

## Fitness of 50 – 96 Years Old Women

by

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*188 women aged 50-96 years inhabiting towns and cities of Upper Silesia participated in the research carried out between 2001-2002. The data was collected by means of an interview which took into consideration predictors such as: age, education, marital status, character and type of job, socio-economical situation, health condition, family status, exercising at home, regular physical activity both in the past and at present, sport discipline practiced in the past, use of stimulants, diet, and the number of births.*

*The level of fitness of women surveyed depends most of all on the level of their education. Systematic physical activity influences the fitness of women. Widowhood and number of births exerts a significant influence on the regression of fitness.*

**Key words:** aging, fitness, elderly

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## ***Introduction***

The decrease in physical fitness and the increase in diseases characterized by extreme complications play a very important role in the process of aging. The health status and the degree of fitness of the elderly are, among others, crucial exponents in the process of aging of the population. They are the consequences of factors such as biology, demography, history, society and environment (Rayman, Bloom 1988). Psychological stresses, unhealthy lifestyle and civilization diseases accelerate the morphological and motor processes of aging (Winiarski 1995). The motor process of aging is characterized by stereotypical behavior as well as reluctance to new and unknown movements. Increasing fear of injuries intensifies the reluctance to physical exercise manifested in resignation from performing even the simplest self maintenance activities (Przewęda 1995).

In recent years the main topic in gerontological literature has been the concept of successful aging (Bee 2004, Baltes 1990). Successful aging is defined by life span, good condition of health (both physical and mental), social abilities, sense of self-control, maintaining physical fitness and mental capabilities, and a general satisfaction from life.

Successful aging should not be associated with insistent life prolongation. Successful aging should be associated with dignity, consciousness and health, maintaining fitness and life enthusiasm. In this case much depends on deliberate choice of appropriate set of behavior and lifestyle, where "Health Related Physical Activity", plays a crucial part. "Health Related Physical Activity" is health-oriented and has been propagated for many years in various forms of recreation (Bers and Berhow 2000; Kostka at al. 2000). Their two basic functions are: prevention (they prevent civilization diseases and slow down the process of individual involution) and therapeutic (in cases of reduced motor efficiency, obesity, and onset of osteoporosis, etc.)

The aim of this paper is to present the modifiers responsible for fitness of 50-96 year old Silesian women considering both past and present regular physical activities performed by them.

## ***Material and methods***

188 women aged 50-96 years inhabiting towns and cities of Upper Silesia participated in the research project carried out in 2001-2002. The data was collected by means of an interview which took into consideration predictors such as: age, education, marital status, character and type of job, socio-economical

status, health condition, family status, exercising at home, and regular physical activity both in the past and at present, sport discipline practiced in the past, use of stimulants, diet, and the number of births.

Basing on Piotrowski's 4-grade scale evaluating the locomotion of the women surveyed, and Grimby's modified scale of activity, the main dependent variable was established, namely fitness of the subjects surveyed. The following complex variables constituted fitness of the subjects surveyed: locomotion (8 points), present physical activity (5 points), home activity (7 points), self-maintenance (5 points). The maximum number of points a subject could receive was 25.

The empirical data was compiled by means of descriptive statistics. Average values ( $\bar{x}$ ), standard deviations (SD), and minimum and maximum values were calculated.

One-way analyses of variance followed by post hoc tests (NIR test) were applied to evaluate the influence of age and number of births on the level of fitness of women. Multiple Regression Analysis carried out by means of Stepwise Regression was applied in order to select fitness modifiers from a large group of predictors.

### *Influence of age and number of births on fitness of women.*

The fitness of women surveyed is strongly correlated with age (table 1). Crucial differences connected with the decrease in the level of fitness have been stated among consecutive age groups. Significant decrease of fitness takes place after the age of 65.

**Table 1**

*Influence of age on fitness of examined women (single-factor variance analysis).*

Age	N	X	SD	Min	Max	F	p	NIR
50 - 64	34	15,82	3,30	8,00	21,00			
65 - 74	63	12,68	3,99	3,00	21,00	13,843	0,001	1-2
≥75	79	11,94	3,48	5,00	23,00			1-3
In general	176	12,95	3,90	3,00	23,00			

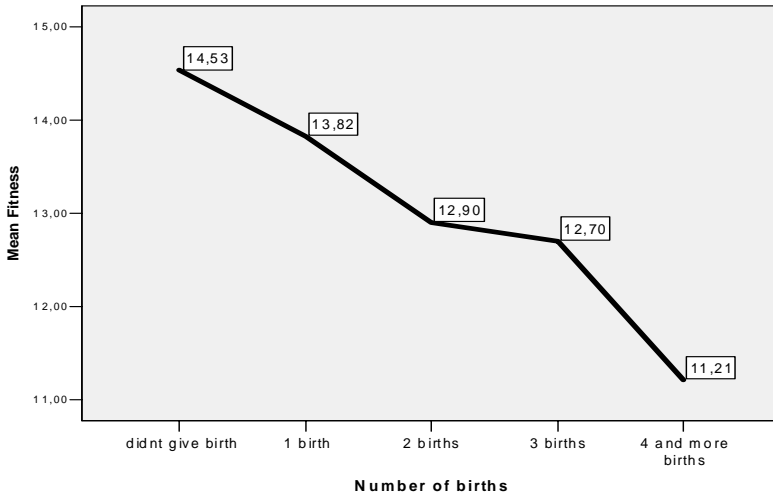
Fitness of women is considerably dependent on the number of births. The highest level of fitness is achieved by women who have never given birth or by those who gave birth only once. The lowest level of fitness is achieved by those giving birth four times or more (table 2, fig 1). Therefore, it can be stated (based on the results of the NIR test) that women who have never given birth or those

who gave birth only once bear an advantage over those who gave birth four times or more. It is probable that the above-mentioned conditions result from wider range of responsibilities and prolonged maternity period limiting women spare time as well as her potential physical activities.

**Table 2**

*The level of fitness of examined women and it's dependence on number of births.*

Number of births	N	X	SD	Min	Max	F	p	NIR
Didn't give birth (0)	17	14,53	4,80	5,00	23,00	2,428	0,050	0-4
1 birth	33	13,82	4,53	6,00	23,00			1-4
2 births	62	12,90	3,52	6,00	21,00			
3 births	40	12,70	2,87	6,00	19,00			
4 and more	24	11,21	4,23	3,00	19,00			
In general	176	12,95	3,90	3,00	23,00			

**Fig. 1.**

*Influence of number of births on fitness of women.*

### ***Other modifiers of fitness of women (Multiple Regression Analysis)***

The Multiple Regression Analysis model shows that in the group of women the variation ratio reached the level of 26,8%. Predictors such as: level of education (0,261), past physical activity (0,243) and home exercise (0,178) (table 3)

determining fitness of women surveyed belong to the group of positive Beta Regression Standardized ratios.

**Table 3**

*The regression analysis using stepwise selection of independent variables for second group, and dependant variable of women's fitness.*

Second group predictors	Not standardized cofactors		Standardized cofactors	t	p
	B	Main error	Beta		
Level of education	0,962	0,282	0,261	3,414	0,001
Physical activity in youth	0,731	0,227	0,243	3,222	0,002
Marital status (Widowhood)	1,418	0,563	-0,182	2,516	0,013
Exercise at home	1,372	0,553	0,178	2,480	0,014

$R= 0,537$ ;  $R^2=0,288$ ;  $R^2$  corrected=  $0,268$ ; main error of estimation=  $3,23732$ ;  $F= 14,360$ ;  $p<0,001$  (ending step)

The higher the level of education and physical activity in the past, the better the current level of fitness of studied women. Usually a higher level of education influences a more rational diet, better developed hygienic consciousness, systematic medical care and more active way of spending free time. The accumulation of these factors causes the slowing down of regressive changes of physical fitness of women with higher education [5]. Moreover, among the women surveyed those who were physically active in the past and who exercise at home are more fit. The strongest Beta ratio predictor (0,182) negatively influencing fitness of women surveyed is widowhood which is strictly correlated with age. Widows are characterized by a lower level of fitness (fig. 2). Experiencing misfortune or mourning can be manifested in various ways. In Polish culture the most frequent manifestation is withdrawal and lonely suffering which lead to stress consequences such as discouragement, loss of meaning of life and limited physical activity.

## ***Discussion***

A certain amount of well-grounded reasons exists to believe that the rate and intensification of involution processes is largely dependent on lifestyle; particularly on physical activity. Due to a passive lifestyle traces of motor aging can occur in early maturity. Physical fitness on the other hand allows to pre-

serve or even regain physical fitness and efficiency until old age. Additionally, it allows the elderly to bring a new meaning to their lives and it reduces the stress caused by lack of useful activities (Grabowski 1997, Przewęda 1995). In the group of surveyed women physical fitness declines with age significantly, and the dynamics of this process is greatest after the age of 65. Among regular physical activities (past and present) the level of fitness is positively influenced by various regular activities, such as home exercises and regular physical activities in the past. Physical exercises at old age are more important than ever before. With age optimal functioning is based, to a surprising extent, on maintaining at least moderate physical activity (Bee 2004). According to Piotrowska (1994) physical activity, physical exercise and various forms of recreation and tourism are manifestations of movement, which is not only stimulating for physical fitness in the early stage of ontogenesis, but it also slows down involution during the later stages of life. The research carried out by Dehn et al. (1972), Dishman (1987), Pollock et al. (1985) and Sharkey (1987) proved that the decline of physical efficiency is slower for people who are physically active than for people with sedentary lifestyles. The growing fear of injury intensifies the reluctance towards physical effort. It is manifested through resignation of performing simple self-maintenance activities. People, who manage to achieve a high level of fitness in early stages of life, enter the period of decreased physical activity with a higher level of most motor abilities. It enables them to enter the period of so-called 'third age' with optimal fitness ensuring a positive frame of mind, especially if they continue to perform physical activities (Janiszewski and Bittner-Czapińska 1999).

A higher level of education and mental character of work can delay regressive changes in physical fitness (Charzewska 1983, Bielicki et al. 1988, Osiński 2003, Jopkiewicz 2004). Own research confirmed the following relationship – the better the education of women the higher the level of fitness. Usually better education influences a more rational diet, more hygienic lifestyle, systematic medical care and active ways of spending free time. Bielicki et al. (1988) indicates that higher awareness of better educated people delays regressive changes in physical fitness. Łobożewicz (1991) stated that profession and education predominantly influence the attitude towards physical activeness. People with higher education turn out to be more physically active, and people performing mental work belong to commonly distinguished socio-professional groups.

Widowhood has a negative influence on the fitness of women surveyed which is strictly correlated with age. Widows are characterized by a lower level of fitness. This may result from nervous breakdown, discouragement, loss of meaning of life and reduction of activities, which are the consequences of stress.

Sagebartt et al. (1988) carried out research to estimate the scale of depression and the level of fitness of physically active and inactive women after the age of 70. The research showed that regular, moderately paced physical exercises influence the lowering of scale of depression and improve physical fitness of elderly women, influencing the quality of their lives. According to Social Readjustment Rating Scale (SRRS) by Holmes and Rahe (1971) the death of a spouse is one of the most powerful stressors. Holmes and Rahe argue that accumulation of stressful situations can lead to diseases with considerable effects. High level of stress can lead to the loss of control over one's behavior, and in consequence to exhaustion, tiredness, depression, burnout or nervous breakdown. Bee (2004) claims that becoming a widow are one of the most frequently quoted negative life changes causing deep stress. In the first year following the death of a spouse the frequency of depression increases significantly and the number of illnesses and deaths among the widowed increases slightly. Approximately 15% of the elderly suffer from various depressions. Those depressions take two forms: apathetic, with predominant loss of interest, will to live, slowing down of the processes of thinking and physical activity, and agitated with delusions concerning somatic diseases and others (Krzyżowski 2002).

Fitness of the elderly women belonging to the group presented in this paper also depends on the number of births. Women who have never given birth, or who gave birth only once are significantly fitter than women who gave birth four or more times. It is probable that the above-mentioned conditions result from a wider range of responsibilities and prolonged maternity period limiting women spare time as well as her potential physical activity.

## **Conclusions**

1. The level of fitness of women is predominantly dependent on the level of their education.
2. Systematic past physical activity influences the fitness of women.
3. Widows present a lower level of fitness.

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