ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Effect of Aerobic Training and Combined Aerobic and Resistance Training on Needful Physical Fitness Components and Playing Ability among College level Kabaddi Players

R. Ramesh Kumar[1] & Dr.B.S.Shay in Sha[2]

[1]*Ph.D., Research Scholar, Research Department of Physical Education, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India.*
[2]*Director of Physical Education, Department of Physical Education, Jamal Mohamed College, Tiruchirappalli, Tamilnadu, India.*

Received 25th September 2016, Accepted 1st October 2016

Abstract

The purpose of the study was to investigate the effect of aerobic training and combined aerobic and resistance training on needful physical fitness components and playing ability among college level kabaddi players. It was hypothesized that there would be significant differences on needful physical fitness components due to the effect of aerobic training and combined aerobic and resistance training on needful physical fitness components and playing ability among college level kabaddi players. For the present study the 30 male intercollegiate level kabaddi players were selected as subjects at random from, Tamilnadu, India and their ages ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of eighteen each and named as Group 'A' and Group 'B'. Group 'A' underwent aerobic training and Group 'B' underwent combined aerobic and resistance training. Agility was tested by shuttle run, leg explosive power was tested by standing broad jump and playing ability was rated by subjective ratings. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05. The combined aerobic and resistance training had positive impact on speed and muscular endurance among college level kabaddi players than the aerobic training group.

Keywords: Aerobic, Resistance, Agility, Leg Explosive Power, Playing Ability, Kabaddi.

Introduction

Aerobics denotes to a selection of activities like walking, jogging and running for a measured time. This is sufficient for a short distance runner and yet in short time helps to produce useful changes in the body, especially in the action of the lungs, heart and blood circulation. System of physical conditioning for increasing the efficiency of the body's intake of oxygen. Aerobic exercises (e.g., running, jogging, and swimming, dancing) stimulate heart and lung activity. To produce a benefit, aerobic training must raise the heart rate (pulse) to the exerciser's target level for at least 20 minutes and include at least three sessions a week. Aerobic exercise refers to exercise which is of moderate intensity, undertaken for a long duration. Aerobic means "with oxygen", and refers to the use of oxygen in a muscle's energy-generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time (Cooper, 1985). Resistance training increases muscle strength by pitting muscles against a resistance. A rubberized band can even be used. Resistance training can increase muscle strength and bone density and reduce body fat. Resistance training, also called weight training or strength training is pitting muscles against a resistance such as a weight or other type of resistance, to build the strength, anaerobic endurance and increase size of skeletal muscles. A well rounded program of physical activity includes strength training, to improve bone, joint function, bone density, muscle, tendon and ligament strength, as well as aerobic exercise, to improve our heart and lung fitness. These activities should work all the major muscle groups of our body. Full range of motion is important in resistance training because muscle overload occurs only at the specific joint angles where the muscle is worked (Kell, 2011).

The sport has a long history dating back to pre-historic times. It was probably invented to ward off croup attacks by individuals and vice-versa. The game was very popular in the southern part of Asia played in its different forms under different names. A dramatized version of the great Indian epic, the "Mahabharata" has made an analogy of the game to a tight situation faced by Abhimaneu, the heir of the Pandava kings when he is surrounded on all sides by the enemy. Buddhist literature speaks of the Gautam Buddha played Kabaddi for recreation. History also reveals that princes of yore played Kabaddi to display their strength and win their brides. The origin of kabaddi can be traced to the pre-

Correspondence
R.Ramesh Kumar
E-mail: tvprr1971@gmail.com, Ph. +9194432 68626

historic times when the game was devised as a way to develop the physical strength and speed in young men. The game is essentially an Indian one, and commands huge popularity in the Indian hinterland (Rao, 1983).

Methodology

The purpose of the study was to investigate the effect of aerobic training and combined aerobic and resistance training on needful physical fitness components and playing ability among college level kabaddi players. It was hypothesized that there would be significant differences on needful physical fitness components due to the effect of aerobic training and combined aerobic and resistance training on needful physical fitness components and playing ability among college level kabaddi players. For the present study the 30 male intercollegiate level kabaddi players were selected as subjects at random from, Tamilnadu, India and their ages ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of eighteen each and named as Group 'A' and Group 'B'. Group 'A' underwent aerobic training and Group 'B' underwent combined aerobic and resistance training. Agility was tested by shuttle run, leg explosive power was tested by standing broad jump and playing ability was rated by subjective ratings. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05.

Results

The findings pertaining to analysis of co-variance between experimental groups on needful physical fitness components among college level kabaddi players for pre-post test respectively have been presented in table I to II.

Table I. ANCOVA between experimental groups on agility of college level kabaddi players for pre, post and adjusted test

	ATG	CARTG	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	11.49	11.44	BG	0.01	1	0.01	0.18
			WG	1.54	28	0.05	
Post Test Mean	11.18	11.05	BG	2.09	1	2.09	31.29*
			WG	1.87	28	0.06	
Adjusted Post Mean	11.17	11.04	BG	2.06	1	2.06	31.78*
			WG	1.75	27	0.06	

*** Significant at 0.05 level.** **df: 1/27= 4.21**

Table I revealed that the obtained 'F' value of 31.78 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of agility of college level kabaddi players between experimental groups. The graphical representation of data has been presented in figure I.

Figure I. Comparisons of pre – test means post – test means and adjusted post – test means for experimental groups in relation to agility

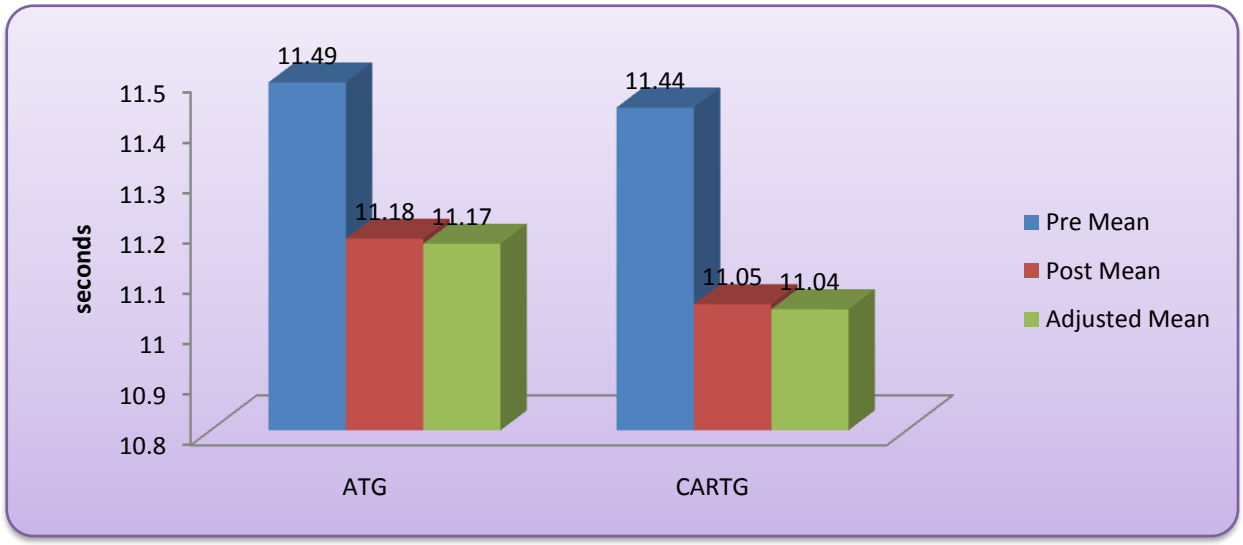


Table II. ANCOVA between experimental groups on leg explosive power of college level kabaddi players for pre, post and adjusted test

	ATG	CARTG	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	1.65	1.67	BG	0.11	1	0.11	1.75
			WG	1.76	28	0.06	
Post Test Mean	1.85	1.96	BG	16.57	1	16.57	111.26*
			WG	4.17	28	0.14	
Adjusted Post Mean	1.87	1.95	BG	15.66	1	15.66	102.62*
			WG	4.12	27	0.15	

*** Significant at 0.05 level.** **df: 1/27= 4.21**

Table II revealed that the obtained 'F' value of 102.62 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of leg explosive power of college level kabaddi players between experimental groups. The graphical representation of data has been presented in figure II.

Figure II. Comparisons of pre – test means post – test means and adjusted post – test means for experimental groups in relation to leg explosive power

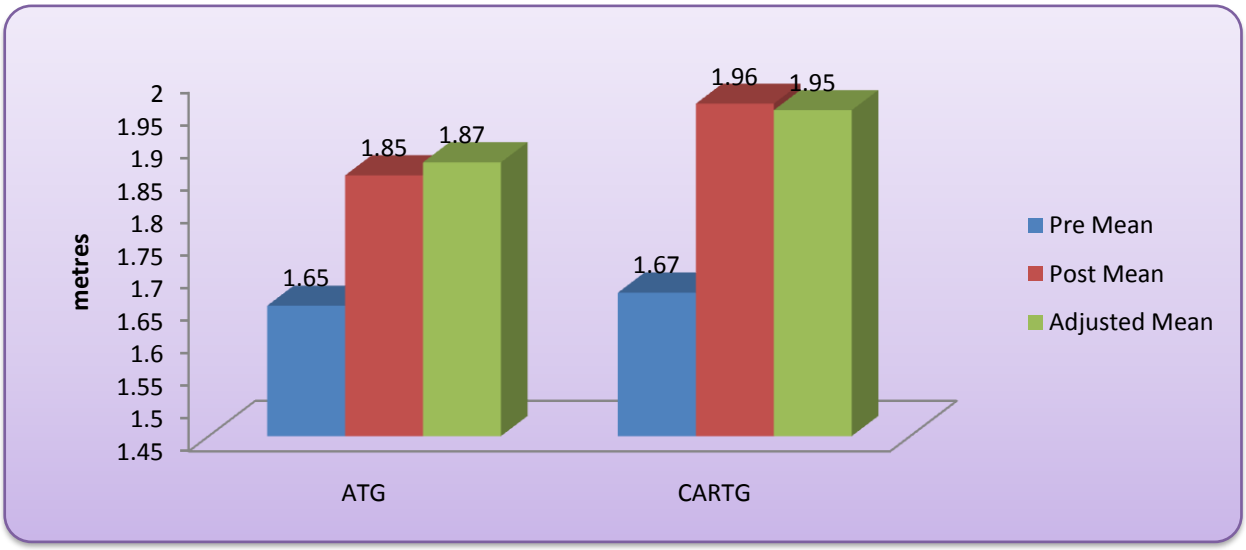


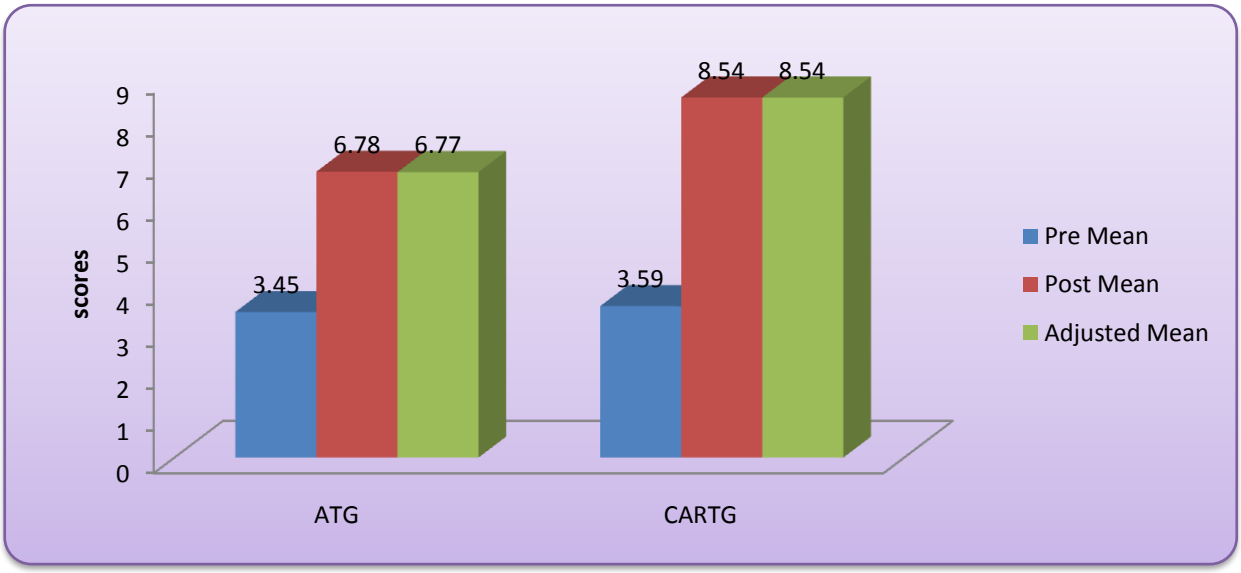
Table III. ANCOVA between experimental groups on playing ability of college level kabaddi players for pre, post and adjusted test

	ATG	CARTG	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	3.45	3.59	BG	0.14	1	0.14	1.53
			WG	2.55	28	0.09	
Post Test Mean	6.78	8.54	BG	8.12	1	8.12	72.63*
			WG	3.13	28	0.11	
Adjusted Post Mean	6.77	8.54	BG	9.26	1	9.26	82.78*
			WG	3.02	27	0.11	

*** Significant at 0.05 level.** **df: 1/27= 4.21**

Table II revealed that the obtained 'F' value of 376.41 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of playing ability of college level kabaddi players between experimental groups. The graphical representation of data has been presented in figure III.

Figure III. Comparisons of pre – test means post – test means and adjusted post – test means for experimental groups in relation to playing ability



Conclusion

On the basis of findings and within the limitations of the study the following conclusion was drawn:

1. The combined aerobic and resistance training had positive impact on speed and muscular endurance among college level kabaddi players than the aerobic training group.

References

1. Alpert, B., Field, T. M., Goldstein, S. & Perry, S. (1990). Aerobics enhances cardiovascular fitness and agility in preschoolers. *Health Psychology*, Vol 9(1), 48-56.
2. Anne, L. Rothstein. (1985). Research Design and Statistics for Physical Education (Englewood Cliffs, N.J: Prentice Hall, Inc.).
3. Barrow, H.M., Mc. Gee. M. and Kathleen A. Tritschler (1989). *Practical measurements in Physical Education and Sports*, Philadelphia: lea Fibiger.
4. Barry, L. Johnson, L. Barry and Jack K. Nelson, (1982). *Practical Measurement for Evaluation in Physical Education*, New Jersey; Englewood Cliffs Prentice Hall, Inc.
5. Cooper, K.H. (1969). *New Aerobics*. New York: Bantam Books, p.30.
6. Cooper, K.H. (1985). *Aerobics Program for Total Well-Being: Exercise, Diet, and Emotional Balance.* New York: Bantam Books.
7. Kalapotharakos, V.I., Ziogas, G. & Tokmakidis, S.P. (2011). Seasonal aerobic performance variations in elite soccer players. *J Strength Cond Res.* 25(6): 1502-1507.
8. Kathleen, M. K., Bethany, A. P., Billie, L. & Lorraine, R, B. (2007). The effect of high resistance weight training on reported pain in older adults. *Journal of Sports Science and Medicine*, 6, 455-460.
9. Kell, R,T. (2011). The influence of periodized resistance training on strength changes in men and women. *J Strength Cond Res.* 25(3): 735-744.
10. Khodamoradpoor, M., Hoseini S. M., Yektayar M., Mohamadi S. (2012). The Effect of aerobic exercise and resistance training on women's body image. Archives of Applied Science Research, 4 (6):2345-2349.
11. Nagaraj, Subramaniam & Jayasivarajan (2011). Effect of Stretching Exercises and Aerobic Exercises on Flexibility of School Boys, *Recent Treads in Yoga and Physical Education*, Vol. I, p.204.
12. Nahid, A., Hojatolah, N.B. & Nase, B. (2012). Comparison of the Effect of Plyometric and Weight Training Programs on Vertical Jumps in Female Basketball Players. World Journal of Sport Sciences 7 (2): 99-104.
13. Nandi, S., Adhikari, H., & Bera, T.K., (2004). Effects of Aerobic exercise, Yogic Practice and the combination of both on Cardio respiratory

endurance. *Yoga Mimamsa*, Vol.XXXV, 3-4: 152-159.

14. Pedersen, O.F., Rasmussen, T.R., Omland, O., Sigsgaard, T., H. Quanjer, H. & Miller, M.R. (1996). Peak expiratory flow and the resistance of the mini-Wright peak flow meter. *Eur Respir J., 9, 828–833.*
15. Prasad, E, Rao. (2002). Complete Handbook of Kabaddi. Vizianagaram: Jagadamba publications.
16. Rao, C, V. (1983). Kabaddi; Native Indian Sports, Patiala. NIS Publication.
17. Sakthignanavel, D. (1998). Effect of Pranayama with Aerobic Exercise on Aerobic Fitness. *Yoga Mimamsa*, Vol. I, p.1.
18. Sporer, B.C. & Wenger, H,A. (2003). Effects of Aerobic Exercise on Strength Performance Following Various Periods of Recovery. *Journal of Strength & Conditioning Research*. 17(4):638-644.