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ASSESSMENT OF MUSCULAR ENDURANCE OF SCHOOL VOLLEYBALL PLAYERS IN TIRUCHIRAPPALLI DISTRICT OF TAMILNADU THROUGH SELECTED YOGIC PRACTICES COMBINED WITH PLYOMETICS

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Abstract

Aim of this study was to assess the Muscular Endurance of school volleyball players in Tiruchirappalli District of Tamilnadu through selected yogic practices combined with Plyometrics. To achieve this purpose, sixty (N=60) boys school Volleyball players in Tiruchirappalli District, Tamilnadu, India were selected as subjects. The athletes' age ranged between 14 and 16 years. The subjects were divided at random into four groups of fifteen each (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. All the Experimental groups undergo their respective training for 12 weeks in addition to the regular training as per School curriculum. Among various general fitness variables, Muscular Endurance only was selected as dependent variable and it was assessed by Bent Knee Sit-up test. The data was collected from the four groups prior to and post experimentation on Muscular Endurance was statistically analyzed by using Analysis of Covariance (ANCOVA). Hence, whenever they obtained f-ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed. The results of the study showed there was a significant difference among the selected groups, further the results showed, combined yogic practices and plyometric training group was better than other groups on the development of Muscular Endurance.

Key words: Yogic practices, Plyometric training, Combined yogic practices and plyometric training Muscular Endurance

INTRODUCTION

"Sports training is a scientifically based and pedagogically organized process which through planned and systematic, effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition".

Power output and reactive neuromuscular control represents a component of function. Power and reactive neuromuscular control are perhaps the best measures of success in activities that require rapid force production.

Plyometric training, also called reactive training, makes use of the stretch shortening cycle to produce maximum force in the shortest amount of time and to enhance neuromuscular control efficient, rate of force production, and reduce neuromuscular inhibition (Chimera et al, 2004).Plyometrics refers to human movement that involves an eccentric (lengthening) muscle contraction immediately and rapidly followed by a concentric (shortening) contraction. This is often referred to as the stretch-shortening cycle. The phase between these two contractions is referred to as the amortization phase. Energy stored during the eccentric phase is partially recovered during the concentric phase. In order to best use this stored energy the eccentric phase must be rapidly followed by the concentric. 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).

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).

METHODOLOGY

The purpose of this study was to assess the selected general fitness variables of school volleyball players in Tiruchirappalli District of Tamilnadu through selected yogic practices combined with plyometics. To achieve this purpose, sixty (N=60) boys school Volleyball players in Tiruchirappalli District, Tamilnadu, India were selected as subjects. The athletes’ age ranged between 14 and 16 years. The subjects were divided at random into four groups of fifteen each (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. All the Experimental groups undergo their respective training for 12 weeks in addition to the regular training as per School curriculum. Among various general fitness variables, Muscular Endurance only was selected as dependent variable and it was assessed by Bent Knee Sit-up test. The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value in the simple

effect was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

RESULTS AND DISCUSSION

The Analysis of covariance (ANCOVA) on Muscular Endurance of Yogic practices group, Plyometric training group and combined yogic practices and plyometric training and Control group have been analyzed and presented in Table -I.

Table –I
ANALYSIS OF COVARIANCE ON MUSCULAR ENDURANCE OF YOGIC PRACTICES GROUP, PLYOMETRIC TRAINING GROUP AND COMBINED YOGIC PRACTICES AND PLYOMETRIC TRAINING AND CONTROL GROUP

Adjusted Post-test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Yogic Practices Group	Plyometric Training Group	Combined Yogic Practices and Plyometric Training Group	Control Group					
17.38	17.96	18.90	14.56	Between With in	156.70 41.37	3 55	52.23 0.75	69.44*

**** Significant at.05 level of confidence***
(Muscular Endurance Scores in Numbers)
(The table value required for Significance at .05 level with df 3 and 55 is 2.77)

Table-I shows that the adjusted post test mean value of Muscular Endurance for Yogic practices group, Plyometric training group and combined yogic practices and plyometric training and Control group are 17.38, 17.96, 18.90 and 14.56 respectively. The obtained F-ratio 69.44 for adjusted post test mean is more than the table value of 2.77 for df 3 and 55 required for significant at 0.05 level of confidence. The results of the study indicate that there are significant differences among the adjusted post test means of Yogic practices group, Plyometric training group and combined yogic practices and plyometric training and Control group on the development of Muscular Endurance. To determine which of the paired means had a significant difference, the Scheffe's test was applied as Post hoc test and the results are presented in Table-II.

TABLE – II

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON MUSCULAR ENDURANCE

Adjusted Post-test Means				Mean Difference	Confidence Interval
Yogic Practices Group	Plyometric Training Group	Combined Yogic Practices and Plyometric Training Group	Control Group		
17.38	17.96	--	--	0.58*	0.54
17.38	--	18.40	--	1.02*	0.54
17.38	--	--	14.56	2.82*	0.54
--	17.96	18.40	--	0.44*	0.54
--	17.96	--	14.56	3.40*	0.54
--	--	18.40	14.56	3.84*	0.54

**** Significant at 0.05 level of confidence***

Table-II shows that the adjusted post test mean difference on yogic practice group and plyometric training group, yogic practice group and combined yogic practices and plyometric training group, plyometric training group and combined yogic practices and plyometric training group, plyometric training group and control group and combined yogic practices and plyometric training group and Control group are 0.58, 1.02, 2.82, 0.44, 3.40 and 3.84 respectively. The values are greater than the confidence interval 0.54, which shows significant differences at 0.05 level of confidence. It may be concluded from the results of the study that there is a significant difference in Muscular Endurance between the adjusted post test means of yogic practice group and plyometric training group, yogic practice group and combined yogic practices and plyometric training group, plyometric training group and combined yogic practices and plyometric training group, plyometric training group and control group and combined yogic practices and plyometric training group and control group. However, the improvements of Muscular Endurance were significantly higher for combined yogic practices and plyometric training group than yogic practices group, plyometric training group and control group. It may be concluded that combined yogic practices and plyometric training group is better than yogic practices group, plyometric training group and control group in improving Muscular Endurance. The adjusted post test

mean values of Yogic practices group, Plyometric training group and combined yogic practices and plyometric training and Control group on Muscular Endurance are graphically represented in the Figure -I.

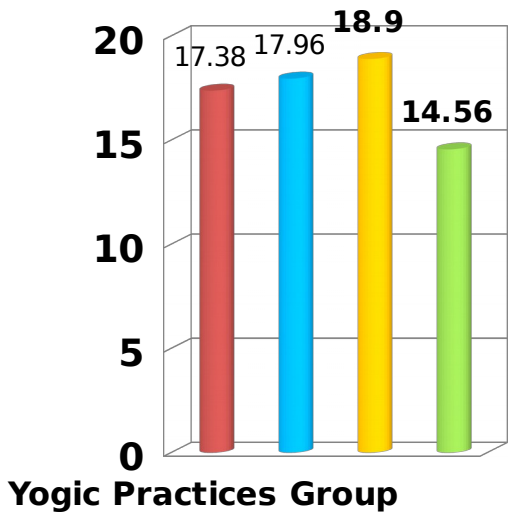

Figure: I
The adjusted post test mean values of Yogic practices group, Plyometric training group and combined yogic practices and plyometric training and Control group on Muscular Endurance

CONCLUSION

From the analysis of the data, the following conclusions were drawn. The Experimental groups namely, Yogic practices group, Plyometric training group and combined yogic practices and plyometric training had significantly improved in Muscular Endurance. Significant differences in achievements were found between Yogic practices group, Plyometric training group and combined yogic practices and plyometric training in the entire selected criterion variable such as Muscular Endurance. The Combined Yogic Practices and Plyometric Training was found to have greater impact on the Group concerned than the Yogic Practices group, Plyometric Training group and Control group in enhancing the performance of Muscular Endurance.

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