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**DOES PRACTICING SPORT PREDISPOSE
TO WORK AS A MANAGER?**

**CZY UPRAWIANIE SPORTU PREDYSPONUJE
DO PEŁNIENIA FUNKCJI KIEROWNICZYCH?**

Abstract: In the literature on the subject, there are presented at least several ways that physical activity can positively influence professional work. If one can develop leadership skills and improve teamwork by practicing sport, people who practice sport should be predisposed to work as managers. The purpose of the article is to determine whether people practicing sport in Poland more often work as managers. The research involved the use of the Social Diagnosis integrated database. As a result of the conducted analyses, it can be concluded that people practicing sport perform managerial functions more often than people not practicing sport.

Keywords: management, managerial functions, leadership skills, sport, physical activity

Streszczenie: W literaturze przedmiotu wymienia się co najmniej kilka sposobów pozytywnego oddziaływania aktywności fizycznej na pracę zawodową. Jeśli więc poprzez uprawianie sportu rzeczywiście można rozwinąć umiejętności przywódcze i poprawić swoją pracę w zespole, to osoby uprawiające sport powinny być predysponowane do pełnienia funkcji kierowniczych. Celem niniejszego artykułu jest określenie, czy uprawianie sportu w Polsce jest czynnikiem, który łączy się z częstszym pełnieniem funkcji kierowniczych. W badaniu wykorzystano zintegrowaną bazę danych *Diagnozy Społecznej*. W wyniku przeprowadzonych analiz można stwierdzić, że osoby uprawiające sport częściej niż osoby nieuprawiające sportu zarządzają w pracy zawodowej.

Słowa kluczowe: zarządzanie, funkcje kierownicze, umiejętności przywódcze, sport, aktywność fizyczna

Introduction

Relatively few articles from the economic literature concern the impact of doing sports at school on future achievements in the labor market. This is particularly true of Polish scientific papers, because this topic has not yet aroused sufficient interest among Polish scientists. It may seem that any time-limiting activities that can be spent on schoolwork do not serve young people well, but this is not the case because sport has a positive impact on school performance¹. Moreover, the results of some studies indicate that playing sports at a young age promotes later higher incomes^{2,3}. J.E. Long and S.B. Caudill showed that people practicing sports later earn more⁴. In another study B.T. Ewing confirmed the above relationship for former high school athletes. In addition, B.T. Ewing⁵ has shown that by playing sports you can increase human capital, but also that it is a signal that characterizes people who do not give up easily. This is due to the fact that people involved in sport value leisure time less and their competitive, hard-working nature makes them more efficient employees. Various authors indicate that practicing sport builds character, promotes discipline and teamwork, and promotes other qualities valued on the labor market^{6,7}. S.B. Caudill and J.E. Long in

¹ C. Pfeifer, T. Cornelissen, *The impact of participation in sports on educational attainment-New evidence from Germany*, "Economics of Education Review" 2010, 29(1), 94-103.

² J.M. Barron, B.T. Ewing, G.R. Waddell, *The effects of high school athletic participation on education and labor market outcomes*, "Review of Economics and Statistics" 2000, 82(August), 409-421.

³ G. Kavetsos, *The impact of physical activity on employment*, "Journal of Socio-Economics" 2011, 40(6), 775-779.

⁴ J.E. Long, S.B. Caudill, *The Impact of Participation in Intercollegiate Athletics on Income and Graduation*, "The Review of Economics and Statistics" 1991, 73(3), 525-531.

⁵ B.T. Ewing, *High school athletics and the wages of black males*, "Review of Black Political Economy" 1995, 24, 65-78.

⁶ R. Bailey, C. Hillman, S. Arent and A. Petitpas, *Physical activity: an underestimated investment in human capital?*, "Journal of Physical Activity & Health" 2013, 10, 289-308.

⁷ B.T. Ewing, *Athletes and work*, "Economics Letters" 1998, 59 (November 1997), 113-117.

2010 published an eloquent article in *Empirical Economics* entitled „Do former athletes make better managers?“⁸. The results of their research prove that playing sports in their youth fosters being a better manager later. If by playing sports you can develop leadership skills, improve teamwork, discipline and perseverance, then it can be presumed that athletes are predisposed to competitions in which you are responsible for supervising and coordinating others – that is, for managerial positions. The purpose of the article is to determine whether playing sports in Poland is a factor that is associated with more frequent management functions.

Physical activity can affect your work in at least several different ways. The first of these is the assumption, which has already been mentioned earlier, that by practicing sport you can acquire very useful competences on the labor market, such as communication skills, teamwork skills, ability to organize work and pursuit of goals⁹. The second way is to build social capital¹⁰. By playing sports together, you can make useful contacts in your work. Physical activity can also affect professional success through signaling. It turns out that candidates who signaled sport skills were more frequently contacted by their future employers¹¹. In addition, physical activity has a positive effect on mental health, helps cope with stress and anxiety, and relieves depression¹². It turns out that even brief physical activity during work improves efficiency and mood¹³. Also, one should not forget about the positive relationship between sport and health. By practicing sport you can effectively reduce the incidence of a significant number of diseases. Also, one should not forget about the positive relationship between sport and health. By practicing sport, you can effectively reduce the incidence of a significant number of diseases¹⁴. To sum up, it should be stated that there are many positive impacts of practicing sport on professional work. Therefore, it was decided to check whether physical activity also predisposes to managerial functions.

⁸ S.B. Caudill, J.E. Long, *Do former athletes make better managers? Evidence from a partially adaptive grouped-data regression model*, "Empirical Economics" 2010, 39(1), 275-290.

⁹ R. Bailey et al., *Physical activity...*

¹⁰ J. Skinner, D.H. Zakus i J. Cowell, *Development through Sport: Building Social Capital in Disadvantaged Communities*, "Sport Management Review" 2008, 11(3), 253-275.

¹¹ D.O. Rooth, *Work out or out of work - The labor market return to physical fitness and leisure sports activities*, "Labour Economics" 2011, 18(3), 399-409.

¹² J. Swan, P. Hyland, *A Review of the Beneficial Mental Health Effects of Exercise and Recommendations for Future Research*, "Psychology & Society" 2012, 5(1), 1-15.

¹³ C. Thøgersen-Ntoumani, E.A. Loughren, F.E. Kinnafick, I.M. Taylor, J.L. Duda, K.R. Fox, *Changes in work affect in response to lunchtime walking in previously physically inactive employees: A randomized trial*, "Scandinavian Journal of Medicine and Science in Sports" 2015, 25(6), 778-787.

¹⁴ WHO, 2010, *Global recommendations on physical activity for health*, http://apps.who.int/iris/bitstream/am/10665/44399/1/9789241599979_eng.pdf.

1. The pursuit of sports and managerial functions

The research sample in this study includes *the Social Diagnosis*¹⁵ respondents. A question about sport was added to the questionnaire used as part of *the Social Diagnosis* in 2009, and a question about performing a managerial role in 2011. Therefore, the time range of the data used is 2009-2015. During this period, four measurements were carried out in 2009, 2011, 2013 and 2015. In 2009 24,243 individual respondents took part in *the Social Diagnosis* study; 26,453 in 2011; 26,308 in 2013, and 24,324 in 2015. In this study, the dependent variable is performing a managerial function. If the respondent replied that he/she fulfills this function, he/she was asked about the number of subordinate employees. In turn, whether the person is physically active was determined on the basis of the answer to the question: „Do you actively do any of the forms of sport or physical exercise?”. Due to the large number of respondents, professional athletes could also take part in the survey, but the vast majority are people who practice amateur sport – in their free time. At the outset, it was decided to check whether people physically active more often have managerial functions than people physically inactive. The detailed data is presented in Table 1.

Table 1. Percentage of persons working as managers in 2011-2015, divided into physically active and inactive people

Tabela 1. Odsetek osób pełniących funkcje kierownicze w latach 2011-2015, z podziałem na osoby aktywne i nieaktywne fizycznie

Year	Physically active	Physically inactive
2011	15,3	10,0
2013	14,0	8,2
2015	14,0	8,9

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

In each analyzed period, people physically active more often held managerial functions. The average difference was more than five percentage points in favor of the physically active. The differences in the distribution of managerial functions turned out to be statistically significant, as evidenced by the results of the Pearson chi-square test presented in Table 2.

¹⁵ J. Czapiński, T. Panek, *Diagnoza Społeczna 2015*, www.diagnoza.com.

Table 2. Results of Pearson chi-square test verifying the differences in working as managers among physically active and inactive people

Tabela 2. Wyniki testu chi-kwadrat Pearsona sprawdzającego różnice w pełnieniu funkcji kierowniczych przez osoby aktywne i nieaktywne fizycznie

Year	Pearson chi-square test	Degrees of freedom	Asymptotic significance (two-sided)	Effect size φ
2011	74,70	1	0,000	0,079
2013	103,85	1	0,000	0,092
2015	63,32	1	0,000	0,080

Source: based on the integrated Social Diagnosis database, www.diagnoza.com [9.05.2017].

Physically active people may have more frequent management roles for several reasons. The first of these is of course the recognition that by practicing sport the individual develops social competences that are useful in managing others. Therefore, having such competencies would predispose a person to perform managerial functions. The second possibility results from the fact that holding a managerial position is usually associated with higher earnings, and earnings are one of the determinants of practicing sport because people with higher income usually practice it more often¹⁶. In order to better explain this relationship, it was also decided to check whether practicing sport at a young age is associated with more frequent management functions in a later career. The research results are presented later in the article.

As mentioned before, the question about the number of subordinate employees supplemented the question about holding a managerial position. Table 3 below presents the average number of people managed by physically active and inactive managers. It is easy to see that people practicing sport in each analyzed period managed on average a larger number of people. It is worth adding that managing a large number of employees is usually combined with work in larger, reputable enterprises.

Table 3. Average number of employees managed by physically active and inactive managers in 2011-2015

Tabela 3. Średnia liczba pracowników, którymi zarządzali aktywni i nieaktywni fizycznie kierownicy w latach 2011-2015

Year	Physically active	Physically inactive
2011	17,87	14,40
2013	17,07	14,94
2015	17,58	16,35

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

¹⁶ GUS, 2013, *Uczestnictwo Polaków w sporcie i rekreacji ruchowej w 2012*, https://stat.gov.pl/cps/rde/xbcr/gus/KTS_uczestnictwo_polakow_w_sporcie_2012.pdf.

The differences in the number of subordinate employees turned out to be statistically significant only in 2011. Table 4 presents the detailed results of the Mann-Whitney U test for all the periods considered.

Table 4. Results of the Mann-Whitney U test verifying the differences in the number of employees reporting to physically active and inactive managers

Tabela 4. Wyniki testu U Manna-Whitneya sprawdzającego różnice w liczbie pracowników podległych kierownikom aktywnym i nieaktywnym fizycznie

Year	U Mann-Whitney test	Standardized Z test	Asymptotic significance (two-sided)	Effect size η^2
2011	195 139,00	-3,03	0,002	0,007
2013	187 015,00	-0,74	0,459	-
2015	156 467,50	-1,05	0,295	-

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

This study has shown that people practicing sport more often than non-practitioners manage staff at work. Therefore, it confirms the assumption that physical activity is connected with performing managerial functions. However, in the case of the number of subordinate employees, the situation is not clear. The average values in each considered period indicated that physically active people manage on average a larger number of employees. This could suggest that physically active people have a managerial role in larger companies, where they are usually responsible for a larger team. Statistical tests however, showed that the differences were significant only in 2011.

2. Physical activity in high school and college and subsequent performance of a managerial role

The analyzes presented earlier showed that playing sports favors holding a managerial position. Therefore, considering the beginning of the professional career of young people it was planned to check whether combining education with sport predisposes to such types of positions after leaving school. In order to answer these types of questions, it is worth reaching into the studies that track the lives of people. Panel data is valuable, which rely on several measurements of the same people, as is the case in *the Social Diagnosis*. Thanks to this type of research, it is possible to check whether people currently working in managerial positions practiced sport in their youth. If so, it can be concluded that it was the practice of sport that contributed to their professional achievements.

In order to check the hypothesis that playing sports at a young age predisposes to performing managerial functions, high school and college students were identified in *the Social Diagnosis* database. In 2009 2,241 such people took part in *the Social Diagnosis*. It was also checked which of these people combined education with playing sports. In 2009 62.9% of students in high schools and 54.1% of college students declared that they played sports. The next step was to consider the occupational situation of these people in 2013-2015.

It was decided not to analyze the data from 2011, because too many people continued their education during this period. So it was possible to check whether the effects of sports manifested after 4 or 6 years. Table 5 presents the results of research checking what percentage of physically active and inactive high school students or college students from 2009 held managerial positions in 2013-2015.

Table 5. Percentage of persons working as managers in 2013 and 2015 among active and physically inactive high school or college students from 2009

Tabela 5. Odsetek osób pełniących funkcje kierownicze w roku 2013 i 2015 wśród aktywnych i nieaktywnych fizycznie licealistów bądź studentów z 2009 roku

Year	Physically active	Physically inactive
2013	6,1	4,6
2015	12,2	10,1

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

The average values show that people who practiced sport in high school or college in 2009 later held managerial positions more often. It is also worth noting how the percentage of managers increased – it doubled in two years. This is probably due to the promotion of young people to senior positions. Despite the visible differences in the percentage of persons performing managerial functions among active and physically inactive high school students and university students from 2009, it cannot be said that they are statistically significant. This is indicated by the results of the Pearson chi-square test presented in Table 6.

Table 6. Pearson chi-square test results verifying the differences in working as managers among active and physically inactive high school or college students from 2009

Tabela 6. Wyniki testu chi-kwadrat Pearsona sprawdzającego różnice w pełnieniu funkcji kierowniczych przez aktywnych i nieaktywnych fizycznie licealistów bądź studentów z 2009 roku

Year	Pearson chi-square test	Degrees of freedom	Asymptotic significance (two-sided)
2013	0,30	1	0,583
2015	0,17	1	0,677

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

Next, it was checked how many people former high school and college students managed. It is surprising that people physically inactive in high school or college in 2009 managed on average about twice as many employees in 2013-2015. Detailed research results are presented in Table 7.

Table 7. Average number of employees managed by managers in 2011-2015, among active and physically inactive high school or college students from 2009

Tabela 7. Średnia liczba pracowników, którymi zarządzali kierownicy w latach 2011-2015, spośród aktywnych i nieaktywnych fizycznie licealistów bądź studentów z 2009 roku

Year	Physically active	Physically inactive
2013	7,1	14,3
2015	7,7	14,9

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

The difference in the number of subordinate employees was checked using the Mann-Whitney U test. The test results are shown in Table 8. The obtained results indicate that also in the case of the number of subordinate employees, one cannot speak of statistically significant differences between physically active and inactive people who were in high school or college in 2009.

Table 8. The results of the Mann-Whitney U test verifying the differences in the number of employees reporting to physically active and inactive managers who were in high school or college in 2009
 Tabela 8. Wyniki testu U Manna-Whitneya sprawdzającego różnice w liczbie pracowników podległych kierownikom aktywnym i nieaktywnym fizycznie, którzy w 2009 roku byli w liceum bądź na studiach

Year	Mann-Whitney U test	Standardized Z test	Asymptotic significance (two-sided)
2013	17,00	-0,57	0,566
2015	32,00	-0,72	0,471

Source: based on the integrated *Social Diagnosis* database, www.diagnoza.com [9.05.2017].

In the course of the research procedure, the assumption that physical activity in high school and college was a factor conducive to the exercise of managerial functions was not confirmed. Perhaps this is due to the small number of compared groups, because due to the nature of the study, they significantly decreased. As a result of the long duration of the *Social Diagnosis* project, some units dropped in subsequent rounds, mainly due to refusal to participate in the study¹⁷. There were also changes in the place of residence and therefore loss of contact. The reason may also be that the positive effects of physical activity can only be fully observed after a long time. In this study, however, the observation period could not be extended beyond 2009-2015. Therefore, it should be stated that despite some differences between the groups under consideration it cannot be said that practicing sport in youth predisposes to later performing managerial functions.

Summary

Practicing sports affects work in at least several ways. Various studies have shown that by practicing sport, one can acquire useful competences on the labor market, such as communication skills, teamwork skills, ability to organize work and striving to achieve goals¹⁸. Some authors point out that sport is also a way to build social capital¹⁹. It is based on the fact that by playing sports together one can make contacts useful at work. In addition, sport has a positive effect on physical and mental health²⁰, helps cope with stress and anxiety, and relieves depression²¹. So it seems that if sport

¹⁷ J. Czapieński, T. Panek, *Diagnoza...*

¹⁸ R. Bailey et al., *Physical activity...*

¹⁹ J. Skinner, D.H. Zakus, J. Cowell, *Development through Sport: Building Social Capital in Disadvantaged Communities*, "Sport Management Review" 2008, 11(3), 253-275.

²⁰ WHO, 2010, *Global recommendations on physical activity for health*, http://apps.who.int/iris/bitstream/10665/44399/1/9789241599979_eng.pdf.

²¹ J. Swan, P. Hyland, *A Review of the Beneficial Mental Health Effects of Exercise and Recommendations for Future Research*, "Psychology & Society" 2012, 5(1), 1-15.

allows for developing leadership skills, practicing it should predispose to leadership positions. The purpose of the article was to check whether playing sports in Poland is a factor that is associated with more frequent management functions.

This study has shown that people practicing sport more often than non-practitioners manage at work. Therefore, it confirms the assumption that playing sports is conducive to performing managerial functions. However, in the case of the number of subordinate employees, the situation is not clear. The average values in each considered period indicated that physically active people manage on average a larger number of employees however, statistical tests showed significance only in 2011.

The research did not confirm the assumption that physical activity in high school and college is a factor conducive to fulfilling managerial functions in the later professional career. Perhaps this is due to the small number of compared groups, because due to the nature of the study they significantly decreased. The reason may also be that the positive effects of physical activity can only be fully observed after a long time. In this study however, the observation period could not be extended beyond 2009-2015. Therefore, it should be stated that despite some differences between the groups under consideration, it cannot be said that practicing sport in youth predisposes to later performing managerial functions. In subsequent studies it would be necessary to increase the research group and extend the observation period.

Research results indicating a positive relationship between physical activity and performing managerial functions may contribute to the promotion of practicing sport in Polish society. This is important because Poland is not a sporting country compared to the European Union²². In addition, a small percentage of Polish men and women meet the health requirements for a minimum dimension of physical activity created by WHO²³. The promotion of physical activity should be particularly important among young people, because about 40% of students in high schools do not participate in physical education classes²⁴. This is due to the fact that in Poland the percentage of children with abnormal body weight is growing at the most rapid pace in Europe²⁵. Therefore, it is important to properly promote information on the positive impact of physical activity on human life.

²² EU, 2014, *Sport and physical activity. Special Eurobarometer 412*, <https://doi.org/10.2766/73002>.

²³ Ministry of Sport and Tourism, 2015, *Badanie poiomu aktywności fizycznej społeczeństwa w 2015*, <https://www.gov.pl/documents/292437/436728/Analiza+wyników++2015+r..pdf/ed6f73f1-efd7-06ed-4308-d6b6714ee068>.

²⁴ NIK, 2013, *Wychowanie fizyczne i sport w szkołach publicznych i niepublicznych*, <https://www.nik.gov.pl/plik/id,5651,vp,7325.pdf>.

²⁵ NIK, 2017, *NIK o zdrowym żywieniu w szkołach - Najwyższa Izba Kontroli*, <https://www.nik.gov.pl/aktualnosci/nik-o-zdrowym-zywieniu-w-szkolach.html>.

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