

EFFECT OF PLYOMETRIC TRAINING ON BREATH-HOLDING CAPACITY OF KARATE PLAYERS

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ABSTRACT

The aim of this study was to investigate the effects of plyometric training on the breath-holding capacity of Karate Players. The study was conducted on 60 karate players, from the Traditional Shotokan Karate Academy Hagaribommanahalli, Vijayanagara District. The age Ranged between 15 to 25 years. The study's real randomised group design included the pre-and post-tests. Two equal groups of 30 subjects each were created from the subjects (n=60). The control group and the plyometric exercise group were divided equally across the groups. The control group received no training at all, whereas the experimental group engaged in three days of alternate-day plyometric training over the course of twelve weeks. After twelve weeks of training, a statistical t-test was used to compare the data. The significance level has been fixed at 0.05. According to research, plyometric training may have an effect on karate players' breath-holding capacity

Keywords: Plyometric training, Breath- holding Capacity, t-test.

INTRODUCTION

Karate is derived from the two Japanese words Kara and Te. The word "Kara" means to get away from greed and violence, and the word "Te" means hands. One way that Karateka's fight the desire to be violent or greedy is by controlling their breathing. To control your breathing capacity, you need to a balance between time and breathing. For instance, when striking, practitioners of the vast majority of karate are instructed to breathe out of their mouth and noses.

Karate players continue to practise breathing methods during training and competition once they have mastered them. In Karate, breathing is regarded as one of the most crucial exercises since it provides advantage to the practitioners. The only physiological process over which humans have both conscious and unconscious control is breathing. Regulated breathing alters the body's subconscious energies, improving overall health and wellness. Furthermore, because controlled breathing affects the neural system, it can assist manage stress.

Players that practise karate develop strong self-control and discipline. Their ability to breathe deliberately is crucial to their development of a strong sense of discipline. Emotional and stress levels can be better managed with controlled breathing, which benefits both physical and mental health.

Plyometric training is a type of exercise that simulates the pace and movement patterns of a particular sport in order to increase strength and speed. The workout originally known as "jumping training" is now referred to as Plyometrics.

A plyometric training programme aims for physiological, psychological, and metabolic adaptations that help athletes perform better. The ability of an athlete to maintain the breath during competition is given particular importance and is a crucial requirement for achieving peak athletic performance. The heart can pump more blood while beating fewer times as a result of training and conditioning.

If you want to increase a Karate Players breath holding capacity, you should consider doing plyometric exercises. These exercises teach you how to Developing breathe hold capacity. This blend of speed and strength is essential to excelling in karate techniques such as kicking, blocking, punching, sparring, self-defence, and karate competition. Karate practitioners benefit from these plyometric exercises by developing stronger kicks and punches.

METHODOLOGY:

In this investigation, researcher chose 60 karate players from the Traditional Shotokan Karate Academy, Hagaribommanahalli Vijayanagara district. The Subjects are randomly selected and assigned to two groups of thirty karate practitioners in each, one control and one experimental. Plyometric exercises were assigned to the experimental group. Plyometric exercises were assigned to the experimental group for Three days a week, alternating, for one hour, from 6:30 to 7:30 in the morning, necessary instructions were given. Plyometric training was offered to the Karateka's. No instruction was given to the control group, for both groups' pre-test was conducted before commencing the training and post-test was conducted at the completion of four, eight, and twelve weeks training. Breathe holding capacity was measured with the help of breathe holding test. To know the effect of plyometric training on Breathe holding capacity of Karate players at four, eight, and twelve weeks, data was treated with statistical technique 't' test at 0.05 level of significance.

TRAINING PROCEDURE:

The experimental group performed plyometric training with training exercises in the morning session three times a week on alternate days for twelve weeks. The training session consists of warm-up and cool-down exercises. The daily workout lasted about 60 minutes under the supervision of the researcher according to a schedule like pull ups, rope slams, medicine ball throw, jump and push ups, jump squats, jump leg lunges, pike jumps, tuck jumps. Karate players in during the testing period, the control group received no particular training.

The results obtained after statistical treatment are presented in the following tables.

Table 1: Shows Mean, standard deviation and t value of Experimental groups.

Test	Group	Mean	Std. Dev.	't' value	df	Sig
Test Before Training	Control Group	39.81	6.22	-0.19	29	0.848
	Experimental Group	39.48	8.16			
Four week Training	Pre Test Experimental Group	39.48	8.16	3.27	29	0.00*
	4 Week Post Test Experimental Group	43.77	5.79			
Eight week Training	Pre Test Experimental Group	39.48	8.16	4.90	29	0.00*
	8 Week Post Test Experimental Group	47.57	6.15			
Twelve week Training	Pre Test Experimental Group	39.48	8.16	7.00	29	0.00*
	12 Week Post Test Experimental Group	51.20	6.45			

*Significance at 0.05 Level

The above table compares the control and experimental groups' pre and post test Breath-holding Capacity competence, four-week test, eight-week test, and twelve-week test scores. The obtained 't' value of the control and experimental groups' pre-test scores is -0.19, indicating that there is no significant difference in pre-test scores between the two groups. After four weeks, the t value scores obtained between the experimental group are 3.27*, indicating that there is a significant difference. After eight weeks, the t value scores obtained between the experimental group are 4.90*, indicating that there is a significant difference. After twelve weeks, the t scores obtained between experimental groups are 7.00*, indicating that there is a significant difference. This demonstrates that there is a considerable variation in pre-investigation scores between groups. This clearly shows that the effect of Plyometric training practises on Karate Players Breath-holding Capacity happened of Plyometric training, respectively.

Graphical representations of mean values of Breath-holding Capacity of pre-test, four weeks test eight weeks test and twelve weeks scores of control and experimental group were presented in the figure-1.

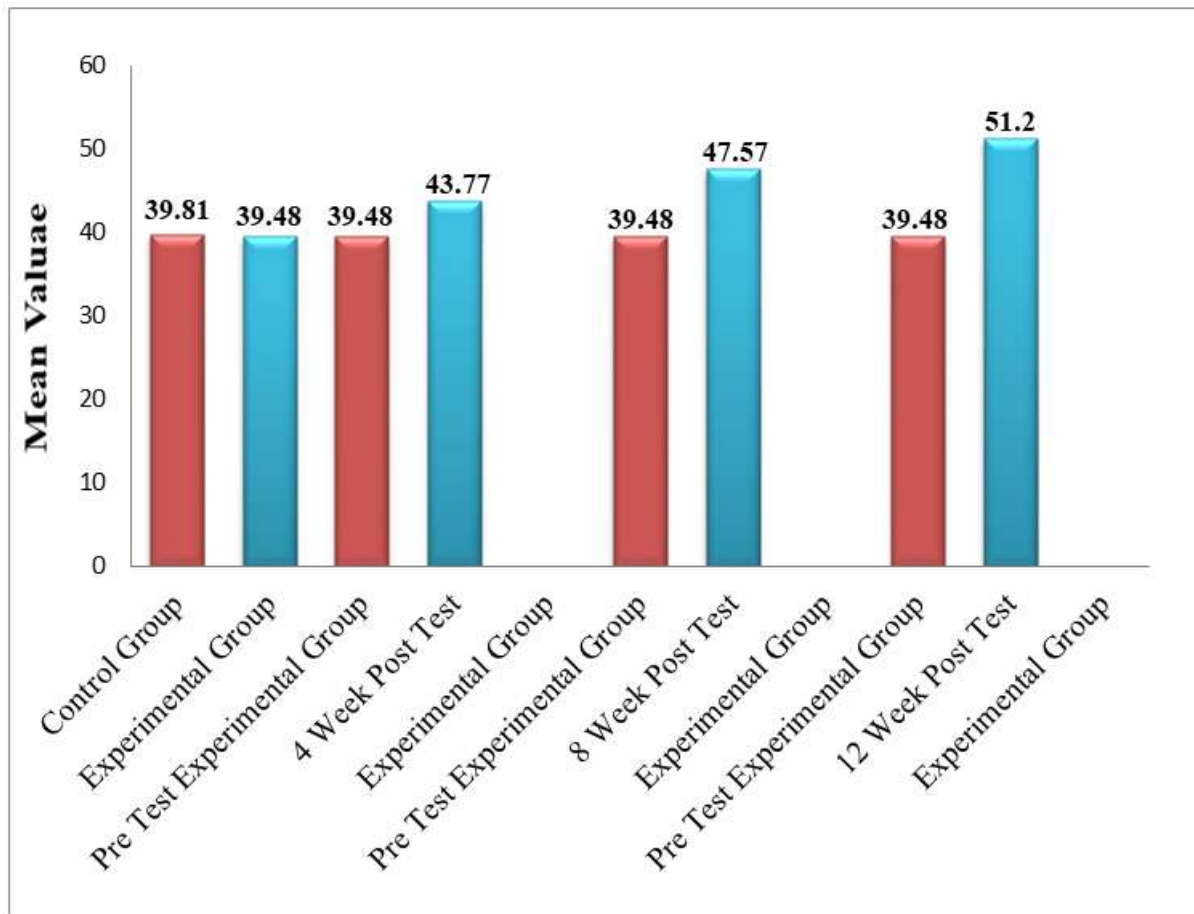


Figure-1: Graphical representations of mean values of Breath-holding Capacity of pre-test scores of four weeks, eight and 12 weeks test scores of experimental groups.

RESULTS AND DISCUSSION

In Breath-holding capacity, Before Training, the result of present study showed that there is no significant difference in pre-test scores of control and experimental groups..

After four, eight and twelve weeks of plyometric training there is a significant difference in pre-test and post-test of experimental group in Breath-holding capacity.

Statistical analysis shows that four, eight, and twelve weeks of plyometric exercise improves the breath-holding capacity. Because Plyometric training controls oxygen and carbon dioxide levels in the body, supplying muscles with oxygen. Breath-holding and plyometric exercises are complicated unified physiological effects to show the consequences of the main breathing methods. It boosts athletic performance.

REFERENCES

- Rajesh, S. And S. Veeramani. (2021). “Influence of Plyometric Training Programme on Selected Physiological Variables among Volleyball Players”. *International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal*, 7(5), 300-303.
- Shri Patel Vijaybhai, Devalbhai and Milan P. Patel. (2020). “Effect Of Plyometric And Circuit Training On Selected Physiological Variables On School Children”. *International Journal of Yogic, Human Movement and Sports Sciences*, 5(1), 23-27.
- Dr.Usharani Kunche and Dr.Sathuluri Raju (2022). “Effects of Own Body Exercises and Plyometric Training on Selected Speed and Breath hold Time among Kho-Kho Players”. *International Journal of Creative Research Thoughts an International Open Access, Peer-Reviewed, Refereed Journal*, 10 (9), 810-815.
- Dr.P. V. Shelvam, Dr.Jit Singh And Gurnam Singh (2014). “Effects of Six Week Plyometric Training and Aerobic Training on Breath Holding Time Among Basketball Players”, *International Journal Of Humanities & Social Studies*, 6 (2), 10-12.