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Impact of Power Exercise Parcels on Selected Physical Fitness Variables among Women Football Players

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Abstract

The purpose of the study was to find out the impact of power exercise parcels on selected physical fitness variables among women football players. To achieve the purpose of the present study, forty five women football players from Periyar University affiliated colleges, Tamilnadu, India were selected as subjects at random and their ages ranged from 19 to 23 years. The subjects were divided into three equal groups of fifteen each. Group I acted as Experimental Group I (Isotonic Training with football training), Group II acted as Experimental Group II (Isometric training with football training) Group III acted as Experimental Group III (Control group). The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The duration of experimental period was 12 weeks. After the experimental treatment, all the forty five subjects were tested on their selected variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses. The isotonic and isometric training had shown significant improvement in all the selected physical fitness of football players.

Keywords: Isotonic, Isometric, Physical Fitness, Football.

Introduction

The mechanics and physics of strength training and incorporating those principles into our training program will give our athletes a competitive edge (Baechle, 1994). Strength training is a vital component of all fitness programmes for individuals who exercise for the health benefits. Of course, athletes in sports requiring strength and power, such as weight lifting; bodybuilding and sprinting must emphasize strength training. However many other athletes also benefit from strength training, especially those in sports requiring a high level of muscular endurance. The strength training is the training of doing exercise with the help of the barbell apparatus to increase the strength. General strength training is to increase the strength and the power through general exercises. Specific strength training is to develop specific strength of an event or a specific game. According to the season, the volume and intensity of strength training also change. Strength training is the most widely used and popular method of increasing strength and power. Strength training also known as strength training is a common component of sports and physical fitness programs for young people, although some adolescents may use strength training as a means to enhance muscle size for improving appearance. Strength training programs may include the use of free weights, weight machines, elastic tubing, or an athlete's own body weight. The amount and form of resistance used and the frequency of resistance exercises are determined by specific program goals. The advantages of such programs involve increasing muscle strength, local power and endurance of muscles, reduced injuries in sport and recreational activities, improved performance in sport and recreational activities, muscle hypertrophy (Ebrahim & Koozechian, 2006).

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Methodology

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Results

Table 1. *Calculation of ANCOVA on hand grip strength*

	ITTG	IMTG	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Initial means	49.34	49.50	48.89	**BG**	3.02	2	1.51	0.21
				WG	296.52	42	7.06	
Final means	54.72	53.03	50.20	**BG**	156.55	2	78.27	9.50*
				WG	345.75	42	8.23	
Adjusted Final means	54.70	52.97	50.28	**BG**	147.97	2	73.99	9.16*
				WG	330.99	41	8.07	

An assessment of table - 1 point out that the pre test means of isotonic training, isometric training and control groups were 49.34, 49.50 and 48.89 respectively. The attained F-ratio for the pre-test was 0.21 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This established that there were no significant difference between the experimental and control groups representing that the course of action of randomization of the groups was ideal while conveying the subjects to groups. The post-test means of the isotonic training, isometric training and control groups were 54.72, 53.03 and 50.20 respectively. The attained F-ratio for the post-test was 9.50 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This confirmed that the disparity between the post test means of the focus were significant. The adjusted post-test means of the isotonic training, isometric training and control groups were 54.70, 52.97 and 50.28 respectively. The attained F-ratio for the adjusted post-test means was 9.16 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This established that there was a noteworthy difference among the means owing to the experimental trainings on hand grip strength.

Table 2. *The scheffe's test for hand grip strength*

Adjusted Final means			Mean Difference	Required CI
ITTG	**IMTG**	**Control Group**		
54.70	52.97	---	1.73	2.63
54.70	---	50.28	4.42*	
---	52.97	50.28	2.69*	

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

The multiple comparisons showed in table 2 proved that there existed significant differences between the adjusted means of isotonic training and control group (4.42), isometric training and control group (2.69). There was no significant difference between isotonic training and isometric training (1.73) at 0.05 level of confidence with the confidence interval value of 2.63. The mean values on hand grip strength were presented through bar diagram for better understanding of the results of this study in Figure-I.

Figure I. Graphical illustration of hand grip strength

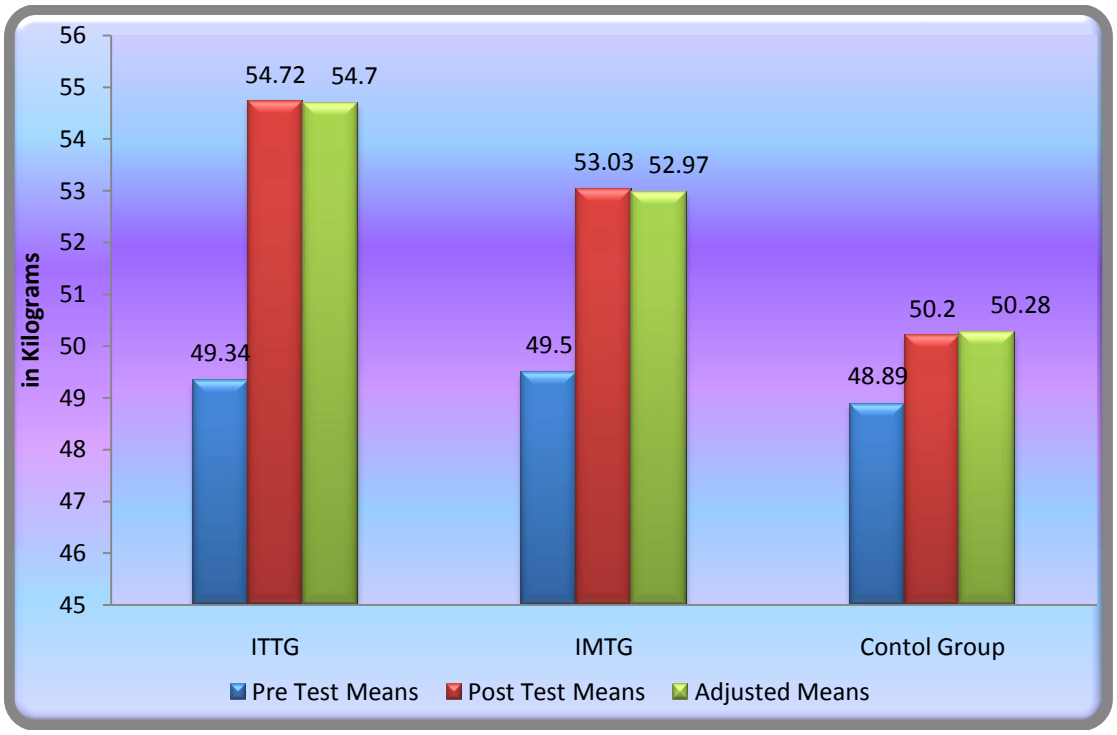


Table 3. *Calculation of ANCOVA on back strength*

	ITTG	IMTG	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Initial means	84.98	84.65	86.33	**BG**	23.61	2	11.80	0.92
				WG	539.12	42	12.83	
Final means	93.58	93.99	86.33	**BG**	535.98	2	267.99	15.56*
				WG	723.08	42	17.21	
Adjusted Final means	93.69	94.19	86.17	**BG**	581.22	2	290.61	17.71*
				WG	672.80	41	16.41	

An assessment of table - 3 point out that the pre test means of isotonic training, isometric training and control groups were 184.98, 84.65 and 86.33 respectively. The attained F-ratio for the pre-test was 0.92 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This established that there were no significant difference between the experimental and control groups representing that the course of action of randomization of the groups was ideal while conveying the subjects to groups. The post-test means of the isotonic training, isometric training and control groups were 93.58, 93.99 and 86.33 respectively. The attained F-ratio for the post-test was 15.56 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This confirmed that the disparity between the post test means of the focus were significant. The adjusted post-test means of the isotonic training, isometric training and control groups were 93.69, 94.19 and 86.17 respectively. The attained F-ratio for the adjusted post-test means was 17.71 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This established that there was a noteworthy difference among the means owing to the experimental trainings on back strength.

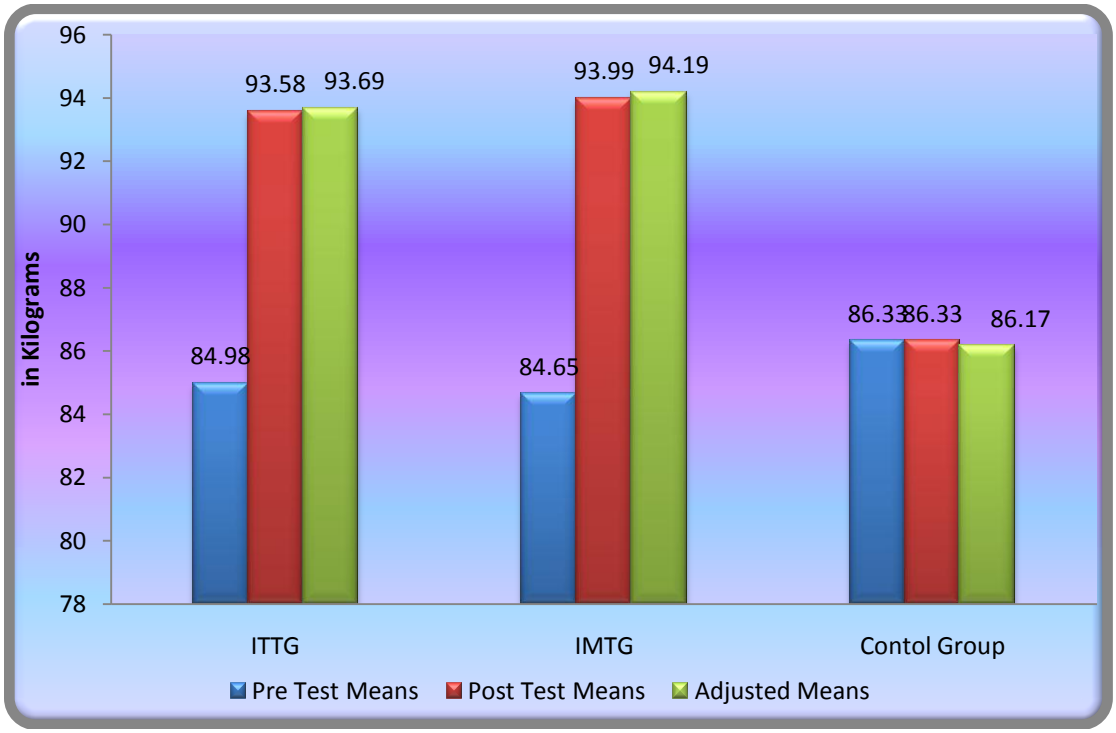
Table 4. *The scheffe's test for back strength*

Adjusted Final means			Mean Difference	Required CI
ITTG	**IMTG**	**Control Group**		
93.69	94.19	---	0.50	3.75*
93.69	---	86.17	7.52*	
---	94.19	86.17	8.02*	

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

The multiple comparisons showed in Table 2 proved that there existed significant differences between the adjusted means of isotonic training and isometric training (7.52), isotonic training and control group (8.02) and isometric training and control group (0.50) with the confidence interval value of 3.75. The mean values on back strength were presented through bar diagram for better understanding of the results of this study in Figure-II.

Figure II. Graphical illustration of back strength



Conclusion

1. The isotonic training had shown significant improvement in all the selected physical fitness of football players after undergoing isotonic training for a period of twelve weeks.
2. The isometric training had shown significant improvement in all the selected physical fitness of football players after undergoing the isometric training for a period of twelve weeks.

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