Physical activity of children and adolescents with intellectual disabilities – a public health problem

Aktywność fizyczna dzieci i młodzieży niepełnosprawnej intelektualnie – problem zdrowia publicznego

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Najnowsze wyniki badań dotyczących aktywności fizycznej dzieci i młodzieży wskazują na nieustannie obniżający się jej poziom, co może prowadzić do niepożądanych skutków zdrowotnych, takich jak otyłość, nadciśnienie tętnicze czy choroby układu krążenia. Tendencje spadkowe w zakresie czasu przeznaczonego na aktywność ruchową zauważyć można zarówno w grupie osób niepełnosprawnych intelektualnie, jak i w grupach kontrolnych osób dorosłych, dzieci i młodzieży w intelektualnej normie. W przypadku osób z różnymi postaciami upośledzenia umysłowego, u których aktywność fizyczna mogłaby łagodzić skutki patologii rozwoju i kompensować defekty rozwojowe, brak ruchu jest szczególnie niebezpieczny. Celem niniejszej pracy jest przedstawienie związku pomiędzy aktywnością fizyczną a niepełnosprawnością intelektualną w populacji dzieci i młodzieży do lat 18. Analiza czynników ograniczających, a nawet wykluczających aktywność fizyczną w tejże grupie osób oraz zebranie i omówienie danych na temat aktywności fizycznej będącej elementem terapeutycznym stanowiły podstawowy cel pracy.

Słowa kluczowe: *aktywność fizyczna, dzieci, młodzież, niepełnosprawność intelektualna*

Recent research on physical activity of children and adolescents suggests its constantly decreasing level, which can lead to adverse health outcomes such as obesity, hypertension and cardiovascular diseases. The downward trend in the time devoted to physical activity can be observed in the group of people with intellectual disabilities, as well as in the control groups of adults, children and young people in the intellectual standard. In the case of people with various forms of mental retardation, in whom physical activity could mitigate the effects of developmental pathology and compensate for developmental defects, the lack of exercise is particularly dangerous. The purpose of this paper is to present the relationship between physical activity and intellectual disability in a population of children and young people up to 18 years of age. The analysis of the factors that limit or even exclude physical activity in that group of people as well as collecting and discussing data on physical activity as a therapeutic element was the principal aim of the study.

Key words: *physical activity, children, adolescents, intellectual disability*

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Introduction

Physical activity, which helps to maintain proper health condition of the body, affects the well-being and helps to maintain proper weight and healthy outward appearance, belongs nowadays to the common topics often discussed in the media, though not always equally understood and interpreted. It is well known that avoiding stimulants in combination with a properly balanced diet and regular physical activity helps to maintain satisfactory health condition, proper body mass and normative blood pressure. The issue of physical activity analyzed in the context of disability takes on another dimension, as there is a number of overlapping factors which are on the one hand limiting, blocking or even excluding physical activity, on the other hand, however, treating any mobility (small and precise motor skills) and movement as a form of therapy or disability compensation. Consequently, not only the physical disability, but also the intellectual one can affect physical activity and its intensity. Coupled disability is therefore a special case, which, depending on the type of overlapping disability, should be considered individually.

Despite the strong public interest in active lifestyle, proper diet and health promotion, the research conducted by health-oriented organizations indicates

that the actual levels of physical activity of children, adolescents and adults are constantly decreasing [1]. A number of factors can be the reason, ranging from the technical facilities eliminating the need for physical activity and enabling stationary work mode, up to poor eating habits leading to overweight and obesity. Disabled children and adolescents live in the same conditions; in this particular group of people, however, their physical activity is additionally limited by various forms of disabilities and their effects [2, 3].

Motor and physical development of children and adolescents with intellectual disabilities

In the group of children and adolescent with intellectual disabilities many clinical types of mental retardation can be distinguished. The specific types of intellectual disabilities designate specific educational, rehabilitation and movement needs as both physical and motor development of children with mental retardation is often delayed when compared with their peers in the intellectual standard. Since the intellectual development of children with mental retardation is disturbed, physical activity could theoretically be, in many cases, a compensation in some areas of development, assuming that this activity would be undertaken regularly and often [4-6].

Disorder of motor development of people with intellectual disability is manifested mainly in the lack of physical handling fitness and precision of movements. As compared with their peers in the intellectual standard, these children achieve significantly worse results in manual tasks or precise motor activity, not only due to the lack of eye-hand coordination, but also because of the lack of patience and attention, having its origin in the intellectual and mental disorders [7].

Hartman et al. conducted a study in a group of 97 children aged between 7 and 12 years. In the examined group the intelligence quotient (IQ) of 61children (33 boys and 28 girls) was within the range 71-79, i.e. on the borderline of mental retardation. IQ of 36 other children (24 boys and 12 girls) was within the range 54-70, and hence they were assigned the degree of mild mental retardation. The researchers compared the motor skills of children in this group with a control group of children in the intellectual standard. It turned out that the motor tasks results of children with lower IQ, defined as mentally disabled, were much lower, despite the fact that they performed the motor test much longer. The study proved ipso facto that mental retardation conditions not only the development of the intellect, but also the development of motor skills [8].

Both physical fitness and the ability to manipulate objects are processes resulting from the degree of physiological and psychological maturity of the child. Intellectual retardation of children is often accompanied by a delayed or disturbed physical development. Physical development disorder is often one of the reasons for the lack of motion, which in turn can lead to a series of somatic disorders, such as overweight, obesity or cardiovascular diseases [9].

The relationship between intellectual disability and physical disability

Intellectual disability should not be considered as a conventional form of deviation from the norm, because varied etiology and phenomenology, as well as the biological, psychological and social determinants can be its roots. Although the history of research on the physical fitness of people with intellectual disabilities dates back to previous decades, the results are very different. They mostly consider physical fitness of people with mental retardation as less efficient in comparison with those in the intellectual standard. The diversity of the study results is primarily a reflection of multiple types of disability [10].

An attempt to generalize the relationship between intellectual and physical disabilities results ultimately in the statement that people with mental disabilities perform physical activities more rarely and are less willing to do it in comparison with their peers in the intellectual standard. A confirmation for this regularity are the studies proving that people with intellectual disabilities present lower levels of physical activity and higher than average rates of chronic diseases. One of the reasons may be the lack of understanding of the need of physical activity, which could have the pro-health effect, prevent diseases or minimize their symptoms. In a study conducted by Boddam et al. 42 people with mental retardation were examined. Both demonstrated willingness for physical activity, as well as the relationship between moderate and vigorous activity, and body mass index (BMI) readings were studied parallel. Increased motivation and willingness to take up physical activity correlated significantly with a model indicator of BMI, which demonstrates the reasonableness and necessity for constant health promotion and encouraging to physical activity in the population of people with mental retardation [11, 12].

In 2011 Golubovic et al. conducted a study designed to analyze the performance of physical exercise program by children in the intellectual standard and by ones with intellectual disabilities. 42 children with mental retardation and 45 typically developing children were examined. Both the examined groups were evaluated using the Eurofit test. The results were analyzed in terms of participation in the exercise program and the level of intellectual

functioning. The children with lowered intellectual norms have gained significantly lower performance effects on tests as compared with the results of their properly developing peers. The study also indicated a close relationship between the degree of intellectual disability and physical fitness [13].

Factors influencing physical activity

The basic physical activity is undoubtedly spontaneous, natural and impulsive, however movement understood as purposeful and deliberate with a purpose of maintaining a proper body mass and physical condition requires a specific will declaration combined with the capabilities and skills of an individual. Thus, the factors influencing physical activity include those that restrict or even totally exclude physical activity and those that promote such activity, recommend it, and even treat physical activity as a basic therapeutic element [4].

Factors limiting physical activity

Factors limiting physical activity are additionally enhanced by an individual approach to training and desire to undertake physical activity. The motivation for the movement of people with disabilities is often insufficient due to the lack of awareness of the benefits of physical activity on the one hand and, on the other hand, people with intellectual disabilities, mostly of mild and moderate degrees, consider themselves as inadequate in motor attempts, and consequently think that the development and improvement of their current physical efficiency is pointless. Therefore, from the psychological perspective it is extremely important to evaluate the level of physical fitness oriented towards individual health more by participating in physical activity and willingness rather than by the current level of the individual motor skills [4-6].

The total lack of or insufficient quantity and wrong quality of physical activity among children and adolescents with intellectual disabilities (often additionally coupled) can also result from causes completely independent of the individual's will and motivation, but rather connected with physical disabilities.

Physical disability limiting physical activity

People with intellectual disabilities often have also other developmental disorders, among which there is often a physical disability of varying degrees of severity. These types of coupling disability mean that a disabled person constantly encounters new obstacles in the development and limits in the achievement of both physical and mental health.

Obesity excluding physical activity

The relationship between inactivity and excess body mass may be seen as element of the vicious circle: obesity can often eliminate both the willingness and the possibility to move, while the lack of that physical activity causes and intensifies obesity.

Tests performed in the United States on more than 43 thousand of children aged between 10 and 17 years have shown a close relationship between obesity and accompanying diseases and health status. Body mass of the children was correlated with the 21 indicators of general health, with psychosocial functioning, with specified disorders and with socio-demographic conditions. In the analyzed group, 15% of children were overweight (BMI between 85 and <95th percentile), and 16% were obese (BMI ⩾95th percentile). Both groups of children, together constituting 31% of the examined population, were compared with children with normal body mass index, who presented a much better health status. Children who were overweight or obese not only had much lower rate of physical activity, but also higher level of internalization problems, school absences, more often repeated the class, showed hyperactivity, behavioral problems, depression, learning disabilities, mental and physical retardation. The occurrence of bronchial asthma, headaches and many other health complaints were pronounced more often among these children, and therefore they presented a lower level of psychosocial functioning and general health status, and a higher level of health disorders [14].

A group of 1224 American children aged 8-18 years was tested in another online analysis. This study confirmed above data and showed that one third of the population was overweight or obese. The authors of these studies emphasize that the understanding and noticing of the problem of overweight and obesity by children is the starting point for therapy, which should be based on the awareness of the problem, and then on the adjustment of nutrition and physical activity. In the analyzed group 27% of the children thought they were overweight, while a large majority, 91.1% declared that they did not want to be overweight, because it might result in health and social problems. The majority of children (93.1%) also agreed with the argument that if someone their age was overweight, he or she will probably be overweight also in adulthood. As many as 90.2% of the respondents believed that an obese person was exposed to such diseases as diabetes mellitus or heart disease, 84.5% stated that an obese person could not enjoy sports, and 87.8% declared that an obese person would be ridiculed at school. As a cause of overweight and obesity the majority of the tested group of children mentioned inappropriate diet, not focusing on the lack of physical activity. The

quoted data indicate that the investigated children showed a good understanding of issues relating to appropriate body mass, overweight, obesity, diet, physical activity and the related socio-behavioral factors. This is essential in planning the treatment. Unfortunately, such a high level of awareness is not possible for children with mental and intellectual development disorders, which is a serious barrier in the campaign against obesity and minimising its consequences [15].

Physical activity as a therapeutic factor

Physical activity is not only a fundamental human psychomotor development stimulator, but also a determinant of physical fitness, healthy lifestyle factor and indicator of the proper functioning of the body. Physical activity may also prevent certain diseases, particularly cardiovascular diseases, and for children and adolescents with intellectual disabilities, it may support many therapies and increase intellectual and mental capacity. With regard to the oligophrenopedagogy, physical activity should be seen as an educational process [16].

Lack of physical activity as a social problem

A social problem, and hence a negative phenomenon for the group, evaluated as undesirable, dangerous and necessary to eliminate, is most often a barrier to the effective functioning of the community. That problem can be evaluated in many aspects, which include the number of people affected by the specific problem and the number of people involved in the overcoming of that problem, the type and nature of the problem, its intensity, prevalence and duration. Could the problem of limiting physical activity, and in many cases the total lack of it, be described as a public health problem? We observe a decreasing trend in the physical activity analysis among the whole population. More and more convenient sedentary lifestyle, at work and in free time, highly stationary and remote-controlled functioning and a low level of daily energy expenditure, make insufficient physical activity one of the major threats to the health of the twenty-first century. Childhood and adolescence, in which physical activity is especially important, recommended as necessary for the proper development, have special significance here, as it is in adolescence that young people should develop proper nutritional habits and the awareness that advanced techniques increasing the quality of life can also be the enemy of our health. Although physical activity is considered to be the basic stimulant of psychosomatic development, the prevalence of physical inactivity is a risk to the health of many societies in the world. Active lifestyle combined with proper diet can help to prevent many chronic diseases, including cardiovascular diseases, while investing in sports, promoting healthy lifestyle, various programs promoting physical activity and prevention based on increasing awareness – is the best way to reduce expenses caused by the effects of lack of physical activity.

The problem of lack of physical activity is often rooted in the family. Passive and sometimes even negative attitude of parents to physical activity is often taken over by children, who, despite the natural enthusiasm for activity in their young age, let go off it by the lack of appropriate patterns.

A passive lifestyle is associated with many health problems, such as obesity, diabetes mellitus, hypertension, joint damage and chronic fatigue. The lack of exercise can be defined as a significant social problem, because it is very common and applies not only to obese or physically disabled people, but also to those with proper body mass [17-19].

Summary

Physical activity is an important component of the physical and social development. It is especially significant for people with intellectual disabilities. Physical activity, even though sometimes disturbed by the associated physical disability, obesity, lack of proper motivation and willingness to motion or other factors, is especially desirable, as it helps to maintain the overall health of the body, has a positive effect on self-esteem and well-being, helps to maintain proper body mass and healthy appearance, and can be a therapeutic and compensating factor.

According to the cited results of the studies, the physical activity level of children and adolescents both in the intellectual standard and with intellectual disabilities still remains unsatisfactory. The lack of exercise combined with poor diet can lead to overweight, obesity, ischemic heart disease and other health problems.

Promoting appropriate nutritional habits and physical activity, which, by interaction, can restore proper body mass in obese patients, among the population of young people, particularly those with intellectual disabilities, can support healthy development and eliminate risk factors of many diseases.

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