

Frequency of Foot Deformity Among Students of Faculty for Sport and Physical Education

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ABSTRACT

The main objective of this study was to determine possible foot deformities students of the Faculty of Sport and Physical Education. Obesity is one of the main causes of flat feet, which is directly associated with reduced physical activity (Khalid, Rai, Mobeen, & Amjad, 2015). The research was conducted at the Faculty of Sport and Physical Education in Niksic, on a sample of 116 respondents. The sample of variables consisted of a total of two foot deformities: flat feet (*pes planus*) and carved feet (*pes cavus*) divided into three levels according to the severity of the deformity, from the lightest to the heaviest, including foot without deformity. For determining the status of the foot, was applied orthopaedy on the basis of which is considered plantar side of the foot. It was used appliance brand *PODOSKOPIO LUX 02990*. The results are presented in tables in the percentage and numerical representation of the assessment deformities flat and hollowed foot. According to the results it is evident that out of 116 respondents, 53 students (45.7%) were without deformities. Numerical and percentage estimates flatfoot deformity is: 16 students (13.8%)-level I; 6 students (5.2%)-level II; Numerical and percentage estimates hollowed foot deformity is: 28 students (24.1%)-level I; 7 students (6%)-level II; 6 students (5.2%)-level III. The highest percentage shows deformity "hollowed foot" of the first degree (24.1%), which is often the case with people athletic type. Some studies have shown that people with recessed feet in some sports disciplines, achieve the same results as people with normal feet (Jovovic, 2008). Accordingly, foot deformity may occur not only in the period of growth and development, but also in later years (Zivkovic, 2009).

Key words: foot, deformities, students

Introduction

The most common disorders and deformities among children and youth are determined on basis of statistical analyses relating to various forms and degrees of feet fallen arches. In most cases it is functional disorder, known as insufficient foot (Kosinac, 2008). The foot consists of 26 bones connected into the single unit through joints of less and greater mobility, and it has two functions: movement of body through space, and carrying the weight of the body. In accordance with that, feet arches are impacted by the body weight, which can be additional reason for more common flat feet among obese individuals (Wozniacka et al., 2013). Obesity is one of the main causes of flat feet, which is directly associated with reduced physical activity (Khalid, Rai, Mobeen, & Amjad, 2015). Furthermore, it is also known that foot function depends on the state of active and passive elements of bio-motoric apparatus. Having that in mind, the biggest problem that occurs is the insufficient tone of the ligament apparatus and the foot musculature. Unlike the flat foot that presents static deformity, hollow foot is dynamic deformation that does not depend on the load but it is the result of the imbalance on the muscle strength.

There are several different methods for determining status of feet arches. One of the most modern methods for foot examination is method of computerized digital orthopedics. In this study, apparatus – podoscope with mirrors was used, which enabled observation of feet from the bottom, and in that way we get information on the look of the support surface.

The main goal of this research is to define possible feet deformities among students of the Faculty for Sports and Physical Education.

Methods

The research was conducted at the Faculty for Sports and Physical Education in Niksic, on the sample of 116 subjects. The variables sample consisted of total two feet deformities, as follows: flat foot (*pes planus*) and hollow foot (*pes excavatus*), divided into three degrees according to the severity of the deformity, ranging from the lightest to the most serious, including the feet without deformity.



Figure 1. Podoscope lux 02990

To determine the foot status, orthopaedy method is applied, where the plantar side of the foot is observed. The apparatus *PODOSCOPE LUX 02990* is used (Figure 1).

Results

Results are presented in table, in percentages and numerical representation of deformity assessment of flat and hollow foot. According to the results acquired, it is evident that, out of total 116 subjects, a number of 53 students (45.7%) are without any deformity. Numerical and percentage representation of flat foot deformity is as follows:

- 16 students (13.8%)-I degree;
 - 6 students (5.2%)-II degree;
 Numerical and percentage representation of hollow foot deformity is as follows:
 - 28 students (24.1%)-I degree;
 - 7 students (6%)-II degree;
 - 6 students (5.2%)-III degree.

Table 1. Numerical and percentage representation of flat and hollow foot deformity

Variables	N	I degree		II degree		III degree	
		N	%	N	%	N	%
Flat foot	116	16	13.8%	6	5.2%	0	
Hollow foot	116	28	24.1%	7	6%	6	5.2%

Discussion

Based on data gathered through this research, it is obvious that still there is certain degree of deformities, although the subjects participate in some sports activities. The highest percentage shows deformity “hollow foot” (*pes excavates*) of first degree (24.1%), which is very common even for athletes. Some researches showed that individuals with hollow feet, in certain sports disciplines, achieve same results as individuals with normal feet (Jovović, 2008). Having this in mind, feet deformity can occur not only in the period of growth and development, but also in later years. The most common reasons for this are: injuries, diseases, genetic predisposition, constitution, and life-style. Flat foot deformity is not determined in more serious degree, which confirms that it is still the sample of subjects that are somewhat physically active. Total 6 subjects have certain degree of foot fallen arches – II degree (*pes planus*), which

leads us to think about numerous causes, but first of all, about inborn deformity that was not correctively treated in timely manner. Studies show that “flat foot” deformity is linked to the growth, i.e. the older a child is, the deformity is less common. All aforementioned leads us to conclusion that forming of the foot arch reaches up to school age, when it is necessary to take care about the approach in work with the children with deformities, especially in pre-school period (Mihajlović, Smajić, & Sente, 2010).

The most serious form of hollow foot – III degree (*pes excavates*), with the observed difference in height of front and back part of the foot, was identified in 6 students, which was not expected for the treated sample. Prevention and treatment should start as soon as possible in order to apply complex of exercises to increase the elasticity of the feet, and the muscle strength of plantar extensors.

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