

Effect of Flat Foot Deformity on Selected Physical Fitness Components in school going children

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Abstract- The moment you discover which foot is your right foot, you don't have many hesitations about which of them is the left foot. And then the problem left is which of them to start walking with them (A.A.Milne). Flatfoot impairs the body's shock absorption mechanism and creates motor difficulties in functions or activities requiring balance and stability. The purpose of this study was to find the effect of flat foot deformity on selected physical fitness components in school going child. For this task a total of 20 subjects (10 flat footer and 10 normal feet) subject were selected purposively from different school, ranged from 9 to 14 years of age. Methodology –to identify the flat foot deformities wet test was measured. Data was collected individually by performing the wet test. Mean score, standard deviation were applied for data analysis and interpretation. Conclusion – the mean score for bow legs was 3.6 and for knock knee 4.4 was reported. In the examined subject it was found that 20% of the subjects were having postural deformity.

I. INTRODUCTION

Movement and postural pattern are important components in a Child's physical and emotional development (Dr.Gill Soberg) health is of prime importance with respect to all walks of life. Childhood is a crucial stage of life in terms of Child's physical, intellectual, emotional and social development. Growth of mental and physical abilities progress at an outstanding rate and a very high proportion of learning take place from birth to age six. Child development experts agree that play is very important in the learning and emotional development of all children. Flat feet or foot is a deformity where the foot have medial arch completely present. Children between 3 and 13 percent of kids have flat foot (Dr.Angela Evan) and the condition is more common in young children. In fact some degree of flat footedness that reduces with age is considered normal up until around the age of eight or nine. According to research flat foot might have a detrimental effect on various components of human physique. So here a study is been carried out to find the effect of flat foot deformity on selected physical fitness components in school going child.

In **flat feet** (pes planus), the middle of the feet, which are normally arched, appear sunken. Before 3 years of age, all children have flat feet. The arch in the foot begins to develop around age 3. Persistent flat feet may result when the arch of the foot is unusually flexible (called **flexible flat feet**). Another cause of flat feet is stiffening of the foot joints, which fixes the foot in a position with a flattened arch (called **tarsal coalition**).

Tarsal coalition may be a birth defect or result from conditions such as injuries or prolonged swelling.

II. OBJECTIVES OF THE STUDY

- To find the effect of flat foot deformity on agility of school children.
- To find the effect of flat foot deformity on explosive leg strength of school children.

III. HYPOTHESIS

- It was hypothesized that there will be no significant difference between flat footer and non flat footer with respect to agility.
- It was hypothesized that there will be no significant difference between flat footer and non flat footer with respect to explosive leg strength

IV. PROCEDURE AND METHODOLOGY

To achieve the purpose of the study 40 (N=40) school children were purposively selected, 20 subject which have flat foot deformity and 20 sample which have normal feet were selected from different government and private schools of Aurangabad city of Maharashtra . The subjects were ranged from 9 to 14 years. The variables selected for the study flat foot (orthopaedics) agility, explosive leg strength (physical fitness) to detect the flat foot deformity clinical examination methodology of orthopaedics was used. Foot print wet test was used to detect flat foot deformity. A visual observation of the foot print was observed by using the wet test.

To measure agility 10 yards shuttle run was used. To measure explosive leg strength standing broad jump was used .for wet test the subject was asked to sit on a chair normally by applying black color to their soul and then asking them to give their foot impression by standing properly on the white paper sheet, ultimately Recording the foot impression. Flat foot detection – subject have almost entire footprint, if the medial foot Arch is present than they have a flat foot and if the medial arch is missing than the feet is normal. Standing Broad jump (explosive leg strength) Pupil stands with the feet several inches apart and the toes just behind the take off line. Preparatory to jumping, the pupil swings the arm backwards and bends the knees. The Jump is accomplished by simultaneously extending the knees and swinging forward the arms.

Scoring – Record the best of the three trials in feet and inches to the nearest inch. **Shuttle run. (Agility)** Two Parallel lines are marked on the floor 30 feet apart. The width of a regulation volleyball court serves as a suitable area. Place the blocks of wood behind one of the lines as indicated. The pupil starts from behind the other line. On the signal ready? **Go” the pupil runs to the blocks; pick one up, Scoring** - record the time of the better of the two trials to the nearest tenth of a second. The data was collected individually by performing the test on the subject and two groups were made one with flat foot deformity and other with normal feets in the described manner.

V. RESULTS AND DISCUSSION

The collected data were statistical measure like mean; standard deviation, fisher’s exact test were applied. The level significance was $p>0.05$. The following table shows the result of the study.

Table – 1

Table no –1 illustrates the statistical values of agility level of normal foot and flat footer. With regards to Agility (shuttle run) the obtained mean value of normal footer is 11.89 and 12.32 of flat footer respectively which reveals that there was no significant effect of flat foot deformity on agility.

Agility (Shuttle Run)

Samples	Number	Mean	S.D	Range	level of confidence	significance value
Normal foot	10	11.89	1.44	10.00– 15.09	1.03	p>0.05 level
Flat foot	10	12.32	0.72	11.41 -13.41	0.51	

*significant at 0.05 level.

Table- 2

Table no – 2 illustrates the statistical values of explosive leg strength of normal foot and flat foot samples With regards to explosive leg strength (standing broad jump) the obtained mean value of normal footer is 4.406 and 4.621 of flat footer respectively which reveals that there was no significant effect of flat foot deformity on explosive leg strength

Explosive leg strength (standing broad jump)

Samples	Number	Mean	S.D	Range	level of confidence	significance value
normal foot	10	4.406	0.82	2.08 - 5.11	0.58	p>0.05 level
flat foot	10	4.621	0.69	2 .00 - 6.00	0.50	

*significant at 0.05 level.

Figure- 1

Figure -1 illustrates the comparison of flat footer and normal foot with respect to agility

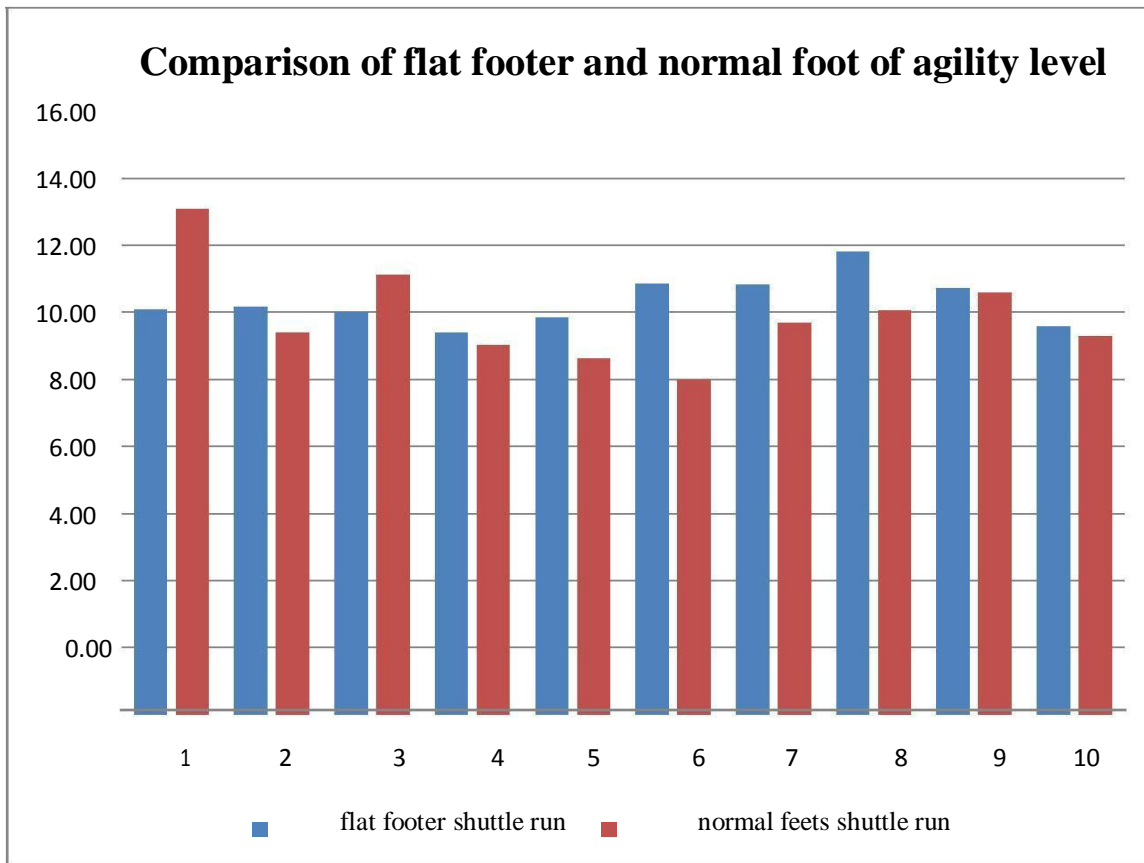
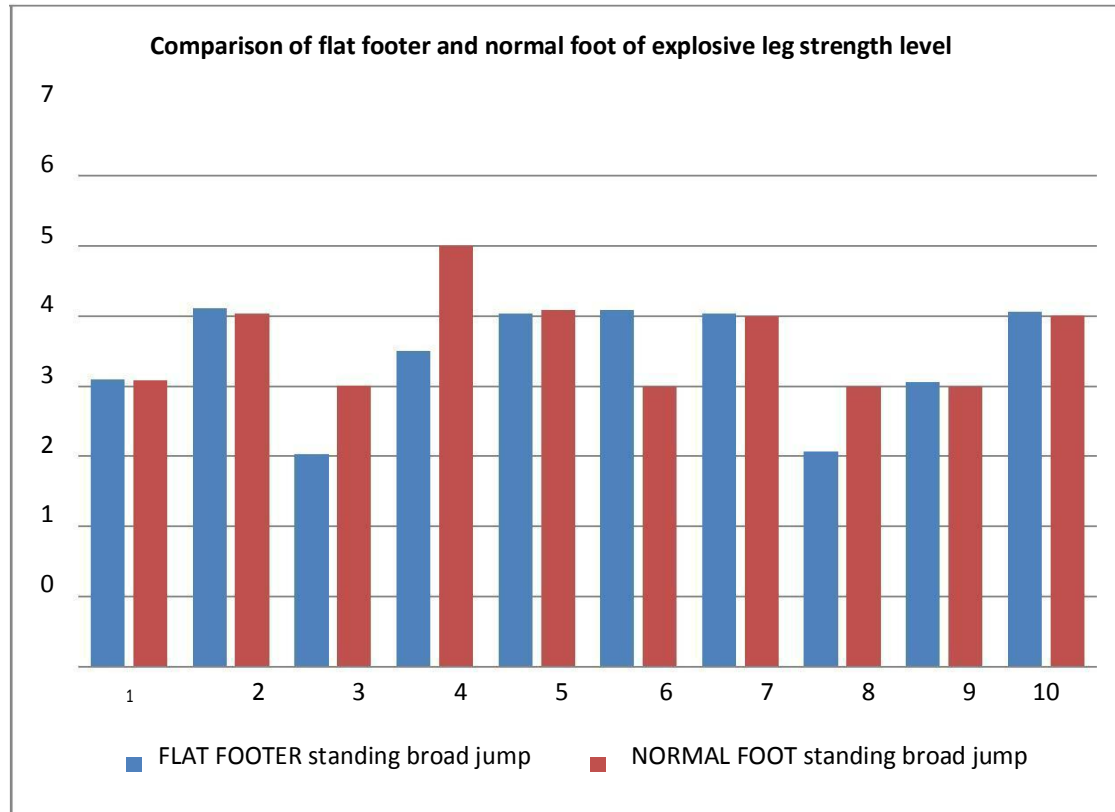


Figure - 2

Figure -2 illustrates the comparison of flat footer and normal foot with Respect to explosive leg strength.



VI. CONCLUSION

On the basis of data interpretation and analysis the following conclusion is drawn

- There is no significant difference between flat footer and non flat footer with respect to agility hence H1 is rejected
- There is no significant difference between flat footer and non flat footer with respect to explosive leg strength. Hence H2 rejected.

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