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## How do parents perceive the schoolbag problem?

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### Abstract

**Introduction.** The problem of overloading children with too heavy schoolbags has been repeatedly reported in the period between August and September. **Material and method.** The survey was conducted in a group of 65 parents of children aged 7 years. The survey included 9 questions. **Conclusions.** (1) Parents usually declare they know the health status of their children. They believe that the child will be carrying a four-kilogram schoolbag on his or her back, learn using conventional methods (without tablets), and spend about two hours on improving their physical fitness. (2) The development of physical fitness and the prevention of static posture disorders are not supported by parents' acceptance of the preorientation of the children's lifestyles.

**Key words:** schoolbag; body posture; physical activity

## Introduction

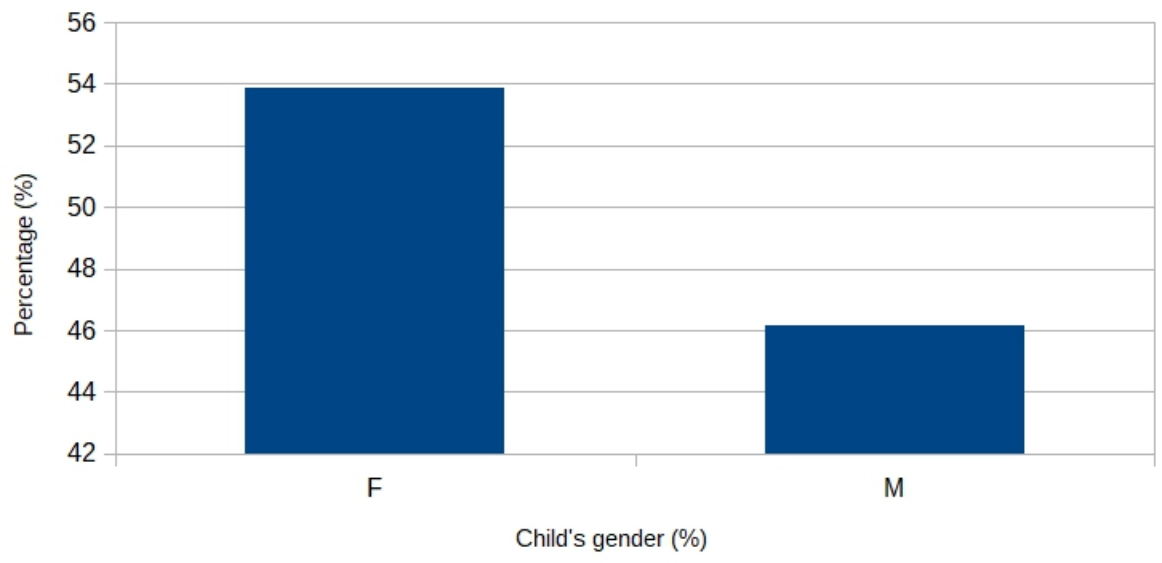
The health status of children and young people has a significant effect on the future health of society. Therefore, education, prevention, and monitoring of the health status of society is essential at every stage of ontogenesis. The school environment should be considered as a wide set of stressors in the human ecology field, which contains within its boundaries not only genetic but also epigenetic factors, understood here as a chemical compound formed under the influence of the environment in which the human lives. Its chemical composition will differ between good health status and during health problems, and thus between correct and abnormal posture. Thus, by changing lifestyles, people can also effectively influence their quality of life. This allows the burden of responsibility for the physical status of the individual to be shifted in part from the genome to the epigenome, which can be modified by deliberate action. This means that the closer the lifestyle to a healthy one, the higher the percentage of correct attitudes and the smaller the percentage of incorrect ones [1]. The problem is not whether an individual's environment determines the "way of holding on", but which stressor of that environment modulates the body posture most effectively [2]. This includes not only genetic determinants but also acquired ontogenetic sensitivity to environmental factors (ecosensitivity). Therefore, the borderline between genetics and human ecology, conservativeness, and bio-social and cultural variability is blurred [3].

The aim of the research was to demonstrate the level of general knowledge of parents about the effect of the mass of carried school supplies on body posture, health status, the importance of physical fitness, and various learning methods.

### 1. Material and Methods

The research was conducted in accordance with the principles contained in the Declaration of Helsinki in a group of 65 parents of seven-year-old children from randomly selected kindergartens in West Pomeranian and Greater Poland Voivodeships. Girls' parents accounted for 53.84% of the respondents, whereas the percentage of boys' parents was 46.15%, see Fig. 1. Each parent answered nine questions (Appendix 1.) The results were processed using basic statistical methods, see Tab. 1.

Fig. 1. Research material



Tab. 1. Survey results

Question No.	Answer No.	Girls' parents (%)	Boys' parents (%)	F and M parents (%)
3	2	9.72	13.23	11.42
	3	30.55	23.52	27.14
	4	43.05	36.21	40.00
	5	8.33	14.79	11.42
	6	2.77	3.36	2.85
	7	0.00	7.35	3.57
	8	5.58	1.52	3.57
4	1	12.50	5.88	9.28
	2	23.61	36.76	30.00
	3	0.00	0.00	0.00
	4	2.77	0.00	1.42
	5	0.00	0.00	0.00
	6	61.11	55.88	58.57
	7	0.00	0.00	0.00
	8	0.00	1.47	0.71
5	1	45.83	29.41	37.85
	2	54.16	70.58	62.14
6	1	65.27	72.05	68.57
	2	34.72	27.94	31.42
7	1	68.05	39.70	54.28
	2	31.94	60.29	45.71
8	1	6.94	0.00	3.57
	2	36.14	16.17	25
	3	16.66	7.35	12.14
	4	22.22	16.17	21.46
	5	9.72	25.03	16.42
	6	1.38	14.70	7.85
	7	4.16	7.35	5.71
	8	1.38	11.76	6.42
	9	0.00	0.00	0.00
	10	1.38	1.47	1.42
9	1	0.00	0.00	0.00
	2	68.05	60.29	63.87
	3	19.44	32.35	25.76
	4	12.50	7.35	10.36

Source: author's own elaboration

Appendix 1.

.....  
place and date

On behalf of the research team, I would like to ask you to complete the following questionnaires. Its results will be used anonymously only in scientific publications. They will not be made available to outsiders.

## QUESTIONNAIRE

Student's name.....

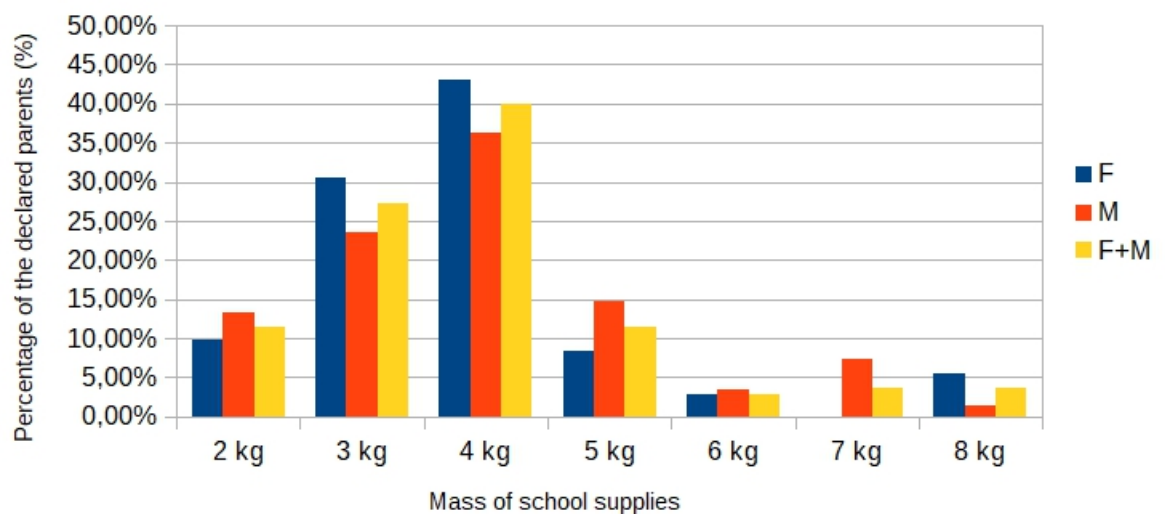
1. Gender (mark the correct answer): F K
2. Date of birth: .....
3. The schoolbag carried to school will weigh: .....kg.
4. The child's schoolbag will be carried (mark the correct answer): by the accompanying person, by the child in his or her hand or on the left or right shoulder, on a bicycle, pulled with his or her left or right limb, left at school, on his or her back, evenly distributed on the chest and back, obliquely from the shoulder to the opposite hip, in a different way .....
5. The route to school: the caretaker drives him or her by a car, the child goes to school by himself or herself: ..... (approx. minutes)
6. Does the child have a faulty posture (mark, fill in)?  
No. I don't know. Yes, within the upper body, lower limbs, another .....
7. Is the child healthy in general? (mark, fill in)  
No, I don't know. Yes: .....
8. On average, how many hours per week does the child spend on physical culture?  
(mark):  
1, 2, 3, 4, 5, 6, 7, 8, 9, 10
9. Which concept of the child's work do you support? (please mark the correct answer):  
only with a tablet, conventional learning, conventional learning at school and learning at home with a tablet,  
conventional learning at home and learning at school with a tablet, tablet as supplementation of conventional learning

Thank you very much for for filling in the form

## 2. Results

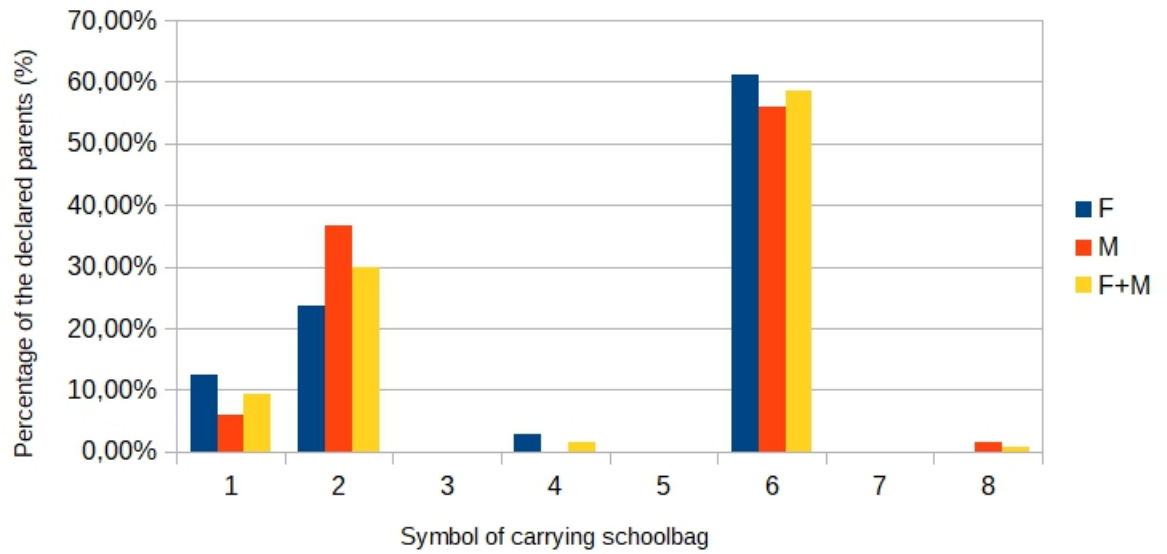
Parents most often expected a four-kilogram mass of school supplies carried by their children (40% of the respondents), with a higher percentage of girls' than boys' parents. A similar structure of distribution with a lower percentage was found among parents who expected that the mass would be 3 kg (27.14%). The percentage of parents who believed that the mass would be 2 and 5 kg was less than 11%, whereas the answers 6, 7, and 8 kg were given by 3%, see Fig. 2.

Fig. 2. Mass of school supplies carried by the child as expected by parents  
n=65



Parents most often declared that the child would carry a schoolbag with school supplies on his or her back (58.57%), with a higher percentage of girls' parents. A much smaller percentage said that their children would carry the schoolbag on their shoulder or in the hand (30.00%), with the percentage of boys' parents being higher. About 10% of parents declared that school supplies would be carried by a person who accompanies the child on his or her way to and from school and the percentage of girls' parents was higher in this case. This suggests greater concern for daughters' body posture. Less than 3% of the girls' parents declared that the bag would be pulled with their left or right hand and less than 1% of the parents declared that the boys would carry the school supplies on the belt diagonally from the shoulder to the opposite hip. It should be noted that no respondent admitted that school supplies would be carried on the bike or evenly distributed on the chest and back, see Fig. 3.

Fig. 3. Method of carrying school supplies declared by parents n=65

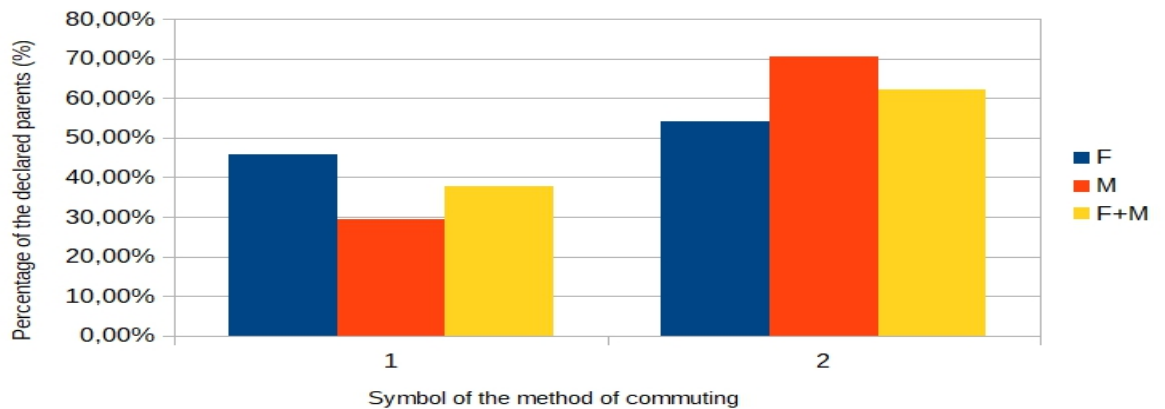


Notes:

- 1 - carried by the accompanying person
- 2 - on the shoulder or in the left or right hand
- 3 - carried on a bicycle
- 4 - a bag pulled with the left or right limb
- 5 - left at school
- 6 - on the back
- 7 - evenly distributed on the chest and back
- 8 - diagonally on a belt from the shoulder to the opposite hip

The declared way of carrying school supplies is not fully consistent with the way the children commute to school because more than 60% of parents said that their children would commute to school by themselves, with a higher percentage of boys' parents. Fewer than 46% of parents declared that they would drive their children to school by car, with the percentage of boys' parents being lower (29.41%) in this case. This should be explained by the habit of taking more care for the safety of girls, see Fig. 4.

Fig. 4. Method of the child's commuting to school declared by parents n=65

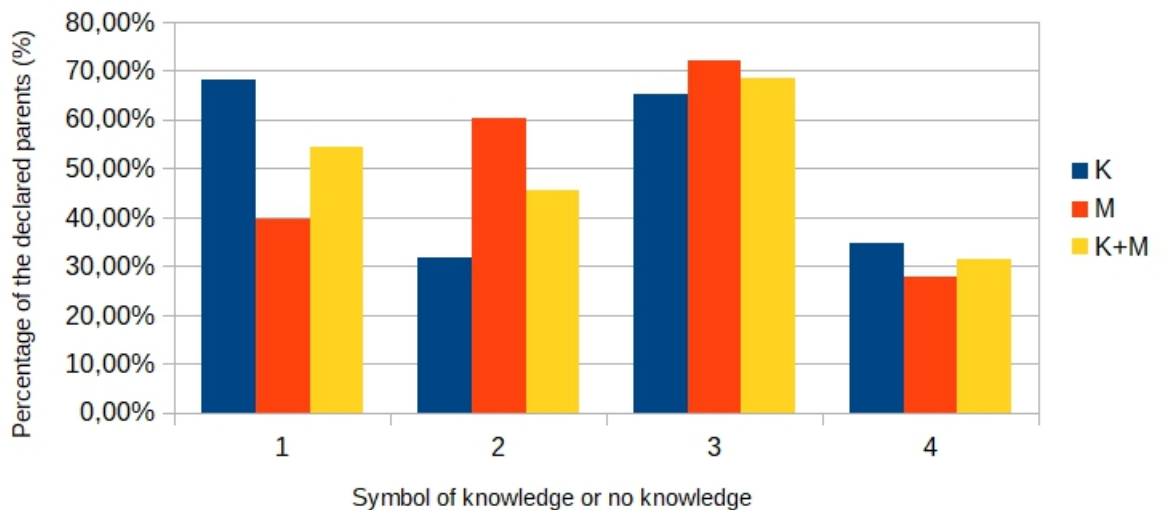


Notes:

- 1 - the accompanying person drives the child by car
- 2 - the child goes to school by himself or herself

The parents' knowledge of their children's health is very surprising. Fewer than 70% of girls' parents declared that they had knowledge of their child's health, with 39.70% of boys' parents. The knowledge of static postural disorders is slightly different. Here, more than 72% of boys' parents had such knowledge, with about 65% of girls' parents, Fig. 5.

Fig. 5. Parents knowledge about the child's health status declared by parents n=65



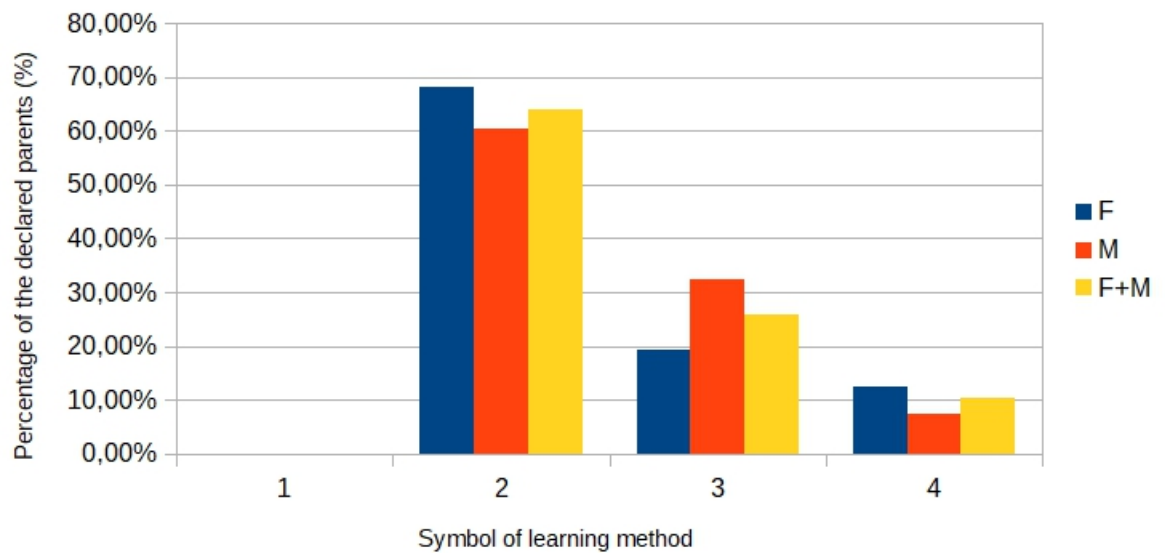
Notes:

- 1 - the parent has knowledge of good health status in general
- 2 - the parent does not have knowledge of health status in general
- 3 - the parent has knowledge of a postural disorder
- 4 - the parent does not have knowledge of a postural disorder



In the context of the mass and method of carrying school supplies and commuting to school, the learning method is interesting. Conventional learning, at home and at school, with books and notebooks, is most popular with parents (63.87%), with a little more popularity observed among girls' parents. Fewer than 26% of them accept conventional learning at school combined with using a tablet or computer at home. Here the percentage of boys' parents is higher. Approximately 10% of parents allow the possibility of conventional learning at home and learning with tablet at school. It should be noted that no parent accepted learning only with a tablet, see Fig. 6.

Fig. 6. Learning method declared by parents n=65

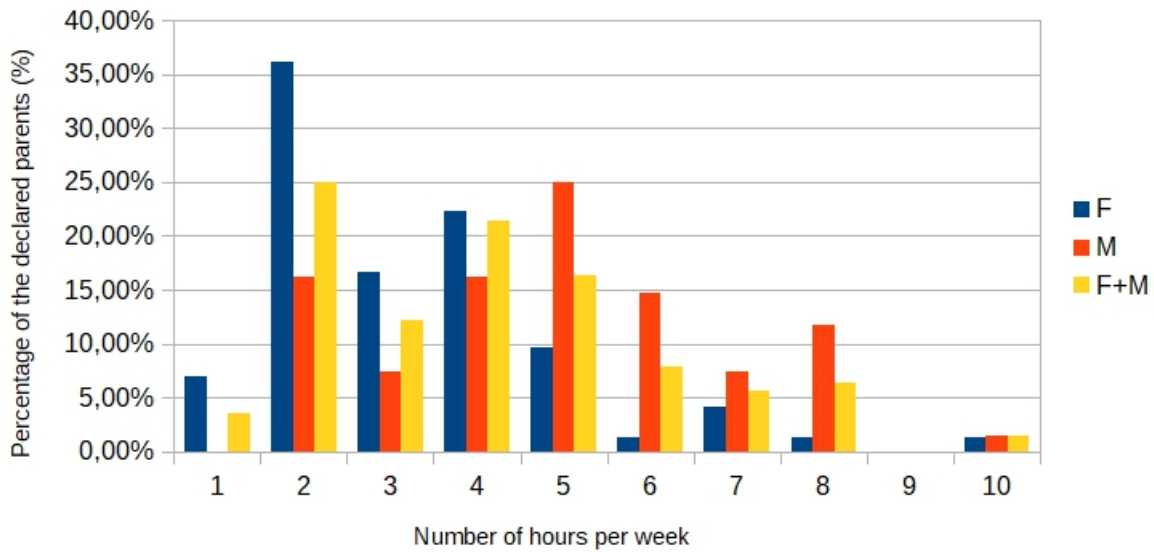


Notes:

- 1 - learning only with a tablet
- 2 - only conventional learning
- 3 - conventional learning at school, learning with tablet at home
- 4 - conventional learning at home, learning with tablet at school

A very poor awareness of the role of physical fitness in improving cognitive skills and correct body posture was observed among boys' parents (16.17%), who devoted only 2 hours a week to improve them, whereas the percentage of girls' parents was 36.14%. Most parents reported between 3 and 5 hours per week spent on improving physical fitness, with 6.42% of parents declaring eight hours per week and 1.42% declaring 10 hours per week, see Fig. 7.

Fig. 7. Time spent on improving physical fitness declared by parents n=65



### 3. Discussion

The problem of overloading children with too heavy schoolbags has been repeatedly reported in the period between August and September and can have an effect on the incidence of various dysfunctions, not only within the spine. The research by Skawinski [4] on the level of knowledge on the prevention of postural defects among 121 children and adolescents from primary and secondary schools showed, among others, that 75.8% of the respondents were aware of the negative impact of the faulty posture on health, 11.7% have an extremely different position, the remaining 10.8% do not know what impact it has, 77.5% see the impact of a long-term sitting position on posture, 35% are convinced of the optimal proportions of a school chair and table, 89.2% confirm the negative impact of too much weight of a schoolbag on posture. The author also showed that, in the opinion of 5% of the respondents, the mass of the schoolbag does not affect the body posture, the same percentage have no knowledge about it, 48.3% of respondents carry the schoolbag alternately on both shoulders, 36.6% on one, and 21.7% do not pay attention to it. In the 1980s, it was recommended that schoolbags should weigh less than 11% of the pupil's body weight [5], whereas orthopaedic doctors suggested that its mass should not exceed 10% [6]. Currently, it is recommended to carry schoolbags lighter than 10% of body weight [5]. However, many students carry heavier schoolbags [5,7]. Carrying a schoolbag heavier than 10% of body weight may reduce the forced expiratory volume in 1 second [8]. A schoolbag reaching 15% of body weight causes a change in gait speed [9], whereas a weight higher than 20% leads to significant changes in gait patterns [10]. Other researchers demonstrated that a schoolbag weighing 15% body weight significantly

affects body statics [11]. A study by Cottalord et al. [12] failed to support this thesis, showing that there is no evidence that these deformations resulted from carrying a large mass of schoolbag.

#### 4. Conclusion

1. Parents usually declare they know the health status of their children. They believe that the child will carry a four-kilogram schoolbag, will learn conventionally (without a tablet) and spent about 2 hours on improving physical fitness.
2. Development of physical fitness and the prevention of static postural disorders are not supported by parents' acceptance of the preorientation of the children's lifestyles.

#### References

1. Mrozkowiak Mirosław, Mrozkowiak Magdalena: Co to jest zdrowy styl życia = What is meant by the healthy lifestyle ? [W:] *Ontogeneza i promocja zdrowia : w aspekcie medycyny, antropologii i wychowania fizycznego*. Red. nauk. Józef Tatarczuk, Ryszard Asienkiewicz, Ewa Skorupka. Zielona Góra: Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, 2011, s. 117-130.
2. Mrozkowiak M., Posłuszny M., Refleksje nad postawą ciała w kontekście genetyki i epigenetyki = Some reflections on body posture in the context of genetics and epigenetics. *Journal of Health Sciences*. 2014;4(13):187-200.
3. Wolański N. 2015, z korespondencji
4. Skawiński D., Zaworska-Winiarska A., Sikora D., Horecka-Lewitowicz, Springer M., Ocena poziomu wiedzy z zakresu profilaktyki wad postawy wśród dzieci i młodzieży, *Studia Medyczne*, Kielce, 2011, 21, 15-21
5. Voll, H.J., Klimt, F., 1977, Strain in children caused by schoolbags, *Offentliche Gesundheits wesen*, 39, 369-378.
6. Sander, M., 1979, The weight of schoolbags in a primary school in Freiburg: recommendations to parents and teachers, *Offentilche Gesundheitswesen*, 41, 251-253.
7. Malhotra, M.S., Sen Gupta, J., 1965, Carrying school bags by children, *Ergonomics*, 8, 55- 60.
8. Lai, J.P., Jones, A.Y., 2001, The effect of shoulder-girdle loading by a school bag on lung volumes in Chinese primary school children, *Early Human Development*, 62, 79-86.

9. Wang, Y.T., Pascoe, D.D., Weimar, W., 2001, Evaluation of book backpack load during walking, *Ergonomics*, 44, 9, 858-869.
10. Kinoshita, H., 1985, Effects of different loads and carrying systems on selected biomechanical parameters describing walking gait, *Ergonomics*, 28, 1347-1362.
11. Ramprasad M, Alias J, Raghuvver AK.: Effect of Backpack Weigh on postural Angels in Preadolescent Children; *Indian Pediatrics* 2010, 47; 575-580
12. Cottalorda J, Bouelle S, Gautheron V.: Effects of Backpack Carrying in Children; *Orthopedics* 2004; 27,11; 1172-1175.