regions of Poland. The authors assumed that this is a trait informing about the general biological well-being of the population, its nutritional status and health²⁷. The research results indicate that the height of the boys from the west of Poland was lower compared to their peers from other regions of the country, which could in subsequent years lead to poor health and a higher level of mortality especially among men. It seems that this result may also be connected with the fact that western lands were mainly populated by small farmers, who in comparison with other social groups were characterized by a significantly lower level of biological development^{3,23}. The seniors of Lower Silesia covered by our study were in 1955 at school age. The better living conditions, which they found in the Recovered Territories "supported" the processes of growth and maturation, contributing to the better realization of the genetic potential. Currently, they do not differ in body height from their peers from the east, and even are slightly taller.

It can be assumed that in Poland the differences between social layers are a reflection of socio-economic inequalities^{2,3}. In many European countries with a high level of economic development, which Poland joined with a dozen or so years of delay, there is a trend of increasing

average BMI. This clearly results from the improvement in the living conditions of Poles after the completion of the main stages of the socio-economic transformation of the 1990s. One of the main reasons for the increase in BMI was and is the change in nutritional behaviours (increased consumption of fats and carbohydrates) and a sedentary lifestyle associated with a significant decline in physical activity^{13,14}.

Also in these comparisons, residents of south-western Poland are characterized by a higher relative body mass (BMI). However, this is an effect related to overweight and obesity, which closely correlate with a higher economic status. Despite this unfavourable tendency in the composition of the body, it turns out that the community of Lower Silesian seniors is characterized by a significantly better level of functional physical fitness than their eastern peers. Regardless of sex or age, the seniors' community from the west of Poland turns out to be more fit than their peers from the east of Poland.

In summary, the basic somatic parameters of the surveyed persons are at a similar level in both regions of Poland. The seniors of south-western Poland are characterized by a significantly higher level of functional physical fitness compared to seniors from south-eastern Poland. It can be assumed that a higher level of their education, more favourable socio-economic conditions translate into a more proactive approach to their own health, which will allow Lower Silesians to remain independent in everyday life and age with dignity.

REFERENCES

1. ANDRYCHOWICZ D, CONTE A, FRENKEL I, ROSNER A AND SANTACROCE P, Atlas demograficzny i społeczno-zawodowy obszarów wiejskich w Polsce [The demographic and socio-occupational atlas of rural areas in Poland], Zakład Wydawnictw Statystycznych, Warszawa, (1995).
2. BIELICKI T, SZKLARSKA A, KOZIEŁ S, WELON Z, Transformacja ustrojowa w Polsce w świetle antropologicznych badań 19-letnich mężczyzn [Political transition in Poland in relations to the anthropological surveys of 19-year old men], PAN, Wrocław, (2003).
3. BIELICKI T, SZKLARSKA A, WELON Z, BRAJCZEWSKI C, Nierówności społeczne w Polsce: antropologiczne badania poborowych w trzydziestolecu 1965–1995 [Social inequality in Poland: anthropological surveys of conscripts during three decades 1965–1995], PAN, Wrocław, (1997).
4. BOGIN B, Rural to urban migration. In: MASCIE-TAYLOR CGN, LASKER GW (Eds.), Biological Aspects of Human Migration, Cambridge University Press, (1998). DOI: 10.1080/03014460.2017.1313448.
5. BOUCHARD C, PERUSSE L, Annu Rev Nutr, 8 (1988). DOI: 10.1146/annurev.nu.08.070188.001355.
6. Dell Inc. Dell Statistica (data analysis software system), version 13 accessed June 2016. Available from: software.dell.com.
7. GOODYEAR MDE, KRLEZA-JERIC K, LEMMENS T, Brit Med J, 335 (2007) 7621. DOI: 10.1136/bmj.39339.610000.BE.
8. GRONKIEWICZ L, Anthropol Rev, 64 (2001). doi.identifier.uri: http://hdl.handle.net/10593/3425.
9. GRONKIEWICZ L, GRONKIEWICZ S, Anthropol Rev, 58 (1995). URI: http://hdl.handle.net/10593/7344.
10. HULANICKA B, GRONKIEWICZ L, ZIĘTKIEWICZ B, Ann Hum Biol, 26 (1999) 6. DOI: 10.1080/030144699282462.
11. KOŁODZIEJ H, Cent Eur J Public Health, 2 (1998) 6.
12. KOZIEŁ S, LIPOWICZ A, ULJASZEK SJ, Anthropol Rev, 2 (2012) 75. DOI 10.2478/v10044-012-0007-1.
13. KOZIEŁ S, SZKLARSKA A, BIELICKI T, MALINA RM, Int J Obes, 30 (2006). DOI: 10.1038/sj.ijo.0803292.
14. KOZIEŁ S, WELON Z, BIELICKI T, SZKLARSKA A, ULJASZEK SJ, Econ Hum Biol, 2 (2004). DOI: 10.1016/j.ehb.2003.12.002.
15. LEWIS SJ, Public Health, 5 (2003) 117. DOI: 10.1016/S0033-3506(03)00099-4.
16. MASCIE-TAYLOR CGN, KRZYŻANOWSKA M, Ann Hum Biol, 5 (2017) 44. DOI:

- 10.1080/03014460.2017.1313448. - 18. MOORIN RE, HOLMAN CDJ, GARFIELD C, BRAMELD KJ, Health & Place, 2 (2006) 12. DOI: 10.1016/j.healthplace.2004.10.013. 19. MUDRAK J, STOCHL J, SLEPICKA P, ELAVSKY S, Eur J Ageing, 1 (2016) 13. DOI: 10.1007/s10433-015-0352-1. 20. PLONSKI R, WOZNIAK M, PAWLOWSKI R, MONIES DM, BRANICKI W, KUPIEC T, KLOOSTERMAN A, DOBOSZ T, BOSCH E, NOWAK M, et al. Hum Genet, 6 (2002) 110. DOI: 10.1007/s00439-002-0728-0. 21. RIKLI, JONES CJ, J Active Aging, (2002). 22. RO A, FLEISCHER NL, BLEBU B, Soc Sci & Med, 158 (2016). DOI: 10.1016/j.socscimed.2016.04.023. - 23. ROKITA P, Wysziedlenia w Polsce po II wojnie światowej, ich przyczyny oraz społeczne i ekonomiczne skutki [Displacements in Poland after the Second World War – their causes and socio-economic effects], Instytut Geografii i Gospodarki Przestrzennej UJ, Kraków, (2008). - 24. SZKLARSKA A, LIPOWICZ A, ŁOPUSZANSKA M, BIELICKI T, KOZIEŁ S, Am J Hum Biol, 2 (2008) 20. DOI: 10.1002/ajhb.20691. - 25. SZKLARSKA A, ROGUĆKA E, Ann Hum Biol, 1 (2001) 28. DOI: 10.1080/03014460150201869. 26. SZOPA J, Antropomotoryka, 8 (1992). - 27. TANNER JM, 1986. Growth as a mirror of the conditions of society: Secular trends and class distinction. In: DEMIRJIAN A (Ed.), Human Growth A Multidisciplinary Review, Taylor and Francis, London, (1986). 28. THUM G, Obce miasto Wrocław 1945 i potem, Via Nova, Wrocław (2005). - 29. ZIENKOWSKI L, Research Bulletin, 9 (2000).

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USPOREDBA FUNKCIONALNE FIZIČKE SPREMNOSTI IZMEĐU MIGRANATA I NE-MIGRANATA U POLJSKOJ

SAŽETAK

Nakon Drugog svjetskog rata poljske granice su pomaknute prema zapadu što je prisililo veliki broj ljudi iz istočne i središnje Poljske na migraciju u zapadna područja 1940-ih i 1950-ih godina. Te migracije su dramatično promijenile životne uvjete. Cilj istraživanja bio je usporediti funkcionalnu fizičku sposobnost migranata i ne-migranata u starijoj dobi. Izmjerene su im tjelesna visina i težina te je provedeno 6 testova iz seta Senior Functional Fitness u 785 muškaraca i žena u dobi od 60 do 80 godina, tijekom 2015. i 2016. godine u dvjema regijama Poljske: jugozapadnoj regiji (Dolnośląskie) koja uključuje migrante i jugoistočnoj regiji (Podkarpackie) bez migranata. Spolne i regionalne razlike procijenjene su uz pomoć ANOVE i NIR post-hoc testom. Osim toga, korišteni su i Pearsonov χ^2 test i t-Student test za nezavisne skupine. Starije osobe u jugozapadnoj Poljskoj karakterizira znatno viša razina funkcionalne fizičke sposobnosti u odnosu na starije osobe iz jugoistočne Poljske. Može se pretpostaviti da viša razina obrazovanja, povoljniji socioekonomski uvjeti i proaktivniji pristup vlastitom zdravlju ispitanicima iz Donje Šlezije (migrantima) omogućuje da ostanu samostalni u svakodnevnom životu i stare sa dostojanstvom.