



A study of upper limb deformities with physical fitness components prevalence in school going children's in South Kashmir region of Kashmir division

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Abstract

Physical fitness components play an essential role in performing the fitness of school going children. To encourage children to feel more optimistic about a range of leisure activities will make them more likely to be physically active. The purpose of the study was to compare the upper limb deformities with physical fitness components prevalence in school going children's in south Kashmir region of Kashmir division. The components chosen were Angle of deformity, Endurance and Explosive Leg Strength. The study was conducted on 300 male school going children as subjects consisting of 100 from kyphosis, 100 from lordosis and 100 from scoliosis through purposive sampling method. The age of subjects were ranging between 10-15 years. The collected data on selected criterion components were statistically analyzed by one-way ANOVA to find out the significant difference, whenever the interaction effect was found to be significant the simple effect and then least significant difference (LSD) Post-Hoc test was applied to find out the critical difference. In all the cases 0.05 level of significance was set to test the hypothesis. Findings disclose that significant difference in Angle of Deformity while as insignificant difference was found between Endurance and Explosive Leg Strength. The data will provide as a guideline to urge awareness among masses to improve the deformities at earlier stages.

Keywords: kyphosis, lordosis, scoliosis, angle of deformity, endurance and explosive leg strength

Introduction

Your posture is the index of your personality. When you show yourself in a body position or in a stable position (state) that you assume while doing various things, it tells others a lot about your marks, features, qualities and thoughts. When we see a person in a certain pose or position, we can say many things about him. For example, we can easily identify a friend by his personal nature. Similarly, when a person walks awkwardly, it indicates awkwardness in the body, faulty biomechanics in movement, lack of skills or training. The seat represents the correct body-position assumed when performing the action or otherwise the optimal gain in economy and efficiency of effort. There is no denying that a good carriage is very important in life and sport. When you look at a person for the first time, you realize how he or she is carrying himself. The carriage shows the strength of your awareness, fertility and character. Body parts will be balanced when there is good posture. Posture expresses your physical condition and mental state in a very real sense. When we are happy, cheerful and optimistic, we walk flexible and springy with our head held high and our stomach flat, but when we are in a nervous or sad mood, our energy level is low and there is no enthusiasm in our walk. And vigor, and is often irrelevant. Similarly, the manner in which we sit on a chair or bed reveals much about what is going on in our minds at that time; The path we take depends largely on our thoughts and feelings; And the way we stand shows that we are winners or losers in life or in the harbor.

Man's posture is straight. He supports his body on two legs, rather than on four-legged mammals. This condition causes a person to sit, stand, sleep, run, circulate, breathe, grow and develop muscles, coordination, etc. It has also undergone significant changes in the establishment of its intestinal organs- heart, lungs, kidneys, and intestines.

Methodology Selection of Subjects

For the purpose of the study 300 male students were selected by purposive sampling method from different schools of south Kashmir region of Kashmir division. The age of the subjects was ranging from 10-15 years.

Collection of Data

The necessary data was collected by administrating the tests for measuring the selected variables. Before collecting the data, the subjects were given a chance to practice the prescribed tests so that they should become familiar with the tests and know exactly what is to be done. The data was collected after administrating the test on the selected subjects of study from different schools of south Kashmir region of Kashmir division. After collection of data the tabulation and statistical analysis was arranged in a prescribed manner.

Analysis and Interpretation of Data

The subjects for this study were selected from different schools of south Kashmir region of Kashmir division. A total of 300 subjects were selected, 100 from each deformity category i.e. 100 from kyphosis, 100 from lordosis and 100 from scoliosis. The age of the subjects were ranging from 10-15 years. The level of significance was set at 0.05 and one-way ANOVA was applied to compare the difference between the groups. It was hypothesized that there was significant difference in Angle of Deformity, Endurance and Explosive Leg Strength among school going children in different deformities categories.

Results

The results pertaining to the study are present in the following tables.

Table 1: Mean value of Angle of deformity among school going children in different upper limb deformities (kyphosis, lordosis and scoliosis).

| Groups | No. of Subjects | Sum | Average | Variance |
|-----------|-----------------|------|---------|----------|
| Kyphosis | 100 | 6438 | 64.38 | 17.4299 |
| Lordosis | 100 | 5743 | 57.43 | 19.68192 |
| Scoliosis | 100 | 3902 | 39.02 | 37.27232 |

Table 1 reveals the angle of deformity among school going children in different postural deformities. The above data indicate that children with kyphosis have better angle of deformity because the mean value of kyphosis is greater than other two categories. The difference in the angle of deformity of different upper limb deformities among children is shown below graphically.

There is mean difference in angle of deformity among school going children in different upper limb deformities. Whether it is significant or not it can be shown by using special statistical technique 'F' test (ANOVA).

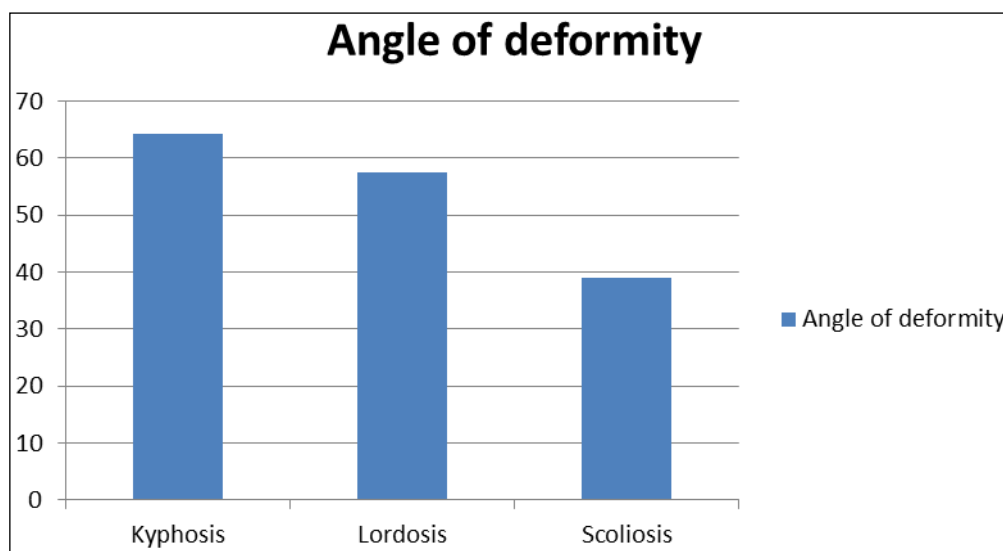


Fig 1: Graphical representation of angle of deformity among school going children in different upper limb deformities (kyphosis, lordosis, and scoliosis)

Table 2: Showing one way analysis of variance (ANOVA) in angle of deformity among school going children with different upper limb deformities (Kyphosis, Lordosis and Scoliosis)

| Source of Variation | SS (sum of squares) | df | MS | F |
|---------------------|---------------------|---------------|----------|---------|
| Between Groups | 34345.34 | K-1 3-1=2 | 17172.67 | 692.594 |
| Within Groups | 7364.03 | N-K 300-3=297 | 24.79471 | |
| Total | 41709.37 | 299 | | |

*Significant at 0.05level, Tab F (2,297) =3.02

Table 2 reveals that 'F' at degree of freedom between groups (dfb) is shown by the formula K-1 where 'K' is the number of groups which are 3 so it becomes 3-1=2.

'F' at degree of freedom within group (dfw) is shown by the formula N-K, where 'N' is total number of subjects in all groups and 'K' is number of groups which becomes 300-3=297. So 'F' test at 2 and 297 is 3.02 which is also called tabulated 'F'.

In the given table the value of tabulated 'F' is 3.02 and the value of calculated 'F' is 692.54 which is greater than tabulated 'F' at 0.05 level of significance so it is said that there is significant difference in angle of deformity

among school going children with deformities kyphosis, lordosis, and scoliosis. Hence the researcher's hypothesis is accepted.

Table 3: Post Hoc Means Comparison of Variance of Angle of Deformity Test among Kyphosis, Lordosis and Scoliosis deformities children

| Kyphosis | Lordosis | Scoliosis | Mean Difference | Critical Difference |
|----------|----------|-----------|-----------------|---------------------|
| 64.38 | 57.43 | | 6.95 | 1.39 |
| | 57.43 | 39.02 | 18.41 | |
| 64.38 | | 39.02 | 25.33 | |

From table 3 of Post Hoc means comparison, it is clearly evident that in Angle of Deformity test among kyphosis and lordosis, lordosis and scoliosis, kyphosis and scoliosis students are significantly different. Since the mean difference in Angle of deformity test for school going children among kyphosis and lordosis, lordosis and scoliosis, kyphosis and scoliosis students were 6.95, 18.41, 25.33 respectively and all were significantly greater than the critical difference 1.39.

Table 4: Mean value of Endurance among school going children in different upper limb deformities (kyphosis, lordosis and scoliosis)

| Groups | No. of Subjects | Sum | Average | Variance |
|-----------|-----------------|------|---------|----------|
| Kyphosis | 100 | 1564 | 15.64 | 18.53576 |
| Lordosis | 100 | 1473 | 14.73 | 17.37081 |
| Scoliosis | 100 | 1596 | 15.96 | 20.86707 |

Table 4 reveals the endurance among school going children in different upper limb deformities. The above data indicate that children with scoliosis have better endurance because the mean value of scoliosis is greater than other two categories. The difference in the endurance of different upper limb deformities among children is shown below graphically.

There is mean difference in endurance among school going children in different upper limb deformities. Whether it is significant or not it can be shown by using special statistical technique 'F' test (ANOVA).

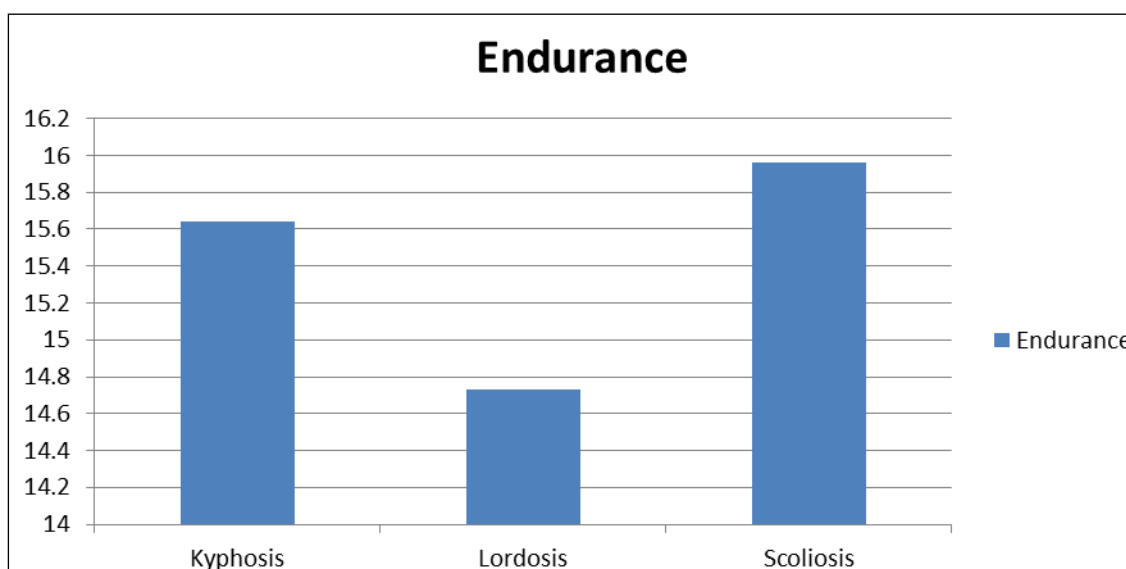


Fig 2: Graphical representation of endurance among school going children in different upper limb deformities (kyphosis, lordosis, and scoliosis)

Table 5: Showing one way analysis of variance (ANOVA) in endurance among school going children with different upper limb deformities (Kyphosis, Lordosis and Scoliosis)

| Source of Variation | SS (sum of squares) | df | MS | F |
|---------------------|---------------------|---------------|----------|----------|
| Between Groups | 81.44667 | K-1 3-1=2 | 40.72333 | 2.151879 |
| Within Groups | 5620.59 | N-K 300-3=297 | 18.92455 | |
| Total | 5702.037 | 299 | | |

*Significant at 0.05 level, Tab F (2,297) =3.02

Table 5 reveals that 'F' at degree of freedom between groups (dfb) is shown by the formula K-1 where 'K' is the number of groups which are 3 so it becomes 3-1=2.

'F' at degree of freedom within group (dfw) is shown by the formula $N-K$, where 'N' is total number of subjects in all groups and 'K' is number of groups which becomes $300-3=297$. So 'F' test at 2 and 297 is 3.02 which is also called tabulated 'F'. In the given table the value of tabulated 'F' is 3.02 and the value of calculated 'F' is 2.151879 which is less than tabulated 'F' at 0.05 level of significance so it is said that there is no significant difference in endurance among school going children with upper limb deformities kyphosis, lordosis, and scoliosis. Hence the researcher's hypothesis is rejected.

Table 6: Mean value of Explosive Leg Strength among school going children in different upper limb deformities (kyphosis, lordosis and scoliosis)

| Groups | No. of Subjects | Sum | Average | Variance |
|-----------|-----------------|------|---------|----------|
| Kyphosis | 100 | 2984 | 29.84 | 22.84283 |
| Lordosis | 100 | 2962 | 29.62 | 21.4703 |
| Scoliosis | 100 | 2849 | 28.49 | 27.0201 |

Table 6 reveals the explosive leg strength among school going children in different upper limb deformities. The above data indicate that children with kyphosis have better explosive leg strength because the mean value of kyphosis is greater than all other two categories. The difference in the explosive leg strength of different upper limb deformities among children is shown below graphically.

There is mean different in explosive leg strength among school going children in different upper limb deformities. Whether it is significant or not it can be shown by using special statistical technique 'F' test (ANOVA).

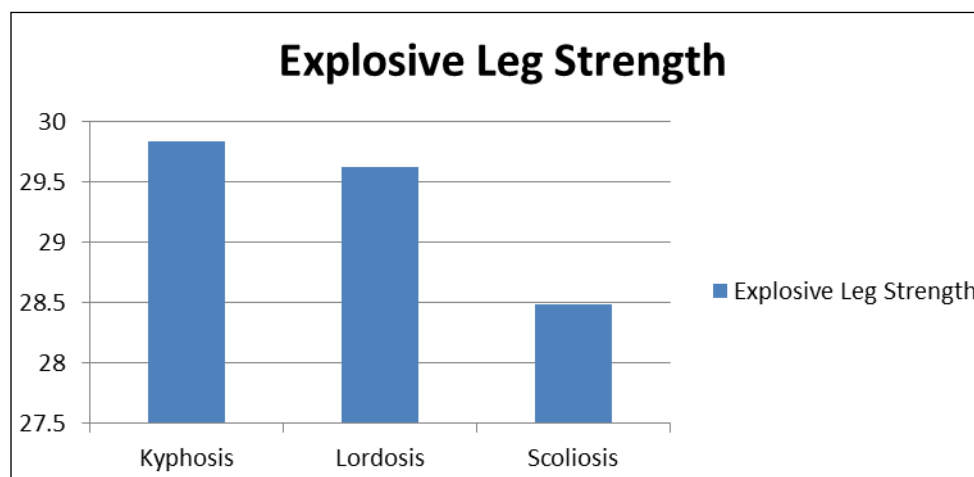


Fig 3: Graphical representation of Explosive Leg Strength among school going children in different upper limb deformities (kyphosis, lordosis, and scoliosis)

Table 7: Showing one way analysis of variance (ANOVA) in Explosive Leg Strength among school going children with different upper limb deformities (Kyphosis, Lordosis and Scioliosis)

| Source of Variation | SS (sum of squares) | df | MS | F |
|---------------------|---------------------|---------------|----------|----------|
| Between Groups | 104.9267 | K-1 3-1=2 | 52.46333 | 2.206405 |
| Within Groups | 7061.99 | N-K 300-3=297 | 23.77774 | |
| Total | 7166.917 | 299 | | |

*Significant at 0.05level, Tab F (2,297) =3.02

Table 7 reveals that 'F' at degree of freedom between groups (dfb) is shown by the formula $K-1$ where 'K' is the number of groups which are 3 so it becomes $3-1=2$.

'F' at degree of freedom within group (dfw) is shown by the formula $N-K$, where 'N' is total number of subjects in all groups and 'K' is number of groups which becomes $300-3=297$. So 'F' test at 2 and 297 is 3.02 which is also called tabulated 'F'.

In the given table the value of tabulated 'F' is 3.02 and the value of calculated 'F' is 2.206405 which is less than tabulated 'F' at 0.05 level of significance so it is said that there is no significant difference in explosive leg strength among school going children with upper limb deformities kyphosis, lordosis, and scoliosis. Hence the researcher's hypothesis is rejected.

Findings

The findings in study shows, that there was significant difference in the angle of deformity among school going children in different deformity categories. Which means the researcher's hypothesis is accepted because in the

beginning the researcher hypothesis that there will be significant difference in the angle of deformity, endurance and explosive leg strength among school going children in different deformity categories.

It is also found that there was no significant difference in the endurance among school going children in different deformity categories. Which means the researcher's hypothesis is rejected because in the beginning the researcher hypothesis that there will be significant difference in the angle of deformity, endurance and explosive leg strength among school going children in different deformity categories.

It is also found that there was no significant difference in the explosive leg strength among school going children in different deformity categories. Which means the researcher's hypothesis is rejected because in the beginning the researcher hypothesis that there will be significant difference in the angle of deformity, endurance and explosive leg strength among school going children in different deformity categories.

Conclusion

The researcher initially pre assumed that there will be a significant difference in the angle of deformity, endurance and explosive leg strength among school going children in different deformity categories of various schools of south Kashmir region of Kashmir division and after the statistical analysis interpretation of data it was found that there is significant difference in the angle of deformity among school going children in different deformity categories of various schools of south Kashmir region of Kashmir division because the calculated 'f' is greater than tabulated 'f' at 0.05 level of significance. Hence the researcher's pre assumed have been accepted. it was also found that there is no significant difference in the endurance and explosive leg strength among school going children's in different deformity categories of various schools of south Kashmir region of Kashmir division because the calculated 'f' is less than tabulated 'f' at 0.05 level of significance. Hence the researchers pre assumed have been rejected.

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