

# School and out-of-school physical activity of children in rural areas

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## Annotations:

**Purpose:** The aim of the study was to assess the level of school and out-of-school physical activity of children living in rural area at the early stage of their education. **Material:** The research was conducted in 2009 at primary school in Świętajno (a village). The study group consisted of 42 girls and 44 boys from the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> grade of primary school, aged 7-10. The children were chosen by means of a purposeful selection and surveyed by a questionnaire consisting of five open-ended and five closed-ended questions. **Results:** The research showed that the children living in the rural area at the early stage of their education eagerly participated in the classes of physical education held at school. The most popular physical activities among the children included: games and plays with the ball and other equipment, running, gymnastics (among girls) and matches and competitions (among boys). The outdoor physical activities in which the children were involved outside of school were spontaneous and unorganized including mainly cycling, roller-skating, skating or skiing. **Conclusions:** A marginal percentage of children participated in out-of-school sports trainings or other physical education-oriented classes (e.g. swimming lessons). A relatively high percentage of children devoted a great deal of their free time to watching television, DVDs or playing on the computer.

**Подставки Роберт, Омелан Анета, Запарт Моника, Зурек Петр. Школьная и внешкольная физическая активность детей в сельских районах. Цель:** Целью исследования было оценить уровень школьной и внешкольной физической активности детей, проживающих в сельской местности на ранней стадии их обучения. **Материал:** Исследование проводилось в 2009 году в начальной школе в деревне Цветайно. Исследовательская группа состояла из 42 девочек и 44 мальчиков из 1, 2 и 3-го класса начальной школы в возрасте 7-10 лет. Дети были выбраны целенаправленным отбором и обследованы с помощью опросника, состоящего из пяти открытых и пяти закрытых вопросов. **Результаты:** Исследование показало, что сельские дети на ранней стадии их обучения активно участвовали в уроках физического воспитания, проводимых в школе. Самые популярные физические нагрузки среди детей включают: игры и игры с мячом и другим оснащением, бег, гимнастику (среди девочек) и матчи и соревнования (среди мальчиков). Физические нагрузки на открытом воздухе вне школы, в которых участвовали дети были спонтанными и неорганизованными и включали, главным образом, езду на велосипеде, катание роликовых коньках или катание на лыжах. **Выводы:** незначительный процент детей приняли участие во внешкольных спортивных тренировках и других физических упражнениях, ориентированных на классы (например, уроки плавания). Относительно высокий процент детей посвятил много своего свободного времени просмотру телевизора, играм на DVD-дисках или на компьютере.

**Подставки Роберт, Омелан Анета, Запарт Моника, Зурек Петр. Шкільна і позашкільна фізична активність дітей у сільських районах. Мета:** Метою дослідження було оцінити рівень шкільної та позашкільної фізичної активності дітей, що проживають у сільській місцевості на ранніх стадіях їх навчання. **Матеріал:** Дослідження проводилося в 2009 році в початковій школі в селі Цветайно. Дослідницька група складалася з 42 дівчаток і 44 хлопчиків з 1, 2 і 3-го класу початкової школи у віці 7-10 років. Діти були обрані цілеспрямованим відбором і обстежені за допомогою опитувальника, що складається з п'яти відкритих і п'яти закритих питань. **Результати:** Дослідження показало, що сільські діти на ранній стадії їх навчання активно брали участь в уроках фізичного виховання, що проводяться в школі. Найпопулярніші фізичні навантаження серед дітей включають: ігри та ігри з м'ячем та іншим оснащенням, біг, гімнастику (серед дівчат) і матчі та змагання (серед хлопчиків). Фізичні навантаження на відкритому повітрі поза школою, в яких брали участь діти були спонтанними і неорганізованими і включали, головним чином, їзду на велосипеді, катання на роликових ковзанах або катання на лыжах. **Висновки:** незначний відсоток дітей взяли участь у позашкільних спортивних тренуваннях та інших фізичних вправах, орієнтованих на класи (наприклад, уроки плавання). Відносно високий відсоток дітей присвятив багато свого вільного часу перегляду телевізора, іграм на DVD-дисках або на комп'ютері.

## Key words:

children, rural, areas, education, age, physical, activity.

дети, сельский, районы, образование, возраст, физическая, активность.

діти, сільський, райони, освіта, вік, фізична, активність.

## Introduction

Shaping pro-health attitudes among early school children poses a formidable challenge to all governments worldwide. Inappropriate lifestyle of children tends to be correlated with heightened risk of falling ill with long-lasting diseases of civilization (Starosta, 2010) such as: hypertension, heart diseases, diabetes, osteoporosis, specific types of cancer or even mental disorders (Rütten & Abu-Omar, 2004; Kafatos et al., 1999), which might be accompanied by overweight and obesity (Chiorelo et al., 2009). The latter constitutes a particular health problem as it is commonly a cause of other illnesses. For example as a result of higher BMI values blood pressure increases, which, in turn, results in higher risk of inner damages such as: hypertrophy (Sorof et al., 2004) or stiffening of the carotid intimal medial (Li et al., 2003). Moreover, overweight and obesity when experienced in childhood

usually result in higher risk of hypertension in adult life (Bao et al., 1995).

One of the reasons for overweight and obesity among children is their low and insufficient level of physical activity (PA) combined with sedentary lifestyle (Rohrer et al., 2008). In the group of non-pathological health conditions, PA and motor fitness (MF) are commonly emphasized as key indicators measuring human physical health. Governmental and international organizations worldwide as well as promoters of universal pro-health education have implemented numerous programs encouraging children and adolescents to lead an active lifestyle, however their effectiveness seem to be unsatisfactory as they fail to produce tangible outcomes (Rohrer et al., 2008; Dwyer et al., 2003). According to Surgeon General every child is recommended to be engaged in a 60-minute workout every day of the week (Lee et al., 2007).

Cultivating pro-health habits and active lifestyles among young children should be the subject of major

concern to parents and educators and, consequently, to the whole society and its government. Limited information on health issues and possibilities of diminishing some health risks poses a serious problem, which particularly relates to children growing up in rural areas. The arguments presented above seem to justify the research on determining the attitudes of children living in rural areas in the aspect of physical activities performed during their school and leisure time. For this purpose the following research question was formulated:

What is the level of PA of early school children during their school and leisure time?

### Material and methods

#### Participants and procedures

The research on PA was conducted in 2009 in primary school in Świętajno (warmińsko-mazurskie voivodeship, rural area) which comprised a group of 42 girls (48,8%) and 44 boys (51,2%) aged 7-10 all attending 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> grades of primary school. The children were selected by means of a purposeful selection i.e. all the children attending early school classes in this school were surveyed by a questionnaire consisting of five open-ended and five closed-ended questions.

#### Statistics

Descriptive statistics were used in order to calculate the numerical and percentage data for individual questions. Statistical analysis and the presentation of the results were performed using computer software Winstat and Statistica Pl.

### Results

The results of the research on school and out-of-school physical activity of early school children were presented in tables 1-10.

As can be seen from table 1, out of all the children almost one third (27,9%) attended every P.E. class, over two-thirds (69,9%) were occasionally absent at P.E. classes, and a marginal percentage (2,3%) were notoriously absent. In the case of both girls and boys, the highest percentage of respondents were marked by sporadic absence during P.E. classes (69,0%, and 70,5% respectively). None of the boys were notoriously absent at P.E. classes (Tab. 1).

Table 2 shows that being ill was the common cause of absence at P.E. classes (88,7%), whereas absence due to the lack of sports outfit (boys and girls) or other reasons (boys) related to a marginal number of respondents (8,1% , and 3,2% respectively).

As it is shown in table 3, the vast majority of girls (71,0%) and boys (58,1%) expressed a high level of regret about not being able to attend P.E. classes. Over one-fourth of the girls (25,8%) and 38,7% of the boys regretted the classes moderately, and the smallest percentage of the girls and boys (3,2%) regretted the classes very little (Tab. 3).

As can be seen from table 4 the vast majority of girls (95,2%) and boys (95,4%) were satisfied with attending P.E. classes. Only one girl and one boy participated in P.E. classes unwillingly and because of obligation (Tab. 4).

The most popular forms of PA among the children included: games and plays with the ball (76,4%), races (51,2%), games and plays with other equipment (37,2%), matches and competitive games (25,5%), and gymnastics (20,9%). The girls preferred games and plays with other equipment to races (52,4%, and 42,9% respectively), whereas the boys favored the races over the plays and games with other equipment (32,7%, and 51,2% respectively). Over three times more girls (33,3%) than boys (9,1%)

Table1.

*The attendance of early school children at P.E. classes in relation to their sex*

| Responses                 | Girls |       | Boys |       | Total |       |
|---------------------------|-------|-------|------|-------|-------|-------|
|                           | N     | %     | N    | %     | N     | %     |
| <b>Full attendance</b>    | 11    | 26,2  | 13   | 29,5  | 24    | 27,9  |
| <b>Occasional absence</b> | 29    | 69,0  | 31   | 70,5  | 60    | 69,8  |
| <b>Notorious absence</b>  | 2     | 4,8   | 0    | 0     | 2     | 2,3   |
| <b>Total</b>              | 42    | 100,0 | 44   | 100,0 | 86    | 100,0 |

Table 2.

*Cause of the children's absence at P.E. classes*

| Responses                        | Girls |       | Boys |       | Total |       |
|----------------------------------|-------|-------|------|-------|-------|-------|
|                                  | N     | %     | N    | %     | N     | %     |
| <b>Being ill</b>                 | 30    | 96,8  | 25   | 80,6  | 55    | 88,7  |
| <b>The lack of sports outfit</b> | 1     | 3,2   | 4    | 12,9  | 5     | 8,1   |
| <b>Other</b>                     | 0     | 0     | 2    | 6,5   | 2     | 3,2   |
| <b>Total</b>                     | 31    | 100,0 | 31   | 100,0 | 62    | 100,0 |

enjoyed doing gymnastics. A higher percentage of boys (31,8%) in comparison to girls (19,0%) were keen to participate in matches and competitions (Tab. 5).

According to a decided majority of pupils, P.E. classes should be compulsory to everyone (95,4%). A marginal percentage of girls (4,8%) and boys (4,6%) stated that such classes should be voluntary (Tab. 6).

More than 80% of the children spend their free time outdoors everyday (girls – 80,9%, and boys – 81,8%). Slightly more than 10% of the children stay outdoors two up to three times a week (girls – 11,9%, and boys – 9,1%), and about 8% – less frequently (girls – 7,2%, and boys – 9,1%) (Tab. 7).

As can be seen from table 8 the most popular outdoor activities in summer included: cycling and roller skating,

whereas in winter – ice skating and skiing (girls – 88,1%, and boys – 90,9%). Playing a ball and badminton (69,0%), races (42,9%), hopscotch (35,7%), playing with a jump rope (33,3%) as well as going for strolls were the activities in which the girls took keen interest, whereas playing with a ball and badminton (77,9%) as well as races (51,2%) were the activities which the boys found highly enjoyable. Outdoor activities such as: hopscotch, playing with a jump rope and going for strolls were generally less favored by the boys (17,4%, 16,3%, and 15,1% respectively). The smallest number of children attended swimming classes during their leisure time (girls – 9,5%, and boys – 13,4%) (Tab. 8).

As can be seen from table 9, friends from the playground constituted the biggest group of the children's

Table 3.

*The level of regret about being absent at P.E. classes*

| Responses     | Girls |       | Boys |       | Total |       |
|---------------|-------|-------|------|-------|-------|-------|
|               | N     | %     | N    | %     | N     | %     |
| <b>High</b>   | 22    | 71,0  | 18   | 58,1  | 40    | 64,5  |
| <b>Medium</b> | 8     | 25,8  | 12   | 38,7  | 20    | 32,3  |
| <b>Low</b>    | 1     | 3,2   | 1    | 3,2   | 2     | 3,2   |
| <b>Total</b>  | 31    | 100,0 | 31   | 100,0 | 62    | 100,0 |

Table 4.

*The level of satisfaction/dissatisfaction with attending P.E. classes*

| Responses              | Girls |       | Boys |       | Total |       |
|------------------------|-------|-------|------|-------|-------|-------|
|                        | N     | %     | N    | %     | N     | %     |
| <b>Satisfaction</b>    | 40    | 95,2  | 42   | 95,4  | 82    | 95,4  |
| <b>Dissatisfaction</b> | 1     | 2,4   | 1    | 2,3   | 2     | 2,3   |
| <b>Obligation</b>      | 1     | 2,4   | 1    | 2,3   | 2     | 2,3   |
| <b>Total</b>           | 42    | 100,0 | 44   | 100,0 | 86    | 100,0 |

Table 5.

*Favorite forms of activities during P.E. classes in the opinion of children*

| Responses                                   | Girls |      | Boys |      | Total |      |
|---|-------|------|------|------|-------|------|
|   | N     | %    | N    | %    | N     | %    |
| <b>Games and plays with ball</b>            | 28    | 66,7 | 38   | 86,4 | 66    | 76,4 |
| <b>Games and plays with other equipment</b> | 22    | 52,4 | 10   | 22,7 | 32    | 37,2 |
| <b>Races</b>                                | 18    | 42,9 | 26   | 59,1 | 44    | 51,2 |
| <b>Gymnastics</b>                           | 14    | 33,3 | 4    | 9,1  | 18    | 20,9 |
| <b>Matches and competitions</b>             | 8     | 19,0 | 14   | 31,8 | 22    | 25,6 |

*Abbreviations:* three answers at the maximum

companions in their leisure time (girls – 40,5%, and boys – 43,2%). Slightly less time was shared with their siblings (girls – 30,9%, boys – 31,8%) and the smallest amount of time was spent with the children’s classmates (girls – 28,6%, boys – 25,0%).

As table 10 reveals, outdoor activities are the most preferable pastimes according to the respondents (girls –

90,5%, and boys – 90,9%). The children devote quite a lot of time to watching TV and DVDs (68,6%), especially the girls(78,6%) are more eager to engage in such activities than the boys (59,1%). Surprisingly, the girls took the smallest interest in reading books and magazines, (19,0%) whereas the boys in going for strolls (0%).

Table 6.

*The status of P.E. classes at school according to the children*

| Responses         | Girls |       | Boys |       | Total |       |
|-------------------|-------|-------|------|-------|-------|-------|
|                   | N     | %     | N    | %     | N     | %     |
| Compulsory to all | 40    | 95,2  | 42   | 95,4  | 82    | 95,4  |
| Voluntary         | 2     | 4,8   | 2    | 4,6   | 4     | 4,6   |
| Total             | 42    | 100,0 | 44   | 100,0 | 86    | 100,0 |

Table 7.

*The amount of time the children spend outdoors in their leisure time*

| Responses          | Girls |       | Boys |       | Total |       |
|--------------------|-------|-------|------|-------|-------|-------|
|                    | N     | %     | N    | %     | N     | %     |
| Everyday           | 34    | 80,9  | 36   | 81,8  | 70    | 81,4  |
| 2 – 3 times a week | 5     | 11,9  | 4    | 9,1   | 9     | 10,5  |
| Less frequently    | 3     | 7,2   | 4    | 9,1   | 7     | 8,1   |
| Total              | 42    | 100,0 | 44   | 100,0 | 86    | 100,0 |

Table 8.

*Forms of outdoor physical activities taken by the children in their leisure time*

| Responses   | Girls |      | Boys |      | Total |      |
|---|-------|------|------|------|-------|------|
|   | N     | %    | N    | %    | N     | %    |
| In summer: cycling, roller skating. In winter: ice skating and skiing | 37    | 88,1 | 40   | 90,9 | 77    | 89,5 |
| Strolls   | 13    | 30,9 | 0    | 0    | 13    | 15,1 |
| Playing a ball  | 29    | 69,0 | 38   | 86,4 | 67    | 77,9 |
| Hopscotch, badminton  | 15    | 35,7 | 0    | 0    | 15    | 17,4 |
| Playing with jump rope  | 14    | 33,3 | 0    | 0    | 14    | 16,3 |
| Races   | 18    | 42,9 | 26   | 59,1 | 44    | 51,2 |
| Swimming  | 4     | 9,5  | 6    | 13,4 | 10    | 11,6 |

**Abbreviations:** three answers at the maximum

Table 9.

*The children’s companions in their free time*

| Responses                   | Girls |       | Boys |       | Total |       |
|-----------------------------|-------|-------|------|-------|-------|-------|
|                             | N     | %     | N    | %     | N     | %     |
| Classmates                  | 12    | 28,6  | 11   | 25,0  | 23    | 26,7  |
| Friends from the playground | 17    | 40,5  | 19   | 43,2  | 36    | 41,9  |
| Siblings                    | 13    | 30,9  | 14   | 31,8  | 27    | 31,4  |
| Total                       | 42    | 100,0 | 44   | 100,0 | 86    | 100,0 |

Table 10.

*The children's favorite forms of activities in their free time*

| Responses                   | Girls |      | Boys |      | Total |      |
|-----------------------------|-------|------|------|------|-------|------|
|                             | N     | %    | N    | %    | N     | %    |
| Watching TV and DVD         | 33    | 78,6 | 26   | 59,1 | 59    | 68,6 |
| Playing computer            | 16    | 38,1 | 10   | 22,7 | 26    | 30,2 |
| Reading books and magazines | 8     | 19,0 | 4    | 9,1  | 12    | 13,9 |
| Painting and drawing, etc.  | 18    | 42,9 | 10   | 22,7 | 28    | 32,6 |
| Strolls                     | 9     | 21,4 | 0    | 0    | 9     | 10,5 |
| Outdoor activities          | 38    | 90,5 | 40   | 90,9 | 78    | 90,7 |

**Abbreviations:** three answers at the maximum

### Discussion

Although PA in leisure time has relatively grown in popularity among Europeans over the years, this tendency manifests itself in a variety of forms rather than amount of time devoted to physical exercise (Cachay et al., 1990; Crum, 1993). It should be stated, however, that the number of physically inactive people are increasing all over the world, which is largely due to socio-cultural factors such as gender, age, socioeconomic status, geographic location and urbanization status (Scheerder et al., 2002; Falgairette et al., 2004).

This research revealed that the children living in rural areas were eager to participate in school P.E. classes, and their absence was sporadic and caused mainly by illness. Plays and games with a ball as well as races were the most favorite and popular forms of PA among the children. The games with other equipment and gymnastics were more favored by the girls, whereas the boys preferred matches and competitions. As can be seen from the above data, PA of the early school children takes the form of a rather spontaneous play or results from the willingness to compete (among boys). Consequently, the intensity of physical exercises performed in this way may be insufficient. This assumption was confirmed by the research conducted with 6-7-year-old children in the United States as participants, which showed that despite a relatively high motor activity of these children during a day and their eagerness to be involved in physical activities, less than 2% of the time allotted to PA was devoted to intensive physical exercises, while 80% of this time was filled with freestyle and low-intensity physical exercises (Gilliam et al., 1981).

In our research the vast majority of girls and boys expressed the opinion that P.E. classes should be compulsory to everyone. According to the statistics provided by the Surgeon General, only 3,8% of early school children devote approximately 6 minutes a day to PA (Lee et al., 2007). For the reason that primary school is frequently the sole center which gives children an opportunity to participate in physical activities, P.E. classes should be part of the school daily schedule. Nevertheless, the number of compulsory P.E. classes is being continuously decreased or, worse still, even totally excluded from the curriculum (NASPE & AHA, 2006).

This research showed that most of the children spent

some of their leisure time outdoors in the company of their friends or siblings. None of the children admitted to playing outdoor games with their parents. Such a worrying tendency was also observed among the children from primary school in Szydłowo, Poland (rural area) (Sławek et al., 2012), which can be mainly accounted for by the unlimited number of working hours on the farm.

The top popular pastimes were the following: cycling, roller skating, and during the winter time: ice skating, skiing. However, winter activities seem to be more the children's dream activities than their real involvement as sports facilities such as rinks and ski slopes are scarce in the region of Warmia & Mazury. What is more, they are also believed to be too expensive to be affordable to everyone. Playing the ball as well as races were the most favorite physical activities both at school and in the leisure time. Sadly, only a marginal percentage of rural children take part in targeted physical activities and sports training such as swimming. This mostly results from the lack of adequate facilities and qualified staff in the country (Jaworski, 1994; Nowakowski, 1996). Another worrying tendency is an excessive amount of time spent in front of TV, DVD, and computer (Lisicki & Wilk, 1998). The research conducted by Tucker (1986) revealed a significant relation between an excessive viewing time and low level of physical fitness and obesity as a consequence of the children's sedentary lifestyle.

### Conclusions

The research showed that the early school children inhabiting rural areas were eager to participate in physical activities organized by school. The most favorite activities at school included games and plays with a ball and other equipment, races, gymnastics (among girls) and matches and competitions (among boys). According to the children the physical activities in which they are involved in their leisure time are spontaneous and unorganized in character and include physical activities such as: cycling, roller skating, skating and skiing. A marginal percentage of rural children participating in the research took part in organized and targeted physical activities such as sports trainings or swimming lessons. A relatively large number of the rural children under investigation devote a grate deal of their time to watching TV, DVDs, or playing on the computer.

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**Cite this article as:** Podstawski Robert, Omelan Aneta, Zapert Monika, Żurek Piotr. School and out-of-school physical activity of children in rural areas. *Physical education of students*, 2014, vol.3, pp. 55-60. doi:10.6084/m9.figshare.979315

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Received: 26.02.2014  
Published: 27.02.2014

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**Цитируйте эту статью как:** Подставки Роберт, Омелан Анета, Заперт Моника, Зурек Петр. Школьная и внешкольная физическая активность детей в сельских районах// Физическое воспитание студентов. – 2014. – № 3 – С. 55-60. doi:10.6084/m9.figshare.979315

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Дата поступления в редакцию: 26.02.2014 г.  
Опубликовано: 27.02.2014 г.