

IMPACT OF VARIOUS MARTIAL ARTS PRACTICES ON STRENGTH MOTOR SKILLS AND PHYSIOLOGICAL VARIABLES AMONG SCHOOL BOYS

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Abstract:

Martial arts are codified systems and traditions of combat practiced for a number of reasons such as self-defence; military and law enforcement applications; competition; physical, mental, and spiritual development; entertainment; and the preservation of a nation's intangible cultural heritage. This study was designed to impact of various martial arts practices on strength motor skills and physiological variables among school boys. To achieve the purpose of the study thirty school boys were selected randomly from St. John's Matriculation Higher Secondary School. Kochadai in Madurai, Tamilnadu consider as subjects. The age of the school boys ranged between 14 and 17 years. And they were divided into three equal groups consists of 10 each. Group I underwent the judo practices, Group II underwent karate practices and Group III acted as control group. The training was given to the group I for five days per week for the period of eight weeks. The strength variable namely shoulder strength, motor skill namely agility and physiological variable namely breathe holding time have been examined at baseline and 6 weeks. The group III control group was not given any sort of training except their routine work. The data were collected from the school boys were statistically analysed to find out the significant difference if any, by applying the analysis of co-variants (ANCOVA). Since three groups were involved, whenever the obtained F ratio for adjusted post means was found to be significant, the scheffe's post-hoc tests were done. The statistical test was set to be significant if $p < 0.05$. level of confidence. The results speculated that the shoulder strength, agility and breath holding time of school boys are improved significantly due to the various martial arts practices with the limitations.

Key Words: Martial Arts, Judo Practice, Karate Practice, Shoulder Strength, Agility and Breath Holding Time.

Introduction:

Martial arts training aims to result in several benefits to trainees, such as their physical, mental, emotional and spiritual health. Through systematic practice in the martial arts a person's physical fitness may be boosted (strength, stamina, speed, flexibility, movement coordination, etc.) as the whole body is exercised and the entire muscular system is activated. Beyond contributing to physical fitness, martial arts training also has benefits for mental health, contributing to self-esteem, self-control, emotional and spiritual well-being. For this reason, a number of martial arts schools have focused purely on therapeutic aspects, de-emphasizing the historical aspect of self defense or combat completely. (Maria Fiatarone, 2010)

Karate spread rapidly in the West through popular culture. In 1950s popular fiction, karate was at times described to readers in near-mythical terms, and it was credible to show Western experts of unarmed combat as unaware of Eastern martial arts of this kind. Following the inclusion of judo at the 1964 Tokyo Olympics, there was growing mainstream Western interest in Japanese martial arts, particularly karate, during the 1960s. By the 1970s, martial arts films (especially kung fu films and Bruce Lee flicks from Hong Kong) had formed a mainstream genre and launched the "kung fu craze" which propelled karate and other Asian martial arts into mass popularity. However, mainstream Western audiences at the time generally did not distinguish between different Asian martial arts such as karate, kung fu and tae kwon do.

Judo is a sport developed from jujitsu that emphasizes the use of quick movement and leverage to throw an opponent. Judo is a modern martial art and combat sport that originated in Japan. It involves techniques for throwing or taking down an opponent to the ground, pinning them, or using joint locks and strangleholds to subdue them. Judo emphasizes maximum efficiency with minimal effort and the principle of mutual welfare and benefit.

Materials and Methods:

To achieve the purpose of the study sixty school boys were selected randomly from St. John's Matriculation Higher Secondary School. Kochadai in Madurai, Tamil Nadu consider as subjects. The age of the school boys ranged between 14 and 17 years. And they were divided into three equal groups consists of 10 each. Group I underwent the judo practice, Group II underwent karate practice group and Group III acted as control group. The training was given to the group I for five days per week for the period of six weeks. The strength variable such as namely shoulder strength was measured by medicine ball throw test,

motor skill namely agility was measured by 4X10- meter shuttle run and physiological variable namely breath holding time was measured by breath holding fitness test have been examined at baseline and six weeks. The group III control group was not given any sort of training except their routine work. The data were collected from the school boys were statistically analysed to find out the significant difference if any, by applying the analysis of co-variants (ANCOVA). Since three groups were involved, whenever the obtained F ratio for adjusted post means was found to be significant, the scheffe's post-hoc tests were done. The statistical test was set to be significant if p0.05. level of confidence

Results and Discussion:

Table 1: Computation of 'F' ratio on pre-test, post-test and adjusted post-test means of judo practices group, karate practices group and control group on strength motor skills and physiological variable

Variable	Mean	JPG	KPG	CG	f - Ratio
Shoulder Strength	Pre	5.97	6.02	6.0	1.69
	Post	6.82	6.98	6.11	9.44*
	Adjust post	6.84	7.0	6.11	48.23*
Agility	Pre	11.40	11.26	11.25	1.23
	Post	11.05	10.44	11.24	19.50*
	Adjust post	11.08	10.47	11.24	182.01*
Breath Holding Time	Pre	31.40	31.25	32.14	1.56
	Post	34.02	34.68	32.12	5.45*
	Adjust post	34.13	34.70	32.11	60.56*

Note: JPG-Judo practices group, KPG-Karate practices group and CG-Control group

Significant at 0.05 level for the degrees of freedom (3.32)

Table 1 reveals the computation of 'F' ratio on pre-test, post-test and adjusted post-test means of judo practices group, karate practices group and control group on strength motor skills and physiological variables.

The obtained, 'F' ratio for the adjusted post-test means of judo practices group, karate practices group and control group on strength variable namely shoulder strength, motor skill namely agility and physiological variable namely breath holding time (6.84, 7.0, 6.11), (11.08, 10.47, 11.24) and (34.13, 34.70, 32.11). Since, the 'F' value was higher than the required table value of 3.32 for the degrees of freedom 2 and 29, it was found to be significant at 0.05 level of confidence.

The results revealed that there was a significant difference in adjusted post-test means among judo practices group, karate practices group and control group on strength motor skills and physiological variables among school boys.

Table 2: Scheffe's post hoc test for the differences the paired adjusted post test means of strength motor skills and physiological variables

Variables	JPG	KPG	CG	MD	CI
Shoulder Strength	6.82	7.0	-	0.18	0.09
	-	7.0	6.11	0.89	
	6.82	-	6.11	0.71	
Agility	11.08	10.47	-	0.61	0.21
	-	10.47	11.24	0.77	
	11.08	-	11.24	0.16	
Breath Holding Time	34.13	34.70	-	0.57	0.26
	-	34.70	32.11	2.59	
	34.13	-	32.11	2.02	

Significant at 0.05 levels

Table 2 reveals the mean differences between the adjusted post-test means of judo practices group, karate practices group and control group.

The mean difference between judo practices group and karate practices group (0.18), judo practices group and control group (0.89) and judo practices group and control group (0.71) on shoulder strength. The mean difference between judo practices group and karate practices group (0.61), judo practices group and control group (0.77) and judo practices group and control group (0.16) on agility. The mean difference between judo practices group and karate practices group (0.57), judo practices group and control group (2.59) and judo practices group and control group (2.02) on breath holding time. Since the values of mean difference of adjusted post-test means were higher than that the required confidence interval value of 0.01, it was found to be significant at 0.05 level of confidence.

Even though judo practices group and karate practices group had significant improvement in strength motor skill and physiological variable. When compared between judo practices group and karate practices group in strength motor skills and physiological variable, karate practices group has higher mean difference than the judo practices group. It might be predicted that karate practices group having higher impact on strength motor skill and physiological variable.

Figure 1: Bar Diagram of Experimental and Control Group on Shoulder Strength



Figure 2: Bar Diagram of Experimental and Control Group on Agility

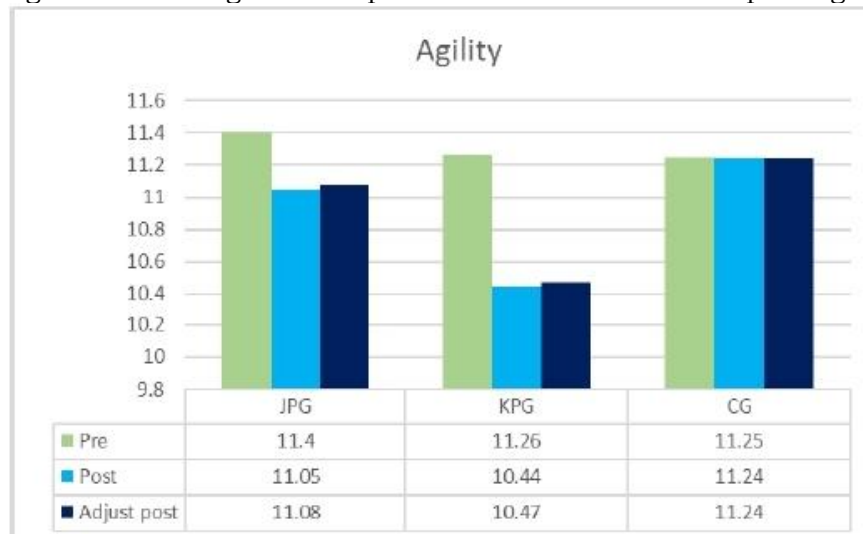
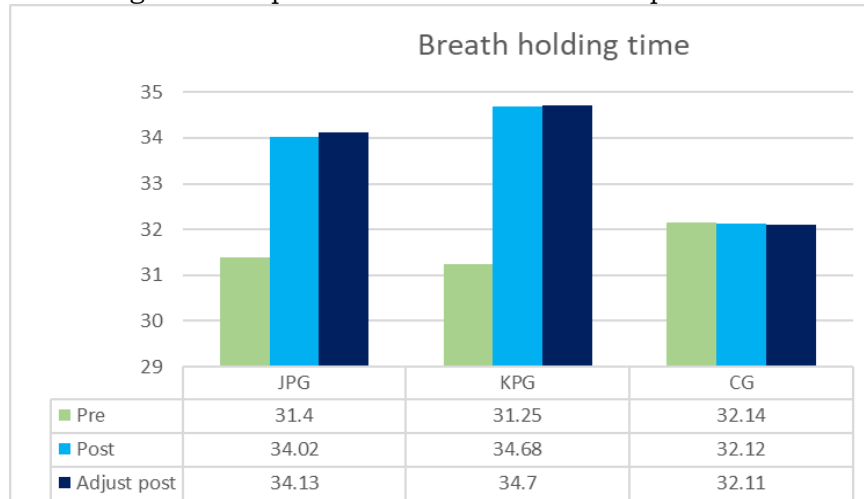


Figure 3: Bar Diagram of Experimental and Control Group on Breath Holding Time



The findings of the present study indicates that the judo practices group is better increased breath holding time (Miodrag Drapsin 2019 Kunszabo M) when compare to karate practices group. The findings of the present study indicates that the karate practices group is better in shoulder strength (Miodrag Drapsin 2019 Kunszabo M) and decrease the agility time (Saini, M 2014) when compare to judo practices group.

Conclusion:

Based on the findings and within the limitations imposed by the experimental conditions following conclusion were drawn. The karate practice group showed significant improvements in shoulder strength, and agility compared to the judo group. In contrast, the judo practice group significantly improved in breath-holding time.

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