

Physical activity and body posture of younger school children in the opinion of parents

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Summary

The research was conducted in 2017 - 2018 in Łódź among parents of children attending the classes I - III of primary school. The method of diagnostic survey was used and a total of 521 questionnaires were collected.

The general level of parents' knowledge of the causes of posture defects and their prevention is low. Only twenty percent of parents can identify the most common causes of defects and factors that negatively affect a body posture. Among the studied population of children, body posture disorders occur in 83% of cases. Children most often do not perform corrective and compensatory exercises at home (73%) and do not attend corrective gymnastics (56%). A significant percentage of people (58%) spend five or more hours a day sitting and playing the computer. The percentage of children not participating in any additional physical activities is also relatively high (43%). These facts arise the request of the need to take action

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to increase awareness among parents for the prevention and treatment of static disorders of the body.

Key words: early school education, posture defects, parents' awareness

Introduction

Physical activity is the best way to maintain health, longevity and well-being³⁴. It is one of the most important elements of a healthy lifestyle. It is also an important factor in the proper development of the human body in any period of ontogenesis⁵. However, research by the Public Opinion Research Center (CBOS) shows that Poles neglect physical exercise. Only 7% of people declared that they do exercise regularly and often, and as many as 74% do not do it at all⁶. Most of the physical activities are work or everyday activities, but the rapidly developing civilization and technological achievements mean that the energy expenditure allocated to this activity is constantly decreasing. At the same time, the average caloric value of consumed meals increases, which causes that the energy balance of the average person becomes more and more unfavourable. Thus increases the number of people suffering from various diseases of civilization: overweight, obesity, diabetes, atherosclerosis⁷. The most disturbing fact is that these threats concern not only middle-aged and elderly people, but also youth and even children.

Lack of exercise causes, most often, the statically overloaded spine that can again cause serious ailments. Pathologies in the cervical spine cause fainting and tingling hands and severe headaches. Changes in the position of the thoracic section and pains in this area can cause heart rhythm disturbances. When the lumbar region is at risk, the kidneys and the liver

³ Maciatowicz J. *Ruch fizyczny o charakterze wytrzymałościowym (bieg) zapobiega starzeniu się, leczy z patologicznych chorób społecznych*. Medycyna Sportowa. 2003; 4: 156–164. Polish.

⁴ Drabik J. *Aktywność fizyczna w kształtowaniu zdrowia człowieka — korzyści i zagrożenia*. Wychowanie Fizyczne i Sport. 1999; 4: 124–125. Polish.

⁵ Żołądź JA, Majerczak J, Duda K. *Starzenie się a wydolność człowieka*, (W:) Górski J, (red.). Fizjologia wysiłku i treningu fizycznego. 2011: 157–165. Polish.

⁶ O'Keefe J, Nelson J, Harris W. *Zmiana stylu życia a zapobieganie chorobie wieńcowej*. Medycyna po Dyplomie. 1997; 5: 68–71. Polish.

⁷ Marchewka A, Jungiewicz M. *Aktywność fizyczna w młodości a jakość życia w starszym wieku*, Gerontologia Polska. 2008; 16(2): 127 – 130. Polish.

work worse. The intestines may also be impeded and toxins enter the body. These poisonous compounds can also cause migraines. On the other hand, changes in the sacral and coccygeal (caudal) spine cause discomfort in the reproductive organs and disturb the proper blood supply to the lower limbs⁸.

Purpose, material and method of the research

The aim of the research was to assess the level of parents' knowledge about body posture defects and the level of physical activity of younger schoolchildren. The incidence rate of posture defects in children of the examined parents was also determined. For the purposes of the study authors formulated the following research questions:

1. Can the surveyed parents notice a defect in their child's posture?
2. Are the surveyed parents aware of the extent to which the child's lifestyle may reduce or increase the risk of posture defects?
3. Are parents of early school children aware of the dangers of postural defects in the later years of the child's life?
4. What is the incidence rate of defects and posture disorders among children of the surveyed parents?

The research was conducted in 2017 - 2018 in Łódź. The method of diagnostic survey was used. The questionnaires were filled in by parents of children of primary schools (grades I- III) from various districts of Łódź: Śródmieście (Primary School 111), Łódź Górna (Primary School 29), Widzew (Primary School 34), Polesie (Primary School 44) and Bałuty (Primary School 55). A total of 521 correctly completed questionnaires were collected.

Results

The surveyed parents answered a number of questions concerning the aspects of diagnosis, prevention and correction of posture defects. Thus information was obtained that allowed to formulate answers to the research questions asked.

The first of these concerned the issue of diagnosis of the posture, above all the ability to notice deviations in body characteristic of the defect. More than half of the respondents (56%) correctly indicated the posture defect, as a result of which the child slouches. Nevertheless, as many as 41% of parents are unable to name this disorder (Tab. 1).

⁸ Drygas W. Czy *siedzący styl życia nadal stanowi zagrożenie dla społeczeństwa polskiego?* (W:) *Medycyna Sportowa*. 2006; 2(6), Vol. 22: 111 – 116. <http://31.186.81.235:8080/api/files/view/9829.pdf> [access 17.11.20]. Polish.

Table 1. Defect of the posture as a result of which the child slouches according to the surveyed parents

Description	[N]	[%]
Lateral curvatures of the spine	21	4
Hyperkyphosis	292	56
Hyperlordosis	125	24
disappearance of physiological curves of the spine	83	16
Total	521	100

Source: own research

A significant percentage of parents (44%) is aware of the fact that disturbances of symmetry of the body can be a symptom of scoliosis - a condition which, due to the difficulties posed during the correction and significant impairment of bodily functions, it is very dangerous and requires special care at an early stage of development defects. Unfortunately, the majority of respondents (56%) do not have such knowledge and mistakenly associate asymmetry with other posture defects, such as: round back (25%), hollow back (20%) and flat back (11%).

The knowledge of the surveyed parents about the basic symptoms of defects in the area of the knees and feet is low. In most cases (64%), the respondents were not able to correctly associate the symptom of heel abrasion on the inside of the footwear, with the corresponding limb defect. Only 36% of parents correctly associated this with valgus in the heels and / or knees (Tab. 2).

Table 2. The symptom of shoe abrasion on the inside of the heel and its causes in the opinion of the surveyed parents

Description	[N]	[%]
Longitudinal flat feet	89	17
Transverse flat feet	105	20
Valgus in the heels and/or knees	187	36
Varus in the heels and/or knees	140	27
TOTAL	521	100

Source: own research

About 31% of parents of early school age children can correctly define flat feet (Table 3). As many as 42% mistakenly define them as excessive arches of the foot, 13% associate

flat feet with deformations of the fingers and 14% with changes in the tension of the plantar muscles - which would not be a mistake if it correctly reflected the essence of the defect

Table 3. The concept of flat feet according to the surveyed parents

Description	[N]	[%]
Lowering the foot arch	161	31
Deformation of the toes of the foot	68	13
Excessive foot vaulted	219	42
Changes in muscle tension plantar	73	14
TOTAL	521	100

Source: own research

The respondents were also asked about the issues related to the child's participation in corrective gymnastics classes and the performance of recommended corrective exercises at home (Tab. 4 and 5). The analysis of the structure of responses shows that only 14% of the children of the surveyed parents attend corrective and compensation classes. This fact is alarming because among the researched group. I, II and III - classists, defects and deviations in body posture were found in 83% of children.

Table 4. Child's participation in corrective gymnastics classes according to the respondents

Description	[N]	[%]
Yes	73	14
No	292	56
„The child attended before”	36	7
“I'm going to book a class of corrective gymnastics”	120	23
TOTAL	521	100

Source: own research

The systematic performance of corrective exercises at home is declared by 27% of the respondents, 45% of children do not systematically exercise, and 28% of children exercise rarely or never.

This fact can be explained by the lack of parents' time, resulting from the fast pace of modern man, but it is also certainly a lack of awareness of respondents as an important role of systematic therapeutic actions in the field of correcting any deviation within the musculoskeletal system of the child. It must be remembered that the young growing organism

is extremely susceptible in this respect - correction brings relatively quick results, unfortunately, also negligence.

Table 5. Performing corrective exercises at home according to the surveyed parents

Description	[N]	[%]
Yes, systematically	141	27
Yes, but not systematically	235	45
Very rarely	109	21
Never exercises at home	36	7
Total	521	100

Source: own research

Given the importance of physical activity in the child's physical development, the questionnaire focused on the problem of the type of sports discipline practised. It turned out that the majority of people who mentioned the child's participation in additional physical activities indicated football (40%). The highest percentage, however, was the lack of an answer to this question (43%), which probably means that the child does not participate in any such activities. The choice of discipline that is football from the point of view of many defects and the general development of posture does not seem appropriate. High loads on the lower limbs, overloading the spine - especially when training takes place on an artificial, hard surface - do not have a positive effect on the joints and skeletal system of the child. May be a factor exacerbating existing deviation. Other sports disciplines practised by the respondents' children were: karate (8%), acrobatics (6%), and judo (2%).

The children's lifestyle was also assessed by determining the time they spend in a sitting position during the day. It turned out to be a serious problem, as more than half of the respondents (58%) reported that their child sits 5- 6 hours a day, and 37% that they spend even 7 hours or more, in this position. Parents in one of the survey questions, not included in this report, stated in most cases that they pay attention to the position taken by the child during the day, but it would be naive to think that it is still correct and corrected. And the time factor is decisive here. With such a proportion, even the best corrective and compensatory gymnastics is ineffective⁹.

Being aware of a number of factors that influence the posture of the human body is extremely important from a practical point of view. Knowledge of negative environmental impacts

⁹ The data comes from the period before the COVID-19 pandemic. The current situation regarding children's daytime sitting is certainly much worse (authors' note).

seems to be of particular importance. The respondents had a choice of several answers (Tab. 6). Most often they indicated the lack of exercise and long sitting in front of the computer. A fairly even level of indications may indicate that they were not convinced about one particular factor, which in fact is often the case. However, what threatens a child's posture the most are inappropriate postural habits. Few parents chose this answer (13%). The habit of maintaining correct posture in various circumstances, during various activities, is the important foundation. and framing it, should be most intense during the early school.

Table 6. The most important factors negatively influencing children's body posture

Description	[N]	[%]
Long sitting in front of the computer	109	21
Wearing a heavy schoolbag,	83	16
Bad postural habits	69	13
No exercise	120	23
Muscle disorders	83	16
Genes	57	11
TOTAL	521	100

Source: own research

The last issue raised in the survey were issues related to the negative consequences of uncorrected postural defects. In almost half of the cases surveyed parents indicated spine diseases as a consequence of poor body posture (Tab. 7). In fact, in the case of disorders of the spine axis, the most vulnerable to overload are the soft structures surrounding the vertebrae, i.e. the anterior and posterior ligament system, and the intervertebral discs, the lowering of which is the first stage in the development of degenerative spine disease. Another frequently chosen answer was "health problems in adulthood" (22%). It seemed the least important consequences associated with a poor appearance (11%), mental health problems (14%) and the impossibility of practising professional sport (6%).

Table 7. Consequences of untreated posture defects in children according to the surveyed parents

Description	[N]	[%]
Health problems in adulthood	111	22
Spine diseases	246	47
Impossibility of practising professional sport	32	6
Unaesthetic appearance	58	11
Psychological problems	74	14
TOTAL	521	100

Source: own research

The analysis of the answers to the question concerning the presence of a diagnosed defect in body posture of a child, showed that a significant percentage of children (83%) had various types of structural deviations. The most common are: asymmetrical shoulders (58%), scapular winging (24%), valgus knees and / or heels (48%) and flat feet (35%).

Table 8. The incidence rate and type of posture defects in children

Description	[N]	[%]
Shoulder asymmetry	302	58
Scapular winging	125	24
Valgus heels / knees	250	48
Flat feet	182	35
TOTAL¹⁰	X	X

Source: own research

Summary

The analysis of the collected material carried out above allows for the formulation of answers to the research questions asked.

1. The surveyed parents of early school children correctly associate the symptoms of the disturbed spine line with a specific posture defect in half of the cases. This is the case when assessing round back and scoliotic posture. Unfortunately, a small percentage of respondents can notice changes in the position of the lower limbs and feet.
2. The respondents are not aware of the extent to which the child's lifestyle influences its attitude. Most children spend a lot of time during the day in a sitting position, and the additional physical activity chosen by the parents is most often inappropriate from the point of view of framing the correct body posture. Despite the correct identification of

¹⁰The% values do not add up to 100 because some children had more than one posture abnormality.

factors negatively influencing body posture, most children of the surveyed parents do not participate in corrective gymnastics classes and do not exercise at home. At the same time, the percentage of identified deviations in posture is high in this group.

3. In most cases, the respondents are aware of the existing risk of an untreated posture defect. They correctly indicated the risk of developing spine diseases and health problems in adulthood.
4. The incidence of abnormalities in body posture in the group of children is 83%. The most common symptoms are shoulder asymmetry and valgus positioning of the knees or heels.

Discussion

Assessment of the level of awareness on topics related to the correction and compensation of posture disorders is the work of many authors. The reports mentioned the conclusion that there was insufficient advice for caregivers in taking care for the full development of the child's body posture.

Interesting research was conducted among 388 parents of children attending 18 primary schools from all provinces¹¹. The respondents were asked to complete a questionnaire to assess the state of their knowledge about posture defects, ways of spending free time and the type of physical activity practised by their children. The research shows that 34.53% of children attending primary schools have an incorrect posture. Parents' knowledge of body posture defects is negligible. As many as 45% of parents are unable to name any of the defects, less than 15% are able to characterize a round back, and only 8% are able to give the correct definition of scoliosis. Almost 79% of parents believe that their children spend their free time actively enough, although less than 24% of them take part in organized forms of physical activity. According to the authors, although more and more is being said about the problem of posture defects, the parents' level of knowledge of this subject is still very low.

In the research by Piaszczyk, Sokołowska and Samoszuk (2003), similar observations were made¹². The authors assessed the incidence rate of body posture deviations among 100 children and conducted a survey with their parents. The most frequently diagnosed defects were scoliosis and torso asymmetry- 56% of cases. The results of the survey showed that

¹¹Jankowicz-Szymańska A, Nowak B, Słomski Ł. *Wiedza rodziców na temat wad postawy ciała*. Fizjoterapia. 2010; 18 (2): 44 – 55. Polish.

¹²Piaszczyk D, Sokołowska B, Samoszuk T. *Zadania rodziców i pielęgniarzy w profilaktyce i korekcji wad postaw u dzieci*. Annales Universitatis Mariae Curie – Skłodowska. Lublin – Polonia. 2003; Vol. LVIII, Suppl. XIII, 18 Sectio D: 458 – 465. Polish.

parents' knowledge of prevention, causes and detection of posture defects in children is unsatisfactory.

The low level of parents' knowledge and awareness of postural defects of preschool children is confirmed by research conducted by Pawlik in Cieszyn¹³. The survey among parents shows that 60% of children, apart from corrective classes in kindergarten, take part in organized activities outside kindergarten. These are various forms of sports activities- swimming was the most frequently mentioned. On the other hand, only 40% of children attend corrective and compensatory classes organized in the kindergarten. None of the parents confirmed the daily use of the recommended corrective exercises at home. Many parents (72%) believe that it corrects the child's body posture when sitting, walking, drawing and playing. However, there are parents who correct their children's posture only occasionally (18% of parents), and 10% of parents admitted that they do not pay attention to maintaining a correct body posture in their child.

In 2014, Strojek, Bułatowicz, Radziwińska and colleagues assessed the lifestyle of preschool children¹⁴. They also examined the body posture of 20 children and the level of their parents' knowledge of postural defects. They found that the examined children and parents lead a passive lifestyle- they undertake physical activity occasionally. On the other hand, the percentage of preschoolers with deviations in posture is high and amounts to 40% to 50%, depending on the type of defect found. The most common abnormalities are foot defects, knee valgus, and a flat back. In the opinion of the authors of the report, the assessment of the level of parents' knowledge and their involvement in caring for the child's body posture is insufficient.

The poor knowledge of parents about posture defects and their correction is confirmed by Sitek research¹⁵. Almost half of the surveyed parents (48%) are unable to indicate the area in which the child has a posture defect. The same number of respondents cannot indicate any name that would define a defect of posture. More than 60% of children with a deviation in body posture do not attend corrective gymnastics classes. These are alarming figures.

¹³Pawlik I. *Ćwiczmy razem z dzieckiem*. 2008. <http://edupress.pl/wychowanie-w-przedszkolu.php> [access: 15.11.2018].

¹⁴Strojek K, Bułatowicz I, Radziwińska A, Kaźmierczak U, Siedlaczek M, Lipiec M, Dzierżanowski M, Zukow W. *Ocena postawy ciała u dzieci w wieku przedszkolnym*. Journal of Health Sciences. 2014; 4(7): 229-240. <http://dx.doi.org/10.13140/2.1.4329.0883> [access: 08.03.2019].

¹⁵Sitek M. *Wady postawy dzieci – stan wiedzy rodziców*. Wychowanie Fizyczne i Zdrowotne. 2014; 5: 14–17. Polish.

The authors of this report also researched these issues among parents of children attending schools and kindergartens in Łódź¹⁶¹⁷ The results showed a low level of awareness of the subjects of the correction and compensation of body statics disorders, low physical activity of children, a very low percentage of people caring for systematic corrective exercises at home and ignorance of the factors that negatively affect the child's body posture.

Interesting research, from the point of view of the level of knowledge of Polish society on the subject of physical activity and body posture, was carried out by Biskup and Marczewski¹⁸. They tested a group of pedagogy, physiotherapy and high school graduates from Zamość- a total of 120 respondents. They proved that the knowledge of the surveyed youth is insufficient, and the physiotherapy students obtained significantly better results than the students of pedagogy and high school graduates. There were no significant differences in terms of knowledge between pedagogy students and high school graduates, regardless of the class profile. The authors indicated the need to include the information on shaping the correct body posture, in the curricula of high schools and pedagogical studies.

Conclusions

This research confirms the low level of knowledge and awareness of parents of early school children about body posture defects – as well as their prevention and correction. The environment in which the child is brought up, including the family, has the greatest influence on the shaping of his habits and attitudes. Changing behaviour later is always difficult and requires a lot of work. In the case of disordered body posture, it is also usually ineffective. The established bad habits of "slouching", adopting asymmetrical positions and improper gait cause permanent changes in the motion system. From this point of view, increasing the level of society's knowledge about physical activity, body posture and diseases in its statics becomes an urgent need of the present times. The level of its saturation will affect the fitness and health of future generations.

Summing up the above inquiries, it should be stated that education and help for parents is necessary, especially in such elements as:

1. Awareness of the role of systematic corrective gymnastics.

¹⁶Makarczuk A. *The level of school children's parent's knowledge about postural defects*. Journal of Education Health Sciences. 2014; Vol 4. No 13: 382 – 393.

¹⁷Makarczuk A. *Rodzice wobec problemu wad postawy ciała dzieci w wieku przedszkolnym*, (W:) Praktyczny i teoretyczny wymiar aktywności fizycznej i sportu dla wszystkich, red. Nowocień J., Zuchora K., Fundacja Centrum Edukacji Olimpijskiej. 2015. AWF Warszawa: 353 – 362. Polish.

¹⁸Biskup M, Marczewski K. *Ocena wiedzy o wadach postawy kręgosłupa i ich skutkach wśród maturzystów i studentów*. Fizjoterapia. Zamojskie Studia i Materiały. 2011; XIII, 1(34): 23 – 26. Polish.

2. Organizing activities to assist in the selection of home exercise, additional physical activities, adaptation of equipment and furniture.
3. Indication of recommendations and health contraindications regarding the lifestyle of a child with a posture defect.

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