

ISO 9001 - 2015

ISSN 2349 - 4891

Monthly



IF
4.665

Volume 4, Issue 6, June 2017

International Journal of
Recent Research and Applied Studies

SURRAGH PUBLICATIONS
SURRAGH PUBLICATIONS





Effect of Taekwondo and Kalaripayattu Practice on the Selected Health Related Physical Fitness among Adolescent Boys

S. Rajamony¹, Dr. S. Suthakar² & Dr.A.M.Moorthi³

¹Vice – Principal, Mother Teresa College of Physical Education & Research Scholar, Karpagam University, Karpagam Academy of Higher Education, Coimbatore, Tamilnadu, India.

²Head i/c, Department of Physical Education. Karpagam University, Karpagam Academy of Education, Coimbatore, Tamilnadu, India.

³Vice-Chancellor, Tamilnadu Physical Education and Sports University, Chennai, Tamilnadu, India.

Received 14th May 2017, Accepted 15th June 2017

Abstract

The purpose of the present study is to find out the effect of Taekwondo and Kalaripayattu practice on Health Related Physical Fitness of Cardio respiratory Endurance and Muscular strength among the adolescent boys. For achieving the purpose of the study total of 45 subjects are selected as samples from the Higher Secondary School. Their age group is between 15 to 17 years and the selected subjects are divided in to three groups equally with 15 subject each, as an Experimental Group-I with Taekwondo Practice, Experimental Group – II with Kalaripayattu practice and Control Group. The Experimental Group – I and Experimental Group –II practiced in their respective training for a period of eight weeks in a schedule of weekly three days for the duration of two hours each. The pre and posttest are conducted on the selected Health Related Physical Fitness of Cardio- respiratory endurance and Muscular strength of adolescent boys before and after the eight weeks of experimental training. Analysis of covariance (ANCOVA) is used as a statistical difference to know the significant diffidence between pre and post test data on the selected variable of Health Related Physical Fitness of Cardio-respiratory endurance and Muscular strength. If the adjusted post test result is significant, the scheffe's post hoc test is used to determine the significance of the paired mean difference. The level of significance is fixed at 0.05 levels. The statistical findings of the study revealed that the Experimental Group done the Taekwondo and Kalaripayattu practice and significantly improved on the Health Related Physical Fitness of Cardio-respiratory Endurance and Muscular strength control group.

Keywords: Taekwondo, Kalaripayattu, Physical Fitness, Cardio-respiratory Endurance, Muscular strength.

© Copy Right, IJRRAS, 2017. All Rights Reserved.

Introduction

Taekwondo and Kalaripayattu are the Martial Arts. It is practiced by different age groups as a self-protection as well as fitness programme. Taekwon- Do or Tea Kwon Do is a Korean martial art with a heavy emphasis on kicks. Taekwondo was developed during the 1940s and 1950s by various Korean material artists, as a combination of Shotokan karate and the indigenous traditions of taekkyeon, gwonbeopm and subak. Taekwondo has been propagated worldwide and is currently a popular sport reaching about 70 million practitioners in 204 countries. This emphasis on Speed and Agility is a defining characteristic of taekwondo and has its origins in the analyses undertaken by Choi Hong Hi. Shirley SM Fong and Gabriel Y F Ng (2011) found out that the Taekwondo practice promotes the aerobic fitness and flexibility. Myong-Won Sec et al. (2015) determined the effect of 8 weeks pre-season training on

body composition, physical fitness, anaerobic capacity, and isokinetic strength in collegiate taekwondo athletes and found significant effect in many physical fitness qualities after 2 weeks training. Melhim, A.F. (2001) found out that practising the material art of taekwon-do (TKD) has been proposed to have a beneficial effects on cardiovascular fitness as well as general physical ability.

Kalaripayattu is an Indian martial art which originated in the west coast of the then Tamilakam, during the early 13th Centruy AD. It is considered to be one of the oldest fighting systems in existence (Zarrilli, Phillip B., 1998). It is now practiced in Kerala in contiguous parts of Tamil Nadu and among the Malayali community of Malaysia. It was originally practiced in the northern and central parts of Kerala and the Tulunadu region of Karnataka. Kalaripayattu including strikes, kicks, grappling, preset forms, weaponry and healing methods (Green, Thomas A., ed., 2001).

Kalaripayattu are classified according to the geographical position in Kerala; these are the Northern style from Malabar region in North Kerala, the Central style from inner Kerala and the Southern style from Tamilakam and Travancore. The Southern style is a

Correspondence

Dr.S.Suthakar

E-mail: suthakarku@gmail.com, Ph. +9199650 65096

Mixture of all the Tamil Martial arts like Varma Kalai / AdiMurai, Silambam (Kuravanji style) and Lovcks and Throws which are borrowed from Malyutham and classified as the Southern Kalaripayattu. Kalaripayattu techniques are the combination of steps (Chuvatu) and postures (Vadivu). Chuvatu literally means 'steps', the basic steps of the martial arts Julianio Schwartz et al. (2015) evaluated that the health related physical fitness in martial arts and combat sports practitioners. They found a positive result on the physical fitness development of muscle strength and body composition. Christina Downs found out that the physical aspects of karate make it an effective way to exercise the whole body-muscles (strength) coordination (balance), and cardiovascular (aerobic).

The study of the martial arts offers several unique advantages to the physical fitness of the students. The training usually performed in almost any place without the use of weights or special equipment; it may be practiced individually or in groups. Athletes are facing with many challenges and it includes their physical, technical, tactical and psychological skills. Different fitness qualities. Each day players work hard to improve these skills by many means and methods. The present study is with the sole aim to find out the effect of taekwondo and kalaripayattu practice on the development of selected Health Related Physical of Cardio-vascular Endurance and Muscular strength among adolescent boys.

Methodology

For achieving the purpose of the study, total of 45 subject were selected as samples from Higher Secondary School in Kanyakumari District. Their age group was between 15 to 17 years and the selected subjects were divided into three groups equally with 15 each, as an Experimental Group I with Taekwondo practice and Experimental Group II with Kalaripayattu

practice and Group III as a Control Group.

Experimental Training Procedure

The Experimental Group -I with Taekwondo practice and Experimental Group II with Kalaripayattu Group were practiced respective training for a period of eight weeks in the schedule of weekly three days for the duration of two hours each.

Testing Procedure

The pre and posttest were conducted on the selected Health Related Physical Fitness of Cardio-vascular endurance and Muscular strength of the adolescent boys before and after the eight weeks experimental training. The Cardio-respiratory Endurance was assessed through 12 minutes run and walk test and Muscular strength was assessed through push-up test.

Statistical Procedure

Analysis of Covariance (ANCOVA) was used as a statistical tool to determine the significant difference between pre and post test data on the Health Related Physical Fitness of Cardio-vascular endurance and Muscular strength. If the adjusted post test result was significant the scheffe's post hoc test was used to determine the significance of the paired mean difference. The level of significance was fixed at 0.05 levels.

Results and Discussion

The statistical analysis of the collected data from 45 subject of 15 subject each as the Experimental Group I & 4 and Control Group on Cardio respiratory Endurance and Muscular strength have been presented in the Table 1 to 4. The Table I and III are the analysis of ANCOVA and Table 2 and 4 are the analysis of Scheffe's Post Hoc Test.

Table 1

Analysis of Covariance for Pre, Post and Adjusted mean on Cardio Respiratory Endurance of different Groups

	Gr.I	Gr.II	Con.Gr	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	1873	1827	1865	BG	18120	2	9060	1.24
				WG	304980	42	7261.429	
Post-Test Means	1997	1942	1879	BG	104564	2	52282	3.22*
				WG	680226	42	16195.86	
Adjusted Post-Test Means	1981	1966	1870	BG	108727	2	54363.5	5.08*
				WG	438157	41	10686.76	
Mean gain	-124	-115	-14					

*Significant 0.05 level of confidence

(Table F ratio of 0.05 level of confidence for 2 and 42 df=3.22 and 2 and 41 (df) 3.23)

The above table shows the pre post and adjusted mean and “F” ratio value of Cardio Respiratory Endurance. From the analysis it is observed that there is no significant difference in pretest ($1.25 < 3.22$). The result of the posttest ($3.23 > 3.22$) and Adjusted posttest ($5.09 > 3.23$) are higher than there is a significant improvement in Carido – respiratory Endurance among

the adolescent boys due to Taekwondo and Kalaripayattu practice. The obtained F ratio of Cardio- respiratory Endurance is found significant at 0.05 level. Hence, the scheffe’s post hoc test is employed to find out the paired mean differences between the groups which are presented in Table – 2.

Table 2

Scheffe’s Post Hoc Test for Mean Difference between the Groups on Respiratory Endurance

Gr.I	Gr.II	Con.Gr.	Mean Difference	Confidence Interval
1981	1966		-14	95.87
	1966	1870	-96*	95.87
1981		1870	-110*	95.87

Significant 0.05 level of confidence

The result of the post hoc test reveals that there is no significant difference between the Taekwondo and Kalaripayattu group. Significant differences are observed in Taekwondo and Control group; Kalaripayattu training and control groups. Hence, it is concluded that the

Taekwondo and Kalaripayattu training are the best training to improve the Cardio-respiratory Endurance. Further the mean value indicates that the Taekwond Group is better than the Kalaripayattu group in cardio-respiratory endurance.

Figure 1

Mean value of pre, post and adjusted posttest of all the three groups on Cardio Respiratory Endurance

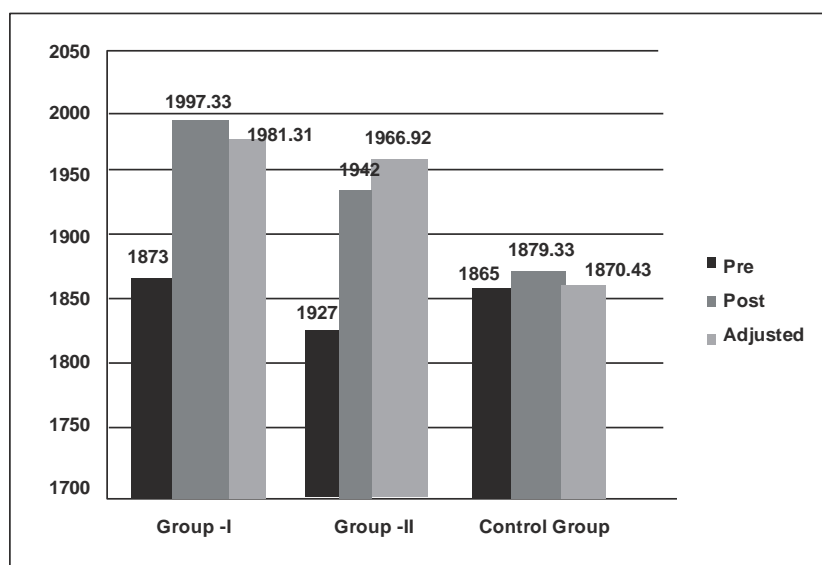


Table 3

Analysis of Covariance for Pre, Post and Adjusted mean on Muscular Strength of different Groups

Test	Gr.I	Gr.II	Gr.III	SV	Df	SS	MSS	F Ratio
Pre	19.13	19.87	19.07	Between	2	5.91	2.96	2.79
				Within	42	346.40	8.26	
Post	21.73	22.87	20.27	Between	2	50.98	25.49	3.86*
				Within	42	277.60	6.61	
Adjusted	21.9	22.49	20.48	Between	2	31.65	15.83	7.33*
				Within	42	88.41	2.16	
Mean gain	2.6	-3	-1.2					

*Significant 0.05 level of confidence

(Table F ratio of 0.05 level of confidence for 2 and 42 df=3.22 and 2 and 41 (df) 3.23

The above table shows the pre post and adjusted mean and “F” ratio value of Muscular strength. From the analysis it is observed that there is no significant difference in pretest ($2.79 < 3.22$). The result of the posttest ($3.86 > 3.23$) and Adjusted posttest ($7.33 > 3.23$) are higher than there is a significant improvement in

Muscular strength among the adolescent boys due to Taekwondo and Kalaripayattu practice. The obtained F ratio of Muscular strength is found significant at 0.05 level. Hence, the scheffe’s post hoc test is employed to find out the paired mean differences between the groups which are presented in Table – 4.

Table 4

Scheffe’s Post Hoc Test for Mean Difference between the Groups on Muscular strength

Gr.I	Gr.II	C.Gr.	Mean Difference	Confidence Interval
21.9	22.49		0.59	1.36
	22.49	20.48	-2.01	1.36
21.9		20.48	-1.42	1.36

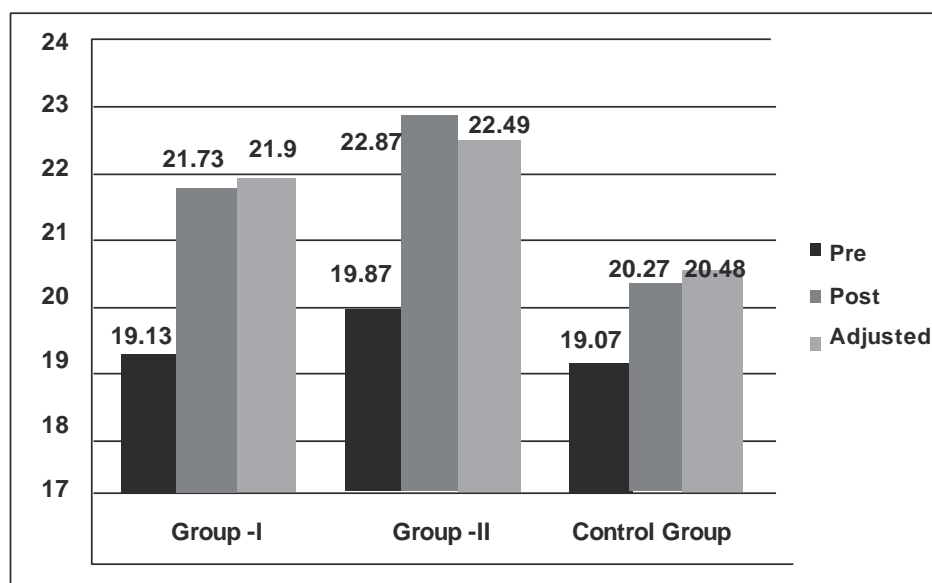
*Significant 0.05 level of confidence

The result of the post hoc test indicates that there is no significant difference between the Taekwondo and Kalaripayattu Group. Significant differences are observed in Taekwondo and Control group; Kalaripayattu training and control groups. Hence, it is

concluded that the Taekwondo and Kalaripayattu training are the best training to improve the Cardio-respiratory Endurance. Further the mean value indicates that the Taekwond Group is better than the Kalaripayattu group in Muscular strength.

Figure II

Mean value of pre, post and adjusted posttest of all the three groups on Muscular Strength



Conclusion

From the analysis and discussions of the present study, the following conclusions are drawn

1. The Taekwondo and Kalaripayattu training are useful to improve the Health Related physical Fitness of Cardip-vascular endurance and Muscular strength among the adolescent boys.
2. Taekwondo practices group is better than the Kalaripayattu practices group in improving the cardio-vascular endurance.
3. Kalaripayattu Group is better than the Taekwondo practice group in improving the Muscular strength
4. Further, the result of the study indicates that the martial art training can be included in the school curriculum to improve the physical fitness.

References

1. Green, Thomas A., ed. (2001). Martial Arts of the World: An Encyclopedia. ABC-CLIO.pp. 176-177.
2. Juliano Schwartz, Monoca Y. Takito, Fabricio B. Del Vecchioleandro S.Antonietti and Emerson Franchin (2015). Sport Science for Health, Health-related physical fitness in martial arts and combat sports practitioners. 11(2), 171-180 available at <http://link.springer.com/article/10.1007/211332-015-0220-6?no-access=true>
3. Melhim, A.F. (2001). Aerobic and anaerobic power responses to the practice of taekwon-do, British Journal of Sport Medicine, 35:231-234

4. Myong-Won Seo, Hyun –Chul Jung-Kook Song, Hyun-Bae Kim (2015). Effect of 8 weeks of pre-season training on body composition, physical fitness, anaerobic capacity, and isokinetic muscle strength in male and female collegiate taekwondo athletes, *Journal of Exercise Rehabilitation*, 11(2),101-107
5. Shirley, S M Fong and Gabriel, Y F Ng (2011). Does Taekwondo training improve physical fitness? *Physical therapy in sport: official journal of the Association of Chartered Physiotherapists in sports Medicine*. 12 (2),100-6.