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Effect of Taekwon-Do Practice on Selected Physiological Variables among College Students

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Abstract

The aim of the present study was to find out the effect of Taekwondo practice on resting heart rate, breath holding time and respiratory rate among College students. For achieving the purpose of the study total of 30 subjects were selected as samples from the age group of 18 to 23 years college men students. The selected subjects were divided in to two groups equally with 15 each as experimental group with Taekwondo practice and control group. The experimental group was given Taekwondo training for a period of six weeks in a schedule of weekly five days for the duration of two hours each. The pre and posttest were conducted on physiological variables of resting heart rate, breath holding time and respiratory rate before and after the six weeks experimental training. Analysis of covariance (ANCOVA) was used as a statistical tool to determine the significant difference, if any exciting between pre and post test data on Resting Heart Rate, Breath Holding time and Respiratory rate. The level of significance was fixed at 0.05 levels. The statistical findings of the study revealed that the experimental group done the Taekwondo practice significantly improved the Resting Heart Rate, Breath Holding time and Respiratory rate.

Keywords: Taekwondo, Resting Heart Rate, Breath Holding time and Respiratory rate.

Introduction

Taekwondo comes from the words ***Tae***, or "foot" or "to step on;" ***Kwon,*** which means means "fist" or "fight;" and ***Do*** refers to a "way," "art" or "discipline." The combination of these words embodies the essence of the sport. Taekwon-Do or Tae Kwon Do is a Korean martial art with a heavy emphasis on kicks. Taekwondo is both an ancient Korean Martial Art, and a modern International Olympic sport.Taekwondo is a mental and physical discipline designed over 2000 years with the ultimate goal being mental and physical health. Doing regular practice makes many physiological benefits.

They are often defined as offensive and defensive combat systems. Taekwondo was developed during the 1940s and 1950s by various Korean martial artists, as a combination of Shotokan karate and the indigenous traditions of taekkyeon, gwonbeop, and subak. This emphasis on speed and agility is a defining characteristic of taekwondo and has its origins in analyses undertaken by Choi Hong Hi. Practicing taekwondo provides an aerobic workout, improving cardio fitness and also enhancing strength and balance.Martial arts have an extremely positive effect on cardiovascular health. They improve heart rate, while increasing blood flow throughout the body. They are excellent for strengthening heart muscles and keeping blood vessels flexible and normal functioning. The present study was intended to found out the effect of Taekwondo practice on resting heart rate, breath holding time and respiratory rate among College students.

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Methodology

For achieving the purpose of the study total of thirty subjects were selected as samples from college students. Their age group between 18 to 23 years and the selected subjects were divided in to two groups equally with 15 each as experimental group with Taekwondo practice and Control Group. The experimental group practiced Taekwondo for a period of six weeks in a schedule of weekly five days for the duration of two hours each. The pre and posttest were conducted on selected physiological variables of resting heart rate, breath holding time and respiratory rate. All the tests were assessed through standardized procedure. Analysis of covariance (ANCOVA) was used as a statistical tool to determine the significant difference, if any exciting between pre and post test data on Taekwondo. The level of significance was fixed at 0.05 levels.

Results and Discussions

The analysis of covariance on the data obtained on resting heart rate, breath holding time and respiratory rate of pre and post tests are tabulated and presented in the tables I, II and III.

Table 1
Computation of analysis of covariance on resting heart rate

TEST	Group		sv	Sum of Squares	df	Mean Square	F value
	Exp.	Con.					
Pre test	76.4	78.2	B	24.3	1	24.3	0.047
			W	14198	28	507.07	
Post test	72.06	77.66	B	235.2	1	235.2	10.31*
			W	638.266	28	22.79	
Adjusted Mean	72.08	77.64	B	231.202	1	231.20	
			W	630.144	27	23.33	9.90*

*Significant at 0.05 level of confidence

It was observed from the Table-1 that there was no significant difference in the pretest (F=0.047<4.20) and posttest (F=10.31<4.20) for df 1 and 28. However a significant difference was observed in adjusted posttest (F=9.90> 4.21) for df 1 and 27 at 0.05 level of confidence. It discussion clearly indicated that there was an influence on resting heart rate through Taekwondo practice among college men students. The mean value clearly indicated that the experimental group was considerably reduced on resting heart rate due to six weeks Taekwondo practice.

Figure I
Bar diagram showing the pre and posttest mean value of resting heart rate

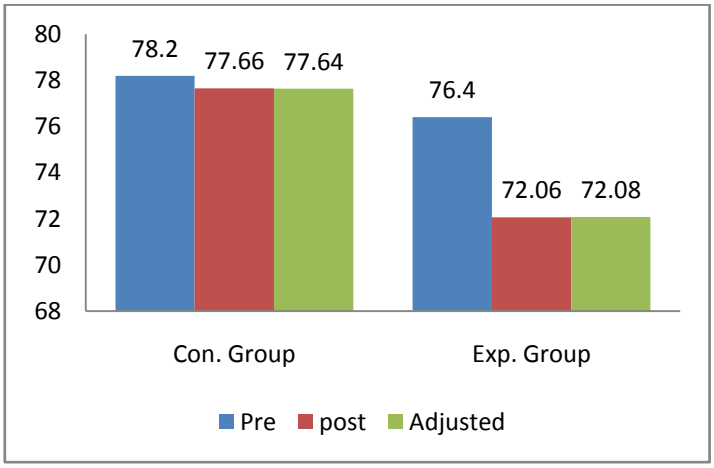


Table 2
Computation of analysis of covariance on breath holding time

TEST	Group		SV	Sum of Squares	df	Mean Square	F value
	Exp.	Con.					
Pre test	36.2	35.8	B	1.2	1	1.2	0.064
			W	520.8	28	18.6	
Post test	42.46	36.26	B	288.3	1	288.3	10.95*
			W	736.66	28	26.309	
Adjusted Mean	42.25	36.47	B	250.08	1	250.08	40.79*
			W	165.50	27	6.129	

*Significant at 0.05 level of confidence

It was observed from the Table-2 that there were no significant difference in the pretest (F=0.064<4.20). The significant differences were observed in posttest (F=10.95<4.20) for df 1 and 28 at 0.05 level of confidence and adjusted posttest (F=40.79< 4.21) for df 1 and 27 at 0.05 level of confidence. It discussion clearly indicated that there was a significant improvement in agility due to six weeks taekwondo practice among college students. The mean value clearly indicated that the experimental group was higher improvement on breath holding time due to six weeks taekwondo practice.

Figure II
Bar diagram showing the pre and posttest mean value of breath holding time

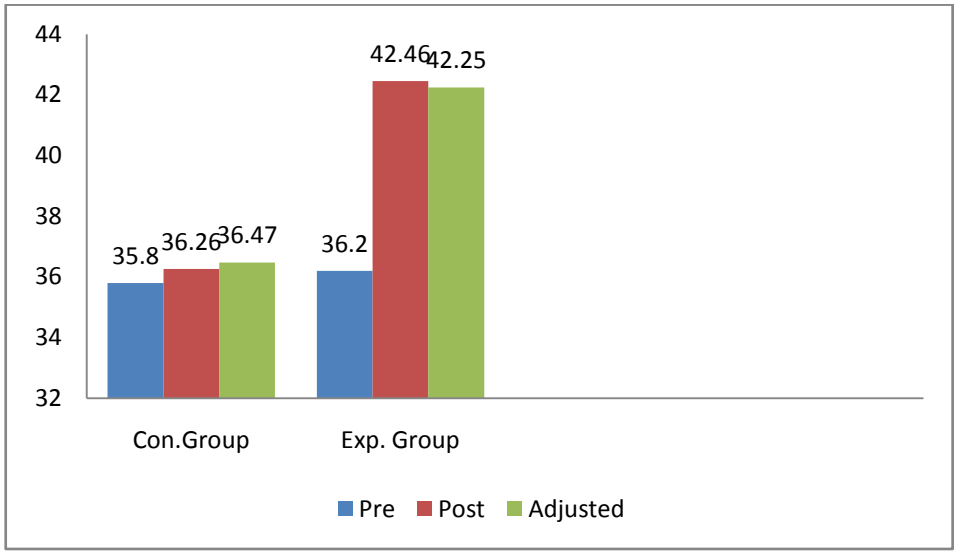


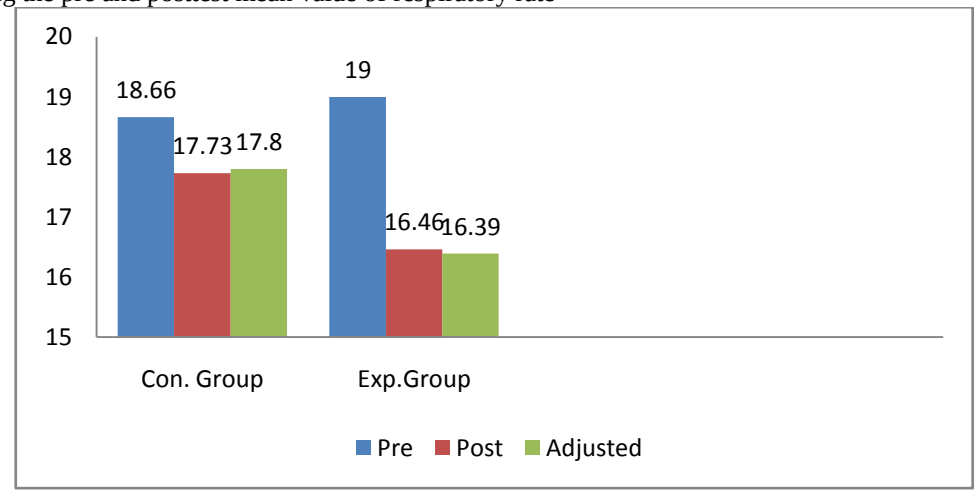
Table 3
Computation of analysis of covariance on respiratory rate

TEST	Group		sv	Sum of Squares	df	Mean Square	F value
	Exp.	Con.					
Pre test	19	18.66	B	0.833	1	0.833	0.267
			W	87.333	28	3.119	
Post test	16.46	17.73	B	12.033	1	12.033	7.22*
			W	46.666	28	1.666	
Adjusted Mean	16.39	17.80	B	14.939	1	14.939	14.07*
			W	28.650	27	1.061	

*Significant at 0.05 level of confidence

It was observed from the Table-III that there was no significant difference in the pretest (F=0.267<4.20). A significant difference in the post test (F=7.22<4.20) for df 1 and 28 and adjusted posttest (F=14.07>4.21) for df 1 and 27 at 0.05 level of confidence. It discussion clearly indicated that there was a significant difference on respiratory rate through six weeks taekwondo practice among college students. The mean value clearly indicated that the experimental group was reduced on respiratory rate due to six weeks taekwondo practice.

Figure III
Bar diagram showing the pre and posttest mean value of respiratory rate



Conclusions

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

1. Taekwondo practice is useful to improve the physiological qualities of a resting heart rate, breath holding time and respiratory rate among college students
2. Taekwondo practice is beneficial not only physiological benefits but also self-defense program for the college students.
3. Further the result of the study indicated that the martial art training including Taekwondo may be included in the physical fitness program.

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