ANALYSIS OF FEET STATUS OF STUDENTS OF CLASSROOM TEACHING IN URBAN AND RURAL AREAS OF SARAJEVO

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Original scientific paper

Abstract
The primary goal of this research was to determine the frequency and magnitude of the phenomenon of feet deformity of students of classroom teaching in urban and rural areas, as well as determining their changes after the conducted program. The research was conducted on a sample of 1105 students, of which 528 students was from urban areas (261 girl and 267 boys) and 577 students from rural areas (281 girl and 296 boys), at the age of 5 to 12. This research program included students from I to V grade in eleven elementary schools in the city of Sarajevo:"Kovačići", "Behaudin Selmanović", "Sokolje", "Dobroševići", "Safet-beg Bašagić", "Zahid Baručija", "Fatima Gunić", "Aleksa Šantić", "Avdo Smailović", "Mehmedalija Mak Dizdar", "Hamdija Kreševlajković". The evaluation of the instep is done with the planthography method, and the magnitude of the disorder is determined on the basis of Thomson's method. The analysis of the instep of students of classroom teaching in urban and rural areas was done with the help of descriptive statistics of chi square. Significant value of the statistical relevance was researched on a level lower than p<0.01, as well as on a level lower than p<0.05. It was determined that, in the initial measuring, greater number of the examinees was from rural schools without feet deformity and with feet deformity of first degree, in comparison to the examinees from urban schools. The examinees from urban schools have greater representation of feet deformity of second degree in the initial measuring compared to the examinees from rural schools and this difference is statistically significant on a level lower than 1%, which is indicated by the chi square (chi square=17,121 and p=0,000). And in the final measuring, it was a greater number of examinees from rural schools without feet deformita, and the examinees from urban schools have greater representation of feet deformity of I and II degree in comparison to the examinees from rural schools and this time the difference is statistically significant on a level lower than 5% (chi square=6,448 and p=0,040). Based on the given results, it can be concluded that the irregular body posture is more present with the students from urban rather than students from rural areas. Researches of a greater number of authors have definitely confirmed that the children from village have a considerably lower percentage of most of the postural disorders, including feet deformity. Today, diverse and indubitably good life content is enabled to the school children. There are many sport clubs, such as collective and individual sports. While in urban surroundings there are natural resources, developed and water sports, such as some extreme sports. Researches in this area show us that great percentage of children from elementary schools do not participate in sports activities, and that is the reason of greater presence of incorrect body posture. All of the listed data in the tables point to a high percentage of deviations on the longitudinal arch of the foot of the students in classroom teaching from both areas, which itself suggests the conclusion that it is extremely important to timely identify the phenomenon of feet deformity and reduce them by applying corrective exercises.

Key words: *students, living area, Thomsen's method, programmed exercising.*

Introduction

Reduced physical activity with children does not only condition functional and biometrical abilities, but also contributes with the frequent phenomenon of irregular body posture, and a consequence of that is occurrence of body deformity. That is way it is necessary to discover the deformity in the initial stage and do everything to avoid its further development. The greatest attention should be paid to the correct growth and development of the lower extremities, especially feet. Foot is one of the most important organs of the human body, which has a great influence to the functional state of the locomotor apparatus, especially the lower extremities. It carries the whole human body which consists of bones, muscles, joints, tendons, ligaments that successfully carry and run the body in all directions and on different fields. Disturbances occur in the form of pain, and the limited mobility of some joints can have a great influence on the very foot. Over 60% of the population has smaller or bigger foot anomalies, especially school children. The biggest reason for that is that the foot carries the greatest load. It is the absorber of the whole body while walking, running and jumping. The deformed instep loses this significant function, foot connections and nerves are loaded and foot pain occurs, as well as lower leg, thighs and aitchbone pain. The foot has to be solid enough, so it could carry the whole body weight (Jovović, & Marušić, 1996). It has an impact on the spine, as well as on the whole organism. Correctly developed instep is made of: pear shaped heel, the front part of the foot connected with the heel by a tight clip, noticeable angle on transition from the clip to the

front part of the foot, clear prints of all of the five toes. Drawn Mayer's line discovers deviation in the sense of lowering the instep. This line goes from the middle of the heel print towards the inner edge of the fourth toe. If the width of the print goes over this line in the height of the clip, it is the phenomenon of the lower foot. Foot deformities have a decisive influence on the functional state of the locomotor apparatus, especially the lower extremities. Foot endures the greatest load both with statistical and dynamical function of the locomotor apparatus. Flat foot is a very frequent deformity with the preschool children, and is formed in the loss of normal, physiological instep, (Garcia-Rodriguez, et al., 1999). It can be innate and acquired. Generally children at the age od 2 or 3 have a „false flat foot", caused by the accumulation of subcutaneous fat. Flat foot (per planus) – is a very frequent lower extremities deformity, especially with school children, (Medojević, & Jakšić, 2007). It should be noticed that every baby is born with a flat foot, which is regulated when the child actively starts to rely on his legs and that way shapes the instep. It can be innate or acquired. Contemporary way of life contributes to creating this deformity. Longitudinal and transverse instep vary with the normal foot, where if most often comes to backdown of the longitudinal instep, although both of them can loosen. This deformity causes pain in the very foot and lower legs, disturbance and headaches, and soon tiredness while walking and standing occurs.

This deformity can negatively affect the spine too, (Bogdanović, & Marković, 2010). According to the former researches, the percent of the flat foot with the school children is about 65%. Flat foot can be expressed in the lighter and heavier phase of the illness. The causes for the appearance of the flat foot are: rickety appearance, muscular weakness, limp leg and feet muscles, inappropriate shoes, various injuries and illnesses, obesity, early forcing of walking, static foot load, using the means of transportation, carrying or holding heaving objects, destruction of the foot construction (trauma, broken foot bones), wearing high heels, etc. Pes cavus (concave foot) – more frequent with men (Krsmanović, 2007). With this deformity the vaults are more built up. The inner arch of the foot is very expressed, while the front part is more developed and there are often blisters on the soles. This deformity starts to develop from the age of seven. It is rarely innate, and occurs due to muscle weakness m. triceps surae. The foot support is on the heel and heads of the metatarsal bones, creating blisters on those spots, depending on the support spot. Walking is tough and inelastic, and after a longer walk heavy pains occur. It is necessary to strengthen the plantame fleksore (m. triceps surae). At cavus, the print of the outer edge narrows, at the middle is partly lost, and at the strong degree it disappears, so the support comes down to calcaneus and metatarsal part of the foot (Ćibo, 2001).

The subject of this research is the analysis of the foot status of students in classroom teaching from urban and rural areas of Sarajevo city.

The goal of this research was to determine the frequency and magnitude of foot deformity with students in classroom teaching from urban and rural areas, as well as determining their changes after the conducted program.

Methods

Participants

The research is conducted on a sample of N=1105 students of classroom teaching, of which 528 students are from urban areas (261 girl and 267 boys) and 577 students from rural areas (281 girl and 296 boys) from 11 elementary schools from the city of Sarajevo and its surroundings, of the average age M=8,2864 years. These are the students that go to the I, II, III, IV and V grade.

Variable sample

To determine the feet deformity, this variable was used: Measuring feet deformity using the plantography method. The evaluation of lowered feet was achieved with plantography method, and the size (instep index) was determined by using Thomsen's method. Thomsen's feet index (%) is obtained in a way that on the plantogram we connect the most prominent parts of the heel and metatarsus on the inner side of the feet (line A-B). Then we find the middle of the heel and draw a line (Mayer line) from the middle of the heel to the outer edge of the third toe. From Mayer line to the narrowest part of the longitudinal arch, on the plantogram, we draw a perpendicular and measure its value („a"). From the perpendicular vertex („a") we draw another perpendicular towards the line AB and measure its value („b"). The index of the lowered feet will be achieved when these two are put in relation: I=(a/b) x 100 = % - the given percent of the lowered feet of every foot of each individual, and based on that the grade is achieved: 0 – points to 30%, 1 – point from 30 to 60%, 2 – points over 60%.

Description of the used equipment

The equipment used for measuring the foot structure by using the plantography method:

- metal bowl 60x40 about 3 cm height,
- ink and multilayered cheesecloth,
- A4 paper,
- bowl for washing legs,
- wet wipes,
- a towel for wiping.

The task is performed in the gym. On a distance of one step of the student, place one A4 paper, on which the students step with a wet foot. The print is called a planthogram, which was used for the evaluation of the foot arch which was calculated using the Thomson's method. The instruments used were triangles and a pencil for calculating the index of lowered foot.

Working program

Working program that was realized in this research lasted one school year. The working program is concipated in the following way: In the beginning of the school year in September, the initial (beginning measuring) of feet posture (ODS) was conducted, with the help of professor of physical and health education. The examinees exercised following the determined program intended to prevent and correct the compromised status of the instep, which was made after the initial measuring. The concept of the program was made in such way that it is conducted through forms of applied activities in Physical and health culture of the students in classroom teaching. Every exercise started with physiologically and emotionally preparing the organism. Cardiovascular introduction of the functions of the load which were about to follow, represented a initial physiological load.

Emotional introduction to this kind of special program had an exceptional importance. Each exercise was performed starting from the easiest and going to the most difficult part. To get the best effect, special attention was given to the following: concrete demonstration of the exercises, because it was about strictly defined moves. Because of that, after the demonstration and the explanation of the teacher, the students tried to do the certain task. The explanations were short and regarded the way of performing and the goal of certain exercises with regarding the age. The program content was not statical, because the exercises were performed in order to correct and prevent the present disorders, they changed and adapted to given situations, complemented each other, depending on the motivation of the students, because in time if certain exercises are daily repeated, the become monotonous to the students and in that way the attention to the correct performing of the moves decreases.

- After the initial (beginning) measuring, a 6 month (31 week) program was conducted. The program was realized in the period of (October, November, December, February, March, April), in which teachers/professors of classroom teaching were working.
- Number of training units: two times a week classes of Physical and health culture, where were applied the exercises in the function of preventing and correcting compromised status of the instep.
- Duration of one class was: 45 minutes.
- At the end of the school year in May, the final measuring of feet posture (ODS) was conducted, with the help of a professor of physical and health education.
- In the program of 6 months duration were not included the testing and the measuring, so they were also conducted after the applied program. After finishing the initial and the final testing and measuring, there was an evaluation of the given results

Table 1. Program for preventing and correcting the compromised status of the instep.

1.	Put the soles together while sitting. First put the heels together, and then the full length of the outer edges of the feet .
2.	Sitting with shriveled legs, slightly lift the toes from the ground, and then strongly suppress and bend them down.
3.	Sitting with shriveled legs, strongly suppress and bend the toes backwards, lifting the heels from the ground.
4.	Sitting with shriveled legs with your soles on the ground, strongly pull the toes to the heels, not lifting neither the toer nor the heels off the ground.
5.	Sitting with shriveled legs, relying on your arms stretched behind your body. Put the sticks under the soles and suppress it backwards moving the toes. When the stick is too close, push it back from yourself.
6.	With your legs slightly separated pull your feet to the lower legs, and then perform circular inward movements with your toes and front part of the feet.
7.	Sitting with shriveled legs, relying on your arms stretched behind your body. Under the soles put the sticks and push it back moving the toes. When the stick is too close, push it away.
8.	While sitting, pull up your stretched toes toward your heels, and the instep lift as much as possible.
9.	With clenched toes, from a sitting position push off the base lifting the heels off the ground.
10.	Sitting on a Swedish crate, bench or a chair, hold the ball with your soles. Throw it in the air and catch it.
11.	Move sideways on the Swedish bench, timber, so that the toes are outside the support of the base. Hold on with your toes on the outer side.
12.	Walking on the tips of your toes. This kind of movement can be organized on a timber, from one stone to another, from one brick to another, as well as on every ground.
13.	Passive support (insole) and exercises for strengthening the muscles of the foot arch and lower leg.
14.	Strengthening of the short and long flexors of the toes.
15.	Strengthening of the foot supinator (the lifter of the inner edge of the foot).
16.	Strengthening of the foot pronator (foot distorter).
17.	Strengthening of the dorsal extensors (foot lifter).
18.	Slightly separate the feet from the ground, lean on the heels. Strongly shrivel the toes and hold it like that for 30 seconds.
19.	From standing heeled position come to a straddle stand, intermittently moving the heel and toes. In the same way come to the beginning position.
20.	Walking on an uneven ground (sand, gravel, grass), walking on hot asphalt, where are caused strong contractions of the short musculature of the feet that strengthens and preserves the foot arches. That kind of ground is usually along the river, by the sea, etc. But, that kind of path can be made in a school yard, park, on the side of the playground, etc.

21.	Walking on the outer edges of the feet, during that you need to pay attention that, while moving, your toes should be slightly turned inwards.
22.	Intermittently lift your heels and the front part of the feet, and the inner arches open up pushing the ankles down.
23.	Lifting high on the heels, walking on toes, heels, outward and inward.
24.	Walking on shelves or rope, cord, timber, „loud“ walking.
25.	Walking on the hoop. Put the hoop on the floor and walking on it maintains the balance like dancing on the hoop.
26.	Standing with shriveled, then lifted toes, crouch.
27.	Crouch so that the heel are lifted from the ground and touching one another.
28.	Walk on all fours straightforward, leaning on the ground only with toes and palms.
29.	Lifting various objects with toes (sponges, small stones, acorn, marbles) in a box.
30.	With toes of one foot grab the robe (tape or skittle), and try to move it from one foot to the other.

31.	Small gadgetry catch with one foot and move it to the other.
32.	Pieces of sponge catch with toes of one foot, lift it and move it to the other food and inversely.
33.	Sorting beads and sticks because it affects the short foot muscles.
34.	Catch one pen with each toes and simulate knitting.
35.	Put your feet together and push one thumb to the other, and then strongly push the ground with the thumbs.
36.	Creasing the paper or canvas with your toes.
37.	Place a thin towel in front of your feet and try to draw it with your toes, without separating the heels from the ground.
38.	Lifting the towel from the ground with the toes of one foot and then the other.
39.	Jumping with both legs and turning, running on the toes.
40.	Playing with toes in the air, writing numbers with legs.
41.	Rolling a tennis ball with your soles back and forth.
42.	Jumping over ropes, jumping only on the toes, not landing on the heels.
43.	Game exercises can also be organized in groups, where the task of each group is to tear as many paper tissues in the smallest pieces. Fixate the paper tissue with one leg, while the other is tearing it in many small pieces. Later, the pieces should be counted intermittently with one and the other leg. While sitting, open the knees as much as possible, outwards, and the feet turned one to the other.
44.	The exercises can be organized through a game in a way that cloth, marbles, wood pieces are carried by toes from one place to the other, not far away from each other. Catching objects is allowed only with toes. Tissues (cloth) can be carried by toes of one foot, jumping on the other, or walking normally, taking care that the cloth doesn't fall out. More skilled and older children can play in a way that at the same time the carry two tissues, each in both feet. The game should not be organized in terms of speed movements, but tend to keep the shriveled toes as long as possible, that is, slightly bended foot (plantar flexion).
45.	Holding a small toy with toes, walking on hands and knees, not letting the toys fall down.
46.	A competition in collecting cubes or some other objects and putting them in the basket can be organized. At the end of the game, it is counted how many cubes did each group manage to put in the basket.
47.	Collecting objects. Children lying on their back, above their head is a bench or a chair, and under their legs are small toys. You need to catch the toys with your toes and lifting the legs put them on the bench or a chair. The winner is the student who collects as many objects as possible without dropping them.
48.	A pencil can be held by toes, to write or draw, and the other leg fixates the paper. The competition is organized in writing some sentences, names and last names or some other information or in drawing. The top of the pencil should be at the small toe.
49.	Competitive game with the goal of stacking the stones with toes and solving certain tasks given by the teacher/professor of classroom teaching (i.e. as a straight line, some number, a circle, square, etc.)
50.	Throwing certain objects (stones, smaller sponges, sticks and similar objects) over the obstacle, over the marked spot or to the certain goal in groups.
51.	Lifting various objects with toes (sponges, stones, acorn, marbles, etc.) in the box. Students are divided into several groups, depending on the number of children. They are in a sitting position and they take the position of a circular formation. Next to one student (the last one) there is a box, and next to the first one there are objects. The task is for the first student to take the object and place it from one foot to the other, and then hand it to his colleague next to him and so on in circle, until the object gets to the last one in the group. His task is to place it from one foot to the other and then put it in the box. Every object that falls down halfway through, is sent back to the start. The winner is the group that collected more objects. The teacher/professor of classroom teaching gives the sign for the beginning and the end of the game.
52.	Walking on your toes to the finish line, with small fast steps. At the finish line, with your toes, grab the stone and put it in the basket or the hoop placed on the ground.

53.	Stand on two sticks laid on the ground and walk with them like on skis.
54.	In the next position, with your toes, make a circle of a rope, tie it up and pull on, etc.

The exercises for shaping the foot muscles are conducted daily, two to three time a day.

Statistical analysis

Applying the descriptive statistics of the chi square, we determine numerical and percentage frequency of feet deformity with students from urban and rural areas, and it is displayed in a table. Significant value of the statistical significance is researched on a level lower than $p<0.01$, as well as a lever lower than $p<0.05$.

Results

In this chapter are shown and analyzed the achieved data about the frequency and magnitude of the phenomenon of feet deformity with students of classroom teaching regarding the school area. Feet posture grade – FPG (0 – walkway surface of the foot only on 1/3 of the transverse line. It is evaluated by measuring the print; 1 – Walkway surface affected the secon third; 2 – Walkway surface affected the last third of the surface).

Table 2. Values and levels of the significance of chi square in examining the differences between urban and rural schools in grades of feet posture in initial and final measuring, regarding the school area.

Body part	Initial			Final		
	Chi-square	Liberty degree	Level of significance	Chi-square	Liberty degree	Level of significance
Feet	17,121	2	0,000 **	6,448	2	0,040 *

* Chi-square is statistically significant on a level lower than 5%
** Chi-square is statistically significant on a level lower than 1%

Based on the given results in Table 2 we can conclude that in the initial measuring there are statistically significant differences between men and women from urban and rural schools in representation and degree of feet deformity, on a level lower than 1%.

In the final measuring there are also determined significant differences between men and women from urban and rural schools in a degree and representation of feet deformity, but on a level lower than 5% (Chi-squares are statistically significant).

Table 3. The display of the distribution of frequencies of certain grades in feet posture in initial and final measuring, regarding the school area.

Body part	School	Measuring body posture				
		Grade (number of points)	Initial		Final	
			F	%	F	%
Feet	Rural	0	248	43,0	368	63,8
		1	224	38,8	208	36,0
		2	105	18,2	1	0,2
		Total	577	100,0	577	100,0
	Urban	0	186	35,2	298	56,4
		1	192	36,4	228	43,2
		2	150	28,4	2	0,4
		Total	528	100,0	528	100,0

Based on the given results in the Table 3 we can conclude that in the initial measuring a greater number of examinees from rural schools without feet deformity and with feet deformity of I degree, compared to the examinees from urban schools.

The examinees from the urban schools have greater representation of II degree feet deformity in inital measuring compared to the examinees from rural schools and this difference is statistically significant on a level lower than 1% which is indicated by the Chi-square from the previous analysis (Chi-square=17,121 and p=0,000). In the final measuring also, which is seen from the table above, it is a greater number of examinees from rural schools without feet deformity, and with the examinees from urban schools there is a greater representation of I and II degree feet deformity compared to the examinees from rural schools and this time the difference is statistically significant on a level lower than 5% (Chi-square=6.448 and p=0.040).

Table 4. The values and levels of significance of Chi-square in examining the differences between men and urban and rural schools in representation of several kinds of feet deformities.

Initial			Final		
Chi-square	Liberty degree	Level of significance	Chi-square	Liberty degree	Level of significance
24,547	4	0,000 **	16,719	3	0,003 **

* Chi-square is statistically significant on a level lower than 1%

Based on the given results in the Table 4 we can conclude that in the initial measuring there are statistically significant differences between the examinees from urban and rural schools in representation and degree of feet deformity. In the final measuring there are also determined differences between the examinees from urban and rural schools in a degree and representation of feet deformity (Chi-square is statistically significant), on a level lower than 1%.

Table 5. A display of frequency distribution of certain kinds of feet deformity in the initial and final measuring, regarding the school area.

Body part	School	Measuring body posture				
		Deformity	Initial		Final	
			F	%	F	%
Feet	Rural	Lifted foot-second degree	43	7,5	1	0,2
		Lifted foot-first degree	134	23,2	114	19,8
		Normal foot	248	43,0	368	63,8
		Flat foot-first degree	90	15,6	94	16,3
		Flat foot-second degree	62	10,7	0	0,00
		Total	577	100,0	577	100,0
	Urban	Lifted foot-second degree	37	7,0	2	0,4
		Lifted foot-first degree	113	21,4	90	17,0
		Normal foot	186	35,2	298	56,4
		Flat foot-first degree	79	15,0	138	26,1
		Flat foot-second degree	113	21,4	0	0,00
		Total	528	100,0	528	100,0

Based on the displayed results in Table 5 we can conclude that in the initial measuring there is a greater number of examined from rural schools without foot deformity compared to the examinees from the urban schools. The examinees from urban schools have a greater representation of II degree flat foot in initial measuring compared to the examinees from rural schools, and the examinees from the rural schools have greater representation of I degree flat foot and I and II degree of lifted foot in initial measuring compared to the examinees from the urban schools and this difference is statistically significant on a level lower than 1%, which is indicated by a significant Chi-square from the previous analysis (Chi-square=24,57 and p=0,000). Also in the final measuring, which is showed in the table above, there is a greater number of examinees from rural schools without feet deformity, and with the examinees from urban schools there is a greater representation of I degree flat foot and II degree lifted foot compared to the examinees from urban schools. With the examinees from rural schools, there is a greater representation of II degree lifted foot, compared to the examinees from urban schools, while there was not a single case of II degree flat foot in the final measuring neither with the rural nor the urban schools examinees, and this time the difference is statistically significant on a level lower than 1% (Chi-square=16,719 and p=0,003).

Discussion

From Table 3 based on the grades of feet posture of students from rural schools, the given data show that in the initial measuring 248 (43,0%) students have well formed foot, that is the walkway surface of the foot is only at 1/3 of the transverse line. It is evaluated by print measuring. With 224 (38,8%) students the walkway surface has caught the second third, while with 105 (18,2%) students the walkway surface caught also the last third of the surface. 186 (35,2%) students from urban schools have well formed foot, that is the walkway surface of the foot is only at 1/3 of the transverse line. With 192 (36,4%) students the walkway surface has caught also the second third, while with 150 (28,4%) students the walkway surface caught the last third of the surface. In the final measuring 368 (63,8%) students from rural schools have well formed foot, that is the walkway surface of the foot

is only at 1/3 of the transverse line. It is evaluated by print measuring. With 208 (36,0 %) students the walkway surface has caught the second third, while with 1 (0,2%) students the walkway surface caught also the last third of the surface. 298 (56,4%) students from urban schools have well formed foot, that is the walkway surface of the foot is only at 1/3 of the transverse line. With 228 (43,2%) students the walkway surface has caught also the second third, while with 2 (0,4%) students the walkway surface caught the last third of the surface.

The given results of the research lead to a ascertainment that the vault status is very compromised for a great number of students from classroom teaching no matter the living area. Many authors have had similar results in their researches. Feet deformities are present in a great number of preschool children no matter their living area, especially right before they start going to school, where the total percent of children with present feet deformities is 74,24%. A serious and versatile approach is needed to solve this problem. Only 17 out of 66 examined children do not have any kind of feet deformity. Feet deformity is more represented with boys (51,52%) than with girls (48,48%), (Bjeković, Arnaut and Gerdijan, 2011).
While measuring feet deformity with students from middle schools no matter their living area, it is proven that 9,76% of examinees have bigger deviation than normal instep posture, 30% of the examinees have smaller deviation than normal instep posture, while 60,23% of the examinees have normal instep posture. Given results of the instep analysis of boys show that the total sample of male examinees of middle school students 14,28% have greater deviation from normal instep posture, while 57,14% of examinees have normal instep posture, while with the girl those deformities are less represented. 5,55& of examinees have greater deviation from normal instep posture, 20,37% of examinees have smaller deviation from normal instep posture, while 74,07% of examinees have normal instep posture (Koničanin, Eminović and Bogdanović, 2011).

Researches on a school children population, students from I to VIII grade of elementary schools, confirm my researches, that there is a great number of students with changes on their feet. The number of student with deviation (lowered foot arch and flat foot), is 62,6%, while on 37,3% students have no changes. The given results indicate a high deviation percentage on the longitudinal foot arch (Živković Bogdanović, Midić, Herodek, and Stojanović, 2011).

From the Table 4 based on the values and leves of significance of Chi-square while examining the differences between the examinees from urban and rural schools in representation and foot deformity degree, we can ascertain that in the initial measuring there are statistically significant differences. In the final measuring there are also determined significant differences between the examinees from urban and rural schools on a degree and representation of feet deformity (Chi-square is statistically significant), on a level lower than 1%. This ascertainment is confirmed by other authors with the help of Chi-square test. They determined the statistical significance of feet deformity representation between the students from urban and rural areas, as well as that these deformities are more represented with the students from urban, than the students from rural areas. Significant value of the statistical significance is expressed on a level of 0,01% (Bjeković, et al., 2011).

From Table 5 based on the display of the distribution of the frequencies of several kinds of feet deformities in initial and final measuring, and regarding the school area, we came to the data showing us that the lifted foot deformity types (I and II degree) and flat foot (II degree), with the examinees from rural and urban schools, are significantly more represented in initial measuring, compared to the final measuring, and in the final measuring was not found a single case of II degree flat foot both with the examinees from urban and rural schools.

Measuring the structure of the feet of students from rural schools, the obtained results show that in the initial measuring 248 (43,0%) students have well formed foot. It is evaluated by measuring the footprint. 90 (15,6%) students have lifted foot (I degree), 62 (10,7%) students have flat foot (II degree), while 43 (7,5%) students have lifted foot (I degree), and 134 (23,2%) students have lifted foot (II degree). 186 (35,2%) students from urban schools have well formed foot. 79 (15,0%) students have flat foot (I degree), 113 (21,4%) students have flat foot (II degree), while 113 (21,4%) student have lifted foot (I degree), and 37(7,0%) students have lifted foot (II degree). In the final measuring 368 (63,8%) students from rural schools have well formed foot. 94 (16,3%) students have flat foot (I degree), 114 (19,8%) students have lifted foot (I degree), 1 (0,2%) student has lifted foot (I degree), while flat foot (II degree) was not represented in the final measuring with the students from rural schools. 298 (56,4%) students from urban schools have well formed foot. 138 (26,1%) students have flat foot (I degree), 90 (17,0%) students have lifted foot (I degree), and 2 (0,4%) students have lifted foot (II degree), while flat foot (II degree) was not represented in the final measuring neither with urban school students.

Many authors got similar results in their researches. Concave foot is significantly more represented both with boys and girls from rural area, compared to the urban life area. On the other side, with the examinees of both genders from urban area there is much greater representation of flat foot. Also, it can be noticed that the greater number of disorders regards the functional shape, which is at the same time the mildest. It is obvious that the representation of incompletely-fixated and structural disorders is significantly smaller.

It has to be ascertained that it is regarding a significant percent of frequency of severe forms of body deviations. It is familiar that the rural area children are skinnier than the city children for many reasons, first of all because of more physical activity, but also healthier and better food. Regarding the foot arch status, the obtained results are just a confirmation that the children from city area move around and have physical activity significantly less, especially the very types of moving that are dedicated to strengthening the feet and lower leg muscles. It is a fact that the greatest number of postural disorders is referred to the functional shape, where with and adequate corrective exercising program could stop further advancement od physical deviation to a more severe stadium and largely repair and bring to a normal position. It is obvious that there is smaller representation of incompletely-fixated structural deformities (Jovović, & Čanjak, 2011).

The research that was conducted in order to compare the children from city and village schools, definitely confirmed that the village children have significantly smaller percent of all postural disorders, and also feet disorders (Bogdanović, 2006). Today, the school children have a diverse and undoubtedly quality life contents. There are many sport clubs, such as collective and individual sports. While in the urban there are natural resources, developed water sports, such as some extreme sports. The researches in this area indicate that a great percent of elementary school children do not participate very often in sports activities, and that is the reason for greater presence of improper body.

The given results no matter the living area show us that the deformities are Pedes plani – lowered foot, Pedis valgi – twisted foot and Pedis recti – recessed foot (more expressed deformities with girls), while with the boys have expressed deformity called Pedes planovalgi – twisted foot, compared to the girls.

The reason for the condition of this foot deformity can be searched in the anatomical-physiological predispositions of the weaker joint-bone connection and the presence of significantly weaker according both to the quality and the number of muscle fibers. Of course we cannot ignore any of the other factors of this state such as lack of physical mobility with boys, weight, shoes, etc (Bjeković, et al., 2011).

Flat foot is, according to the obtained results, much more represented disorder 36,6% that the concave foot 18,1%, which is confirmed by my obtained information. It is proved that the students from urban areas have more represented the foot arch deformities compared to the students from rural areas. Concave foot is more represented with the students from urban areas 20,6%, compared to the students from rural areas, which is contrary to my results, while the flat foot is more represented with the students from urban areas, than with students from rural areas, where the greatest number of disorders is referred to the lighter form of flat foot (Rf=59,6%), which coincides with my results. The greater representation of heavier disorders is referred to flat foot (Jovović, & Čanjak, 2011). The research results have shown that with the population of 1181 school children at the age of 4 to 13 the frequency of flat foot was 2,7%, and 168 children 14,2% was under orthopedic treatment, but only 2,7% has the lowered foot diagnosis (Garcia-Rodriguez, et al., 1999).

The fact is that the biggest percent of the foot arch disorders is referred to the functional shape, where with and adequate program of corrective exercising we can stop the further development of the physical deviation into a heavier stadium and greatly correct and bring to a normal position. Obviously there is significantly smaller representation of incompletely-fixated and structural deformities. However, the concerning fact is that procentually heavier forms of disorders are substantially present with the younger adolescent students. The frequency of foot arch postural disorders can be significantly reduced through planned and continued corrective procedure.

Conclusion

Exercises for shaping the foot muscles should be conducted daily two to three times a day. Children should run on their toes, walk „loudly", on their toes, lift various small object off the ground with their legs (sponges, stones, acorn), crease papre, walk on the shelves or rope, play with their toes in the air, write numbers with their legs, collect stones in a box using legs, jump with both legs with turns, roll a tennis ball back and forth with soles, etc. During the classes of physical and health education, the most often injuries are foot injuries, that are of the ankle. For that reason, foot exercises should be done with the children in every class, because they are an important prevention of the injuries and that is how they strengthen their foot and ankle muscles. The exercises can be performed in sports shoes, but it is more efficient if the children are barefoot. Based on the given results, we can conclude that the improper body posture is more present with the children from urban, than from rural areas.

Compared to the urban children, everyday responsibilities of the village children require physical activity during the day in clean air, and healthy food is also included. On the other side, the urban children often eat unhealthy food in the school kitchen, such as pizza, croissants, pies, and various other kinds of pastry. The students are not conscious enough to accept vegetables and fewer sweets. Food with artificial flavors is easy to reach, and once they taste it, everything else tastes bad. Fast food is modern and that leads to obesity, and then it leads to improper body posture, as well as spine deformity and foot deformity with the increasing number of children. All of the displayed information in the tables point to a high percentage

of deviations on the longitudinal arch of the foot with the students in classroom teaching of both areas, which brings us the conclusion that it is extremely important to identify foot deformity in time. Considering the severity and the consequences that there disorders can cause, with parents, teachers and children there is still not enough awareness about the certain necessary measures in order to prevent and correct all of these disorders. However, only educated staff can contribute to forming the right, hygiene habits and excercising habits in order to have a proper body posture.

The students, along with the frequent physical and health education classes, should excercise at their homes in order to positively affect their growth and development. So, with the right cooperation with the physical and health education professors, parents and medical facilities, it can very efficiently be affected on the reducing the frequency of these deformities. The cause of this condition in the greatest deal lies in an unsufficient activity, inadequate food and surely in uncomfortable and inadequate shoes. Children need to be provided with movement. It is one of the basic needs that a child has to please in order to grow regularly.

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Received: February 2, 2019
Accepted: June 10, 2019
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