



## ASSESSMENT OF FLEXIBILITY IN SIVAGANGAI DISTRICT OF TAMILNADU THROUGH SELECTED YOGIC PRACTICES COMBINED WITH PLYOMETRICS

### Physical Education

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### ABSTRACT

The purpose of the study was to assess the flexibility in sivagangai district of tamilnadu through selected yogic practices combined with plyometrics. To achieve the purpose of the study, sixty (N=60) boys school Volleyball players in Sivagangai District, Tamilnadu, India were selected randomly as subjects during the year 2015-2016. They were divided randomly into four groups of fifteen each i.e., (n=15) Group-I underwent Yogic Practices, Group-II underwent Plyometric Training, Group-III underwent Combined Yogic Practices and Plyometric Training and Group-IV acted as Control. The Experimental groups underwent respective training period for three days per week for twelve weeks. The dependent variable selected for this study was Flexibility. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables. The data collected from the four groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. The experimental groups had significant increase on Flexibility when comparing to the control group.

### KEYWORDS

yogic practice, plyometric, flexibility

### INTRODUCTION

Yoga has been practiced in India for over two millennia. Stories and legends from ancient times testify to the existence of yoga, and to the practitioners and divinities associated with it. Indian literature is a storehouse of knowledge about yoga covering every conceivable level. Roughly in chronological order are the vocals (books of Scriptural knowledge), the Upanishada (philosophical cosmologies), and their commentaries; then the Puranas (ancient cosmologies), and the two epics, the Ramayana and the Mahabharatha. The Mahabharatha contains within itself that masterpiece of Indian scripture the Bhagavad Gita. Towards the end of Vedic period comes the aphoristic literature, with the "Yoga Aphorisms" of Patanjali of special interest to yoga students. These are, besides, whole bodies of works both ancient (Pre-Christian) and more modern dealing with various aspects of yoga and yoga philosophy, testifying to the continued relevance of yoga as a discipline (Mira Mehta, 1994).

Yoga has a hoary past. The importance for the spiritual attainment has been recognized throughout the ages by all the systems of Indian philosophy. There is no doubt that the essence of yoga has been considered in the spiritual upliftment of man. One may question as to how then yoga is related to the physical education and whether yoga will not be pulled down from its highest pedestal in doing this. It is necessary, therefore, to clear the concepts of yoga and physical education first (Gharote, 1976).

The actual term 'plyometric' was first coined in 1975 by Fred Wilt, the American Track and Field coach. The elements ply and metric come from Latin roots for "increase" and "measure" respectively, the combination thus means 'measurable increase' (Baechele, 1994).

Plyometric is the term now applied to exercises that have their roots in Europe, where they were first known simply as jump training. Interest in this jump training increased during the early 1970s as East European athletes emerged as powers on the world sport scene. As the Eastern bloc countries began to produce superior athletes in such sports as track and field, gymnastics and weight lifting the mystique of their success began to center on their training methods.

### METHODOLOGY

To achieve the purpose of the study, sixty (N=60) boys school Volleyball players in Sivagangai District, Tamilnadu, India were selected randomly as subjects during the year 2015-2016. They were divided randomly into four groups of fifteen each i.e., (n=15) Group-I underwent Yogic Practices, Group-II underwent Plyometric Training, Group-III underwent Combined Yogic Practices and Plyometric Training and Group-IV acted as Control. The Experimental groups

underwent respective training period for three days per week for twelve weeks. The dependent variable selected for this study was Flexibility. Flexibility was assessed through sit and reach test.

The data collected from the four groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences the level of significant fixed at 0.05.

### RESULTS

**Table – 1 ANALYSIS OF COVARIANCE ON FLEXIBILITY OF EXPERIMENTAL GROUPS AND CONTROL GROUP**

| Test                    | Yogic Practices Group – (I) | Plyometric Training Group – (II) | Combined Yogic Practices and Plyometric Training Group – (III) | Control Group-(IV) | Source of Variance | Sum of Squares | df | Mean Squares | F ratio |
|-------------------------|-----------------------------|----------------------------------|--|--------------------|--------------------|----------------|----|--------------|---------|
| Pre Test Mean           | 18.00                       | 17.93                            | 18.00  | 18.20              | Between            | 0.06           | 3  | 0.02         | 0.34    |
|                         |                             |                                  |  |                    | Within             | 33.33          | 56 | 0.60         |         |
| Post Test Mean          | 20.73                       | 20.07                            | 23.13  | 18.00              | Between            | 201.38         | 3  | 67.13        | 105.    |
|                         |                             |                                  |  |                    | Within             | 35.60          | 56 | 0.64         | 59*     |
| Adjusted Post Test Mean | 20.75                       | 20.12                            | 23.15  | 17.90              | Between            | 208.02         | 3  | 69.34        | 154.    |
|                         |                             |                                  |  |                    | Within             | 24.69          | 55 | 0.45         | 44*     |

\* Significant at 0.05 level of confidence (Flexibility Scores in Centimeters)

Table value for df (3, 56) at 0.05 level = 2.76 Table value for df (3, 55) at 0.05 level = 2.78

The above table-1 shows that the pre-test mean values on Flexibility of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group are 18.00, 17.93, 18.00 and 18.20 respectively. The obtained 'F' ratio of 0.34 for pre-test scores was lesser than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Flexibility.

The post test mean values on Flexibility of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group are 20.73, 20.07, 23.13 and 18.00

respectively. The obtained 'F' ratio of 105.59 for post-test scores was higher than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Flexibility.

The adjusted post-test means on Flexibility of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group are 20.75, 20.12, 23.15 and 17.90 respectively. The obtained 'F' ratio of 154.44 for adjusted post-test scores was higher than the table value of 2.78 for degrees of freedom 3 and 55 required for significance at 0.05 level of confidence on Flexibility.

The results of the study indicate that there are significant differences among the adjusted post test means of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group in Flexibility performance.

To determine which of the paired means have a significant difference, the Scheffe's test is applied as Post hoc test and the results are presented in Table – 2.

**Table – 2 THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON FLEXIBILITY**

| Adjusted Post-test Means    |                                  |  |                     | Mean Difference | Confidence Interval |
|-----------------------------|----------------------------------|--|---------------------|-----------------|---------------------|
| Yogic Practices Group – (I) | Plyometric Training Group – (II) | Combined Yogic Practices and Plyometric Training Group – (III) | Control Group- (IV) |                 |                     |
| 20.75                       | 20.12                            |  |                     | 0.63            | 0.71                |
| 20.75                       |                                  | 23.15  |                     | 2.40*           | 0.71                |
| 20.75                       |                                  |  | 17.90               | 2.85*           | 0.71                |
|                             | 20.12                            | 23.15  |                     | 3.03*           | 0.71                |
|                             | 20.12                            |  | 17.90               | 2.22*           | 0.71                |
|                             |                                  | 23.15  | 17.90               | 5.25*           | 0.71                |

\*Significant at 0.05 level of confidence

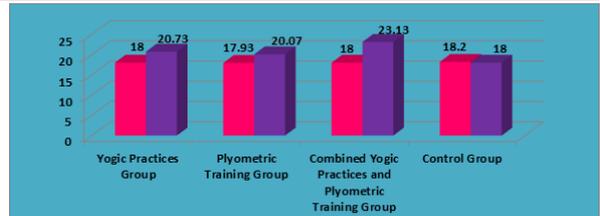
Table-2 shows that the adjusted post test mean differences on Flexibility between Yogic Practices group and Combined Yogic Practice and Plyometric Training group, Yogic Practices group and Control group, Plyometric Training group and Combined Yogic Practice and Plyometric Training group, Plyometric Training group and Control group and Combined Yogic Practice and Plyometric Training group and Control group are 2.40, 2.85, 3.03, 2.22 and 5.25 respectively, which are greater than the confidence interval value of 0.71 on Flexibility at 0.05 level of confidence.

Further the table-4.12 shows that the adjusted post test mean differences on Flexibility between Yogic Practices group and Plyometric Training group is 0.63, which is less than the confidence interval value of 0.71 on Flexibility at 0.05 level of confidence.

The results of the study showed that there was a significant difference between Yogic Practices group and Combined Yogic Practice and Plyometric Training group, Yogic Practices group and Control group, Plyometric Training group and Combined Yogic Practice and Plyometric Training group, Plyometric Training group and Control group and Combined Yogic Practice and Plyometric Training group and Control group on Flexibility. Further the results of the study showed that there was no significant difference between Yogic Practices group and Plyometric Training Group on Flexibility.

The above data also reveal that Combined Yogic Practice and Plyometric Training group had shown better performance than Yogic Practices group, Plyometric Training group and Control group in Flexibility.

The pre and post mean values of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group on Flexibility are graphically represented in the Figure -1.



**Figure: 1 The Pre and Post test Mean values of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group and Control group on Flexibility (In Centimeters)**

**Conclusion**

The present result of the study confirmed that all the three experimental groups had significant increase on flexibility when comparing to the control group, due to twelve weeks of Yogic Practices group, Plyometric Training group, Combined Yogic Practices and Plyometric Training group. However the Combined Yogic Practices and Plyometric Training group was better than the other two experimental groups to increase the flexibility.

**References**

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