



ORIGINAL RESEARCH PAPER

Physiotherapy

PREVALENCE OF FLAT FEET IN SCHOOL GOING BOYS AND GIRLS IN AHMEDNAGAR DISTRICT

KEY WORDS: Pes planus , Adolescents , Deformtiy , Foot Print Assessment.

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ABSTRACT

BACKGROUND : Flat feet (also called Pes Planus or Fallen arches) is a postural deformity in which the arches of the foot collapse, with the entire sole of the foot coming into complete or near-complete contact with the ground. As the deformity worsens, the soft tissues (tendons and ligaments) of the arch may stretch or tear and can become inflamed. Previous studies have found that many factors are associated with flatfoot. The objective of the present study was to investigate the prevalence of flatfoot among school going boys and girls.

METHOD : Observational study conducted at Schools in Ahmednagar. There were students (boys and girls) included in the study by convenient sampling technique. Student with the age group 9-16 year those studying in the school. Written consent was taken from school authority. Then Height and Weight was recorded for BMI and Planar footprint was obtained by DENIS METHOD and the recorded data was analysed.

RESULT : Out of 200 subjects 10% Boys (Grade 1,2,3) has flat feet and 12% Girls (Grade 1,2) has flat feet.

CONCLUSION : This study suggests that there is a significant association between flatfoot and age. Prevalence of flat foot decreases with advancing age. From the result it is concluded that Flat foot is highly prevalent in the ages between 9-15 years.

INTRODUCTION :

Flat foot is a condition in which the longitudinal and/or medial arches of the foot collapse. The entire foot sole comes into complete or nearcomplete contact with the floor or ground surface during all weight bearing activities. Infants are born with flat feet, so the flat appearance of an infant's foot is normal, and the longitudinal arch develops naturally by about age five or six^[1].

It has been reported that flat feet in children are normal when they first begin to stand because as they try to keep balance and grip with the feet for support, they tend to spread apart in a wide stance and the soles turn outward. Balancing in a narrower stance as confidence is gained in standing; Causes of the persistence of flat feet; Tips on how to prevent pigeon-toed walking in children. The feet of most children who displayed the condition as infants become structurally normal when they are 12 or 13 years old^[2].

In normal feet with presence of an arch, the stress will be distributed in an even manner so that the person will not experience any kind of pain. Under an abnormal condition that occurs due to lack of stretching of muscles, bones and tendons, there will be absence of arch among these people. In this condition, all the weight will be concentrated in smaller area on the feet and generates a lot more pain than normal. Some children never develop an arch^[4]. If flexible flatfoot continues into adolescence, a child may experience aching pain along the bottom of the foot. A doctor should be consulted if a child's flatfeet cause pain^[3].

Garcia et al.4, found diminished prevalence of flat feet in children from low and low-middle class families, with a predominance of the diagnosis in females over males. Most children show full development of normal feet by 12 years of age^[6].

Thus the purpose of my study is to find out the prevalence of Flat feet among school going Boys and Girls and the effect of the deformity in activities of daily living in children. The association of prevalence of flatfoot with age, gender and body mass index was also investigated to determine the contributory factors.^[7]

METHODOLOGY :

Study design : Observational study
Study set up : School in Ahmednagar District
Sample technique : Convenient sampling

Sample size :200

MATERIALS :

- 1) BMI scale for children and adolescents.
- 2) Weighing machine.
- 3) Measuring tape.
- 4) Denis Footprint Datasheet.
- 5) Marker for footprint.
- 6) Plain paper.
- 7) Assessment performa.

INCLUSION CRITERIA :

- 1) Children between age group 8-16 years.
- 2) Boys and Girls included.

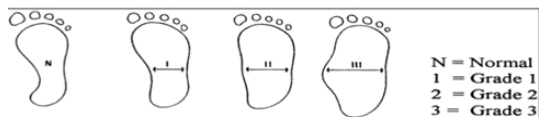
EXCLUSION CRITERIA :

- 1) Foot injury including any bony pathology or ligament injury.
- 2) Degenerative or rheumatoid arthritis.
- 3) Musculoskeletal abnormalities that were previously evaluated during physical examination or plain X-ray.
- 4) Prior trauma to feet in acute and subacute phase

METHOD/PROCEDURE:

After the clearance from Ethical Committee meeting by the institutional ethical committee the students including both boys and girls of the age group 8-16 years who were willing to participate and fulfill the inclusion criteria were included. Before the study began, the school authorities were met, and explained the purpose of the study and sought their consent. The following information was recorded from each subject: date of birth, school name, grade, height and weight. Height and weight was measured on subject in light clothes and without shoes using standard apparatus. The weighing machine was used to measure the weight. Height was measured using a measuring tape. Height was measured while the subject stands with heels, buttocks, shoulders and occiput touching the vertical tape. Their BMI was noted and categorization was made as underweight, normal, overweight and obese using International cut-off for body mass index for adolescents. Foot structure assessment was taken by Denis Method.

Plantar footprint classification by DENIS METHOD :



DATA ANALYSIS AND GRAPHICAL PRESENTATION :

Total no of students: 200

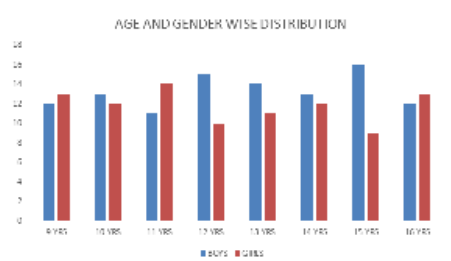
	Total no	Percentage %
BOYS	100	10 %
GIRLS	100	12 %

The prevalence of flat foot among boys and girls by age classes :

Age classes (years)	Boys (N)	Flat feet	%	Girls (N)	Flat feet	%
9yrs	12	3	25%	13	3	23%
10yrs	13	4	30%	12	2	16%
11yrs	11	1	9%	14	1	7%
12yrs	15	-	-	10	1	10%
13yrs	14	2	14%	11	2	18%
14yrs	13	-	-	12	1	8%
15yrs	16	-	-	9	2	22%

	BOYS	GIRLS
No of student with flat feet	10	12
Mean	16.411	17.654
Std.deviation	3.283	5.703
p - value	>0.10	>0.10

GRAPHICAL REPRESENTATION :



PREVALENCE OF FLAT FEET IN BOTH GENDER



RESULT :

Out of total 200 students studying in Schools in Ahmednagar s 10% Boys(age 9-13 years) had flat feet in which 5% has Grade 1,4% has Grade 2 flat feet and 1% has Grade 3 flat feet.And 12% Girls(age 9-15 years) had flat feet in which 9% has Grade 1 flat feet and 3 % has Grade 2 flat feet.

DISCUSSION :

The aim of our study is to find 'Prevalance of Flat feet in school going boys and girls .In this study Static weight-bearing footprints for the right and left foot of each subject were recorded by marking the sole of the foot and making an impression of it on paper . Height and Weight of the student was recorded .It was concluded that the BMI did not affect the presence of flat feet as the deformity was also seen in healthy weight students .So, obesity is a temporary factor in our study that may cause the lack of significant relationship between flat feet and obesity.

The incidence of severe flat feet is higher in females .The children with flat feet will not be able to undertake various activities like in an easy manner .They will experience more pain when they are subjected to high impact activities such as running and jumping .There will be more amount of stress in the calf and ankle regions .Shoe-wearing in early childhood is detrimental to the development of a normal longitudinal arch.

CONCLUSION :

From our study we concluded that among 200 total subjects 10 Boys out of 100 and 12 Girls out of 100 has Flat feet . There is significant difference in the prevalence of flat feet among different age group from 9-16 years .Flexible asymptomatic flatfoot in children under the age of seven, does not need use orthotic insoles, but periodically observation .Symptomatic flexible flatfoot should be treated with activity modification, stretching exercises and orthoses .If the response is not satisfactory, surgical intervention should be considered.

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