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**PRACTICING COMPETITIVE SPORTS AT AN EARLIER AGE  
AS AN IMPORTANT DETERMINANT OF WOMEN'S PARTICIPATION  
IN PHYSICAL RECREATION**

**Key words:** physical recreation, women, ex-athletes.

ABSTRACT

The aim of the study was to establish the relationship between practicing competitive sports in the past and women's participation in physical recreation after finishing sports training. An anonymous questionnaire survey was distributed among two groups of women: 137 ex-athletes representing various sports and 220 women who had never practiced any competitive sport. In the evaluation of subjects' participation in physical recreation later in life, the frequency, length and forms of exercise were taken into account. In the group of former athletes, the relationship between participation in physical recreation and the length of training as well as attained sport class (sports mastery) was additionally established. It was statistically proven that long-term involvement in sport at a competition level positively influenced women's decision to take up and practice intensive forms of physical recreation several years after finishing their sporting careers.

INTRODUCTION

Health is a necessary condition in order for an individual or a group to satisfy their aspirations, self-fulfillment and ability to cope with and change their environment. Health is a resource guaranteeing society's development. Thus, it is a means of achieving a better quality of life [5]. One of the significant preconditions of public health is widespread physical culture. Its most important aspect is physical activity, permitting the maintenance and improvement of physical, mental and social health. The lack of this activity is presently thought to be the main factor contributing to deterioration of health leading to premature mortality [1].

The Polish National Health Program (NHP), which determined the directions of the state health

policy, recognized the insufficient physical activity in Polish society as the most important threat to public health. In the program prepared for the years 1996-2005, the increase in physical activity was listed as the first (out of eighteen) operational objectives. It was projected that by 2005, 30% of adults would have systematically engaged in physical exercise in their free time [8].

In order for this objective to be accomplished, deep transformations in the society's awareness concerning the role of physical culture in maintaining and fostering health and prevention of several diseases would be necessary. However, the knowledge of hazards to health resulting from lack of activity and predominance of sedentary lifestyle is still insufficient. This paper reports on research conducted in Poland in 1990-1991 among different social and professional communities. The results of

the research revealed that only a quarter of the subjects perceived hypokinesia as a health-threatening factor, while the hazards of smoking and alcohol abuse were indicated by 80% of the respondents; about 90% of them recognized the harmful effects of noise and stress, and 93% the negative influence of environmental pollution [3].

The low level of social awareness of the consequences of insufficient physical activity results in lack of participation in various forms of exercise, which has been evidenced by studies carried out among children, adolescents and adults. In each age group and in all residential communities, girls and women are characterized by their less frequent participation in physical exercise than the respective groups of boys [20] and men [2]. Leveling this disproportion seems to be a significant direction of actions aimed at reducing social inequities in access to health, which is one of the NHP objectives [8]. Effective implementation of this objective requires the knowledge of factors and conditions which would foster an increase in female physical activity. The few studies into ex-athletes' participation in exercise that have been conducted so far permit the supposition that one such factor is the experience of competitive sports [7, 10, 12]. Perhaps through dissemination of competitive sports among girls we will manage to increase their participation in physical exercises in their free time later in life for relaxation, pleasure and personal development [19].

The present study constitutes a part of extensive research into the influence of ex-athletes' long-term involvement in competitive sport on their healthy behaviors (including recreation). It is a continuation of an already published article on the influence of practicing competitive sports earlier in life on men's participation in physical recreation [18].

The aim of the study was to determine the relationship between former practicing competitive sports and women's participation in physical recreation after finishing sports training. The following research hypotheses were formulated:

1. There are significant differences in the amount of time, frequency and forms of participation in physical recreation between women who used to practice competitive sports those who did not.
2. The previously achieved level of sports mastery and the length of competition-level practice are factors which have a significant impact on ex-athletes' participation in physical recreation.

## METHODS

In the period between May and September, 1997-2002, the study was carried out among a group of women with previous competitive sport experience (EA) (n=137). The control group consisted of women who had never engaged in competitive sport (NA) (n=220). The selection of subjects was made according to sample availability [15]. Because of a considerable range of the subjects' ages in both groups, they were divided into two age brackets comprising 18 to 34-year-olds (early adulthood) and 35 to 51-year-olds (adulthood) [11]. These groups were marked respectively: EA-J (ex-athletes – junior) and NA-J (non-athletes – junior), and EA-S (ex-athletes – senior) and NA-S (non-athletes – senior).

In order to verify the research hypotheses, the diagnostic poll method was employed with the use of an anonymous survey questionnaire consisting of 72 closed or semi-open questions on the subjects' social position, history of sporting career (for ex-athletes only), behaviors, health-related opinions and attitudes as well as self-evaluation of the state of health. In this work, only the results related to the respondents' participation in physical recreation are presented.

The following parameters were examined in both groups:

- frequency and amount of time of the respondents' participation in physical recreation in the week preceding the survey,
- forms of physical recreation that the respondents engaged in on the day preceding the survey.

Additionally, in the group of former athletes, the relationship between frequency and forms of participation in physical recreation was established, considering:

- the length of training history in different sports;
- the level of sports mastery measured by the sport class attained in the past.

Two criteria were used for evaluation of correlations between qualitative features:

- chi squared test, by means of which statistical significance of correlation between two features was established, on the basis of cross-tables. The significance of correlations was set at  $p \leq 0.05$ ,  $p \leq 0.01$  and  $p \leq 0.001$ ;
- the strength of correlation between two features was measured by means of Cramer's V: correlation coefficient ranging from 0.0 (no correlation between the variables) to 1.0 [13].

In the statistical analysis the Statistica 6.0 PL software package was used.

## RESULTS

Table 1 presents the results of research into frequency of the respondents' engaging in physical recreation. It was shown that in the younger groups (EA-J and NA-J) there was no statistically significant correlation between the frequency of participation in physical recreation and practicing sport in the past. Such a correlation was found, however, in the groups of women aged 35-51, where the proportion of subjects not participating in physical recreation at all was lower in EA-S than in the control group (NA-S), whereas the proportion of those who exercised 1-2 and 3-4 times a week was higher in EA-S.

The comparison of the frequency of the younger (EA-J) and the older (EA-S) ex-athletes' participation in recreation showed that in the case of ex-athlete women age did not affect the frequency of engagement in recreational exercise. Such correlation was discovered, however, in the control group, where the older respondents participated in physical recreation more often than their younger counterparts (Table 1).

The results of research into time devoted by respondents to recreational activities per week are presented in Table 2. The time spent on physical recreation by both younger and older ex-athletes (EA-J and EA-S) did not depend significantly on their age. No relationship between age and time spent on exercise was also found in the control group (NA-J and NA-S) (Table 2).

Table 3 contains the research results concerning forms of physical recreation that the respondents engaged in on the day before filling out the questionnaire. In each group there were considerable proportions of women (28% – 44%) who did not have any free time at all on that day. The lack of time was reported more often by subjects aged 18-34 from both groups (EA-J and NA-J) than by the older women (EA-S and NA-S) (Table 3).

The analysis of the forms of participation in physical recreation showed that ex-athletes – more often than women from the respective control groups (EA-J vs. NA-J and EA-S vs. NA-S) – engaged in recreational sport and less often in walks. No significant correlation was found, however, between the ex-athletes' ages and their most often practiced form of recreation; in both age groups (EA-J and EA-S) the highest percentage of the subjects reported participation in various sports. Lack of correlation between the respondents' ages

**Table 1.** Frequency of undertaking physical recreation by the subjects during a week

Frequency of undertaking physical recreation during a week	Study group							
	EA-J		NA-J		EA-S		NA-S	
	n	%	n	%	n	%	n	%
0	7	9.46	16	16.49	4	6.35	23	18.70
1 – 2	17	22.98	29	29.90	26	41.27	26	21.14
3 – 4	31	41.88	29	29.90	27	42.86	47	38.21
5 – 6	15	20.27	12	12.37	4	6.35	20	16.26
7 times a week ≤	4	5.41	11	11.34	2	3.17	7	5.69
Total:	74	100.00	97	100.00	63	100.00	123	100.00
Independence test:								
Groups:			Chi square:		Cramer's V test:			
EA-J – NA-J			7.24 n.s.		0.21			
EA-S – NA-S			14.41**		0.28			
EA-J – EA-S			9.21 n.s.		0.23			
NA-J – NA-S			9.61*		0.26			

n.s. – no statistical significance; \* statistical significance at  $p \leq 0.05$ ; \*\* statistical significance at  $p \leq 0.01$

**Table 2.** Time spent by subjects on physical recreation during a week

Time (hours) spent on physical recreation during a week	Study group							
	EA-J		NA-J		EA-S		NA-S	
	n	%	n	%	n	%	n	%
0	7	9.46	15	15.46	4	6.35	24	19.52
1 – 2	17	22.97	29	29.90	24	38.10	38	30.89
3 – 4	24	32.44	27	27.84	25	39.68	38	30.89
5 – 6	18	24.32	11	11.44	7	11.11	11	8.94
7 ≤	8	10.81	15	15.46	3	4.76	12	9.76
Total:	74	100.00	97	100.00	63	100.00	123	100.00
Independence test:								
Groups:			Chi square:		Cramer's V test:			
BS-M	–	NT-M	7.15 n.s.		0.21			
BS-S	–	NT-S	7.44 n.s.		0.20			
BS-M	–	BS-S	9.05 n.s.		0.26			
NT-M	–	NT-S	2.46 n.s.		0.11			

n.s. – no statistical significance

**Table 3.** Forms of physical recreation practiced by subjects on the day preceding the survey

Forms of physical recreation practiced by subjects	Study group							
	EA-J		NA-J		EA-S		NA-S	
	n	%	n	%	n	%	n	%
No leisure time	33	44.60	36	37.10	17	26.98	35	28.46
I do not practice recreation	1	1.35	11	11.34	6	9.52	14	11.38
Walking	15	20.27	30	30.93	18	28.57	58	47.15
Sports	24	32.43	7	17.53	21	33.33	10	8.13
Other responses	1	1.35	3	3.09	1	1.59	6	4.88
Total:	74	100.00	97	100.00	63	100.00	123	100.00
Independence test:								
Groups:			Chi square:		Cramer's V test:			
EA-J	–	NA-J	13.57**		0.29			
EA-S	–	NA-S	20.21***		0.33			
EA-J	–	EA-S	7.94 n.s.		0.24			
NA-J	–	NA-S	7.90 n.s.		0.19			

n.s. – no statistical significance; \*\* statistical significance at  $p \leq 0.01$ ; \*\*\* statistical significance at  $p \leq 0.001$ 

and the forms of recreation that they engaged in was observed also in the control group, but here, regardless of their age (NA-J and NA-S), the subjects declared participation in walks more often (Table 3).

The relationship between ex-athletes' current participation in physical recreation and characteristics of their sporting careers was also examined (Table 4). It was found that the proportions of

subjects who, during the examination week, did not participate in physical recreation at all and of those who participated in it seven or more times, were similar in each range of training history length. The proportion of the subjects who exercised 1-4 times a week was the highest among those ex-athletes who had trained for at least seven years. A detailed analysis of the percentage values from Table 4 confirms that the frequency of engagement in

physical recreation in the discussed group of women is directly proportional to the length of their training history ( $p \leq 0.05$ ) (Table 4, p. 1).

In the group of ex-athletes, no significant correlation was found, however, between the frequency of participation in physical recreation and the level of sports mastery (sport class)

achieved earlier while practicing sport at a competition level (Table 4, p. 2).

Also, the length of training history and the formerly achieved sport class were not significantly correlated with the currently chosen forms of participation in sports recreation (Table 5).

**Table 4.** Sports career characteristics versus frequency of ex-athletes participation in physical recreation activities

No.	Sports career characteristics	Frequency of ex-athletes participation in physical recreation activities (times per week)											
		0		1 – 2		3 – 4		5 – 6		$\geq 7$		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
1.	Career duration (years):												
	1 – 6	3	10.71	11	39.29	5	17.86	7	25.00	2	7.41	28	100.00
	7 – 12	5	6.94	15	20.83	40	55.56	8	11.11	4	5.56	72	100.00
	13 – 18	3	8.11	17	45.95	13	35.14	2	5.41	2	5.41	37	100.00
	Chi square (Cramer's V test):	18.78* (0.27)											
2.	Sports class:												
	II i I	7	6.14	39	34.21	49	42.98	13	11.40	6	5.26	114	100.00
	N.C. and I.C.	4	17.39	5	21.74	10	43.48	4	17.39	0	0	23	100.00
	Chi square (Cramer's V test):	5.51 n.s. (0.20)											

N.C. – national champion; I.C. – international champion; n.s. – no statistical significance; \* – statistical significance at  $p \leq 0.05$

**Table 5.** Sports career characteristics versus forms of ex-athletes participation in physical recreation activities

No.	Sports career characteristics	Forms of ex-athletes participation in physical recreation activities											
		No time		I do not practice recreation		Walking		Sports		Other responses		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
1.	Career duration (years):												
	1 – 6	12	48.86	1	3.57	7	25.00	8	28.57	0	0	28	100.00
	7 – 12	23	31.94	4	5.56	16	22.22	27	37.50	2	2.78	72	100.00
	13 – 18	14	37.84	2	5.41	10	27.03	11	29.73	0	0	37	100.00
	Chi square (Cramer's V test):	3.44 n.s. (0.11)											
2.	Sports class:												
	II i I	42	36.84	5	4.39	31	27.19	35	30.70	1	0.88	114	100.00
	N.C. and I.C.	8	34.78	2	8.70	2	8.70	10	43.48	1	4.35	23	100.00
	Chi square (Cramer's V test):	5.92 n.s. (0.21)											

N.C. – national champion; I.C. – international champion; n.s. – no statistical significance

## DISCUSSION

The first major nationwide research into the state of sports activity among Poles was carried out by Charzewski [2]. His study of 25-year-old women revealed that 2-4% of blue collar workers and 11% of white collar workers engaged in some organized forms of recreational sport. In older age groups the proportion of women participating in organized recreational sport decreased: among the 50-year-olds it amounted to 4% for physical workers and 6% for white-collar workers. In the present study, in the group of women aged 18-34, about 33% of ex-athletes and 17% of non-athletes participated in recreational sport (either individual or organized), whereas in the group of women aged 35-51 the proportions were 33% and 8%, respectively.

In their analysis of young women's (21-35 years of age) involvement in recreational sport, Zawadzka and Ferenz [21] showed that this form of recreation was practiced 1-2 times a week by women who had jobs, and 2-3 times a week by those who did not. Recreational sport was practiced by 18% of physical workers, 36% of office workers, and 32% of women who were unemployed. In the authors' view, sport had already become an element of the subjects' lifestyle, as 32% of the respondents reported it as a form of active relaxation. Similar results were found in the present study among 18 to 34-year-old subjects from the control group. A study of women (aged 20-60) employed in the area of physical culture confirmed that 19.2% of them (mostly physical culture teachers) participated in recreational sport on the day preceding the collection of the research material [16].

In every age range, the most popular form of physical recreation among Polish women has been walking [2], which is also revealed in the present research among the non-athlete women, where walks were taken by 32% of the younger and 47.5% of the older subjects (Table 3), as well as in a study of women employed in the area of physical culture (26%) [16]. Also among young women studied by Zawadzka and Ferenz [21] walking was the most widely practiced form of physical recreation – usually several times a week. Ex-athletes, on the other hand – as the present study showed – preferred participation in recreational sport, regardless of their age (Table 3).

If analyzed in terms of the amount of physical stress placed on the body, walking belongs

to the relaxation forms of recreational physical activity, whereas recreational sports should be listed among moderately intensive or intensive ones [14]. In order for physical stress to improve one's health, it must occur with appropriate intensiveness [4]. While walking certainly provides positive mental impressions, it is not a stimulus strong enough for a distinct improvement of the body's efficiency. The high proportions of walking women found in the present study (NA-J 21% and NA-S 48%) and low proportions of those who practice recreational sports (17% and 8%, respectively) (Table 3) indicate that most women in Poland do not exploit their enormous potential to improve their health and life quality, which lies in systematic and appropriately intensive physical exercise.

As far as the first NHP objective is concerned, which projected that by 2005, 30% of adults would have been physically active [8], it might be ascertained that it has not been achieved in the case of subjects from the control group, especially the older ones (only 8% engaged in recreational sports). The observed tendency of women's sporting activity decreasing in subsequent periods of their lives was also shown in earlier research [2, 6, 9]. A similar analysis conducted in a group of men with no sporting history showed that the first objective of NHP was already achieved by respondents aged 18-34, while those in the range of 35-51 years were nearing it (about 20% practiced recreational sports) [18]. A tendency for the proportion of subjects who participate in recreational sport to decrease with age, observed among women and men aged 35-51 who had not practiced competitive sports, was more pronounced in the women's group.

The mentioned NHP objective has been achieved by both the younger and the older ex-athletes, 33% of whom participated in recreational sport on the day preceding the survey. Earlier research concerning male ex-athletes also confirmed that they had achieved the first NHP objective; about 37% of the younger and 31% of the older respondents participated in recreational sport on the day preceding the survey [18].

Out of the studied characteristics of the ex-athletes' sporting careers, only the length of training history influenced their later participation in physical recreation. Analyzing this length against different periods of life, it might be concluded that the athletes with a 7 to 18-year history started their training at school age or in adolescence and conti-

nued it as adults, that is, while working at jobs or studying and after starting families. Systematic physical exercise was, thus, incorporated into their professional and family life, which certainly helped in continuing exercise in a recreational form after their sporting careers were over.

The significant correlation between the frequency of current participation in recreational exercise and the length of earlier training history found in the group of female ex-athletes did not occur in any analogous study conducted in a group of men. And no relationship was observed between the level of sports mastery achieved in the past and current recreational activity in either group [18].

Research results obtained by various authors and the findings of the present study suggest that one's competitive sport experience has a considerable influence on participation in recreational exercise. This influence is confirmed not only by ex-athletes' remarkably higher participation in recreational physical activity (as compared with the control groups), but also by the fact that it is not gender that seems to be the variable differentiating recreational behaviors of the subjects but their former involvement in competitive sport. This thesis is borne out by the strong similarity between the recreational habits of women who have previously practiced sport and the habits of the corresponding group of male ex-athletes. The recreational behaviors of women (especially those aged 35-51) from the control group are in turn also characteristic of the analogous group of men.

These observations, however, require more in-depth statistical analysis and discussion, which, for the limited size of the article, cannot be included in this presentation.

Women's participation in physical recreation depends significantly on former competitive sport experience; ex-athletes as compared with subjects from the control group are characterized by a higher frequency and intensiveness of physical exercise. In the studied groups of ex-athletes, age did not have a significant influence on the frequency of exercise, amount of time devoted to it, or its form. In the control groups, however, older age determined participation in less intensive forms of physical recreation. The factor which significantly affects the frequency of participation in physical recreation among ex-athletes is the length of training history.

The obtained results prove that practicing competitive sports for several years significantly increases chances of women's participation in

recreational sport, even many years after finishing their sporting careers.

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