EVALUATION OF THE KINESIOLOGICAL WORKSHOP PROGRAMME FOR INCREASE LEVEL OF PHYSICAL ACTIVITY OF CHILDREN, PUPILS AND PARENTS

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Abstract

The aim of the research was to evaluate the effects of the kinesiological workshop programme on all participants' physical activity (PA), namely children at an early age, pupils attending primary schools and their parents. The kinesiological workshop is part of the programme conducted by the Centre for the Study of Childhood of the Faculty of Teacher Education of Rijeka. The programme is named *Small Steps for a Healthier World* and it is based on former scientific achievements linked to intervention programmes which can be conducted in educational institutions and in the life of a family on a daily basis. Its primary purpose is to promote physical exercising through the education of children, their parents and other participants with the aim of acquiring movement as a way of life. There were 113 persons participating in the research and they were 1.5 to 46 years old. PA was evaluated pursuant to the criteria of the World Health Organisation, immediately before and seven days after the kinesiological workshop was carried out. The average results showed an extremely low level of PA for all participants. The results of the Chi-Square test determined a statistically significant (p=0.00) improvement for all participants in their level of PA after the workshop had been conducted. The aforementioned programme was very successful in the raising awareness about the importance of regular physical exercising and the acquisition of movement as a way of life.

Key words: kinesiological workshop, primary education, early age, physical activity level

Introduction

It is proven that regular physical activity has an influence on the prevention of various illnesses like cardiovascular diseases, osteoporosis, various carcinomas, psychical disorders linked to anxiety, depression, etc. (Currie, Zanotti, Morgan, Currie, de Looze and Roberts, 2012). Children who are physically active have better cognitive, psychological and socio – emotional features (Campbell, 2006 and Parfitt, 2005) as opposed to sedentary lifestyle children and may potentially have chronic health problems in later life such as obesity, osteoporosis, diabetes and cardiovascular diseases (Reilly, 2005). The diminution in the level of physical activities has been recorded in the world for a longer period of time, and every next generation has a lower level than the former (Jurakić and Heimer, 2012). What is especially worrisome are poorer children and young people's results, and it can be said that, regarding this issue, their health is seriously jeopardized. That is the reason why, in the last few decades, this problem has become one of the biggest cahlenges for scientists throughout the world (Blair, 2009). Researches have shown that by enrolling children to educational institutions like kindergartens and schools their daily physical activity level decreases significantly (Petrić, Novak, Matković, and Podnar, 2012; Parizikova, 1996).

Intervention kinesiological programmes have shown to be especially successful for a raise in the level of physical activity (Domika, Armano, and Petrić, 2018). They can be realised in a certain educational institution every day, and they can functionally complement the already existing prescribed programme (Ahmed, Macdonald, Reed, Naylor, Liu-Ambrose and Mckay, 2007; Murtagh, Mulvihill and Markey, 2013). It is known that intervention kinesiological programmes on the premises of a certain kindergarten group, classroom or some other space, lasting from 5 to 20 minutes, can contribute to significant physiological changes and affect the raise of the total daily level of physical activity (Holt, McHugh, Tink, Kingsley, Coppola, Neely and McDonald, 2013; Knox, Baker, Davies, Rees, Morgan, Cooper, Brophy and Thomas, 2012). As these programmes have regularly been directed only toward a specific age group or conducted with only one type of content and did not include the whole family, the Centre for the Study of Childhood of the Faculty of Teacher Education in Rijeka has started the research project Small Steps for a Healthier World. A kinesiological workshop is conducted as part of the projct, and its aim is the holistic approach to solving the problem of an insufficient level of physical activity. It is based on former scientific achievements reached by intervention kinesiological programmes which can be conducted in the everyday life of a certain educational institution and family. It is based on the scientific guidelines for intervention kinesiologic programs (Kahn, Ramsey, Brownson, Heath, Howze, Powell, Stone, Rajab and Corso, 2002): Creating a stimulating environment for physical exercise; physical exercise with modern technology; Integration of physical exercise or movement in everyday life; presenting topics related to the well-

being of physical activity. It can be realised from an earlier age, which is also indicated by former researches (see Degotardi and Pearson, 2014; Giske, Ugelstad, Meland, Kaltvedt, Eikeland, Tønnessen and Reikerås, 2018), i.e. from the nursery age, and it includes all the participants in the educational process. These were the reasons for including children and their parents – in this developmental period the systematic support of the family is necessary for the creation of healthy habits regarding personal health and physical exercising in an institutional context.

In the debate about the context of kindergartens in Reggio Emilia, Vecchi (2010) sees the educational institution as an ethical community, while the family and their relationship with expert associates and the wider environment are seen as the bearers of cultural values enriching the overall culture of the educational institution (see Vujičić and Čamber Tambolaš, 2017). The role of the family in supporting the overall child's development and the active participation in their child's education is especially emphasized. In fact, one of the basic principles of the National Curriculum for Early Childhood and Preschool Education (2014) is the partnership between kindergartens, parents and the wider community in an open, supporting and fair communication among parents, or children's guardians, preschool teachers and other persons employed in the institution having a common goal: to adequately answer to the individual and developmental needs of the child thus securing the support for his or her integral development.

The successful functioning and development of motor potentials in this research means the provision of benefits for the child / pupil in a multidimensional, interactive, dynamic and contextual process by which healthy and successful individual functioning, and positive social relationships in a quality environment of the educational institution are secured.

The aim of this research was to evaluate the effect of the kinesiological workshop programme on the improvement of the physical activity level for all participants, namely early childhood-aged children, primary education pupils and their parents.

Methods

Sample of examinees

The examinees were a randomly chosen sample of 113 persons from 1.5 to 46 years of age (Table 1). They were children and pupils attending the regular educational programme, i.e. kindergartens (N = 21 children from a mixed kindergarten group and 27 parents) and primary school (N = 25 second grade pupils and 40 parents) of the City of Rijeka.

Table 1 Description of examinees

	N female	N male	N total	AS age
CHILDREN	8	13	21	2
PARENTS	14	13	27	31
PUPILS	15	10	25	8
PARENTS	22	18	40	38

N – number of examinees; AS – arithmetic mean

Sample of variables

The kinesiological workshop programme was evaluated so that its impact on the improvement of the physical activity level with children, pupils and their parents was studied. The physical activity of the respondents was assessed on the basis of questions from standardized *Health Behavior for Children* curriculum (Currie at al., 2012) and *International Physical Activity Questionnaires* to monitor the health behaviors of children and adults in European and North American countries. Za potrebe ovog istraživanja koristili su se djelovi upitnika koji se odnose isključivo na intenzitet i vrijeme trajanja tjedne tjelesne aktivnosti. Physical activity was estimated by a survey for a one-week period. Parents were surveyed about themselves and their children immediately before and seven days after the realisation of the workshop. The research was conducted during 20 days of December 2017, while the workshop was organised during two parents' meetings of the duration of 60 minutes. At that time, all the examinees were healty and physically movable.

Description of the kinesiological workshop programme

The kinesiological workshop was conducted with the aim of promoting physical exercise and the acquisition of movement as a way of life, and its purpose was the preservation of health, the acquisition of the regular physical exercising habit, the advancement in life quality and other benefits which can be significantly influenced by physical exercising. It is part of the research project of the *Centre for Childhood Research* of of the Faculty of Teacher Education in Rijeka entitled Small Steps for a Healthier World. Before its realisation, the consent of the City of Rijeka, as well as a written consent by all parents and children willing to participate in the research had been collected.

The workshop programme was based on the following scientifically based guidelines for intervention kinesiological programmes (Kahn at al., 2002): creating a stimulating environment for physical exercising; physical exercising with contemporary technology; integration of physical

exercising, i.e. movement into preschool and prmary school teachers' everyday teaching; presentation (thematically designed educational posters) of themes linked to benefits obtained by physical activity. The incentive environment was based on motor centers that can be realized in the space of a particular group or classroom. Contemporary technology was based on dance structures with music and video exercises for physical exercise (HopSports, 2012). Specific ways of incorporating the movement into everyday life of institutions and families and a poster of presentations on the subject of physical exercise and exercise are presented.

Statistical data processing

All data was processed and analysed in the programme STATISTIKA 12.5 (StatSoft, Inc., Tulsa, OK, USA). Results of the physical activity state were shown as percentages and frequencies, in the form of graphical appendices and tables. The differences in the number of examinees who belong to a certain level of physical activity before and after the conducted kinesiological workshop were calculated by the Chi – square test. The statistical level of significance was tested with the error of p = 0.05 %.

Results

The differences in the percentage of weekly physical activity, of a mild to high intensity, with nursery-aged children before and after the conduction of the kinesiological workshop are shown in Chart 1. It can be seen that before the realisation of the workshop no child moved with an adequate intensity seven or more hours a week. More than half of them, 52 %, moved with the mentioned intensity for only one hour a week. There were 33 % of children in the category of two to three hours, while only 15 % of them were in the category of four to six hours a week. After the realisation of the workshop it can be noticed that the ratio changed in certain categories, which means that children were physically more active in the week following the workshop. Regading the category of one hour of movement a week, of a mild to high intensity, the total number of children declined by 41 %, and it rose in the category of two to three hours by 16 %, the category of four to six hours rose by 20 %, and the category of seven and more hours rose by 5 %.

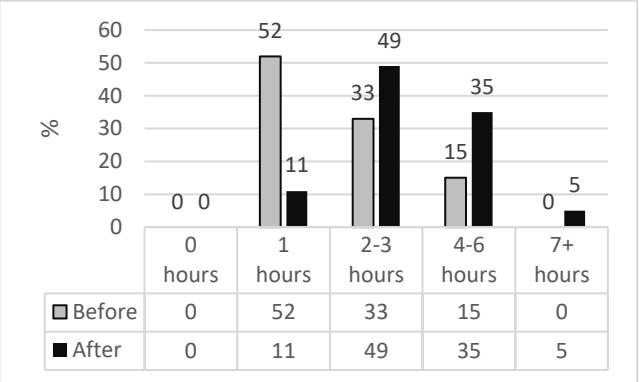

Chart 1. **Differences in the percentage of children's weekly physical activity of a mild to high intensity before and after the conduction of the kinesiological workshop**

Chart 2 shows the percentage of nursery-aged children's parents' weekly physical activity of a mild to high intensity. Before the workshop 40 % of parents did not at all move during the week with an appropriate intensity, while after the workshop this percentage declined by 21 %. After the workshop, the percentage of parents belonging to the category of one hour of mild to high intensity movement a week rose by 17 %, thus including 62 % of parents.

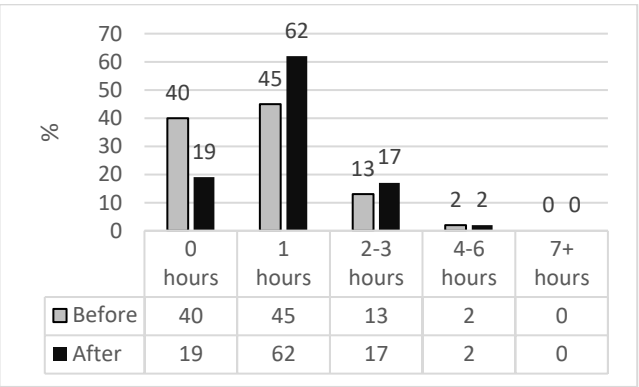

Chart 2. **Differences in the percentage of parents' weekly physical activity of a mild to high intensity before and after the conduction of the kinesiological workshop**

Chart 3 presents the differences in the percentage of physical activity of a mild to high intensity with second grade pupils in primary school. It can be noticed that before the realisation of the workshop there were 20 % of children who did not move with the necessary intensity at all, while in the week following the worksop there were no children who did not move. Furthermore, the percentage in the category of one hour declined by 43 %, while the category of two to three hours a week rose by 39 %. The category of four to six hours rose by 21 %, while the category of seven and more hours rose by 3 %.

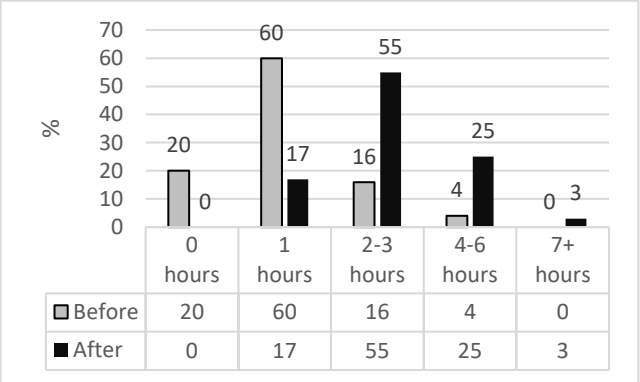

Chart 3. **Differences in the percentage of pupils' weekly physical activity of a mild to high intensity before and after the conduction of the kinesiological workshop**

Chart 4 presents the difference in percentages of weekly physical activity of a mild to high intensity for parents of second grade primary school pupils. Before the workshop there were 48 % of parents who did not at all move during the week with the appropriate intensity, while after taking part into the workshop this percentage declined to 22 %. Regarding the category of one hour of movement a week of a mild to high intensity, the percentage rose by 21 % after the workshop and included 59 % of parents. The category of two to three hours increased by 5 %, while there were no changes in the other categories.

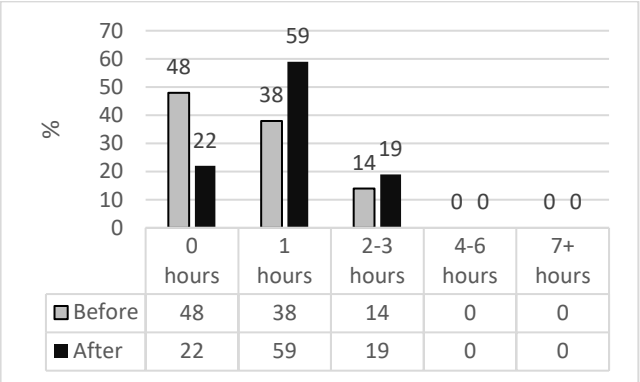

Chart 4. **Differences in the percentage of pupils' parents' weekly physical activity of a mild to high intensity before and after the conduction of the kinesiological workshop**

The analysis of differences in the number of examinees before and after the realisation of the kinesiological workshop (Table 2) has shown that there were statistically significant changes with all groups of examinees. Based upon the obtained results it can be said that children, pupils and their parents made a significant improvement in the level of total physical activity after the realisation of the workshop.

Table 2. Difference in the number of examinees regarding their physical activity level before and after the conduction of the kinesiological workshop

	Chi-square	S - freedom	p – value
CHILDREN	42.8	3	**0.00**
PARENTS	10.71	3	**0.01**
PUPILS	83.64	4	**0.00**
PARENTS	14.96	2	**0.00**

The research results indicate a generally exceptionally low level of physical activity with all groups of examinees, as well as a statistically significant improvement in the same after the realisation of the kinesiological workshop programme.

Discussion

Based upon the analysis of research results it can be concluded that in the gropus there was no examinee who would satisfy the recommendations of the World Health Organisation of at least 60 minutes of movement a day of a mild to high intensity, i.e. seven or more hours of movement a week (World Health Organization, 2014). The aforementioned criterion is derived from a systematic evaluation of the contribution of physical activity to the prevention of chronic cardiovascular metabolic diseases (Strong, Malina and Blimkie, 2005). Besides, it is known that an insufficient level of physical activity significantly contributes to the development of diseases such as obesity, various types of carcinoma, bone diseases, diabetes, etc. (Jurakić and Heimer, 2012). It can be said that this research examinees' health is seriously jeopardized when it comes to movement, and the insufficient level of physical activity as early as in the mixed nursery group is especially worrisome. Former researches also indicate a costant fall in the level of physical activity even with early childhood and preschool-aged children (Tomac, Vidranski and Ciglar, 2015). It is a fact that children move less and less and the development of their motor skills is endangered. Scientists point out that in working with early childhood and preschool-aged children it is especially important to create an encouraging environment which wll motivate children to engage in movement and incite their motor development (Pišot i Planinšec, 2005). It is emphasized that the first children's motor experience should be positive, encouraged by a motivating environment, because if contrary to that, at an early age they can prevent motor development which is later irrecoverable. In other words, the interest to acquire knowledge about children's life and learning in the context of educational institutions is more and more intense. Children are seen as (co)creators of knowledge,

identity and culture (Dahlberg, Moss and Pence, 2007) inside the research space: the educational institution (Vujičić and Pejić Papak, 2017). This research results show that primary school second grade pupils have a lower level of physical activity than children from a mixed nursery group. It is especially worrisome that there are 20 % of children who do not at all move 60 minutes a week with a mild to high intensity. According to the Health Behaviour in School-aged Children (HBSC) research conducted in 2009/2010, the average prevalence of insufficiently active children in the Republic of Croatia aged eleven, thirteen and fifteen equals to even 81 % (Currie et al., 2012). According to the results obtained by the HBSC, there is a noticeable diminution in the prevelance of the physical activity level in the secondary school system, after leaving the primary school educational system. This research results indicate that the problem of the decline in the physical activity level is also present at the early childhood and preschool age, and the decline in the prevalence of the physical activity level can be noticed today as early as primary school. It is known that by starting primary school the physical activity level is significantly lowered due to long-lasting periods of time spent sitting in desks, doing homework, learning, etc. (Sulemana, Smolensky, and Lai, 2006).

Considering the results in the children and pupils' physical activity, their parents' generally low level of physical activity is not surprising. There is no parent satisfying the minimal level of physical activity in a week, and the percentage of those who do not move at all with a satisfactory intensity is also relatively high. Parents are usually a role model for their children, and it is scientifically proven that their physical activity level is significantly connected to the child's physical activity level (Novak, Petric, Jurakic and Rakovac, 2014). It is always necessary to include parents in activities which want to influence the qualitative changes with children and pupils. Parents should be aware of the importance of movement for their children and the improvement and preservation of their health, offer to their children, but also to themselves, quality movement, and encourage their children by setting personal examples. At the same time, it is of key importance to create a culture of dialogue with all those participating in the process, it is important to understand the symbolic system of persons we are interacting with, their value system, and their culture which supports a certain attitude (Galimberti 2007, prema Vecchi, 2010).

It is obvious that educational institutions, together with parents can, and must have an mportant role in the increase of the physical activity level. Children and pupils regularly spend most of their day in educational institutions (Tomac et al., 2015). More and more children attend early childhood and preschool institutions, while school is compulsory and accessible to all until their age of majority, and so the aforementioned institutions are the ideal place to solve the problem of physical inactivity (Petrić, Bartoluci and Novak, 2016). Studies show that children are moving more during their stay in an educational institution than during their stay at home (Trajkovski, Sirotić, Tomac, 2017). Another mitigating circumstance is that educational institutions have their professional staff, namely preschool teachers, primary school teachers or kinesiologists who acquired competencies during their study programmes for a quality planning and conduction of kinesiological activities in various forms, methods and work strategies.

The analysis has shown that the kinesiological workshop programme had a statistically significant influence on the increase in the physical activity level for all studied groups, namely children, pupils and their parents. This confirms that educational institutions can be an adequate place for raising awareness and solving problems linked to children and pupils' physical inactivity, and that intervention kinesiological programmes are extremely effective when it comes to raising the level of physical activity (Novak et al., 2014). Excellent results are obtained by five-minute kinesiological activities or active physical breaks in the classroom during the teaching process in all school subjects (Podnar, 2015). Former researches indicate that except for influencing the overall daily physical activity, intervention kinesiological programmes significantly improve concentration and the pupils' educational success (Murtagh et al., 2013; Holt et al., 2013; Knox et al., 2012; Ahmed et al., 2007). These results could partially explain the significant positive effects of the realised kinesiological workshop in this research as well. Special attention was paid to the choice of contemporary technology, music, i.e. multimedia which, also according to Podnar (2015), is especially effective in intervention programmes.

Space design, or creating an environment which will incite the child to move is also significant since it influences the development of motor skills (Pišot and Planinšec, 2005). In other words, the emphasis is on the creation of an environment which does not pose limits, which favours the creation of various humane, social and emotional relationships among all participants of the process, thus giving space to the development of different children's intelligences or is meant for different children's learning types. Contemporary researches put a stronger emphasis to the importance of forming effective and innovative learning environments (Dumont and Istance, 2010), pointing out that the space in which children, pupils spend their time should be made as functional and multipurposeful as possible (Fošnarič, 2009). The topic is a challenging, safe, comfortable and socially enriched environment which influences teaching and learning processes, cognitive outcomes and children and pupils' motivation combined with clearly set aims, and with an emphasis on the active role of children, a motivating approach of teachers and effective group management. The environment reflecting these elements is cooperative, experiential, child-directed. Building and maintaining environments which make teaching easier and so support children's learning make possible the creation of the Standard for the

21st century learner in which pupils use skills, sources and tools for (AASL 2007, according to Schultz-Jones, 2010, p. 14): asking questions, critical thinking and the acquisition of knowledge, making conclusions, reaching decisions, applying knowledge in new situations, creating new knowledge and their productive participation as democratic society members. In such environments the evaluation of learning outcomes is also connected to contemporary approaches and the role of the educator, teacher in forming the environment and learning (Halasz and Michel, 2011). It is obvious that today it is extremely important to live the movement and integrate it in everyday teaching.

One of the flaws of this research is that there are no data on the long-term influence of the intervention programme, or workshop, on the examinees' physical activity level. Furter research should be directed toward the creation of a long-lasting system which would assess the impact of this programme on the level of physical activity for all groups, but also on the educational institution and its continuation of use of the presented material.

Conclusion

This research has shown extremely alarming data on the level of children, pupils and their parents' physical activity. There was no person participating in this research who satisfied the minimal prescribed criteria of physical activity level, and it is especially troubling that this problem is already present at the childhood age. On the other hand, the realised intervention kinesiological programme conducted in the form of kinesiological workshop has shown to be very successful in solving this problem. All age groups achieved a statistically significant improvement in the physical activity level.

Contents offered in this kinesiological workshop can be integrated in the everyday work of a certain educational institution or home. Physical exercising or movement should be accepted as a way of functioning if children, pupils and their parents' health wants to be preserved and improved, and eventually the quality of life made better.

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VREDNOVANJE PROGRAMA KINEZIOLOŠKE RADIONICE ZA POVEĆANJE RAZINE TJELESNE AKTIVNOSTI DJECE, UČENIKA I RODITELJA

Sažetak

Cilj istraživanja bio je vrednovati učinke kineziološke radionice za povećanje razine tjelesne aktivnosti (TA) kod svih sudionika, odnosno djece rane dobi, učenika u primarnom obrazovanju i njihovih roditelja. Kineziološka radionica dio je projekta Centra za istraživanje djetinjstva pri Učiteljskom fakultetu u Rijeci pod nazivom Mali koraci za zdraviji svijet. Temelji se na dosadašnjim znanstvenim postignućima vezanih uz interventne programe koji se mogu svakodnevno provoditi u odgojno – obrazovnim institucijama i životu određene obitelji. Primarna svrha je promocija tjelesnog vježbanja edukacijom djece i roditelja te ostalih sudionika s ciljem prihvaćanja pokreta kao načina življenja. U istraživanju je sudjelovalo ukupno 113 osoba u dobi od 1.5 do 46 godina. TA procijenjena je sukladno kriterijima Svijetske zdravstvene organizacije, neposredno prije i sedam dana nakon održane radionice. Prosječni rezultati ukazuju na izrazito nisku razinu TA kod svih sudionika. Hi – kvadrat testom utvrdio se statistički značajan (p=0.00) napredak kod svih sudionika u razini TA nakon provedene radionice. Navedeni način pokazao se kao iznimno uspješan u razvijanju svijesti o važnosti redovitog tjelesnog vježbanja i prihvaćanju pokreta kao načina življenja.

Ključne riječi: kineziološka radionica, primarno obrazovanje, rana dob, razina tjelesne aktivnosti

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