

# Adaptation of the disabled to work

(Znaczenie aktywności fizycznej w przystosowaniu niepełnosprawnych do fizyczno-mentalnych obciążeń związanych z pracą)

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**Abstract** – The purpose of the research: the purpose was to determine whether the disabled who do sports at least once a week get better score in the Work Ability Index questionnaire than others.

The material and the methods: The research was conducted among 127 disabled people aged between 28 and 49 and 128 able-bodied students and academic staff of two higher education facilities, aged between 29 and 53). All of them were interviewed with reference to a questionnaire based on the Work Ability Index and a survey on physical and sport activity.

The results and conclusions: Thanks to regular training, disabled people are in better physical condition, gain self-confidence and become more active in social and professional terms. The disabled people doing sports scored better on the general work ability scale as well as on the ability scale that pertains to particular requirements than people who are not involved in sports. Physical activity of the disabled can, if only for some of them, mean hopes for “better tomorrow”.

**Key words** - disability, Work Ability Index, survey on physical and sport activity.

**Streszczenie** – Cel badań: celem było ustalenie czy osoby niepełnosprawne uprawiające sport przynajmniej raz w tygodniu uzyskują lepsze wyniki w kwestionariuszu Indeksu Zdolności do Pracy niż pozostali.

Materiał i metody: Badania przeprowadzono w grupie 127 osób niepełnosprawnych w wieku 28 – 49 lat oraz wśród 128 (wiek 29 – 53 lat) pełnosprawnych studentów i kadry dydaktycznej dwóch wyższych uczelni. Wszystkich przepytano techniką wywiadu kwestionariuszowego stosując Indeks Zdolności do Pracy oraz Ankieta dotycząca aktywności fizycznej – sportowej.

Wyniki i wnioski: Dzięki regularnemu treningowi osoby niepełnosprawne osiągają lepszą sprawność fizyczną, nabierają wiary we własne siły, stają się bardziej aktywne społecznie i zawodowo. W grupie osób niepełnosprawnych osoby uprawiające sport uzyskały wyższe wyniki zarówno w skali ogólnej zdolności do pracy jak i w skali zdolności do pracy odniesionej do jej wymogów, niż osoby nie uprawiające sportu. Aktywność fizyczna osób niepełnosprawnych może więc być choć dla części z nich „przepustką do lepszego jutra”.

**Słowa kluczowe** - niepełnosprawni, Indeks Zdolności do Pracy, Ankieta dotycząca aktywności fizycznej – sportowej

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- A. The idea and the planning of the study
- B. Gathering and listing data
- C. The data analysis and interpretation
- D. Writing the article
- E. Critical review of the article
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## I. INTRODUCTION

The most recent full data on the number of the disabled in Poland are included in the National Census of 2002. Findings of it indicate that in 2002, the number of the disabled reached almost 5.5 million. 4.5 million of those held a legal confirmation of their disability. Also, 4.5 million of them were of at least 15 years of age. In 2008, the number of people holding disability certificates in working age was 2.2 million and amounted to 9,3% of the population in working age [1]. It is estimated that, depending on the definition of disability, the percentage of professionally active disabled people may vary from 13 to 30 %. At the same time, only 6% of the people with rare disabilities work. The professional activity of the disabled is largely connected with their education. Lower levels of education more often than not mean jobs with fewer qualifications

required, e.g. agriculture or gardening, whereas the highest positions (managerial staff), specialists but also office jobs are occupied by people with higher education. People holding a Master's degree are most successful in terms of professional activity (with 47% of them working), followed by Bachelor's degree (45%), post-secondary education (41%), technical secondary education (35%). It is worth noticing for the sake of comparison that only 16% of people with no education are professionally active, while for basic vocational education the percentage is 26%. What is more, the place of residence is also of major significance as far as professional activity is concerned. In general terms, the following tendency can be observed: the smaller a town or a village is, the lower professional activity is noted. For instance, the percentage of working inhabitants of villages is 19%, in small towns (up to 10 thousand inhabitants) it is 21%, in larger towns (100-200 thousand) it amounts to 25%, and in cities over 500 thousand inhabitants the rate of the professionally active is 34%. In Warsaw, it exceeds 36% [1,2].

In the course of the recent years, Poland benefited significantly as far as inclusion of the handicapped into normal life and work is concerned. Yet we are still far from reaching European standards. The ultimate success of integrating the disabled into society lies not only in the right perception of their problems on part of the rest of the society, but also effort of the disabled themselves aimed at improving their physical and mental abilities needed in order to work [2]. The fact that studies on the significance of physical activity in establishing work ability of the disabled are seldom undertaken motivated the authors to do their own research. The purpose of it was to determine whether the handicapped who do sports at least once a week score better in the Work Ability Index questionnaire than others.

## II. MATERIALS AND METHODS

### Materials

The study group (SG) was composed of 127 disabled patients aged between 28 and 49. All of them were treated in the Rehabilitation and Holiday Centre in Zebrzydowice run by the Caritas charity organization of the Archdiocese of Kraków. Considering the level of sports activity, the study group was divided into two subgroups:

The SG<sub>1</sub> Group – the handicapped who do sports at least once a week. This subgroup was composed of 57 people (37 men and 20 women) aged 30 to 45. 37 of those cases were those of physical disability, 15 – sensory disability and 5 of other kinds of disability.

The SG<sub>2</sub> Group – the handicapped who do sports less frequently than once a week or no sports at all. This group was

formed by 70 people (27 men and 43 women) aged between 28 and 49. There were 26 physically disabled in this group, 25 patients had sensory disability and 19 suffered from other kinds of disability.

The control group (CG) were 128 people aged 29 to 53. They were randomly selected for the study from the group of able-bodied students (medical rescue and nursing) as well as academic staff of the Collegium Masoviense - College of Health Sciences in Żyrardów and the State School of Higher Vocational Education in Jarosław.

Considering the sport activity of the control group, it was divided into two subgroups:

The CG<sub>1</sub> Group – the able-bodied people who do sports at least once a week. The number of people in this group was 68; 40 men and 28 women, aged between 29 and 46.

The CG<sub>2</sub> Group – the able-bodied people who do sports less frequently than once a week or no sports at all. In this group there were 60 people – 22 men and 38 women, aged 34 to 53.

The study was conducted between January 2010 and January 2011.

### Methods

The study period was January 2010 – January 2011. All of the participants were interviewed using a questionnaire technique. The following tools were employed in the course of the interviews:

1. Work Ability Index (WAI) [3,4],
2. A questionnaire on physical (sport) activity [5]

### Work Ability Index

1. The way the Work Ability Index works is that 15% of the interviewees with the lowest scores are classified into „poor work ability” group and 15% of the interviewees with the highest scores are classified into “excellent work ability” group. The remaining two categories, “moderate” and “good” are determined using median [3,4].

On the basis of one's responses to a series of questions pertaining to both physical and mental work requirements as well as health and physical functionality, one's score is estimated. The score is a number between 7 and 49 that indicates the indication of the interviewee's own opinion on his or her work ability. The score enables the classification of work ability levels and specification of the purposes of required preventive actions [4].

### Statistical analysis

The data selected in the course of the research were ana-

lysed in terms of quantity on the basis of descriptive statistics such as arithmetic mean and standard deviation. All statistical calculations were done in Statistica 8.0 system. The significance of differences between the groups was analysed with significance level  $p < 0,05$ ;  $p < 0,01$ ;  $p < 0,001$  using t-Student and Wilcoxon tests.

### III. RESULTS

The average score on the WAI questionnaire in the study group ( SG) was 36,41 (  $SD \pm 5,09$  ), whereas in the control group (CG) it was 42,38 (  $SD \pm 4,56$  ). The differences in the results obtained have statistically significant features (  $p < 0,001$  ).

The results obtained in the WAI questionnaire for the four groups under research are shown in Table 1.

Table 1. The WAI scores of the groups under research

Research tool	Group	Mean ± SD
WAI	SG <sub>1</sub>	37,72±5,81 <sup>1</sup>
	SG <sub>2</sub>	35,25±4,71 <sup>2</sup>
	CG <sub>1</sub>	44,22±5,13 <sup>3</sup>
	CG <sub>2</sub>	41,57±5,13 <sup>4</sup>

#1# to #2# :  $p < 0,05$ ; #1# to #3# :  $p < 0,001$ ; #1# to #4# :  $p < 0,001$ ;  
 #2# to #3# :  $p < 0,001$ ;  
 #3# to #4# :  $p < 0,01$

Table 1 indicates that the highest scores in the WAI questionnaire were obtained by the members of group CG<sub>1</sub> (the able-bodied who do sports at least once a week). The scores of the members of CG<sub>2</sub> (the able-bodied who do sports less frequently than once a week or no sports at all) were significantly lower. The levels obtained by both groups of the disabled were statistically significantly lower than in both able-bodied groups. What is more, there are statistically significant differences between SG<sub>1</sub> (the handicapped who do sports at least once a week) and SG<sub>2</sub> (the handicapped who do sports less frequently than once a week or no sports at all).

The results of the WAI2 test pertaining to work abilities in relation to the requirements of a particular job are shown in Table 2.

Table 2. The scores of the interviewees at the WAI2 supplementary grade.

Research tool	Group	Mean ±SD
WAI2	SG <sub>1</sub>	8,31±1,09 <sup>1</sup>
	SG <sub>2</sub>	7,59±1,13 <sup>2</sup>
	CG <sub>1</sub>	8,53±1,21 <sup>3</sup>
	CG <sub>2</sub>	8,11±0,93 <sup>4</sup>

#1# to #2# :  $p < 0,001$ ; #2# to #3# :  $p < 0,001$ ; #2# to #4# :  $p < 0,05$ ; #3# to #4# :  $p < 0,05$

The results shown in table 2 indicate that both in SG and CG, statistically significantly higher scores were obtained by the interviewees who do sports as opposed to those physically passive. Considering all the participants of the research, in physical and somatic terms statistically significantly highest scores were obtained in the CG<sub>1</sub> group, and the lowest in the SG<sub>2</sub> group.

The results of the WAI7 test indicating physical resources of the groups under research are shown in Table 3.

Table 3. Scores at the WAI7 supplementary grade

Research tool	Group	Mean ±SD
WAI7	SG <sub>1</sub>	8,97±1,19 <sup>1</sup>
	SG <sub>2</sub>	8,37±1,67 <sup>2</sup>
	CG <sub>1</sub>	9,21±1,41 <sup>3</sup>
	CG <sub>2</sub>	8,45±1,58 <sup>4</sup>

#1# to #2# :  $p < 0,05$ ; #2# to #3# :  $p < 0,01$ ; #3# to #4# :  $p < 0,01$

The data included in table 3 indicate that in the supplementary grade WAI7, which pertains to physical resources, the best scores were obtained in groups CG<sub>1</sub> and SG<sub>1</sub>, while in SG<sub>2</sub> and CG<sub>2</sub> the scores were slightly lower. In the analysis of the WAI7 scores, in both SG and CG the people who were active-

ly involved in sports obtained statistically significantly higher results than the passive ones.

#### IV. DISCUSSION

The studies of some authors indicate that doing sports is a positive impact on physically disabled people's social and professional activity. Among the paraplegics interviewed by Pačhalski *et al.*, those who did sports had better income than those who did not [6]. At the same time 57% of the interviewed archers claimed that training enhances the effectiveness of their work [7]. Nevertheless, not all the research results are that unambiguous. For instance, the research conducted by Plinta and Sobolewska only 10% of the people doing sports considered their training to be helpful in getting a job while in the group who did not do any sport such opinion was held by as many as 50% [8].

Despite the fact that our research studies somewhat different issues, the results can be compared to the aforementioned findings.

We have managed to establish that the highest scores in the WAI questionnaire were obtained by the able-bodied who did sports at least once a week. The scores of the able bodies who were involved in no physical activity were lower in a statistically significant manner. The statistically significantly lower scores of the handicapped can be considered characteristic. What is more, there are statistically significant differences within this group, namely between SG<sub>1</sub> (the handicapped who do sports at least once a week) and SG<sub>2</sub> (the handicapped who do sports less frequently than once a week or no sports at all). Considering the ability to work in relation to the requirements set by the particular job, reflected by the score of the supplementary questionnaire WAI2 one can observe that in this part of the study doing sports regularly was found to be beneficial for both disabled and able-bodied people as compared to the physically passive ones. Moreover, physical activity developed mental resources of the interviewees. That was the conclusion based on the findings of the supplementary grade WAI7, according to which the interviewees inclined to sport obtained statistically significantly higher results than those who did not undertake physical activity. In terms of physical and somatic implications, the highest (in a statistically significant manner) results as compared to the whole group of the interviewees were obtained by group CG<sub>1</sub>, while SG<sub>2</sub> was the group with the lowest scores.

Our research, whose results were a confirmation of Stanisławiak's study [9] to name one, indicates that thanks to regular training the disabled can work out their physical strength and agility, gain self-confidence and become more active in social and professional terms. The group of the disa-

bled who do sports scored better in the general Work Ability Index as well as in the grade which pertains to particular requirements of a job than those who do no sports. For some of them, physical activity may mean a hope for better tomorrow.

#### V. CONCLUSIONS

1. Thanks to regular training, disabled people improve their physical condition, gain self-confidence and become more active socially and professionally. The disabled people doing sports scored better on the general work ability scale as well as on the ability scale that pertains to particular requirements than people who are not involved in sports.
2. Physical activity of the disabled may mean a hope for better tomorrow for some of them.

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