

PREVALENCE AND EFFECT OF GENU VARUM AND GENU VALGUM DEFORMITIES ON SPEED ABILITY OF SCHOOL CHILDREN

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Abstract

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 progresses at an outstanding rate and a very high proportion of learning takes place from birth to age six. Child development experts agree that play is very important in the learning and emotional development of all children. Genu varum is a condition where the knees are abnormally divergent and the ankles abnormally approximated, Genu varum is a relatively common finding in children. Treatment strategies vary with the patient's age and the stage of disease and deformity. Genu valgum is a condition where the knees are abnormally approximated and the ankles abnormally divergent. The deformity basically results from the unequal growth of two sides of the growth plate of the lower epiphysis. The degree of deformity is estimated by measuring the intermalleolar distance, in genu valgum secondary to a disease such as rickets, there will be findings suggestive of the primary disease. **Purpose of the study** -To find the prevalence of genu varum and genu valgum deformity and its effect on speed ability in school children. **Methodology**- 40 (N=40) school children were randomly selected from different government and private schools of Aurangabad (India). The sample ranged from 6 to 14 years of age. The variables were genu varum and genu valgum, Clinical examination of orthopaedics was applied in which genu varum and genu valgum deformity were diagnosed by measuring inter condylar and intermalleolar distance in the standing position. The distance is measured in cm. The collected data were applied with statistical measures like mean, Fisher's exact test. The level of significance is 0.05. **Result** - After the application of the various test it is found that genu varum is 15% in children of the total population (6 children), and genu valgum deformity is found in 12.5 % children (5 children) of the total population. It is found that statistically, for genu varum $p=0.02$, the result is Significant ($p<0.05$). And for genu valgum $p=0.03$, the result is Significant ($p<0.05$).

INTRODUCTION:

Childhood is a crucial stage of life in terms of Child's physical, intellectual, emotional and social development. Growth of mental and physical abilities progresses at an outstanding rate and a very high proportion of learning takes place from birth to age six. Genu varum is a condition where the knees are abnormally divergent and the ankles abnormally approximated. Genu varum is a relatively common finding in children. Physiologic bowing, which is seen most often, has a well-documented favorable natural history. Idiopathic tibia vara is the most common of the pathologic conditions that are associated with bowed legs; treatment strategies vary with the patient's age and the stage of disease and deformity. Genu varum may also accompany systemic conditions, such as achondroplasia, vitamin D-resistant rickets, renal osteodystrophy, and osteogenesis imperfecta—all of which can result in short stature. Genu valgum is a condition where the knees are abnormally approximated and the ankles are abnormally divergent. The deformity results from the unequal growth of the two sides of the growth plate of the lower epiphysis. The degree of deformity is estimated by measuring the intermalleolar distance. In genu valgum secondary to a disease such as rickets, there will be findings suggestive of the primary disease.

Purpose of the study

1. To find the prevalence of genu varum and genu valgum deformity in school children
2. To find the effect of genu varum and genu valgum deformity on speed ability in school children

Methodology

To achieve the purpose of the study 40 (N=40) school children were randomly selected from different government and private schools of Aurangabad (India). The sample ranged from 6

to 14 years of age. The variables selected for the study were genu varum and genu valgum to detect the prevalence of these deformities. Clinical examination of orthopedics was applied in which genu varum and genu valgum deformity was diagnosed by measuring inter condylar and inter malleolar distance in standing position. The subject was asked to stand in normal standing posture with feet apart by using the steel Tape the distance between inter malleolar and inter condylar were measured according to the clinical examination of orthopedics method for genu valgum – if the distance is 6 to 8 cm between the two malleolar than mild genu valgum deformity is found. And if the distance is 10 cm then the deformity is severe, for genu varum – if the distance is 6 to 8 cm then mild deformity is found and if the distance is 10 cm or more then the deformity is severe. To examine the effect of genu varum and genu valgum on speed the AAHPERD 50 yard dash test was used. (ref –Clinical examination of orthopedics by Ronald macrae)

50 YARD DASH (SPEED)

Purpose:

To measure speed
Equipment: Two stop watches or one with a split-second timer.
Description: It is preferable to administer this test to two pupils at a time. Have both take positions behind the starting line. The starter will use the commands are you ready and go / the latter will be accompanied by a downward sweep of the starter's arm to give a visual signal to the timer, who stands at the finish line.
Scoring: Record in seconds to the nearest tenth of second.

1. Results

The data was collected individually by performing the test on the subject in the described manner. The distance is measured in cm. The collected data were applied with statistical measures like mean, Fisher exact test. The level of significance is 0.05

Table no.1

Table – 1 illustrates the statistical values of genu varum and genu valgum. With regards to genu varum and genu valgum, the obtained mean value was 5.84 and 5.8, respectively, which reveals that genu varum deformity and genu valgum deformity is prevalent in school-going children

Sr no	Distance in CM	Intercondylar distance, total number of samples	Inter malleolar distance: total number of samples	Mean
1	5-6		35	5.84
2	7-8		5	5.8

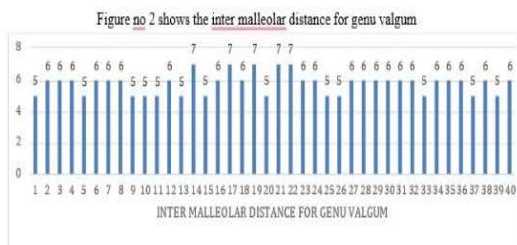
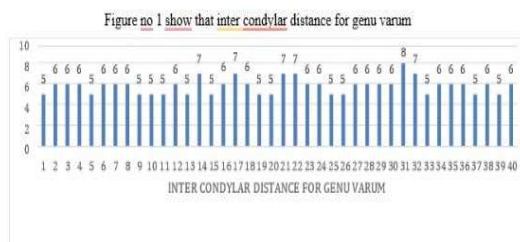


Table no .2

Shows the comparison of Speed Ability between Genu varum and normal posture participants

Normal	Normal	Deformed	Fisher's exact test
Percentile	No of samples	No of samples	0.02
Above 50	17 (50%)	0(0%)	
Below 50	17 (50%)	6 (100%)	
Total	34	6	

Fisher's exact test (p=0.02), the result is Significant (p <0.05)

Table no .2 showed that the (50%) of the normal

participants were above 50 percent and (50%) were below 50 percent, whereas deformed participants (0 %) above 50 percent and (100 %) below 50 percent, p=0.02, the result is Significant (p<0.05).

Table no .3

Shows the comparison of Speed Ability between Genu valgum and normal posture participants

Fisher's exact test (p=0.03), the result is Significant (p <0.05)

Normal	Normal	Deformed	0.03
Percentile	No of samples	No of samples	
Above 50	8 (20%)	0(0%)	
Below 50	25(80%)	20(100%)	
Total	35(100%)	5 (100%)	

Table no .3 showed that the (20 %) of the normal participants were above 50 percent and (80 %) were below 50 percent, whereas deformed participants (0 %) above 50 percent and (100 %) below 50 percent, p=0.03, the result is Significant (p<0.05).

Discussion

After the application of the various test it found that genu varum is found in 15% children of the total population (6 children) and genu valgum deformity is found in 12.5 % children (5 children) of the total population and there is significant effect of these deformities on speed ability as this deformities is an obstacle and hindrance for the children to run with speed , as the alignment of the legs is deformed. the enduring advantages of physical exercise.

Conclusion

Genu varum and genu valgum both are prevalent in school children

It is found that statistically the P<0.05 hence there is significant effect of genu varum and genu valgum on speed ability in school children.

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