

INFLUENCE OF DIFFERENT INTENSITY AEROBIC DANCE ON BMI AMONG YOUNG BOYS

Ashokan. K*

Dr. George Abraham**

Abstract

The purpose of the present study was to find out the influence of different intensity aerobic dance on BMI among young boys. For the purpose of the study forty five young boys ($n = 45$) were randomly selected as subjects and their age was ranged from 14 to 18 years. The selected subjects were further assigned into three equal groups of fifteen subjects each ($n = 15$). First group was undergone for low intensity aerobic dance training and the second group was engaged in medium intensity aerobic dance training and the third group was trained high intensity aerobic dance. The training was planned for the duration of twelve weeks and it was restricted to three sessions per week. BMI was considered as a criterion variable for this study and it was measured by using the standard formula method. The data were collected before and after the training duration and the collected data were analysed by using the statistical tool of analysis of covariance (ANCOVA). The Scheffe's test was applied as a post hoc test to determine the paired mean difference if any. The result of the study pointed out that, there was significant difference occurred on BMI among the different intensity aerobic dance training groups and the control group at 0.05 level of confidence.

Keywords: Moderate intensity, high intensity, Body Mass Index.

* PhD Scholar, Department of Physical Education and Sports Sciences, Annamalai University, Tamil Nadu, India.

** Assistant Professor, Department of Physical Education and Sports Sciences, Annamalai University, Tamil Nadu, India.

Introduction

Body-mass index (BMI) is a reasonably good measure of general adiposity, and raised BMI is an established risk factor for several causes of death, including ischaemic heart disease, stroke, and cancers of the large intestine, kidney, endometrium, and postmenopausal breast. In many populations, the average BMI has been rising by a few percent per decade, fuelling concern about the effects of increased adiposity on health (www.ncbi.nlm.nih.gov, 2009). Body Mass Index (BMI) is a ratio of total body weight to height. Several ratios have been proposed, but one used most frequently. Weight (in kilograms) divided by height in meters square (Kg/M^2). Calculated BMI can then be compared against standard value to determine whether the individual has acceptable body weight, is overweight, or is obese (Sharma & Nigam, 2011).

Recent periods are giving priority for the health and fitness status than the other achievements. Due to the same the role of aerobic dance and its participation were become positive graph in worldwide. Dance is a unique form of movement in which includes aesthetic movement that is related to perceived well-being, hence, different kinds of dance (i. e., aerobic dancing) can be one of the main purposes in physical education (Carter, 1984 & Burgess et al., 2006). Hui et al. (2009) has shown the positive effects of aerobic dancing (low impact) on physiological and mental well-being among older adults. Also, Schiffer et al. (2009) showed that there was a positive relationship between physical and psychological well-being in the result of three months aerobic dance and fitness programs. Aerobic dance is a kind of physical activity with low impact, moderate time and with special music that to motivate among participants (Hopkins et al., 1990).

Aerobic dance practice has major role in comprehensive weight loss and weight control programme. As a result of systematic training of aerobic dance activities, the abdominal fat may decrease, cardio respiratory fitness may increase, and weight loss in overweight and obese adults can be achieved (Rexrode et al., 1998).

Materials and Methods

The purpose of this study was to determine the influence of different intensity aerobic dance on BMI among young boys. Forty five young boys ($n = 45$) were randomly selected as

subjects. All the subjects were students of a single school of Government Higher Secondary School, Karadka, in Kerala State. The subjects were further randomly assigned into three different groups of fifteen ($n = 15$) each in strength. The age of the selected subjects were ranged between 14 and 18 years. First group was undergone for low intensity aerobic dance training and the second group was engaged in medium intensity aerobic dance training and the third group was trained high intensity aerobic dance. The training was planned for the duration of twelve weeks and it was restricted to three sessions per week. The training programme was made with the consultation of experts and it was conducted with the supervision of the researcher. BMI was selected as the dependent variable for the present study and it was calculated by using the standard formula method of weight in Kg/ Height in M². The aerobic dance training was scheduled in the evening 4.30 to 5.30 pm. The training was included proper warming up around 10 minutes; aerobic dance for the duration of 30 to 40 minutes and the session was concluded with the cooling down process of 10 minutes.

Results and Discussion

Table I

Analysis of Covariance of Different intensity of aerobic dance training groups on BMI

Group		High	Medium	Low	Control	SOV	SS	df	Mean Squares	F-Ratio
Pre Test	Mean	23.83	23.26	23.58	22.84	B	8.23	3	2.74	0.45
	SD	2.26	1.70	3.54	1.91	W	340.02	56	6.07	
Post Test	Mean	21.62	21.74	22.38	23.41	B	30.11	3	10.10	1.83
	SD	2.58	1.63	3.00	1.91	W	308.66	56	5.51	
Adjusted Post Test		21.25	21.84	22.22	23.86	B	55.48	3	18.49	13.77*
						W	73.86	55	1.34	

*Significant $F = (df 3, 56) (0.05) = 2.78$; $(P \leq 0.05)$ $F = (df 3, 55) (0.05) = 2.77$; $(P \leq 0.05)$

The table I show that the pre test mean values on BMI for the high intensity, medium intensity, low intensity aerobic dance training groups and the control group were 23.83, 23.26, 23.58 and 22.84 respectively. The obtained ‘F’ ratio of 0.45 for pre test, which is lower than

the required table value 2.78 with df 3 and 56 at 0.05 level of confidence. The post test mean values of high intensity, medium intensity, low intensity aerobic dance training groups and the control group were 21.62, 21.74, 22.38 and 23.41 respectively. The obtained 'F' ratio of 1.83 for the post test is also lesser than the required table value of 2.78. Further the adjusted post test mean values of BMI for the different intensity aerobic dance training groups are 21.25, 21.84, 22.22 and 23.86. The obtained 'F' ratio of 13.77 for adjusted post test is higher than the required table value of 2.77 with df 3 and 55 for significance at the 0.05 level of confidence. Hence, the results of the study showed that there was a significance difference exists between different intensity aerobic dance training groups on BMI among the selected subjects. Further to determine, which of the paired means has a significant improvement, Scheffe's test was applied as a post hoc test.

Table - II

Scheffe's Test for the difference between the Adjusted Post-Test Mean of BMI

Adjusted Post Test Means				Mean Difference	CI
High Intensity Group	Medium Intensity Group	Low Intensity Group	Control Group		
21.25	21.84			0.59	1.12
21.25		22.22		0.97	
21.25			23.86	2.61*	
	21.84	22.22		0.38	
	21.84		23.86	2.02*	
		22.22	23.86	1.64*	

*Significant at 0.05 level of Confidence

Table II shows that, the adjusted post-test mean difference in BMI between high intensity and control group, medium intensity and control and the low intensity and control group were 2.61, 2.02 and 1.64. Which were greater than the CI of 1.12 at 0.05 level. So there was a significant difference occurred on BMI between the groups of high intensity and control group, medium intensity and control and the low intensity and control group. The mean differences of

high intensity and medium intensity, high intensity and low intensity, medium intensity and low intensity were 0.59, 0.97 and 0.38, which were lower than the CI of 1.12. There was no significant difference on BMI between the groups of high intensity and medium intensity, high intensity and low intensity, medium intensity and low intensity aerobic dance groups. The pre, post and adjusted post test mean values of high intensity, medium intensity; low intensity aerobic dance training groups and the control group on BMI was graphically represented in the figure 1.

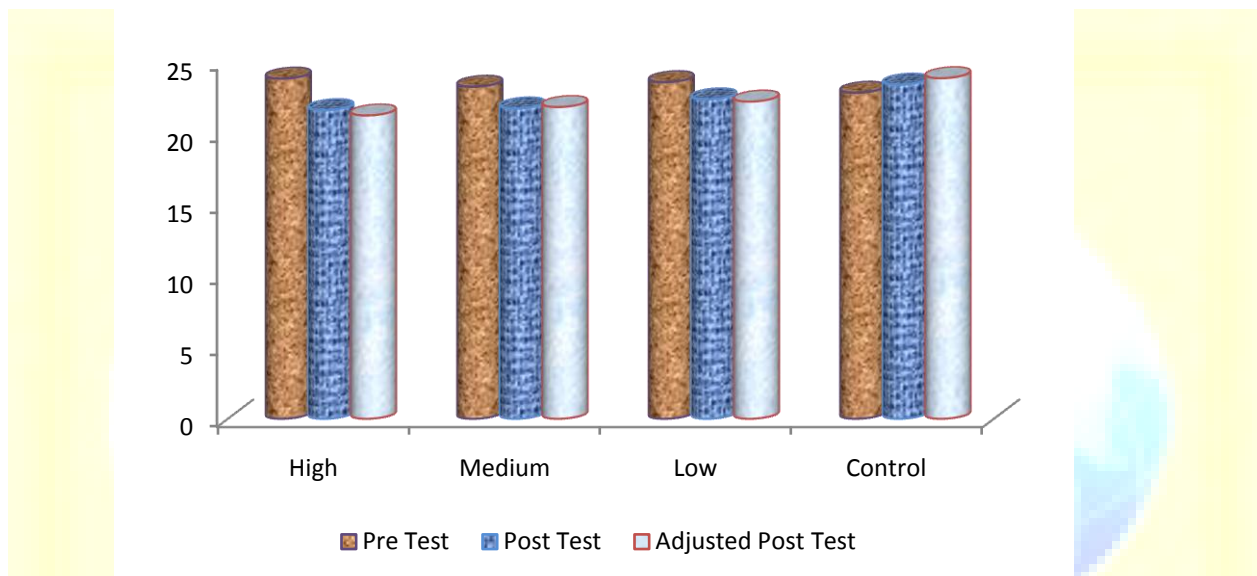


Figure 1: The pre, post and adjusted post test mean values of different intensity aerobic dance training groups on BMI

Shanmugapriya and Vinodha (2015) were conducted their study at Thanjavur and the strength of the subjects were participated for this study as 80 female. The training group of 40 members was produced significant decrease in BMI as compare with the control group. The training was planned for 3 alternative days per week for six weeks duration. Matinhomae et al. (2012) evaluated aerobic training and its influence on BMI among the type 2 diabetic patients. The training was extended the duration of 10 weeks and the patients were aged 40 to 50 years. The study was concluded that the training was positively influenced on BMI for the training group. Nemati and Moosavi (2014) evaluated a study of aerobic related activities and the change of BMI among the elementary school children. The training was planned for the duration of eight weeks and three sessions per week. In this study a total of 27 subjects were taken part, among them 13 were members of control group and the remaining 14 were members of training group.

The result of the study indicated that the training was positively influenced the BMI among the selected subjects but the result didn't lead for any significant improvement. Pantelic et al. (2013) conducted their study among 59 obese women subjects and training was given privilege for aerobic dance for the duration of 10 weeks. The result was pointed out that there was a significant decrease on BMI among the selected subjects after the training duration. The studies of Regaieg et al. (2013), Shenbagavalli and Mary (2008), Ameli et al. (2014), Marandi et al. (2013), Ahsan et al. (2012), Willis et al. (2012) also pointed out that the aerobic related training were significantly reduces the BMI of the selected subjects in their study. The result of the present study also revealed that the different modes of aerobic dance training were significantly reduces the BMI among the selects subjects of school boys.

Conclusion

The result of the study were pointed out that the high intensity and control group, medium intensity and control and the low intensity and control group were produced significant difference on BMI among the selected groups. And also there was no significant difference was produced among the groups of high intensity and medium intensity, high intensity and low intensity, medium intensity and low intensity aerobic dance training groups on BMI.

References

1. Burgess, G., Grogan, S., Burwitz, L. (2006). Effects of a 6-week aerobic dance intervention on body image and physical self-perceptions in adolescent girls. *Body Image*, 3(1), 57-66.
2. Carter, L.C. (1984). The state of dance in education: Past and present. *Theory Pract*, 23(4), 293-199.
3. Giuseppe Ameli., Abdolali Banaeifar., & Yaser Kazemzadeh,(2014). Effect of 8 week of aerobic exercise on insulin resistance index and body composition changes in overweight boys10 to 12 years. *Indian Journal of Fundamental and Applied Life Sciences*, 4(S4), 3790-3795.
4. Hassan Matinhomae., Davood Khorshidi., Mohammad Ali Azarbayjani., & Arash Hossein-nezhad. (2012). Effects of aerobic training on the glycemc control and body

- composition in obese patients with type 2 diabetes. *Annals of Biological Research*, 3(5), 2034-2038.
5. Hopkins, D.R., Murrah, B., Hoeger, W.W. (1990). Effect of low impact aerobic dance on the functional fitness of elderly women. *Gerontologist*, 30(2), 189-92.
 6. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2662372/>, (2009). 1083-1096.
 7. Hui, E., Chui, B.T., Woo, J., Effects of dance on physical and psychological well-being in older persons. *Arch Gerontol Geriatr*, 49(1), 45-50.
 8. Leslie, H. Willis., Cris, A. Slentz., Lori, A. Bateman., Tamlyn Shields, A., Lucy, W. Piner., Connie, W. Bales., Joseph, A. Houmard., William, E. Kraus. (2012). Effects of aerobic and/or resistance training on body mass and fat mass in overweight or obese adults. *Journal of Applied Physiology*, 113(12), 1831-1837.
 9. Muhammed Ahsan., Bhupendra Kumar., & Yogesh Chandra Joshi. (2012). A study of effective use of aerobic exercises for body weight reduction in overweight male. *Journal of health, sports and physical education*, 1(1), 36-39.
 10. Nematallah Nemati., & Seyed Mozafar Moosavi. (2014). The effect of a period of selective aerobic exercise on serum level of VO₂Max, BMI and Leptin in fat students in elementary school. *Bulletin of Environment, Pharmacology and Life Sciences*, 3(4), 50-56.
 11. Rexrode, K. M., Carey, V. J., & Hennekens, C. H. (1998). Abdominal adiposity and coronary heart disease in women. *J Am Med Assoc*, 280(1), 1843-1848.
 12. Sasa Pantelic., Zoran Milanovic., Goran Sporis., & Jelica Stojanovic-Tosic. (2013). Effects of a Twelve-Week Aerobic Dance Exercises on Body Compositions Parameters in Young Women. *Int. J. Morphol*, 30(4). 1243-1250.
 13. Sayyed Mohammad Marandi., Neda Ghadiri Bahram Abadi., Fahimeh Esfarjani, Hosein Mojtahedi., & Gholamali Ghasemi. (2013). Effect of intensity of aerobics on body composition and blood lipid profile in obese/ overweight females. *International journal of preventive medicine*, 4(1), 118-125.
 14. Schiffer, T., Klienret, J., & Sperlich, B. (2009). Effects of aerobic dance and fitness program on physiological and psychological performance in men and women. *Fitness*, 5(2), 37-46.

15. Shanmugapriya, C., & Vinodha, R. (2015). The impact of aerobic training on body mass index of obese sedentary females. *International Journal of Current Research*, 7(5), 16530-16535.
16. Sharma, R., & Nigam, A.K. (2011). A study of body mass index in relation to motor fitness components of school going children involved in physical activities. *Journal of Exercise Science and Physiotherapy*, 7(1), 29-33.
17. Shenbagavalli, A., & Mary, R. D. (2008). Effect of Aerobic Training on Body Mass Index on Sedentary Obese Men. *Journal of exercise science and physiotherapy*, 4(2), 125-128.
18. Sofien Regaieg., Nadia Charfi., Mahdi Kamoun., Sameh Ghroubi., Haithem Rebai., Habib Elleuch., Mouna Mnif Feki., & Mohamed Abid. (2013). The effects of an exercise training program on body composition and aerobic capacity parameters in Tunisian obese children. *Indian Journal of Endocrinology and Metabolism*, 17(6), 1040-1045.