

THE FREQUENCY OF FOOT DEFORMITIES OF PRIMARY SCHOOL PUPILS IN THE „PRIMARY SCHOOL BIJELO POLJE“

Džafer Alić

Abstract: Deformities of the locomotor system are a growing problem today. Unhealthy lifestyle, reduced physical activity, insufficient exercise, wrong diet are some of the reasons for the growing number of deformities, especially deformities of the feet and spine. It is very important to determine the overall postural status of the child, especially the feet and spine. In the theory above, we can identify three factors that we can act on to slow down the development of deformation, if it cannot be prevented, due to hereditary predisposition. These are weakness of the foot muscles, being overweight and a lowered arch of foot. The research objective is to determine the frequency of foot deformities in children of primary school age in the Primary School "Bijelo polje" on the basis of the determined condition. The research was conducted in the 2015/2016 school year on a sample of 454 pupils of both sexes. The method of plantography and clinical examination of the feet was used as a method of determining foot deformities. The results of the research obtained by the plantography method show that 38% of the children included in this research have some kind of foot deformity. 157 or 34.5% of children have a lowered foot (pedes plani), 4 or 0.8% of them have an inverted foot (pedes valgi), 6 students or 1.3% of students included in this study have an inverted lowered foot (pedes planivalgi), while 1 or 0.2% have a lowered transverse arch of the foot (pedes transversplani), and 11 or 2.4% of students have a recessed foot (pedes excavati). Based on the obtained results, we can conclude that greater involvement in the education system is needed in the detection and prevention of this type of deformity.

Keywords: foot deformities, pupil, plantography

INTRODUCCION

Proper growth and development is crucial for every person, and especially for preschool and elementary school age. Physical and health education with all its organizational forms of work through specific kinesiological activities can significantly affect the qualitative transformation processes of the overall anthropological status. One of the basic tasks of physical and health education is to monitor the overall development of the school population, and especially the postural status of pupils. It is of great importance to detect on time any form of deformity, as well as the correct approach in correcting them. Also, the contents of physical education and health education should have a preventive and therapeutic effect through their contents, and especially through corrective gymnastics in homogeneous groups. These are therapeutic exercises that aim to restore the disturbed balance between the musculoskeletal system and the muscles. If this is not entirely possible, further progression of the deformity should be prevented. Today, there are specialized clinics for determining the status of the feet as well as for making special orthopedic insoles in large clinical centers. Diagnosis is performed according to high scientific standards and constant supervision of experts (Skender, 2000; Stefanovic, 1985; Džafić, Čolakhodžić, 2016). Based on the imprint, an individual orthopedic insole is made of natural materials, modern design and effective corrective effect, adapted to ready-made footwear. In school practice, the method of plantography is most often used to take a footprint.

RESEARCH METHODOLOGY

The research objective and tasks.

The research objective is to determine the frequency of foot deformities in children of primary school age in the area of primary school Bijelo Polje, Potoci, Municipality Sjever, City of Mostar. In this paper, we will explain and present foot deformity, as one of the increasingly common deformities in the school population.

The research tasks are:

1. Explain the function of the human foot,
2. Demonstrate exercises to foot deformities correction,
3. Examine and determine whether deformity of the lowered foot occurs in primary school children - pedes plani, pedes planovalgi, transversoplani and transversoplanovalgi, and to what extent,
4. Determine whether deformity of a recessed foot (excavate) occurs in primary school children and to what extent,
5. Determine if the foot condition is good in primary school children.

RESEARCH METHOD

In this research paper, we used the method of plantography and clinical examination of the feet.

Research subjects

The research was conducted on 454 primary school pupils of 'Primary School Bijelo Polje'.

Research results

On the first task of this research, we were supposed to study the scientific literature and show the types of foot deformities. The type of foot deformity in all persons, and especially in primary school students, is influenced by pathology factors, so we can divide them into internal and external:

Internal factors of foot deformity are:

- weakness of the muscles, ligaments and tendons of the feet
- nerve disease
- joint disease
- poor blood circulation

External factors of foot deformity are:

- bad shoes
- adiposity
- insufficient physical activity
- traumas of the locomotor apparatus in development
- workplace

The surface of the footrest can be displayed and determined in a classical way. It is a footprint with full reliance on indigo paper or canvas. Today, a podoscope is used, which consists of solid transparent glass, obliquely placed mirrors and electric lighting. Static and dynamic foot function can be examined on a podoscope. In developed countries, there are modern software methods that are based on the same principle but the results are faster, clearer and more accurate.

Based on the footprint, the following characteristics

(types) of feet can be obtained:

- PEDES RECTI (proper foot), the print contains all five toes, the front part connected to the back of the foot. The load is directed to the heel axis, to the head of the first bone of the foot,
- PEDES PLANI - the foot is lowered,
- PEDES PLANUS (flat foot), a widely printed foot-print, which results from the failure of short plantar muscle function due to ligament strain. There is a pronation of the talus which is placed medially to-wards the calcaneus. With a flat foot, we have pain in both the foot and the lower leg.

- PEDES CAVUS (High foot), occurs when the heel bone is supinated with the pronation of other tarsus bones.
- PEDES VALGI (Inverted foot), has a medially con-vex imprint and a flat foot is twisted towards the medial.
- PEDES VALGUS, calcaneus is in the position of pronation. The direction of the load passes through the talus and calcaneus, forming an angle open to the outside, and the foot in the position of pronation.
- PES VARUS, a shrunken foot creates the opposite image of a pes valgus. The longitudinal axis that passes through the talus and calcaneus forms an angle open medially with the transverse axis, resulting from stiffness of the pronator muscles.
- PES EQUINUS, occurs when the flexor muscles of the lower leg are stiff, when the perineal muscles and m.tibialis anterior are stiff, the pes equivarus occurs.
- PEDES EXCEVATI - there is a depression of the foot,
- PEDES PLANOVALGI - is an inverted lowered foot,
- PREDES TRANSVERSPLANI - the transverse arch of the foot is lowered.

The results of examinations conducted in the 2015/2016 school year show that out of 454 students included in this research, 38% of children have some kind of foot deformity. 157 or 34.5% of children have a lowered foot (pedes plani), 4 or 0.8% of them have an inverted foot (pedes valgi), 6 students or 1.3% of students included in this study have an inverted lowered foot (pedes plani-valgi), while 1 or 0.2% have a lowered transverse arch of the foot (pedes transversplani), and 11 or 2.4% of students have a recessed foot (pedes ex-cavati).

Table 1. Results of the examination of foot deformity in the 2015/2016 school year

Foot diagnosis	Research subjects included	%
Pedes recti (proper foot)	275	61%
Pedes plani (lowered foot)	157	35%
Pedes excavati (recessed foot)	11	2%
Pedes valgi (inverted foot)	4	1%
Pedes planovalgi (inverted lowered foot)	6	1%
Pedes transversplani (lowered transverse arch of the foot)	1	0,2%

After analyzing the conducted examinations in the 2015/2016 school year, we can conclude that about 61% of the examined students have a normal foot finding, while about 40% of them have different types of foot deformities, which can be seen from table No 1.

CONCLUSION

The degree of deformity and age of the child determines the method of correction. It is necessary to choose one of the methods of correction in cooperation with physiotherapists and teachers, and in cooperation with parents in order to permanently correct the deformity. It is of great importance to detect any form of deformity on time because that is crucial for the future health of the child. And in such situations, cooperation, information and persistence are very important, which aims to reduce or eliminate deformities.

REFERENCES

1. Bala, G. (1972). Primena korektivnih vežbi za ravna stopala u osnovnoj školi. *Pedagoška stvarnost*, 18 (5), pg.283 – 278.
2. Bošković, M. (1977). *Anatomija čovjeka*. Beograd-Zagreb: Sportska knjiga.
3. Beljin, M. (1976). Fizički deformiteti i profesionalna orijentacija. *Pedagoška stvarnost*, 22(7), 542 – 547.
4. Čolakhodžić, E., Vuk, N., Habul, Ć., Tanović, S., Vujica, S. (2017). Pretilost i posturalni status djece osnovnoškolskog uzrasta u Gradu Mostaru. Mostar: Grad Mostar i Nastavnički fakultet.
5. Džafić, M., Čolakhodžić, E. (2018). Učestalost deformiteta stopala kod učenika osnovnoškolskog uzrasta na području grada Mostara. Mostar: EDUCA, Vol. IX, No.11., pg.251-255.
6. Hadžikadunić, M. i Balta, S. (2003). Pravilno držanje tijela kod djece od prvog do četvrtog razreda osnovne škole. *Didaktički putokazi*, 9, pg. 27 – 39.
7. Koturović, L.J., & Jeričević, D. (1984). *Kineziterapija*. Beograd: Fakultet za fizičko vaspitanje.
8. Mulić, S. (2002). Uočavanje deformiteta stopala metodom plantografije. *Naša škola*, 48 (22), pg.103 – 116.
9. Nišović, M. (1979). *Gimnastika + igre za djecu*. Beograd: Sportska knjiga.
9. Skender, N. i Kendić, S. (2002). Tjelesni i zdravstveni odgoj u funkciji korekcije deformiteta lokomotornog sistema. Bihać: Pedagoški zavod.
10. Stefanović, V. (1985). Merenja i istraživanja kao predmet saradnje nastavnika fizičke kulture i pedagoške službe škole. *Nastava i vaspitanje*, 34(1), pg.70 – 79.

Corresponding author:

Džafer Alić, doctoral study

Nastavnički fakultet Univerziteta „Džemal Bijedić“
e-mail: dzafer_a@hotmail.com