Journal of Advances and Scholarly Researches in Allied Education
Vol. 16, Issue No. 9, June-2019, ISSN 2230-7540

Effect of Specific Training and Functional Strength Training on Muscular Strength, Explosive Power and Co-Ordination in School Taekwondo Boys

C. Senthi[1]* Dr. V. Vallimurugan[2]

[1] Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu, India

[2] Assistant Professor, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu, India

Abstract – The purpose of this study was to find out the effect of specific training and functional strength training on muscular strength, explosive power and co-ordination in school taekwondo boys. To achieve the purpose of the study, 45 school taekwondo boys were selected from various schools in Namakkal District, Tamilnadu. The age of the selected subjects were ranged from 14 to 16 years. The investigator selected a training that is specific training and functional strength training for school taekwondo boys, which improved certain selected variables namely muscular strength, explosive power and co-ordination. Experimental GROUP-I specific training (STG), Experimental group-II Functional strength training (FSTG) and Control Group III (CG). The specific training and functional strength training was scheduled for 12 weeks prior and after the training on muscular strength, explosive power and co-ordination. The data procured in prior and after the training programme was examined. Analysis of Covariance (ANCOVA) to find out the significant mean differences. Scheffe s post hoc test was used to find out the paired mean differences. In all the cases the 0.05 level of confidence was fixed.

Keywords: Specific Training, Functional Strength Training, Muscular Strength, Explosive Power and Co-Ordination and Taekwondo Boys

----------X----------

INTRODUCTION

Taekwondo was originally developed in Korea as exercises to get these muscles to work together martial art and was based on a defensive strategy. It is automatically. It is not always strength, but rather now a highly regarded contemporary sport practised by coordination that will yield effective and efficient people all over the world. For the purposes of movement, as the punch or kick of a martial arts athlete. Competition, Taekwondo can be described as a combat the use of functional strength training in younger athletes is sport consisting of sharp, strong angular moves and free- still controversial. The controversy focuses on three flowing circular movements in which an athlete uses bare areas: Are children capable of making significant strength hands and feet to repel an opponent. Since the successful gains and increases in muscle mass in response to use of kicking, both offensively and defensively, will resistive strength training? Do these gains in strength score the athlete points, it is the most important objective improve athletic performance or increase the resistance of in a Taekwondo competition.

FUNCTIONAL TRAINING

Functional Training is useful need good strength, flexibility, balanced training, effective whether you are an athlete or recreational exerciser exercises, knee stability and conditioning to prevent the occurrence of injures and to improve further performance Success in many sports depends heavily upon the control the more skills. Furthermore, how to improve the athlete's explosive leg power and muscular strength. Functional strength training in younger athletes is sport consisting of sharp, strong angular moves and free- still controversial. The controversy focuses on three flowing circular movements in which an athlete uses bare areas: Are children capable of making significant strength hands and feet to repel an opponent. Since the successful gains and increases in muscle mass in response to use of kicking, both offensively and defensively, will resistive strength training.

SPECIFIC TRAINING

Sports Specific Trainers can help improve strength, flexibility and stamina to improve performance in specific sports.5 Options include increasing arm strength for tennis playing or improve strength and core stability providing better balance playing. Sports specific training is all about developing physical conditions to improve performance and skills at a particular sport. Also understanding the needs of the game training practicing at the correct pace in order to meet sports requirements

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the present study was to find out the effect of specific training and functional strength training on selected muscular strength, explosive power and co-ordination variables of taekwondo school boys. To achieve the purpose of the study, 45 school taekwondo boys were selected from various schools in Namakkal District, Tamilnadu. The age of the selected subjects were ranged from 14 to 16 years. The selected subjects for this study were randomly divided into three equal groups of 15 subjects each, Experimental GROUP-I specific training (STG), Experimental group-II Functional strength training (FSTG) and Control Group III (CG). The collected data from the three groups prior to and immediately after the experimental treatments on selected dependent variables were statistically analyzed by using the statistical technique of analysis of covariance (ANCOVA).Whenever the "F" ratio for adjusted post-test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

TABLE – 1

SELECTED VARIABLES AND TESTS

S. NO.	Variables	TESTS	Unit of Measurements
1	Muscular Strength	Bent Knee sit-ups	Number
2	Explosive Power	Standing broad jump	Centimetres
3	Coordination	Alternate hand wall toss test	Number

TRAINING PROCEDURE

The procedure used for the Specific Training Group (STG), and Functional Strength Training Group (FSTG) is as follows. The total duration of STG and FSTG was 12 weeks. These twelve weeks STG and FSTG were segmented into three phases. The duration of training programme for each phase was four weeks. Thus the Phase – 1 was executed in first four weeks (1st, 2nd, 3rd & 4th), Phase – 2 was executed in the second four weeks (5th, 6th, 7th & 8th) and the Phase – 3 was executed in the third four weeks (9th, 10th, 11th & 12th). Specific training programme administered for subjects for three days a week for about 12 weeks. The duration of training for a day was 60 minutes. Of this session orientation 5 minutes, warm – up, 5 minutes , Specific stretching 10 minutes, Exercises 35 minutes and 5 minutes used for cool down.

TABLE – 2

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEANS OF SPECIFIC TRAINING PROGRAMME, FUNCTIONAL STRENGTH PROGRAMME AND CONTROL GROUPS ON MUSCULAR STRENGTH

Test	STG	FSTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test	15.47	15.33	15.53	BG	0.31	2	0.17	0.03
				WG	252.8	42	6.02	
Post-Test	24.13	19.73	15.93	BG	505.2	2	252.6	47.03*
				WG	225.6	42	5.37	
Adjusted Post-Test	24.12	19.78	15.90	BG	508.22	2	254.11	57.49*
				WG	181.21	41	4.42	

B.G. –Between Groups W.G. – Within Groups

Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

Table 2 shows that the pre-test means in **muscular strength** of the Specific Training Group, Functional Strength training Group and the control groups are 15.47, 15.33 and 15.33. Respectively, resulted in an "F' ratio of 0.3 which indicates statistically no significant difference between the pretest means at 0.003 level of confidence. The posttest means of **muscular strength** of the Specific Training Group, Functional Strength Group and the control groups are 24.13,19.13 and 15.93 respectively, resulted in an "F' ratio of 47.03 which indicates statistically significant difference between the posttest means at 0.05 level of confidence. The adjusted posttest means of **muscular strength** of the Specific Training Group, Functional Strength training Group and the control groups are 24.12. 19.78 and 15.90 respectively. The obtained F-ratio value was 57.49 which was higher than the table value 3.22 with df 2 and 41 required for significance at 0.05 level. It indicates that there was a significant difference among the adjusted post test means of **muscular strength** of the Specific Training Group, Functional Strength training Group and the control groups.

TABLE – 3

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEANS OF SPECIFIC TRAINING PROGRAMME, FUNCTIONAL STRENGTH PROGRAMME AND CONTROL GROUPS ON EXPLOSIVE POWER

Test	STG	FSTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test	1.54	1.53	1.51	BG	0.01	2	0.01	0.09
				WG	0.49	42	0.02	
Post-Test	1.68	1.59	1.51	BG	0.15	2	0.07	6.68*
				WG	0.45	42	0.01	
Adjusted Post-Test	1.68	1.59	1.50	BG	0.14	2	0.07	7.52*
				WG	0.39	41	0.01	

B.G. –Between Groups W.G. – Within Groups

*Significant at 0.05 level of confidence. (The table values required for significance at 0.05 evel of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

Table 3 shows that the pre-test means in explosive power of the Specific Training Group, Functional Strength training Group and the control groups are 1.54, 1.53 and 1.51 respectively, resulted in an "F' ratio of 0.09 which indicates statistically no significant difference between the pretest means at 0.009 level of confidence. The posttest means of explosive power of the Specific Training Group, Functional Strength Group and the control groups are 1.68, 1.59 and 1.51 respectively, resulted in an "F' ratio of 6.68 which indicates statistically significant difference between the posttest means at 0.05 level of confidence. The adjusted posttest means of explosive power of the Specific Training Group, Functional Strength training Group and the control groups are 1.68, 1.59 and 1.50 respectively. The obtained F-ratio value was 7.52 which was higher than the table value 3.22 with df 2 and 41 required for significance at 0.05 level. It indicates that there was a significant difference among the adjusted post test means of explosive power of the Specific Training Group, Functional Strength training Group and the control groups.

TABLE – 4

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEANS OF SPECIFIC TRAINING PROGRAMME, FUNCTIONAL STRENGTH PROGRAMME AND CONTROL GROUPS ON COORDINATION

Test	STG	FSTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test	16.07	16.00	16.13	BG	0.13	2	0.07	0.01
				WG	308.67	42	7.35	
Post-Test	23.80	28.27	16.20	BG	1116.57	2	558.28	56.40*
				WG	415.73	42	9.89	
Adjusted Post-Test	23.80	28.27	16.19	BG	1118.90	2	559.45	55.73*
				WG	411.58	41	10.03	

B.G. –Between Groups W.G. – Within Groups

*Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.22 and 3.23 respectively).

Table 4 shows that the pre-test means in coordination of the Specific Training Group, Functional Strength training Group and the control groups are 16.07, 16.00 and 16.13 respectively, resulted in an "F' ratio of 0.01 which indicates statistically no significant difference between the pretest means at 0.01 level of confidence. The posttest means of coordination of the Specific Training Group, Functional Strength Group and the control groups are 23.80, 28.27 and 16.20 respectively, resulted in an "F' ratio of 56.40 which indicates statistically significant difference between the posttest means at 0.05 level of confidence. The adjusted posttest means of coordination of the Specific Training Group, Functional Strength training Group and the control groups are 23.80, 28.27 and 16.19 respectively. The obtained F-ratio value was 55.73 which was higher than the table value 3.22 with df 2 and 41 required for significance at 0.05 level. It indicates that there was a significant difference among the adjusted post test means of coordination of the Specific Training Group, Functional Strength training Group and the control groups.

TABLE – 5

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF THE ADJUSTED POST-TEST ON MUSCULAR STRENGTH

Variables	Adjusted Post-test means			Mean Difference	Confidence Interval
	STG	FSTG	CG		
MUSCULAR STRENGTH	24.12	19.78	-	4.34*	1.95
	24.12	-	15.90	8.22*	
	-	19.78	15.90	3.88*	

* Significant at 0.05 level of confidence

Table 5 shows that the adjusted post-test mean difference in corporeal and psychomotor variables between, Specific Training Group, Functional Strength training Group and the control groups and between Specific Training Group, Functional Strength training and control groups are 4.34, 8.22 and 3.88 respectively which were statistically significant at 0.05 level of confidence. It is concluded that there is a significant difference on corporeal and psychomotor variables among the groups.

TABLE – 6

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF THE ADJUSTED POST-TEST ON EXPLOSIVE POWER

Variables	Adjusted Post-test means			Mean Difference	Confidence Interval
	STG	FSTG	CG		
EXPLOSIVE POWER	1.68	1.59	-	0.09*	0.09
	1.68	-	1.50	0.18*	
	-	1.59	1.50	0.09*	

* Significant at 0.05 level of confidence

Table 6 shows that the adjusted post-test mean difference in corporeal and psychomotor variables

between, Specific Training Group, Functional Strength training Group and the control groups and between Specific Training Group, Functional Strength training and control groups are 0.09, 0.18 and 0.09 respectively which were statistically significant at 0.05 level of confidence. It is concluded that there is a significant difference on corporeal and psychomotor variables among the groups.

TABLE – 7

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN PAIRED MEANS OF THE ADJUSTED POST-TEST ON CO-ORDINATION

Variables	Adjusted Post-test means			Mean Difference	Confidence Interval
	STG	FSTG	CG		
CO-ORDINATION	23.80	28.27	-	4.47*	2.94
	23.80	-	16.19	7.61*	
	-	28.27	16.19	12.08*	

** Significant at 0.05 level of confidence*

Table 7 shows that the adjusted post-test mean difference in corporeal and psychomotor variables between, Specific Training Group, Functional Strength training Group and the control groups and between Specific Training Group, Functional Strength training and control groups are 4.47, 7.61 and 12.08 respectively which were statistically significant at 0.05 level of confidence. It is concluded that there is a significant difference on corporeal and psychomotor variables among the groups.

DISCUSSING ON FINDINGS:

The result of the study indicates that the functional strength training and specific training group had significantly improved the selected dependent variables namely muscular strength, explosive power and co-ordination Variable when compared to the control group. It is also found that the improvement caused by training when compared to the control group.

DISCUSSION ON HYPOTHESIS:

It was hypothesized at the beginning of the study that there would be significant improvement on selected criterion variables such as muscular strength, explosive power and co-ordination due to training for the experimental group as compared to the control group. The present study produced similar results. Hence, the research hypothesis of the investigator was held true.

CONCLUSIONS

The results of the study concluded that the muscular strength, explosive power and co-ordination of the experimental group was significantly improved than the control group.

REFERENCES

1. Abbasi, A., Tabrizi, H., Sarvestani, H., & Rahmanpourmoghaddam, J. (2012). Dynamic Balance In Inactive Elder Maleschanges After Eight Weeks Functional and Core Stabilization Training, Middle-East Journal Of Scientific Research, 11(3), pp. 304-310.
2. Anderson, K. G., & Behm, D. G. (2005). The impact of instability resistance training on balance and stability. Sports Medicine, 35(1), pp. 43-53.
3. Arazi, H., & Asadi, A. (2011). The Effect of Aquatic and Land Plyometric Training on Strength, Sprint, and Balance in Young Basketball Players. Journal of Human Sport & Exercise, 6(1). https://doi.org/10.4100/jhse.2011.61.12
4. Biju-Sukumar DS, Rajinikanth P. (2017). Effect of Sport Loading Programme On Strength Endurance Among School Level Sprinters. Sports Med.: 4(1): pp. 27-31
5. Bloomfield J. (2003). Australia's sporting success: The inside story. UNSW Press.
6. Tulchinsky TH, Varavikova EA. (2014). The new public health. Academic Press.
7. Dalleck LC, Kravitz L. The history of fitness: From primitive to present times, how fitness has evolved and come of age. IDEA Heal Fit Source. 20(1): pp. 26-34.
8. Kibler WB, Chandler TJ, Uhl T, Maddux RE (1989). A musculoskeletal approach to the preparticipation physical examination: Preventing injury and improving performance. Amer J Sports Med. 17(4): pp. 525-31.

Corresponding Author

C. Senthi*

Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu, India

chinnasenthilpet316@gmail.com