CENTER ZA ZDRAVJE IN RAZVOJ
CENTRE FOR HEALTH AND DEVELOPMENT
MURSKA SOBOTA

Co-funded by the
Erasmus+ Programme
of the European Union

MODEL TO PROVIDE CONDITIONS FOR CHILDREN'S EXERCISE

(AMONG CHILDREN THAT ARE INCLINED TO BE OBESE OR OVERWEIGHT)

IN THE LOCAL COMMUNITY

Murska Sobota, Slovenia, June 2017

FOPSIM
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MEĐIMURSKA ŽUPANIJA
MEĐIMURSKI SAVEZ SPORTSKE REKREACIJE «SPORT ZA SVE» ČAKOVEC
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CENTER ZA ZDRAVJE IN RAZVOJ
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Fig. on the front page: Final Family Event with all the Partners at the Final Conference in Slovenia, 2017.

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1 INTRODUCTION

Silva Nemeš, Saša Marija Ratnik, Damjana Nemeš, Alenka Glavač Geršanov

As individuals, we generally perceive health as the most important value of life and through the aspect of health we often assess the state of different societies. The guidelines in the field of healthy lifestyle are increasingly emphasizing the individual's responsibility for achieving physical and mental health. Many activities are already focused on prevention, so that consequences, such as illness and lower quality of life, do not occur.

Healthy nutrition and regular physical activity have long been recognized as key factors in protecting and strengthening health, as they contribute to better health, increase the quality of life, ensure optimum growth and development of the individual, improve productivity, and enable active and healthy aging. In the long term they also contribute to the sustainability of the healthcare system.

As early as 1997, the World Health Organization (WHO) recognized obesity as a disease and as one of the greatest public health problems of the 21st century, and for this reason, diet and physical activity have been considered a priority for many years (WHO, 2016a).

Fig. 1: Attendant of the culinary workshop in Slovenia

Source: Centre for Health and Development Murska Sobota, 2016

Particular attention should be paid to childhood obesity, as this is associated with a greater possibility of obesity in adulthood, premature death, and disability in adulthood. Childhood obesity is one of the major health challenges of the 21st century – the WHO estimates that prevalence of obesity among children has reached an alarming rate. The number of overweight and obese children in the world has already exceeded 42 million (WHO, 2014). The projection shows that over 60% of children who are overweight before puberty will be obese in adulthood (WHO, 2016b).

Some chronic non-communicable diseases, such as diabetes, high blood pressure, increased blood cholesterol, and fatty liver are closely linked to overweight and obesity.

It is generally known that overweight and obesity are most common in the group of people with the lowest level of education and in the group of people with the lowest socio-economic status. The socio-economic situation affects the health of the population, according to a comprehensive study by Health Inequalities (Buzeti et al, 2011), which says that children from poorer families eat less fruit and vegetables, and are less often physically active.

Inadequate nutrition of children and youth is also reflected in their motoric efficiency. Because increased body weight and extra body fat is an additional burden, children and adolescents are usually less physically active. Consequently, this means a reduced quality of life and health of an individual, and later also a reduced work ability in adulthood (Starc, 2014).

The sedentary lifestyle is closely linked to various disorders and illnesses. According to the WHO European Office data from 2004, physical inactivity is the reason for the disease burden of 3.5% and up to 10% of all deaths in Europe (Cavill, Kahlmeier and Racioppu, 2006, in ReNPPTDZ, 2015).

The problem of a high proportion of physically inactive people is present in all age groups, including the group of children. Similarly, the time the population spends in a sitting position (in front of a television screen, a computer or other current activities) is prolonged. At the same time, the number of people who are hiking or cycling in their day-to-day life is considerably too small (Tomšič et al, 2014).

It is estimated that 150 minutes of moderately intense aerobic exercise would reduce the risk of ischemic heart disease by 30%, the risk of developing diabetes by 27%, and the risk of breast and colon cancer up to 25%. In addition, physical exercise has positive effects on mental health by reducing stress, reducing the risk of developing anxiety, depression, and also reducing the risk or the subsequent occurrence of Alzheimer's disease and various forms of dementia (WHO, 2016b).

Children and adolescents who are more physically active are also more successful. This success is mainly reflected in schoolwork, as they have a better memory and remember the learning materials more easily. They are also more satisfied with their health and the quality of life. Exercise has a positive effect on muscles and joints, helps to regulate blood pressure and body weight, and contributes to better mental health of the individual (Lesnik, 2016).

In order to develop a healthy lifestyle in children with appropriate nutrition and physical activity, the awareness and active involvement of parents is also very important. The source of good dietary habits should go back to early childhood – parents have a key role in choosing whether they will bring a healthy or unhealthy diet to the table. Eating habits begin to form in childhood and transfer to later life. The parents are also setting an example for their children (WHO, 2016c).

Maintaining healthy eating habits and physical activity is a major challenge in today's modern society – it is becoming increasingly difficult to maintain a healthy lifestyle due to the fast pace, work and family.

In order to improve the situation of excessive body weight in children, it is necessary to identify preventive activities to prevent overweight and obesity. This also reduces the possibility of obesity and complications in adulthood (Kotnik, 2013). WHO lists the teaching of healthy eating habits and physical activity in early childhood as one of the most important steps in the fight against childhood obesity (WHO, 2016c).

Fig. 2: Family event, polygons for children and their parents in Slovenia

Source: Centre for Health and Development Murska Sobota, 2017

2 Project ON THE MOVE

Silva Nemeš, Saša Marija Ratnik

The idea behind the project On the Move has been derived from and tried to tackle one specific issue that is causing numerous problems worldwide, Europe not excluded. According to WHO (WHO, 216a), the number of overweight or obese infants and young children (aged 0 to 5 years) increased from 31 million globally in 1990 to 44 million in 2012. The vast majority of overweight or obese children live in developing countries, where the rate of increase has been more than 30% higher than that of developed countries. Without intervention, obese infants and young children will likely continue to be obese during childhood, adolescence and adulthood, and are more likely to develop a variety of health problems.

2.1 Purpose and Goals of the Project

The main purpose of the project On the Move was promoting a healthy lifestyle with diet and physical activity in pre-school children. The project was based on the provision of equal opportunities so that all activities were completely free of charge, which means that children and families with lower socio-economic status, who normally could not afford sports programmes, culinary workshops and dietary counselling, could also participate. The target group was primarily pre-school children and their families, but also stakeholders and decision makers at the local, regional and national levels. We hope that the results of the project will help us to ensure the project's sustainability in terms of providing the data to support the ability to influence national policy changes in the field of physical activity and nutrition for pre-school children in all the countries that participated in the project.

The main goal of the project was to make children and their families aware of and develop healthy eating habits and physical activities. The project also urges parents to work with their children to prepare healthier meals and to be more physically active. In addition, the aim of the project is to promote voluntary participation in sporting activities, to achieve access to quality sports content, to teach the general population the importance of a healthy lifestyle in childhood and, last but not least, to measure the effectiveness of the implemented sports programmes in combination with the awareness of and information on an appropriate and accessible diet, so that the results can influence the change of policy and the development of the local support model to provide conditions for children's exercise (among children that are inclined to be obese or overweight) in the local community.

2.2 Activities to Achieve the Goals of the Project

The project was designed primarily for pre-school children, aged between 4 and 6 years, and their families from six countries: Croatia, Slovenia, Slovakia, Malta, Portugal and the United Kingdom. The focus on this target group was due to the large number of overweight and obesity in (pre-)school children in all of these countries. A healthy lifestyle from an early age is crucial – it is known that

children who are physically active early on are more likely to be active later in life and thereby reduce the chance of developing obesity and obesity-related chronic diseases. However, this is not a problem just for the countries involved in the project and it takes the whole-of-government approach to successfully tackle the obesity and overweight of children (WHO, 2016c).

The pilot programme for children and parents had a test period of 4 months in Croatia – the lead partner of the project. The kinesiology experts used this period to see the reaction of target groups to proposed sports activities, frequency of trainings, outdoor meetings and workshops. Based on the indicators, the programme was adapted, revised and transferred to other participating countries. The programme lasted 14 months in Croatia and 9 months in other countries, except for Malta, where it lasted 3 months. The programme has been adapted to the specifics of each country (for example in the UK, children begin to attend school at 4 years, in Portugal at 3 years), but the children in all countries were equally old and the goals of the sports programme remained the same. Alterations were also made in order to meet the requirements of legislation, specific needs and policies of each country.

Fig. 3: After the first exercises in Slovenia

Source: Centre for Health and Development Murska Sobota, 2016

3 Data Analysis

Silva Nemeš, Alenka Glavač Geršanov

In the data analysis, we look at authorised contributions of different data analyses: parents' questionnaires and sports' measurements of children. Parents' questionnaires were carried out in different periods of activity (firstly at the beginning of the implementation of the sports programme, and secondly at the end). From the analysis of the parents' questionnaires, we prepared answers to four fundamental questions:

1. Creating awareness among parents;
2. Workshops and sports events for families;
3. Change of habits;
4. Sustainability in the local community.

Creating awareness among parents: here we wanted to find out whether activities had an impact on the awareness of parents about the importance of physical exercise (PE) and proper nutrition.

Workshops for families: here we wanted to find out whether parents were satisfied with the workshops, if they saw any problem in attending such activities together with their children, and why.

Fig. 4: Sugar in food and drinks – counting the amounts of sugar in Slovenia

Source: Centre for Health and Development Murska Sobota, 2017

Change of habits: here we wanted to find out whether parents started thinking differently or even acting differently as a result of the messages we had sent them through all of the different activities provided for them and their children.

Sustainability in the community: here we wanted to provide the best actions that had been derived from the good practice examples in different countries, and be critically aware of all the challenges the local community is faced with in order to provide such a programme for their residents and target groups, free of charge. We also wanted to provide some solutions and concrete suggestions to the policy makers at the local, regional, national and European level for tackling the obesity and overweight problems as effectively as possible in different communities with different legislation, specific needs and policies of each country.

At the beginning of the project, we took measurements to evaluate the morphological characteristics of children, i.e. height and weight, waistline, upper and lower arm circumference, as well as upper and lower leg circumference. Coordination, flexibility, strength, agility, and functionality were measured using various tests. Some of the participating countries did not complete all of the mentioned measurements, either due to the specifics of the legislation and the rights of parents and children to be included in such programmes, or because of the established practice per country, which differs from the practice proposed by the lead partner. All of this is described in the analysis.

Fig. 5: Measurements of children in Slovenia

Source: Centre for Health and Development Murska Sobota

Measurement of the limb circumferences and the testing of the abovementioned abilities were repeated twice – the second time after four-and-a-half months of exercise, and the third time after nine months, at the end of the exercise. Intermediate measurements were designed to monitor the impact of regular physical exercise and possible changes in children's dietary habits.

The following table presents the results of the parents' questionnaires, followed by the results of sports measurements for each of the participating countries.

3.1 Croatia

Aleksandra Ličanin

The On the Move sports activities in Croatia started on 1 May 2016 and lasted until 29 June 2017. They involved children from age 4 to school-age in the Međimurje County. The preparatory activities included the advertising of the project, gathering target groups of pre-school children with established obesity and low level of physical activity and their families, work programmes and battery tests for initial, intermediate and final measurements during the programme. In the first weeks of running the programme we did the initial measurement of the children.

3.1.1 Analysis of the Survey for Parents

Creating Awareness among Parents

Parents of children included in the athletics, gymnastics and swimming sports programme answered the **questionnaire** which determined various life style and habit issues of children. We have processed **168** questionnaires and the following table contains the most valuable results.

Table 1: Croatia: Creating awareness among parents

Question	Yes / %	No / %	Observation
Has your child been diagnosed with any (chronic) disease?	7	93	
Is your child allergic (to food)?	10	90	Mainly allergic to nuts, berries, milk, peas, and poppy.
Does the paediatrician know that your child is included in the “On the Move” programme?	44	56	
Did your child attend any other activity before attending “On the Move”?	49	51	No one attended any other activity besides OTM.
Is your child more physically active during the day and week than before the programme?	89	11	
Please, write down any changes you noticed in your child during the programme “On the Move”.	Friendliness and self-confidence (40%)		
Do you think that your child will want to participate in any other sports programmes after “On the Move”?	100		

Have you noticed that your child is healthier / has a better immune system since attending "On the Move"?	76	24	
	Athletics	Gymnastics	Swimming
Do you think that your child will want to participate in any other sports programmes after "On the Move"?	17%	33%	50%

Overall, families have realized that physical activity and a balanced diet are important everyday issues when speaking about good health, and the physical, intellectual and social development of every individual. The project "On the Move" encouraged public speaking and the raising of awareness of all participants in our programme, which has resulted in personal life style changes, attributed to this programme.

Workshops for Families

We held 28 family events during the programme and 6 culinary workshops for all the participants and the interested public. Workshops held by a chef, favouring authentic, seasonal groceries, presented the preparation of meals which are easy and pretty quick to make. Especially important is that the meals are fresh, nutritionally valuable, and easy to digest. A diet expert was also present at the workshops, who talked with parents and advised them about alternatives in their diet.

One cooking workshop welcomed a dentist and a psychologist as well. The reason we invited them was to remind parents that they are role models to their children, and that dental hygiene is also one of the most important issues for each individual. The psychologist pointed out the role of parents in a child's upbringing, not only in the nurturing sense, but in the complex process of educating children who will be responsible towards themselves and towards society.

Through our questionnaire we also gathered information on the (changing) diet habits of our project participants. What we consider one of the most important findings is that many families (53%) included new food on their menus, widened their "diet horizons", became more creative with food, and changed their approach towards preparing meals. The new groceries on their menus are actually traditional foodstuffs (barley, buckwheat, corn, poppy in cakes, and leek), which were excluded from their diet "thanks" to simple, half-ready food in markets. Their diet is now also enriched by fish, vegetable stews, batata instead of potato, natural sweeteners such as agava syrup and honey in tea instead of white or brown sugar.

Change of Habits

Besides diet, the families in our programme changed habits regarding physical activity. They strive to change how they commute to work every day, choose bicycles instead of cars, and encourage children to stay out and play with friends. In the parents' opinion, 63% of them are good role models to their children. Also, 93% of parents say that they go for walks, hiking, and cycling

much more than before attending “On the Move”, and 91% say that they know how to demonstrate stretching exercises to their children.

Sustainability in the Local Community

The Međimurje County will ensure the sustainability of “On the Move” programme activities together with sports clubs. For starters, an agreement has been signed between the County and sports organizations that were subcontracted by the County to implement the programme with children. For all children who will continue practising in their clubs as a continuation of the “On the Move” programme, clubs will provide a 20% discount on their monthly fee.

In cooperation with the Association of Sports Federations and Clubs, the County is creating a financing strategy and a working programme for children with obesity, overweight and lack of physical activity.

With a broader analysis and this Model, we will contact the Croatian Ministry of Health, Ministry for Demography, Family, Youth and Social Policy, the Central State Office for Sport, the Ministry of Science and Education and its Education and Teacher Training Agency, the Teaching Faculty in Zagreb, the Teaching Faculty in Rijeka and the World Health Organization, in order to highlight the need for a systematic, national sport, diet and health approach to children under 7 years of age.

3.1.2 Analysis of the Sports Measurements of Children

Training sessions took place in sports halls in 4 locations: Čakovec, Mursko Središće, Nedelišće and Prelog, with different training conditions and equipment. The spatial conditions and equipment for exercising with children were provided by the sports halls and 3 programme subcontractors from Međimurje County, the gymnastics club "Marijan Zadravec Macan" Čakovec, the sports club "Vitae" Čakovec and the Čakovec swim club. Throughout the programme, 202 children participated. Given the student's fluctuation and the non-attendance of certain programmes, which we could not influence despite the high degree of engagement and motivation of the project staff and kinesiologists, not to mention the inclusion of new entrants, this analysis encompassed only 168 children.

The anthropological variables that we measured were: height, weight, waistline, upper and lower arm circumference, upper and lower leg circumference. We also concentrated on the measurement of motor skills and skills that tell us about the initial state of the children in speed tests, lower limb strength, general condition, abdominal strength, flexibility of the body and of muscles in the back of the thighs and the rotator cuff. We have tested four-legged walking backwards, tilt with a stick, bend in sitting position, body lift, sidestep, and functional abilities by measuring their speed in the 3-minute obstacle course test.

The initial measurements were performed in the period from 2 May to 15 May 2016. The first intermediate measurement was performed in October 2016. The second intermediate measurements were performed in February 2017 and final testing was conducted in the first two

weeks of May 2017. The test was conducted under the exact same conditions, the same measuring instruments were used, and testing was carried out by the same persons, i.e. kinesiologists. Therefore, we can confirm that the test is relevant.

This analysis gives an overview of the differences between the initial and final testing, that is, the initial and final anthropological, motor and functional status of the children involved in the programme. Between the initial and final measurements, 52 weeks passed in which 97 training units were performed. After the final measurement, children continued to attend the training programme for another 6 weeks.

The data of this analysis were divided into two groups of analysed children. The first group consists of children attending training sessions in Čakovec and Nedelišće, and the second group of children in Mursko Središće and Prelog.

Progress of the Children in Čakovec and Nedelišće

Table 2 gives an overview of the progress of the children in 6 training groups ran by kinesiologists in Čakovec and Nedelišće (GK "Marijan Zadravec Macan" and ČPK). Hereinafter, we will address them as children from Group 1. We give an overview of the mean values of the initial and final testing of the children who have undergone the training process and a calculation of the differences in measurements (column 4). In column 5 we give an overview of the differences in percentage, which represent the differences in the measurement results (column 4) with respect to the initial test (column 2).

Table 2: Croatia: Progress of children in Čakovec and Nedelišće

	Name of test	1st measurement	2nd measurement	Difference	Difference in %
1.	Height (cm)	112..66	118..65	5.99	5.05%
2.	Weight (kg)	23..83	26..23	2.4	9.15%
3.	Waistline (cm)	60..85	61..00	0.15	0.25%
4.	Extended upper arm circumference (cm)	21.90	20.90	-1	-4.57%
5.	Forearm circumference (cm)	20.86	18.95	-1.91	-9.15%
6.	Upper leg circumference (cm)	39.22	39.89	0.67	1.70%
7.	Lower leg circumference (cm)	25.71	26.31	0.6	2.32%
8.	Four-legged walking backwards (sec)	21.92	13.06	-8.86	-40.43%
9.	Tilt with a stick (cm)	60.09	51.24	-8.85	-14.72%

10.	Bend in sitting position (cm)	6.23	7.44	1.21	19.39%
11.	Standing long jump (cm)	89.78	109.10	19.32	21.52%
12.	Body lift (number in 15 sec)	4.49	8.74	4.25	94.65%
13.	Sidestep (sec)	10.23	7.58	-2.65	-25.88%
14.	3-minute obstacle course (m)	351.18	393.09	41.91	11.93%

During the second and third testing (two intermediate measurements in 10/2016 and 02/2017), the progress of children and the growth of anthropometric parameters were evident. The tests have shown increased flexibility of the lower limbs and strength, as well as increased speed in overcoming obstacles on the obstacle course.

One of our findings after the final testing in Čakovec and Nedelišće was that the height of the children increased by 5.99 cm during the programme, which is 5.32%.

Children gained on average 2.4 kg, in percentage slightly more than 10%, which we have attributed to their growth and development. For some children, due to the growth and development stage which is intense at that time, certain results vary between positive and negative.

In anthropometric measurements the highest increase is recorded in the upper leg circumference, which was 0.67 cm (1.70%), and 0.6 cm (2.32%) for the lower leg circumference. The waistline increased slightly by 0.15 cm (0.25%). All other circumferences recorded a decrease, with the largest decrease in forearm circumference by 1.91 cm (9.15%). The upper arm circumference was lower on average by 1 cm, which is 4.57%.

The coordination and speed test, as well as the four-legged walking backwards test were performed much faster. The average difference in time is as many as 8.86 seconds shorter than the initial time, which is a percentage increase of 40.43%.

The rotator cuff flexibility test and tilt with a stick was better by 8.85 cm on average, a percentage improvement of 14.72%. The muscle flexibility test, as well as the bend in a sitting position, recorded a progress of 1.21 cm or 19.39%.

The lower limb strength test and the standing long jump test also showed remarkable progress, up to 19.32 cm, or 21.52%. The body lift and abdominal strength test advanced on average by 4.25 repetitions, which is almost twice as many as the initial test results. In percentage it amounts to 94.65%.

The agility and coordination test and the sidestep test marked an average 2.65 second increase; in percentage it amounts to 25.88%. The general preparedness and aerobic power test and the 3-minute obstacle course test also increased steadily – on average, children ran 41.91 metres more than in the initial test, which is an increase of 11.93%.

By comparing the initial and final testing under the "On the Move" project, we can conclude the progress of all test variables. The height and weight are higher on average, which is normal due to the natural growth and development of children. All other scores show improvements, especially the number of repetitions, the strength of the lower and upper extremities, the aerobic power of the individual, coordination and agility, as well as children's flexibility.

Progress of Children in Mursko Središće and Prelog

Table 3 gives an overview of the progress of the children in 4 training groups ran by kinesiologists in Mursko Središće and Prelog (USR "Vitae"). Hereinafter, we will address them as children from Group 2. We give an overview of the mean values of the initial and final testing of the children who have undergone the training process and a calculation of the differences in measurements (column 4).

In column 5 we give an overview of the differences in percentage, which represent the differences in the measurement results (column 4) with respect to the initial test (column 2).

The average height of the children in Mursko Središće and Prelog increased by 6.96 cm, which stands for 5.73%.

Table 3: Croatia: Progress of children in Mursko Središće and Prelog

	Name of test	1st measurement	2nd measurement	Difference	Difference in %
1.	Height (cm)	114.45	121.41	6.96	6.08%
2.	Weight (kg)	22.70	25.37	2.67	11.76%
3.	Waistline (cm)	57.68	59.49	1.81	3.14%
4.	Extended upper arm circumference (cm)	18.69	19.21	0.52	-2.78%
5.	Forearm circumference (cm)	17.76	18.71	0.95	5.34%
6.	Upper leg circumference (cm)	34.18	36.80	2.62	7.67%
7.	Lower leg circumference (cm)	25.17	26.73	1.56	6.20%
8.	Four-legged walking backwards (sec)	14.90	14.40	-0.50	-3.36%
9.	Tilt with a stick (cm)	61.35	59.60	-1.75	-2.85%
10.	Bend in sitting position (cm)	12.95	17.02	4.07	31.43%
11.	Standing long jump (cm)	91.55	112.03	20.48	22.37%
12.	Body lift (number in 15 sec)	4.37	7.17	2.80	64.07%

13.	Sidestep (sec)	8.29	7.02	-1.27	-15.32%
14.	3-minute obstacle course (m)	378.15	443.51	65.36	17.28%

Children also weighed 2.67 kg more than at the beginning, which is a 10.52% increase, which we have attributed to their growth and development. For some children, due to the growth and development stage which is intense at that time, certain results vary between positive and negative.

In anthropometric measurements we noted an increase of 2.62 cm (7.12%) in upper leg circumference and of 1.56 cm (5.84%) in the lower leg circumference. The waistline increased by an average of 1.81 cm (3.04%). The upper arm circumference was increased by 0.95 cm (5.07%).

The coordination and speed test and the four-legged walking backwards were performed faster. On average their time was 5 seconds shorter than in the initial testing. The rotator cuff flexibility test and the tilt with a stick increased by 22.26 cm on average, amounting to an improvement of 37.35%. The body muscle and upper leg muscles flexibility test, as well as the bend in sitting position, marked a progress of 4.07 (23.91%).

The lower limb strength test and the long jump showed a significant improvement of 20.48 cm or 18.28%. The abdominal strength and body lift progressed by an average of 2.80 repetitions, which is 39.05% more than the initial score.

The agility and coordination test and the sidestep recorded an improvement of 1.27 seconds on average (18.09%). The general preparedness test and the aerobic power test, as well as the 3-minute obstacle course test, improved steadily – on average, children ran 65.36 metres more than in the initial testing, which amounts to 14.74%.

By comparing the initial and final testing under the "On the Move" project, we can conclude the progress of all test variables. The height and weight were higher on average, which was expected due to the natural growth and development of the child. All the other tests showed improvements, especially in the number of repetitions, the strength of the lower and upper limbs, the aerobic power of the individual, coordination and agility, as well as children's overall flexibility.

Overview of Children's Progress during the Programme

The comparison of the data from Čakovec and Nedelišće (Group 1, Table 1) and from Mursko Središće and Prelog (Group 2, Table 2) shows several visible differences. The fact that the children included in the programme are growing and developing greatly affects the positive and negative movements in variables.

From the initial to the final measurement, children grew 6.48 cm on average, which is 5.70% compared to the initial measurement. The weight increased by an average of 2.53 kg, which is

10.87% and is in line with expectations. The waistline increased by 0.98 cm (1.65%) on average, which is 1 to 1.5% less than expected.

Table 4 provides an overview of the overall progress of the children involved in the "On the Move" programme in all groups in all four locations.

Table 4: Croatia: Overview of children's progress during the programme

	Name of test	Initial testing	Final testing	Difference	Difference in %
1.	Height (cm)	113.56	120.03	6.48	5.70%
2.	Weight (kg)	23.27	25.80	2.53	10.87%
3.	Waistline (cm)	59.27	60.25	0.98	1.65%
4.	Extended upper arm circumference (cm)	20.30	20.06	0.24	-1.18%
5.	Forearm circumference (cm)	19.31	18.83	0.48	-2.49%
6.	Upper leg circumference (cm)	36.70	38.35	1.65	4.50%
7.	Lower leg circumference (cm)	25.44	26.52	1.08	4.25%
8.	Four-legged walking backwards (sec)	18.41	13.73	4.68	-25.42%
9.	Tilt with a stick (cm)	48.72	55.42	6.70	-13.75%
10.	Bend in sitting position (cm)	9.59	12.23	2.64	27.53%
11.	Standing long jump (cm)	90.67	110.57	19.90	21.95%
12.	Body lift (number in 15 sec)	4.43	7.96	3.53	79.68%
13.	Sidestep (sec)	9.26	7.30	-1.96	-21.17%
14.	3-minute obstacle course (m)	364.67	418.30	53.63	14.71 %

The forearm circumference of Group 1 decreased by 9.15% on average, while in Group 2, it increased by 5.34% (see Tables 1, 2 and 3, highlighted in grey). Overall, the forearm circumference decreased by 0.48 cm in all children, which is a 2.49% change compared to the initial measurement. Also, average values indicate that the upper arm circumference decreased by 0.24 cm, which is a 1.18% decrease compared to the initial measurement.

Progress can be seen in the children's upper and lower leg circumference, which indicates that their muscles have formed and their lower extremities are stronger. The upper leg circumference increased by 1.65 cm or 4.50% compared to the first measurement, while the lower leg circumference increased by 1.08 cm or 4.25% on average compared to the first measurement.

In four-legged walking backwards (Tables 1, 2 and 3, highlighted in grey), it is evident that the children in Group 1 needed more time to move to a certain distance – 21.92 seconds, while children from Group 2 only needed 14.90 seconds. Thus, the progress between the initial and final measurements in Group 1 is considerably higher than in Group 2. Group 1 was on average 8.80 seconds faster at the end of the project than in the beginning, while Group 2 improved only by 0.50 seconds.

A great difference was also observed during the bend in sitting position test (Tables 1, 2 and 3, highlighted in grey). Group 1 initially recorded a 6.23 cm bend, while Group 2 had 12.95 cm. This can partly be attributed to the fact that in the initial measurement, the children from Group 2 were on average higher than the children of Group 1 by 1.79 cm. In the final measurement this difference even increased to 2.76 cm.

Qualitative Research Results

In addition to the physical progress and the shift in all indicators, the research conducted using a qualitative survey among parents shows that their children increased their social intelligence (28%), their willingness to help others (21%), improved their speech (14%) and general communication (55%), and overcome their fear of the new (8%). Better socialization and more open interaction brought benefits with regard to adapting to new situations (28%), better communication with coaches (16%), general respect for authority (63%) and obligations (88%).

The children are safer and more self-aware, more inventive (42%) and have better spatial orientation (23%). Parents point out that children are happy to train (98%), and 5% are even doing the training exercises at home. 89% of the parents say that their children are more physically active than prior to taking part in the training programme. 26% of the parents have been informed sporadically that their children could not concentrate during activities. Athletics, gymnastics and swimming lessons are equally liked by children, however, out of all the activities, 50% of them enjoy swimming the most, 33% gymnastics and 17% athletics.

All of the parents stated that their children would certainly want to attend a sports and recreational programme after the project was completed, and that their children would enrol in a local sports club and association that offers training for pre-school children. They are most interested in swimming (23%), gymnastics (24%), football (11%), athletics (10%), karate (9%), dance (4%), handball and volleyball (3%) boxing (1%), and 3% did not specify.

44% of the parents reported that they informed their paediatrician that their child was participating in the “On the Move” programme, while 56% did not inform their paediatrician.

The overall physical and psychosocial progress of children will greatly affect their adaptation to the obligations and commitments they will face in school. It is important to note that this project has changed the children's and parents' exercise habits, and recreational or sports activity, and in

particular raised awareness of the importance of physical activity and a balanced diet for good development, health and the desirable quality of life as a whole.

Fig. 6: Family event in Croatia

Source: Medjimurje County, 2016

3.2 Slovenia

Silva Nemeš, Peter Beznec, Zvezdana Vražič

In Slovenia activities started in January 2016; by the end of August we prepared plans for implementation and media activities. We had three groups of children aged 4-6 (Cezanjevci, Moravske Toplice and Romano) and therefore three groups of parents that were involved in the activities: family meetings, culinary workshops and sports programmes (for children) all in the Pomurje region, the most north-eastern region of Slovenia. We included three different groups of children in three kindergartens who were at risk of becoming overweight or obese owing to low levels of physical activity and inaccurate or inappropriate nutrition, so the activities took place during their stay in kindergarten. The adjustment to Croatia's programme (as the lead partner) made that possible, so we convinced the principals of the kindergartens to include these activities as a part of their curriculum based on the quality of our programme. One group was more urban, one was rural, and the third was a kindergarten in the Roma community with Roma children.[1]

3.2.1 Analysis of the Survey for Parents

Overall, in Slovenia we have the so-called Sports chart (*Športni karton*) system where pupils in primary school (from ages 6-14) are tested once a year. The results are analysed and show the physical condition the children are in. During our project we performed anthropometric measurements of the children involved in the project and tested them using age-appropriate tests. We also held nine family meetings, where we wanted to motivate the whole families and enable other members of the families that are not included in the kindergarten group to be a part of the project activities. Thirdly, we held culinary workshops that were primarily intended for the children involved in the project and also for the broader public. Because we identified the need (the issue of poor oral hygiene among children aged 3-5 is getting worse in the Pomurje region) and the opportunity arose, we also included motivation workshops led by a paediatric dentist and nurses of the local Primary Health Centre, who explained to parents and their children their rights, showed the children correct oral hygiene, and motivated them to perform efficient oral hygiene.

Creating Awareness among Parents

With the first activities we wanted to motivate parents to accept our programme and to be informed of the activities we were going to perform in the next school year. Through the first questionnaire we discovered that the main and biggest problem was going to be the sugar in food and drinks. Parents were simply not aware of the amount of sugar their children consumed throughout the day in different foods and drinks, and they were also not fully aware of the consequences of these amounts. We developed a specially designed and prepared workshop to

[1] Roma children needed special attention, because they differed from the other two groups. Sports pedagogues needed to explain the exercises several times and more vividly, their concentration was poor, and they did not understand some of the exercises at all.

influence the eating habits and family activities in free time under the name "Sugar in Food and Drinks". The results of the parents' questionnaires are pointing towards the need to make or implement more of these workshops.

Workshops for Families

We developed a specially designed and prepared workshop to influence the eating habits and family activities in free time under the name "Sugar in Food and Drinks". We prepared special workshops for children and parents together to prepare healthy sandwiches with a lot of vegetables and healthier ingredients. A dietitian and professional cook held the workshops in order to give parents and children advice on how to prepare quick and healthy meals, to motivate them, and to show parents in particular that children have to be included in the process of making food also at home in the home kitchen. In the field of physical exercise, we held nine family meetings, which were led by sports pedagogues, and we usually prepared some additional healthy recipes, and invited a paediatric dental team to hold a motivational workshop and motivated parents in particular to allow their children the exercise they need, give them some good examples of joint activities, and exercises that are easy to perform together.

Change of Habits

We measured the change of habits with the questionnaire for parents before the activities (in September 2016) and after the activities (in June 2017). In the control group (Moravske Toplice) habits did not change; they kept the healthy habits from before (25%). In the test group (Cezanjevci), where we performed all of the awareness-raising activities, the habits changed: 25% changed their dinners to healthier ones, 75% switched from saturated to unsaturated fat, 100% lowered the amount of fat they used for cooking, 50% drank only water, 50% reduced the eating of unhealthy snacks (chips, milk chocolate, etc.), 97% increased their joint family activities in fresh air. Even though the success of the awareness-raising activities is evident, there is still quite a lot of space for improvement, especially in dinners and snacks in the families that do not have the time to prepare meals, especially during the week.

Sustainability in the Local Community

The model of networking among different experts such as a sports pedagogue, dietitian, professional cook, psychologist, paediatric dentist, paediatric nurse, economist, jurist and communications manager is the main activity that was coordinated by the Centre for Health and Development Murska Sobota, whose employees adjusted and specifically prepared each activity we performed. Beside working with this team, we carried out important work, the sharing of experience and knowledge, as well as adjustments to special groups with the principals and kindergarten teachers in every one of the three kindergartens we implemented our activities in[2]. Last but not

[2] We specially took into consideration the Guidelines for healthy nutrition in educational system: from first year on (Gabrijelčič et al, 2015).

least, communication with the local community's NGOs and with the local mayor's offices and their teams was also important in order to inform, involve and empower them to place physical exercise and nutrition in these kindergartens as high as possible on the agenda of their local communities. This model will be presented to all of the involved kindergartens and municipalities, and to the regional council of the Pomurje region. The Model will also be presented to the Ministry of Health of the Republic of Slovenia and to the Regions for Health Network of the WHO.

Borut Petkovič, Denis Lutar

3.2.2 Analysis of the Sports Measurements of Children

We started the project in October 2016, when we measured some anthropometric dimensions, such as body height, body weight, waistline, and the circumferences of the upper and lower arm, as well as the upper and lower leg. In addition, we measured motor skills such as: four-legged walking backwards, tilt with a stick, bend in sitting position, standing long jump, body lift, sidestep, 3-minute obstacle course. Sports activities were carried out by sports pedagogues from the sport club Izziv Pomurje. 53 children and their parents were involved in the project. The analysis of sports measurements provides an overview of the initial and final testing of children and a comparison of progress between the kindergartens involved.

We carried out the activities in three selected kindergartens: in the Cezanjevci Kindergarten, Moravske Toplice Kindergarten and the Murska Sobota Kindergarten's special unit Romano. The first measurements were taken at the beginning of October, the second at the beginning of February, and the last measurements at the end of May. The number of training units differed among kindergartens. The number of exercises per unit is shown in Table 5.

Table 5: Slovenia: Number of exercises and number of participating children

	Number of exercises	Number of children
Cezanjevci Kindergarten	51	18
Moravske Toplice Kindergarten	54	21
Murska Sobota Kindergarten Romano unit	61	14
Total	166	53

It can be seen from Table 5 that most of the exercises were carried out in the kindergarten unit Romano and the least in kindergarten Cezanjevci. The reasons for this are that a lot of exercises had to be cancelled due to various activities in the kindergarten (visiting the theatre, a competition between kindergartens, nature school, etc.). In the kindergarten Cezanjevci we took measurements every time in the school gym, so that we had the same measurement conditions each time. There were no problems, the children cooperated, and performed tasks without any difficulty. The group in Cezanjevci comprised 18 children. In the kindergarten Moravske Toplice 54 exercises were performed. Testing was performed in the kindergarten gym, which did not provide ideal conditions for the " 3-Minute Obstacle course" test. 21 children were included. In the Romano kindergarten

unit, 61 exercises were carried out. Some problems occurred when performing the motor skills tests. In the first measurement period, some children did not understand all of the instructions. Despite repeated instructions and repeated demonstrations, the tests were difficult to perform. This kindergarten also had no ideal conditions for carrying out the " 3-Minute Obstacle Course" test. In the first two measurements, the test was carried out in reduced form and on a smaller surface. However, the last measurements could be performed outside and we were able to carry out this test in accordance with the instructions. The Romano group consisted of 14 children.

Progress Comparison between the Units

Table 6: Slovenia: Progress comparison between the kindergartens

	Name of test	Cezanjevci		Moravske Toplice		Romano	
		Difference 1-3		Difference 1-3		Difference 1-3	
1.	Height (cm)	1.9	1.59%	2.9	2.50%	2.8	2.40%
2.	Weight (kg)	1.1	4.72%	1.3	6.13%	1.4	6.29%
3.	Waistline (cm)	0.9	1.64%	1.2	2.28%	1.9	3.39%
4.	Extended upper arm circumference (cm)	-0.9	-4.87%	-0.3	-1.97%	-0.2	-1.26%
5.	Forearm circumference (cm)	-1.1	-6.31%	-0.5	-2.88%	-0.7	-3.94%
6.	Upper leg circumference (cm)	0.2	0.54%	0.3	1.07%	1.7	4.67%
7.	Lower leg circumference (cm)	0.4	1.60%	0.3	1.38%	0.2	0.80%
8.	Four-legged walking backwards (sec)	-7.5	-64.48%	-4.5	-36.83%	6.2	24.04%
9.	Tilt with a stick (cm)	1.8	2.55%	-6	-9.28%	2.2	3.07%
10.	Bend in sitting position (cm)	2.8	204.35%	-0.9	-462.50%	1.2	40.54%
11.	Standing long jump (cm)	15.9	14.44%	16.7	16.87%	11.2	15.21%
12.	Body lift (number in 15 sec)	2.5	28.19%	2.4	29.38%	2.9	40.86%
13.	Sidestep (sec)	-1.1	-14.73%	-2	-25.24%	-0.5	-5.10%
14.	3-minute obstacle course (m)	82.5	18.26%	114.4	28.04%	22.7	6.98%

Table 6 shows the progress of children between the beginning and end of the testing.

Table 7: Slovenia: Comparison of results of all three kindergartens

		Cezanjevci		Moravske Toplice		Romano	
		1st measurement	3rd measurement	1st measurement	3rd measurement	1st measurement	3rd measurement
1.	Height (cm)	116.2	118.1	113.1	116	112.1	114.9
2.	Weight (kg)	21.7	22.8	19.8	21.1	20.3	21.6
3.	Waistline (cm)	54.8	55.7	53.2	54.4	53.7	55.5
4.	Extended upper arm circumference (cm)	18.6	17.8	17.7	17.4	18.5	18.3
5.	Forearm circumference (cm)	18.5	17.4	17.7	17.2	18.3	17.6

6.	Upper leg circumference (cm)	34.4	34.6	32.3	32.6	33.7	35.4
7.	Lower leg circumference (cm)	24.2	24.6	23.4	23.7	23.8	24
8.	Four-legged walking backwards (sec)	19	11.6	16.8	12.3	19.6	25.8
9.	Tilt with a stick (cm)	69.6	71.4	71.2	65.2	68	70.2
10.	Bend in sitting position (cm)	-1.4	1.4	1.1	0.2	1.7	2.8
11.	Standing long jump (cm)	94.4	110.3	82.4	99.1	62.6	73.8
12.	Body lift (number in 15 sec)	6.3	8.8	5.7	8	4.2	7.2
13.	Sidestep (sec)	8.4	7.3	9.7	7.7	9.6	9.2
14.	3-minute obstacle course (m)	369.4	451.9	293.5	407.9	302.3	325

Table 7 presents the results of motor tests and anthropometric measurements. In the case of motoric tests, in most of the tests all kindergartens achieved better results on the final measurements than they did at the beginning. In the four-legged walking backwards test, which measures the coordination of movement, the kindergarten Cezanjevci showed the greatest progress. Also, from Table 3 we can see that the teachers from the given kindergarten achieved the best results on average. Somewhat surprisingly, the Romano kindergarten unit scored a worse time at the end than they had at the beginning. The reasons for this can be found in worse conditions for exercise (there were no climbing frames or similar training equipment in the room), in poorer cognitive abilities of children, and in the environment itself. In the tilt with a stick test, which measures the flexibility of the rotator cuff, the greatest progress was achieved by the participants from the kindergarten Moravske Toplice, which have the greatest flexibility in the rotator cuff. In the bending forward in sitting position test, which measures mobility, the children in the kindergarten Moravske Toplice achieved the greatest progress and they also had the best result in absolute terms. The worst mobility overall is that of the children from the Romano kindergarten unit; to top it off, in this test, the trainees in Cezanjevci have regressed. When doing a standing long jump, which measures explosive power, they all advanced approximately the same, between 14-17%. The best average result was achieved in Cezanjevci (110.3 cm). In the body lift test, which measures the muscular endurance of the trunk, the greatest progress was achieved by the Romano kindergarten unit, which improved by as much as 40.5%. A look at the number of repetitions tells us that the children in Cezanjevci performed almost 9 repetitions, in Moravske Toplice 8, and in the Romano kindergarten unit just over 7 repetitions. In the sidestep test, which measures the agility of children, the children from Moravske Toplice improved their initial time by 2 seconds. Moravske Toplice also made the most progress in the 3-minute obstacle course test, which measures children's stamina. The least progress was made in the Romano kindergarten unit. In this test, the best average result was achieved in Cezanjevci, where children ran an average of 452 metres, in Moravske Toplice 408 metres, while the Romano unit was slightly behind with 325 metres.

A Joint Comparison of the Progress of All Three Kindergartens that Participated in the Project

Table 8: Slovenia: Joint comparison of all three kindergartens

		1st measurement	2nd measurement	3rd measurement	Difference 1-2		Difference 2-3		Difference 1-3	
1.	Height (cm)	113.8	115	116.3	1.2	1.00%	1.4	1.19%	2.5	2.21%
2.	Weight (kg)	20.6	21.3	21.9	0.7	3.30%	0.6	2.60%	1.2	6.04%
3.	Waistline (cm)	53.9	55.7	55.2	1.8	3.40%	-0.5	-0.87%	1.3	2.50%
4.	Extended upper arm circumference (cm)	18.3	18.2	17.8	-0.1	-0.50%	-0.4	-2.15%	-0.5	-2.62%
5.	Forearm circumference (cm)	18.2	17.9	17.4	-0.3	-1.60%	-0.5	-2.61%	-0.8	-4.20%
6.	Upper leg circumference (cm)	33.5	33.9	34.2	0.5	1.40%	0.3	0.76%	0.7	2.18%
7.	Lower leg circumference (cm)	23.8	24.1	24.1	0.3	1.50%	0	-0.17%	0.3	1.28%
8.	Four-legged walking backwards (sec)	18.5	18	16.6	-0.5	-2.50%	-1.5	-8.15%	-1.9	-10.42%
9.	Tilt with a stick (cm)	69.6	68.3	68.9	-1.3	-1.90%	0.6	0.93%	-0.7	-0.99%
10.	Bend in sitting position (cm)	0.5	1.7	1.5	1.2	273.90 %	-0.2	-13.17 %	1	224.68 %
11.	Standing long jump (cm)	79.8	80.4	94.4	0.6	0.80%	14	17.43 %	14.6	18.33%
12.	Body lift (number in 15 sec)	5.4	7	8	1.6	30.40%	0.9	13.39 %	2.6	47.87%
13.	Sidestep	9.2	8.3	8.1	-1	-10.60%	-0.2	-2.26%	-1.2	-12.63%
14.	3-minute obstacle course (m)	321.7	366.1	394.9	44.3	13.80%	28.9	7.88%	73.2	22.75%

Table 8 shows the total average of all three kindergartens participating in the project “On the Move” in Slovenia. From the table we can see that on average, children grew by 2.5 cm (2.21%) and became heavier by 1.2 kg (6.04%). On average, children have improved in almost all motoric tests. Four-legged walking backwards has been improved by 1.9 seconds (10.4%), tilt with a stick by 0.7

centimetres (1%), in the case of bending in sitting position they eventually achieved a worse result, namely by 1 centimetre, while the sidestep test has improved by 1.2 seconds (12.6%). Significant progress was achieved in body lifts; they improved by 2.6 repetitions (47.9%). 3-minute obstacle course: they improved the score by 73.2 metres (22.7%) and also improved in the standing long jump test, where they jumped 14.6 centimetres further (18.3%).

We can conclude that the children improved their results in almost all motor tests, and the greatest progress was made in the “body lift”, “3-minute obstacle course” and “standing long jump” tests.

We would like to reflect on the possibility of an alternative for even more accurate measurement. There were problems in measuring the bend in sitting position. The children often walked forward/backwards, it took up a lot of time, and the measurement is not reliable either. Perhaps it would be easier to perform a test that is already being performed in the measurements for the sports and educational chart. Also, in terms of circumference, we observed that some children, especially when measuring the waistline, pulled their stomach inwards in order to make them look slimmer. The alternative could be to measure the skin fold with a calliper, which always gives the same measurements and is independent of the children's behaviour.

Fig. 7: Family event in the Roma community in Slovenia

Source: Centre for Health and Development Murska Sobota, 2017

Experts from various fields (sports, education, and nutrition) participated in the project “On the Move”. It is this kind of cooperation that can raise the quality of educational processes, the quality of people's lives, and result in a healthier lifestyle for the children and their parents. With the help of these tests, we could monitor the progress of the participants and adjust the content of the

exercises. In Slovenia we have been using a sports educational chart with precisely defined test tasks, which makes it easier to monitor the progress of the children later in school and compare them with the results at a higher level. The fact that these are pre-school children makes us wonder whether all the test tasks were appropriate for their age and whether they captured all of their abilities. The evaluation of the test tasks, their suitability for this age level, their suitability in different cultures, and the determination of the control and test group should be the goal in order for us to upgrade the "On the Move" programme in the future.

3.2.3 Analysis of the Oral Hygiene Surveys

Alenka Glavač Geršanov, Silva Nemeš, Peter Beznec

During our "On the Move" project, we also prepared surveys for the parents about their children's oral hygiene. We were interested in the habits of dental cleaning and the frequency of visits to a paediatric dentist.

Parents filled out the survey twice. For the first time in November, and for the second time in June, after a lecture by the dentist Dr. Boris Egić, a specialist in paediatric and preventive dentistry, and his team from the Health Centre Murska Sobota, who joined the team from the Health Centre Ljutomer and Gornja Radgona in carrying out certain activities for informing and raising awareness.

In November, most parents (42.5%) felt that it was necessary to start brushing the teeth of children aged from one to one-and-a-half. 33.3% of the parents thought that it was necessary to start brushing teeth when the first teeth grow. In June, after the paediatric dentist's lecture, the majority of parents (41.7%) still thought that it was necessary to begin brushing teeth at the age of one. The number of parents who believed that it was necessary to start brushing teeth as soon as the first teeth grow increased by 3%.

In November, the majority of parents (68.6%) believed that children should brush their teeth twice a day. In June, 54.8% of parents still had the same opinion. The number of parents who consider that children should brush their teeth three times a day increased to 22.9%.

In November, a third of the parents thought that a child should visit a dentist for the first time when he/she is two to three years old. In June, after the dentist's lecture, the proportion of parents who thought it was necessary to visit a dentist before the age of two increased by more than 10%; at the same time, the proportion of parents who considered that the recommended age for the first visit to a dentist was between the age of four and six, decreased by more than 10%.

The survey shows that most children (79.4%) brush their teeth twice a day, and that more than 83% of children visit a paediatric dentist as a precautionary measure. 32.4% of the children visited a paediatric dentist at least once in the past year, while half of the children did so even two or three times. Three parents stated that they had visited the paediatric dentist four or five times with their child in the past year.

By informing and raising the awareness of parents about proper oral hygiene, the dangers and obligations, as well as children's rights, we have achieved greater awareness amongst parents. Most of them did not know that a child can visit a dentist from 6 months onwards.

We also warned the parents about the dangers caused by sweet drinks and urged them to be careful; we showed them how to motivate their children to brush their teeth and how to talk with their children about healthier habits. By involving a paediatric dentist, we have added another aspect to the entire approach of the “On the Move” project, which is very important for the health of children. Delivering information in an interesting, accessible and fun way has proved to be very successful.

Fig. 8: Proper dental hygiene with the help of paediatric dentist staff in Slovenia

Source: Centre for Health and Development Murska Sobota, 2016

3.3 Slovakia

Tibor Letko, Rastislav Patoprsty

Gymnastics Centre Bratislava in Slovakia was the project partner which performed all of the activities in the capital Bratislava. The project started on 1 October 2016. After the previous marketing launch of the project and the familiarization of parents with the project, we started testing the children participating in the project in the first week of October.

3.3.1 Analysis of the Survey for Parents

From the testing of children under the project, we can conclude that their running skills, the strength of their limbs, the strength of their abdominal muscles, and their overall coordination have improved slightly.

In the questionnaire on parents' awareness about healthy eating, the anticipated difference was not observed. The assumption is that if the project would go on longer, changes in the subconscious might be more visible.

We were also disappointed in the low participation in the workshops and their overall interest. We need to develop a different form of motivation for parents so that they will not complain about the lack of free time.

Therefore, we cannot see any visible changes in dietary habits. More focus should be placed on children's parents as they have the most influence over them.

Our opinion on the sustainability of the project is that it should be at least partially covered by the participants, as this will create a certain need for stakeholder involvement due to the finances invested.

3.3.2 Analysis of the Sports Measurements of Children

We focused on measuring anthropometric variables such as height, weight, waistline, upper arm circumference, forearm circumference, upper leg circumference, and lower leg circumference. In motor skills and abilities, we focused on speed, upper limb strength, lower limb strength, overall coordination in the run, abdominal muscularity, and flexion of the back and lower extremities when bending with the legs stretched on a raised bench.

Table 9: Slovakia: Analysis of the sports measurements of children

		First	Second	Difference
1	Height (cm)	117.0	117.0	0.0
2	Mass (kg)	21.5	22.2	0.7
3	Waistline (cm)	56.6	57.7	1.1
4	Upper arm circumference (cm)	18.3	19.9	1.6

5	Forearm circumference (cm)	17.5	17.8	0.3
6	Upper leg circumference (cm)	31.6	34.5	2.9
7	Lower leg circumference (cm)	24.6	25.8	1.2
8	Bending forward (cm)	6.5	4.3	-2.2
9	Endurance in the bend (sec)	7.4	8.2	0.8
10	Standing long jump (cm)	99.8	104.2	4.4
11	Run 10 m (sec)	3.3	3.2	-0.1
12	Sit down easily (count)	6.3	6.4	0.1
13	Sidestep 10 m (sec)	5.1	4.9	-0.22
14	Obstacle course 10 m (sec)	15.8	26	10.2
15	Run backwards to 10 m (sec)	17.36	16.32	-1.04

In the first test, we measured 80 of the registered children. 22 weeks passed between the first and second measurement. During this time, the children performed 40 training sessions. The training was carried out in a specialized gymnastics gym under the supervision of professional trainers. We have practised swimming with professional swimming instructors and a few hours of swimming have been carried out under the supervision of parents, in order for the parents to be physically active, because we believe their physical activity has a positive effect on the activity of their children. During this time, we held lectures on healthy nutrition and workshops on healthy cooking. At that time of year in Slovakia the climatic conditions are not favourable for outdoor activities, so we have not done any athletics training outdoors. In these training sessions, 77.3% of the registered children participated on average.

The second measurement, conducted in March, was attended by 60 children, which is 75% of the total registered children. From the tests we performed, no changes can be observed in the height indicator. This is a surprising finding, and we believe it was caused by choosing a different site for taking measurements. We noticed a weight gain of 0.7 kg, which we have attributed to the development of the children. All anthropometric measurements have increased.

In order to tell if the magnitude of the changes was due to the training process or to children's development, we would also need a neutral sample of children who have not undergone a training process.

In the tests of the flexibility of the back and lower limbs, "bending on a bench with straightened legs", we recorded an improvement of 2.2 cm. We believe that this improvement is due to the gymnastic exercises before each training session and the final stretching exercise. In the "endurance in the bend" tests, we recorded an improvement of 0.8 sec, which amounts to 9.76%. In the standing long jump test, we saw an improvement of 4.4 cm, which amounts to 4.22%. In the tests of "abdominal" muscularity (sit – lie), we recorded an improvement of 0.1 repetitions, which amounts to 1.56%. In the tests for running speeds in 10 m running and 10 m sidestep, we saw an improvement of 0.1 sec or 0.2 sec, respectively, which amounts to 3.12% or 4.08%. Despite the absence of athletic training during the first test period, we believe that the improvement in sprints

and the explosive power of lower limbs can be attributed to gymnastic exercises, as these activities are also performed at various exercise games and competitions. In the coordination tests of running on all fours backwards 10 m we saw an improvement of 1.04 sec or 6.37%. This improvement can undoubtedly be attributed to gymnastics and swimming training. We have seen a deterioration in the "obstacle course" overall coordination tests. This decline was caused by the poor measurement methodology, since there were differences between the different obstacle courses that were built, which we realized only later.

The third test was done at the beginning of June 2017. It was attended by 56% of the children.

Table 10: Slovakia: Final analysis of the sports measurements of children

		First	Second	Third	Difference 1-2		Difference 2-3		Difference 1-3	
1	Height	117.0	117.0	118.0	0	*0.00%*	1.0	*0.85%*	1.0	*0.85%*
2	Mass	21.5	22.2	22.4	0.7	*3.15%*	0.2	*0.89%*	0.9	*4.02%*
3	Waistline	56.6	57.7	58.0	1.1	*1.91%*	0.3	*0.52%*	1.4	*2.41%*
4	Upper arm circumference	18.3	19.9	20.1	1.6	*8.04%*	0.2	*1.00%*	1.8	*8.96%*
5	Forearm circumference	17.5	17.8	17.9	0.3	*1.69%*	0.1	*0.56%*	0.4	*2.23%*
6	Upper leg circumference	31.6	34.5	34.7	2.9	*8.41%*	0.2	*0.58%*	3.1	*8.93%*
7	Lower leg circumference	24.6	25.8	25.9	1.2	*4.65%*	0.1	*0.39%*	1.3	*5.02%*
8	Bending forward	6.5	4.3	4.1	-2.2	*-51.16%*	-0.2	*-4.88%*	-2.4	*-58.54%*
9	Endurance in the bend	7.4	8.2	8.4	0.8	*9.76%*	0.2	*2.38%*	1.0	*11.90%*
10	Standing long jump	99.8	104.2	105.6	4.4	*4.22%*	1.4	*1.33%*	5.8	*5.49%*
11	Run 10 m	3.3	3.2	3.1	-0.1	*-3.12%*	-0.1	*-3.23%*	-0.2	*-6.45%*
12	Sit down easily	6.3	6.4	6.5	0.1	*1.56%*	0.1	*1.54%*	0.2	*3.08%*
13	Sidestep 10 m	5.1	4.9	4.8	-0.2	*-4.08%*	-0.1	*-2.08%*	-0.3	*-6.25%*
14	Obstacle course 10 m	15.8	26.0	25.0	10.2	*39.23%*	-1.0	*-4.00%*	9.2	*36.80%*
15	Run backwards to 10 m	17.36	16.0	16.0	-1.0	*-6.37%*	-0.1	*-0.74%*	-1.2	*-7.16%*

Eleven weeks passed between the 2nd and 3rd testing. The monitoring process included athletic training along with cycling trips to enhance the training process and for greater parental involvement in the project. We continued with lectures on healthy nutrition and held workshops on healthy cooking. Trainings in gymnastics and swimming were done in the same time frame.

The results of these tests have led us to the following conclusions: in anthropometric measurements of the height of children, they grew on average by 1 cm, which amounts to 0.85%. In the "weight" indicator, there was an increase of 0.9 kg, which amounts to 4.02%. Among

anthropometric measurements, the biggest increase occurred in the "upper arm circumference" and "upper leg circumference", in both cases by 8.9%. The increase in this indicator can be attributed to the training process (gymnastics, swimming, athletics, cycling). In the tests focused on the strength of the upper limbs, "endurance in the bend", we recorded an improvement of 1 sec or 11.9%. In the lower leg strength tests, “standing long jump”, we saw an improvement of 5.8 cm or 5.49%. In the tests of the strength of abdominal muscles (sit – lie), we recorded an improvement of 0.2 repetitions, which is an improvement of 3.08%. In the tests of 10 m running and 10 m sidestep, we saw an improvement of 0.2 sec or 0.3 sec, respectively, which amounts to 6.45% or 6.25%. In the tests of coordination " backwards on all fours 10 m" we saw an improvement of 1.2 sec or 7.16%. This improvement can undoubtedly be attributed to gymnastics and swimming training.

Based on the total testing of children under the “On The Move” project, we can conclude that the running skills, the strength of the upper and lower limbs, the strength of the abdominal muscles, and overall coordination have resulted in a marked improvement. In order to say with certainty that this improvement was due to the training process, we would have to have a sample of children who did not participate in the training process. Nevertheless, we can say that these physical activities certainly have a positive impact on the physical development of pre-school and early school-age children, and lectures on healthy nutrition benefit their further physical development.

Fig. 9: Cycling in Slovakia

Source: Gymnastics Centre Bratislava, 2017

3.4 Malta

Fjoralba Kodrasi

Malta has the highest obesity and overweight rates in the EU according to a report issued by the World Health Organisation (WHO) based on data acquired in 2014. Overweight and obesity are defined as a medical condition in which abnormal or excessive fat accumulation may have a negative impact on health. Obesity is not just a cosmetic concern.

The On the Move project was introduced locally in January 2016 and the sports activities started on November 2016 and lasted for three months. It involved children aged 4 – 6 and 6 – 8 years old. The preparatory activities included the subcontracting of the right sport/fitness organisation, the advertising of the project and gathering target groups of pre-school children. In the first weeks of running the programme we did the initial measurement of the children.

The questionnaire has been developed as part of the On the Move Programme and aims to obtain an overview of the habits of children, with regards to sport activities and also about their eating habits. The programme in Malta lasted for three months.

3.4.1 Analysis of the Survey for Parents

Creating Awareness among Parents

Parents of children included in sports programme of athletics, gymnastics and swimming answered the **questionnaire** which determined various life style and habit issues of children. We have processed **4** questionnaires and in the following table we notify the most valuable results.

Table 11: Malta: Creating awareness among parents

Question	Yes / %	No / %	Observation
Has your child been diagnosed with any (chronic) disease?	10	0	90% of the parents did not answer that question
Is your child allergic (to food)?	0	100	Those that answered positively to that questions noted dance, swimming, gymnastics and footbal as activities prior to the On the Move project participation.
Does the paediatrician know that your child is included in the “On the Move” programme?	10	90	
Did your child attend any other activity before attending “On the Move”?	50	50	Those that answered positively to that questions noted dance, swimming, gymnastics and footbal as activities prior to the On the Move project participation..

Is your child more physically active during the day and week than before the programme?	100	0	
Please, write down any changes you noticed in your child during the programme “On the Move”.	90	0	50% marked that their children became more social and friendly, 10% noticed that their child gained more strength and coordination, 10% noticed a change in their every day habits such as waking up earlier and eating more frequently, 10% marked that they child gained new skills such as learning swimming.
Do you think that your child will want to participate in any other sports programmes after “On the Move”?	100		The activity that they choose to practice more is swimming.
Have you noticed that your child is healthier / has a better immune system since attending “On the Move”?	10	90	
Do you think that your child will want to visit any other sports programmes after „On the move“?	100	0	Swimming 100%

The On the Move project gave the opportunity to the participating families to introduce the exercise and healthy eating in their every day life by making the children more active, getting used to work outs and making the right choices in their diet. There has been a significant effort from the parents and children to keep up with the programme and to maintain it in their every day life, but of course the results vary for each family and to each child.

Workshops for Families

The On the Move project in Malta held in total 6 workshops/info sessions and family events related to nutrition and active living. The events were held by professional nutritionists who adapted the workshops in the country's specific characteristics such as cuzine, diet and natural environment. The workshops intsructed parents on important topics such as:

- Meal preparation
- Frequency of meals and exercise
- Nutrition
- Tips and advices on shopping
- How to guide the children to make their own choices
- Show of actualy cases and success storiesof obese children and families changing their diets

From the feedback that we got from the participants, the On the Move project gave them clear guidelines on how to exercise more and eat healthy. Not only useful information and instructions were given in terms of nutriotion, but also actualy solutions were provided to the families, such as meal ideas, sport programmes and various exercise techniques.

Change of Habits

As mentioned above parents and families changed not only their diet and type of meals but also tried to get more exerciseby doing more physical activities together such as walks as replied by 90% of the surveyed parents. Even though that the majority of the parents know that themeselves are not good a role model to their children in terms of fitness, all of they responded positvely on the On the Move project that it had changed their perception on physical activity needs and healthy purposes.

Sustainability in the Local Community

FOPSIM disseminated the results of the project among the families that participated and the experts. FOPSIM acknowledges the challenge that Malta is facing in terms of the obesity thus collaborated with Sport Malta (Governmental Entity in Charge of Sport in Malta) for the evaluation of this programme and for the promotion of such initiatives locally. FOPSIM got the Ministry on board for the evaluation part and had fruitful exchange of ideas on how to combine the initiaves in the sector and sustain the project.

Ideas for local project to tackle this issue were generated as combining the private, public and civic society sector the society can be engaged easier and motivated to make a change in their habits and embrace healthy life style and exercising. Furthemore, connections with schools were estdablished who received the book of the project and were interested in promoting the initiative in their school.

3.4.2 Analysis of the Sports Measurements of Children

We focused on measuring anthropomotor variables such as height, weight, waist and chest/back. In monitor skills we focused on the number of push ups in 30 seconds. The excersices were a combination of strength training, flexibility, endurance and cardiovascular which were delivered twice a week (Wednesday and Saturday) and on Monday swimming sport activities took place.

Number of children: 17

Dates of Measurments: 1st measurment: 1 – 8/11/2016, 2nd measurment: 16 – 22/01/2017, Final measument: 1 – 8/03/2017.

Table 12: Malta: Analysis of the sports measurements of children

4 – 5 years old (amount of 8 children)				
Test Number	Test	Initial	Tansitive	Final
1	Height (cm)	114.12	115.43	116.43
2	Weight (kg)	26.81	21.45	21.44
3	Waist (cm)	58.67	57.00	57.00
4	Chest/Back (cm)	61.55	62.16	51.75
5	Standing broad jump (m)	n/a	n/a	n/a
6	Sprint test (s) (30m)	n/a	n/a	n/a
7	Number of pushup in 30''	n/a	n/a	n/a

6 – 8 years old (amount of 9 children)				
Test Number	Test	Initial	Tansitive	Final
1	Height (cm)	125.33	126.27	126.88
2	Weight (kg)	32.30	32.65	32.04
3	Waist (cm)	63.00	58.00	60.18
4	Chest/Back (cm)	64.40	62.16	61.90
5	Standing broad jump (m)	n/a	n/a	n/a
6	Sprint test (s) (30m)	n/a	n/a	n/a
7	Number of pushup in 30''	2.44	2.44	3.00

There is a minimal improvement in their weight loss in both categories (4-6 and 6-8 years old).

The majority of the children are having some eating habits (after the exercise were taken to McDonalds as a reward). Thus parents' influance is great. Furthermore, measuring the results in weight loss especially at an young age is difficult as there are other factors affecting the weight loss for example the age: the fact that they are still growing. Moreover, the timeframe (3 months programmes) was short to record big improvement while some of the children were not attending

the sessions regurarly. Lastly, we need to mention that the programme had in between the christmas period which distracted the children from their excersices and diet and that can emplain the small imporvement in the above numbers.

Nevertheless, there is still marked an improvement and it is evident that the On the Move project training courses (sport programme and workshops) had a positive impact on the children's pgysical development and health.

Fig. 10: Family event in Malta

Source: FOPSIM, 2016

3.5 Portugal

Ana Silva

The project "On the Move" started on 12 December 2016. We started testing the children participating in the project in the third week of December in the city of Lousada.

3.5.1 Analysis of the Survey for Parents

Creating Awareness among Parents

In order to determine the life style and eating habits of the children that were part of the "On the Move" sports programme, a questionnaire was given to 51 parents.

Based on the results of the questionnaires, we can emphasize the following:

Child´s Habits – only 5.1% practised a sport activity before the "On the Move" project; regarding the activities used under the programme, swimming was the preferred one, chosen by 49% of the children. The majority of the parents (96%) answered affirmatively regarding whether their child was very happy when attending the sports programme, and 82% even said that their child became more active after being part of the programme.

We must also emphasize that the biggest change perceived by the parents, apart from the physical ones, such as improvement of coordination and increase in strength, was improved socialization with their peers.

We can conclude that the families as a whole have realized the importance of their children having an active lifestyle, and that their family will have to adopt a more active way of life, because only by changing the sedentary habits of the entire family will their child learn to accept physical activity as something natural.

Workshops and Sport Events for Families

We held 10 family events during the programme and 10 culinary workshops for all of the participants and their families, which were held in open public facilities in order to reach a wider audience. The workshops focused more on the kind of food children need and how to prepare it in order to be appealing. It also aimed more towards the parents, in order to show them how easy it is to prepare a healthy and fast meal.

We chose to hold a sport event at the same time as the workshop, because in our experience we would reach the target public that way. This did in fact happen, because the parents brought their children to attend the sport event and at the same time attended the workshop.

Through our questionnaire we also gathered information on the (changing) diet habits of our project participants. What we see as one of the most important findings is that the parents that

attended the first workshops and stayed until the last one (32%) make an effort to prepare proper nutritional meals for their children, make new home-made snacks to take to school, include more fish in their diet, and were being more careful about the use of sugar. So from this point of view it was very positive.

Change of Habits

Although more than half of the parents have stated that since the implementation of the programme, they have made an effort to become more active (58%), they have also confirmed that they are more concerned about what the whole family eats and the way it is cooked. We are fully aware that there is still much work to be done. The change of habits is not sudden, it is necessary to continue promoting healthy life habits, so that they become routine and natural, only then can we confirm that there was really a change. But we truly believe that our programme changed their habits regarding physical activity, because after the end of the project we have realized that many of the families that were part of the programme are now practising sports activities on their own in the green parks of Lousada.

Sustainability in the Local Community

As a local authority we felt the need to provide this service. And through this need we have set up another strategy to continuously provide physical activities to children between the ages of 3 and 6. So in September (2017) the physical activities will continue and periodic evaluations of the children involved will be performed, with initial, intermediate and final tests, to verify the development of the children. These activities will be provided together with the Lousada County and with local sports clubs, which will cooperate with the municipality by providing the trainers, in exchange for the municipality providing the sports clubs with sports facilities for free.

The importance of physical activity and a balanced diet is a growing daily concern and connected with being a good parent in general, i.e. one who is trying to give the best to their children. But this leads us to the question: Do some parents realize that the society of today and our daily habits are leading us all to a more sedentary and unhealthy life style, and that this will negatively influence the lives of their children?

This project allowed us to open horizons and alert parents that they should be more aware of the small details, such as food and physical exercise, which will be the basis for the proper growth of their children, and that if we teach them to have a healthy lifestyle early on, it will have an impact on their adulthood.

The concept of the project was very well designed and planned. The target group was very well chosen, as were the strategies designed to combat the initial issue (childhood obesity). As regards this situation, it was very easy to implement the programme in the field.

However, we are fully aware that this is a continuous effort that has to continue beyond the programme.

3.5.2 Analysis of the Sports Measurements of Children

We focused on measuring variables such as height, weight, waistline, extended upper arm circumference, forearm circumference, upper leg circumference, and lower leg circumference. In motor skills and abilities, we focused on the bend in sitting position, the standing long jump, body lift, overall coordination in the four-legged walking backwards, tilt with a stick, and sidestep. **In the first test**, we encompassed 235 of the registered children.

Table 13: Portugal: Analysis of the sports measurements of children

	1. Initial	2. Intermediate	Difference 2-1	Difference 2-1 (%)
1. Height (cm)	110.38	111.21	0.83	0.7
2. Weight (kg)	20.11	20.6	0.49	2.49
3. Waistline (cm)	55.84	56	0.16	0.29
4. Extended upper arm circumference (cm)	18.33	18.35	0.02	0.11
5. Forearm circumference (cm)	16.97	17.28	0.31	1.83
6. Upper leg circumference (cm)	29.24	29.33	0.09	0.31
7. Lower leg circumference (cm)	22.95	23.88	0.93	4.5
8. Four-legged walking backwards (sec)	31.81	29.09	-2.72	-8.55
9. Tilt with a stick (cm)	17.35	19.28	1.93	11.12
10. Bend in sitting position (cm)	28.69	31.6	2.91	10.14
11. Standing long jump (cm)	98.25	106.87	8.62	8.77
12. Body lift (number in 15 sec)	2.14	3.25	1.11	51.87
13. Sidestep	9.97	12.5	2.53	25.38
14. 3-minute obstacle course (m)	7.57	10.76	3.19	42.14

27 weeks passed between the first and second measurement test. During this time, the children performed 81 training sessions. We practised swimming training with professional swimming instructors and sports activities with physical education professionals. During this time, we held lectures on healthy nutrition and workshops on healthy cooking. In these training sessions, 95.7% of the registered children participated on average.

The second measurement test conducted in March was attended by 225 children, of the 243 registered, which is 92.5% of the total registered children. From the tests we performed, we can see a difference of 0.83 in the height indicator, which amounts to 0.7%. We saw a weight gain of 0.49 kg, which we have attributed to the development of the children. All measurements have increased. In the test for “waistline” we recorded an improvement of 0.16 cm, which amounts to 0.29%. In the

tests “extended upper arm circumference” and “forearm circumference”, we saw an improvement of 0.02 cm, which amounts to 0.11%, and 0.31 cm, which amounts to 1.83%, respectively. In the tests “upper leg circumference” and “lower leg circumference” we witnessed an improvement of 0.09 cm and 0.93 cm, respectively, which amounts to 0.31% and 4.05%. In the test “four-legged walking backwards” we saw an improvement of -2.72 sec, which amounts to -8.55%. This improvement can undoubtedly be attributed to swimming training. The test that recorded the greatest difference was the “standing long jump” with 8.62, which amounts to 8.77%.

The test with the highest percentage was “body lift”, namely 51.87%.

Fig. 11: Family event in Portugal

Source: Municipality of Lousada, 2017

The third test was done in May, more precisely in the third week of the month. It was attended by 225 children, which is 90.36% of the children.

Table 14: Portugal: Analysis of the sports measurements of children

	1. Initial measurement	2. Intermediate measurement	3. Final measurement	Difference 2-1 (%)		Difference 3-1 (%)		Difference 3-2 (%)	
1. Height (cm)	110.38	111.21	112.54	0.83	0.7	2.16	1.96	1.33	1.20
2. Weight (kg)	20.11	20.6	20.99	0.49	2.49	0.88	4.38	0.39	1.89
3. Waistline (cm)	55.84	56	56	0.16	0.29	0.16	0.29	0	0.00
4. Extended upper arm circumference (cm)	18.33	18.35	18.27	0.02	0.11	-0.06	-0.33	-0.08	-0.49
5. Forearm circumference (cm)	16.97	17.28	16.79	0.31	1.83	-0.18	-1.06	-0.49	-2.84
6. Upper leg circumference (cm)	29.24	29.33	29.69	0.09	0.31	0.45	1.54	0.36	1.23
7. Lower leg circumference (cm)	22.95	23.88	23.3	0.93	4.05	0.35	1.53	-0.58	-2.43
8. Four-legged walking backwards (sec)	31.81	29.09	26.35	-2.72	-8.55	-5.46	-17.16	-2.74	-9.42
9. Tilt with a stick (cm)	17.35	19.28	26.58	1.93	11.12	9.23	53.20	7.3	37.86
10. Bend in sitting position (cm)	28.69	31.6	32.52	2.91	10.14	3.83	13.35	0.92	2.91
11. Standing long jump (cm)	98.25	106.87	118.35	8.62	8.77	20.1	20.46	11.48	10.74
12. Body lift (number in 15 sec)	2.14	3.25	5.87	1.11	51.87	3.73	174.30	2.62	80.62
13. Sidestep	9.97	12.5	14.17	2.53	25.38	4.2	42.13	1.67	13.36
14. 3-minute obstacle course (m)	7.57	10.76	15.98	3.19	42.14	8.41	110.10	5.22	48.51

Nine weeks passed between the 2nd and 3rd testing, and 36 weeks between the 1st and 3rd testing. The monitoring process included swimming training with professional swimming instructors and sports activities with physical education professionals. We continued with lectures on healthy nutrition and held workshops on healthy cooking. The results of these tests have led us to the following conclusions regarding the comparison of the final test with the initial test: in the test of

children's height, they grew on average by 2.16 cm, which is 1.96%. In the "weight" indicator, there was an increase of 0.88 kg, which is 4.38%. Among measurements, the largest increase was in "body lift" and "3-minute obstacle course", namely 174.30% and 110.10%, respectively. The increase in this indicator can be attributed to the training process (sports activities and swimming). In the arm extension tests, "extended upper arm circumference" and "forearm circumference", we saw an improvement of -0.33% and -1.06%, which amounts to -0.06 sec and -0.18 sec, respectively. In the "lower leg strength" and "upper leg circumference" we saw an improvement of 0.35 cm and 0.45 cm, which amounts to 1.53% and 1.54%, respectively. In the tests of coordination, "four-legged walking backwards", "tilt with a stick" and "sidestep" we saw an improvement of -5.46 sec or 17.16%; of 9.23 cm or 53.20%; and an improvement of 4.2 or 42.13%. This improvement can undoubtedly be attributed to gymnastic and swimming training.

From the total testing of children under the "On the Move" project we can conclude that the activities relating to coordination, motor skills and physical abilities have resulted in a marked improvement. This improvement was certainly due to the training process.

Based on the final results we can conclude that physical activities in pre-school have a positive impact on the child's development. Regarding the lectures on healthy nutrition and workshops on healthy cooking, it can be said that they also benefit the physical development and health of children.

3.6 United Kingdom

Michal Siewniak

The "On the Move" project in the UK started at the beginning of October 2016. The project was aimed at children aged between 4 and 7 years, who are at risk of becoming overweight or obese through low levels of physical activity.

CVSBEH identified local partners to help us to deliver the project objectives. We held several informal meetings with local providers involved with delivering services for children under 7 and healthy exercise programmes for people of all ages.

3.6.1 Analysis of Learner's Progress, Verbal Assessment and the Parental Questionnaire

At the beginning of the programme, we encouraged each child and their parent/carer to complete the verbal assessment which helped us to track their behavioural progress. We have asked a number of questions which included:

- Do I feel healthier than before?
- Do I feel happier than before?
- Have I enjoyed taking part in something new?
- Have I met new friends through exercising?
- Do I want to carry on with this activity?

The verbal assessment has been completed by 54 children. It was encouraging to see that 94% of children who filled out the questionnaire felt happier than before and wanted to carry on with the programme.

Another, more detailed measurement tool called the "learner's progress record" helped us to ask additional questions regarding school or the family environment. Throughout the "On the Move" project, coaches were monitoring children's behaviour. During each session facilitators were checking whether children worked well in a team or whether they developed confidence. Additional comments included: *child is always keen to help others, child often comes to sessions anxious or upset, child 'dominates' an activity or child is 'bossy'*. These comments were really important, particularly in terms of understanding the wider context of children's behaviour. Most of our activities were delivered in schools located in the deprived areas of the Borough of Broxbourne. Low income, poor educational background, relatively high unemployment meant that some of the children were not always supported at home, hence their attitude or lack of concentration was more prominent.

Overall, the learner's progress record helped us to understand that a lot of children were interested in taking up new sports or join a local club. Our programmes developed children's practical and social skills, and boosted their self-esteem and confidence. Sports which children enjoyed the most were: football, rounder's, skipping or speed stacking. It is also important to

mention that most of the project sessions took place in primary schools where facilities did not always allow us to introduce other sports to participants.

One of the last things which “learner’s progress” enabled us to do was to check the children's eating habits. Before the programme started, many children said they liked and often ate unhealthy foods with many children listing pizza (10 out of 34) among their favourite foods and very few children mentioning fruit or vegetables (only 6 out of 34).

Even though the questionnaire was completed only by 14 parents, it gave us a lot of interesting information. Only 50% of children attended any other sport activities or belonged to a club before the “On the Move” project commenced. 40% of children had 5 portions of fruit and vegetable a day. 93% of children (13 out of 14) regularly eat sweets, however, 12 out of 14 have frequent dental check-ups. This clearly demonstrates a pattern of 'unhealthy eating'.

All children stated that 'family meals' are an important part of their weekly routines. We were pleased to find out that 100% of parents said that they were pleased with “On the Move” facilitators. It was equally important to find out that most parents were really happy that their children had an opportunity to try something new and meet new friends or that they were able to spend more time outside.

Challenges and Difficulties

Although our model, based on subcontracting to local delivery agencies, has overall worked, we have experienced some difficulties, particularly in relation to the parental questionnaire which was sent to parents on at least two occasions. All schools involved in the project had a very high percentage of BME (Black & Minority Ethnic) children which meant that the survey may not have been understood by parents. One of the suggestions is to translate the survey in the future into at least 1 or 2 of the most spoken languages in the school. Had we done it, this could have helped us to gather additional feedback.

As organizing meetings with parents was at times difficult, it has been suggested to complete the survey in the future in a group setting which could also help us to address any other immediate issues or concerns. Many schools did not have additional capacity to support this part of the project. The suggested meeting would also improve the communication between all partners.

We also had some difficulties in recruiting the right age children (we have decided to include in our programmes the ‘rising 3’s’) and that meant that even though we did work with many participants, some of them did not meet the ‘project age criteria’. It is also worth emphasizing the difference between the educational systems in the UK and the rest of the European countries where most children start primary schools at age 7, whereas in Britain they start schooling at the age of 4. This meant that even though the project was aimed primarily at pre-school children, most of our work in Broxbourne was completed in primary school settings.

Despite some difficulties, the project has delivered a number of tangible outcomes. All activities boosted children's physical and academic development and supported creating healthy lifestyle choices at a young age.

3.6.2 Analyses of the Survey for Parents

Creating Awareness among Parents

We started to promote the "On the Move" project in our schools in May 2016. Both of our subcontracted agencies regularly got in touch with parents and told them what their children were doing. Parents were often invited to see some of the work and they were also encouraged to participate in other project activities, e.g. cooking workshops, Easter Picnic, Dance Performance, which took place between March – June 2017. The awareness of the project was created mainly by emails, letters and phone calls.

As stated in our report, both partners suggested that an initial meeting with the Headmaster, and some of the school teachers in May of last year would have given us a better opportunity to introduce the project to each of the local schools. It would have also allowed us to build a relationship with each school, explain the project and make sure that the message is accordingly disseminated to all parties. We were not directly communicating with parents and students (mainly due to safeguarding policies and data protection) and we had to rely on both of the agencies.

Workshops for Families

Our project partners ran several cooking workshops which, in some cases, have not worked as well as we were initially anticipating. One of the workshops was initially supposed to be attended by 13 families. Unfortunately, 6 cancelled and 2 did not turn up on the day. Both agencies tried to run these workshops to accommodate various needs, in different times: in the morning, afternoon and in the evening. Although the participation in some of the workshops was not as high as expected, the received feedback was useful.

We asked the participants what they learned/enjoyed at the session:

Tried avocado for the first time.
Checked the food label and then the sugar and fat content in some of the products and I was surprised to see how unhealthy some of the items are.
I don't exercise enough.

We also asked at the end of the workshop what participants would do differently:

Check the sugar content in the future.
Sign up to a gym to exercise more.
Use 'smart technology' to check the fat/sugar content in some of the supermarket products.
Understand more what the 'balance diet' is.

Other workshops consisted of healthy food preparation, fun, dance and games, and were completed with a picnic to eat some of the scrummy food made. The 'combination of preparing, cooking, eating and exercising' has worked very well and these workshops were very well attended and the organizers received really positive feedback. This type of workshop was less 'static' and more engaging, and offered a variety of activities.

Change of Habits

We said many times in the past that our approach may have been different to what other partners were offering. The coaches gradually tried to build children's confidence and self-esteem. They tried to find a 'hook' to start with, which worked really well. They did their best to 'enthuse' each child and their parents. Our partners were keen to make sure that each child was actually happy to come back to the next session.

Fig. 12: Training session in the UK, 2016

Source: CVSBEH, 2016

Although one partner tried to find an 'incentive' for our young participants (e.g. healthy biscuit to start with), the agency has been able relatively quickly to change children's habits. They were offered water instead of juice and a fruit instead of a biscuit. This clearly demonstrates that their methodology works and that the programme itself made a tangible impact on all the children involved. The 'collective approach', ability to work at the same time with individual pupils as well as in group sessions, also demonstrated a rapid change in pupil's behaviours and attitude. As stated in

our previous reports, partners often started the session by asking children whether they have eaten something unhealthy. Children already recognize the importance of a 'healthy and balanced' diet.

Sustainability in the Community

In the UK, we are convinced that in order to make this sustainable for under 7's it needs to be part of increased PE sessions in primary schools as our children start school so much earlier in life than others on the continent.

The other major factor is funding. There is growing pressure on public finances in the UK. In some areas (also in education), resources are diminishing; therefore, it is harder for teachers and local authorities to address some of these issues. The approach has to change at the central government level, which needs to recognize that extra funding is needed if we were to eliminate this huge problem of adult/children obesity and physical inactivity. Various policies and strategies can work only if the legislative changes are effectively implemented by politicians.

I do think that, particularly in the UK, people need to realize that they need to take responsibility for their actions and they cannot wait for the state to solve the population's 'growing health problems'.

4 Conclusions

Silva Nemeš

Different implementations and different experiences in six different EU countries all involved in the "On the Move" project imply rich data, results and knowledge gained from the implemented activities.

Obesity and overweight of children is a growing problem all over the EU. Moreover, children are getting physically incompetent to perform different exercises, which is why it is so important to start developing healthy habits at an early age.

Partners were challenged with different issues during the implementation of the project. All of them are stated in partners' texts. But all six partners concluded that the analysis of the data should focus on four general topics: 1) creating awareness among parents, 2) workshops for families, 3) change of habits, 4) sustainability in the community.

We as partners were mostly able to create awareness among parents concerning different cultural backgrounds and the methods we used, but we got their attention, especially with the activities that involved the whole families.

Workshops for families were a success, but some partners (Slovakia, UK) had issues in motivating parents to actually attend different events and also provided solutions as to what to do next time to get more parents involved.

A change of habits was something that we wanted to achieve with those families who openly admitted that they have poor nutrition and no exercise as a family. Partially we succeeded, nevertheless, this is just a start that shows the proper ways to achieve a total change of habits in the families to be more physically active with their children and to take care of the proper nutrition for the whole family.

We want to achieve sustainability in the community on different levels, and we have all agreed and have evidence-based data that the activities of the "On the Move" project started to change the habits in the families. But to improve the whole society that is faced with child obesity and overweight we have to proceed with evidence-based information sharing with stakeholders and decision makers at the local, regional, national and EU level. So that the results and analysis of our work during one-and-a-half years' time, which involved activities attended by around 930 children and 1630 adults, will not stay just a letter on paper, but an important part of the politics agenda of each country that will eventually use the whole-of-society approach to face these problems like we did in the "On the Move" project .

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