Research Paper Physical Education

An Impact of Resistance Training, Pilates Exercises on Muscular Strength Among Inter-Collegiate Men Football Players

Dr.M. Pari

Director of Physical Education, S.I.V.E.T College, Velachery Main Road, Gowrivakkam, Chennai- 600 073

ABSTRACT

Aim of the study was designed to find out the impact of Resistance training, Pilates Exercises on Muscular Strength among Inter-collegiate men Football players. To attain the purpose, Forty five(N=45) men Football players studying various Arts & Science Colleges, affiliated to University of Madras, Chennai, Tamilnadu, India, during the year 2014-2015 were selected as subjects. The age of the subjects were ranged from 18 to 21 years. Among various sports specific trainings only, Resistance training, Pilates training was selected for this study. The subjects were divided at random into three groups of fifteen each (n=15). Group-I underwent Resistance Training, Group-II underwent Pilates Exercises and Group-III acted as Control. All the subjects were tested prior to and immediately after the training for all the selected variables. The dependent variable selected for this study was Muscular Strength, and it was assessed by 1RM Bench Press test. Data were collected before and after the training period of 12 weeks. One way ANCOVA was used to find out the significant differences. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference among the Experimental groups and control group on Muscular Strength. Further, the results of the study showed Pilates Exercises group was better than Resistance training group and Control Group in Muscular Strength.

KEYWORDS : Resistance Training, Pilates Exercises, Muscular Strength.

INTRODUCTION

For the maintenance of good health, participation in daily physical activities is an indispensable one. The high level of physical fitness comes from years of daily experience in a selected variety of vigorous physical activities. It is a biological principle that function builds structure and structure decides function. Man needs vigorous exercises for growth and development. To perform the daily activities in an efficient manner, muscles in good condition, their strength and endurance are essential to man. It is rightly said the muscle must be overloaded in order to be strengthened ***(Govindarajulu, 1991)***.

Sport participation is good preparation handling everyday events. Because sport involves both victory and defeat, it provides people with opportunities to experience success and failure. And the lessons of these experiences are believed to be unique and valuable. Sport is essentially different from the rest of our lives. In everyday life one seldom faces the opponents in a direct manner. But in sport, opponents are faced directly, scores are always complete, and people have no doubts about when the games are over. Actions in sport have a moral component that is usually only related to a particular sport setting. And the consequences of those actions have no serious meaning for life apart from sport.

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.

Weight training is a common type of anaerobic training for developing the strength and size of skeletal muscles. It uses the weight force of gravity (in the form of weighted bars, dumbbells or weight stacks) to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement.

Pilates is a form of exercise, developed by Joseph Pilates, which emphasizes the balanced development of the body through core strength, flexibility, and awareness in order to support efficient, graceful movement ***(Otto et al., 2004).***

METHODOLOGY

The study was conducted on forty five (N=45)) men Football players studying various Arts & Science Colleges, affiliated to University of Madras, Chennai, Tamilnadu, India, during the year 2014-2015 were selected as subjects. The age of the subjects were ranged from 18 to 21 years. Among various sports specific trainings only, Resistance training, Pilates training was selected for this study. The subjects were divided at random into three groups of fifteen each (n=15). Group-I underwent Resistance Training, Group-II underwent Pilates Exercises and Group-III acted as Control. The experimental groups underwent the respective training for a period of 12 weeks (3 days/week), whereas the control remain as normal with the sedentary life. The dependent variable selected for this study was Muscular Strength, and it was assessed by 1RM Bench Press test.

All the subjects were tested prior to and immediately after the training for all the selected variables.

ANALYSIS OF THE DATA

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.

The Analysis of covariance (ANCOVA) on Muscular Strength of Experimental Groups and Control group have been analyzed and presented in Table -1.

Table – 1
Values of Analysis of Covariance for Experimental Groups and Control Group on Muscular Strength

Certain Variables	Adjusted Post test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Resistance Training Group – (I)	Pilates Exercises Group – (II)	Control Group – (III)					
Muscular Strength	49.12	56.09	41.79	Between	1528.83	2	764.41	62.15*
				With in	504.30	41	12.30	

**** Significant at.05 level of confidence***
(The table value required for Significance at .05 level with df 2 and 41 is 3.23)

Table-1 shows that the adjusted post test mean value of Muscular Strength for Resistance Training, Pilates Exercises and Control Group, are 49.12, 56.09 and 41.79 respectively. The obtained F-ratio of 62.15 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level of confidence.

The results of the study indicate that there are significant differences among the adjusted post test means of Experimental Groups and Control Group on the decrease of Muscular Strength.

To determine which of the paired means had a significant difference, Scheffe's test was 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 tests paired means on Muscular Strength

Certain Variables	Adjusted Post test Means			Mean Difference	Confidence Interval
	Resistance Training Group – (I)	Pilates Exercises Group – (II)	Control Group – (III)		
Muscular Strength	49.12	56.09		6.98*	3.25
	49.12		41.79	7.32*	3.25
		56.09	41.79	14.30*	3.25

**** Significant at.05 level of confidence***

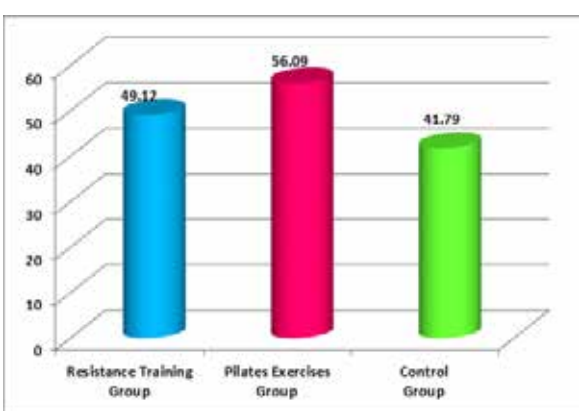
Table 2 shows that the adjusted post test mean difference Muscular Strength on Resistance Training group and Pilates Exercises group, Resistance Training group and Control group, Pilates Exercises group and Control group are 6.98, 7.32 and 14.30 respectively, these values are greater than the confidence interval value 3.25 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 Strength between the adjusted post test means of Resistance Training group and Pilates Exercises group, Resistance Training group and Control group, Pilates Exercises group and Control group. However, the improvement in Muscular Strength was significantly increased for Pilates Exercises group than Resistance Training group and Control Group.

It may be concluded that the Pilates Exercises group is better than the other Resistance Training group in improving Muscular Strength.

The adjusted post test means values of experimental groups and control group on Muscular Strength are graphically represented in the Figure-1.

FIGURE-1
BAR DIAGRAM ON ORDERED ADJUSTED MEANS OF MUSCULAR STRENGTH



CONCLUSION

From the analysis of the data, the following conclusions were drawn.

Significant differences in achievement were found between Resistance Training group, Pilates Exercises group and Control group in the selected criterion variables such as Muscular Strength.

The Experimental groups namely, Resistance Training and Pilates Exercises group had significantly improved in Physical Fitness variables such as Muscular Strength.

The Pilates Exercises was found to be better than the Resistance Training group in increasing Muscular Strength.

REFERENCES

1. Govindarajulu, N.(1991), "The Importance of Health-related Physical Fitness Through Physical Activities", ***Paper Presented at the 3rd All India Physical Education Congress,*** Madras, 8-11 October.
2. Otto, R., Yoke, M. McLaughlin, K., Morrill, J., Viola, A., Lail, A., Lagomarsine, M., Wygand, J. (2004), The Effect of Twelve Weeks of Pilates vs Resistance Training on Trained Females, ***Medicine & Science in Sports & Exercise***, Volume 36(5) Supplement: S356-S357.