IMPACT OF YOGA AND PHYSICAL EXERCISES ON BODY MASS INDEX OF UNTRAINED YOUTH

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ABSTRACT

In ancient days in India yoga is a way of life which includes changes in mental attitude and diet and the practices of specific technique such as yoga (means posture), pranayama (pran means air and ayama means to hold) and meditation (dhyan). In the context of physical fitness, 'exercise' refers to any activity involving a fairly high degree of physical movements that makes one breathless and sweaty if it is done vigorously. To achieve the purpose of the study forty five students studying in the Alagappa Government Arts College ,Alagappapuram ,Karaikudi were selected as subjects at random . The age of the selected subjects ranged between 19 to 22 years. Group-I (n=15) underwent one hour Yoga training, Group-II underwent one hour Physical exercise and group-III (n=15) acted as control group. Group III did not participate any special training programme. The Body mass index (BMI) was dependent variable. The yoga training and physical exercise were independent variable.Yoga training and Physical exercises are for six (Monday to Friday) morning sessions (6.30 am to 7.30 am) per week for twelve weeks. The experimental group-I underwent the following Yoga training. The Yoga programme consists of one hour including warming up and limbering down. The body mass index (BMI) was assessed by using formula BMI = weight was measured by weighing machine in (kg)/ height was mesred by stadiometer $(meters)^2$ kg/m^2 Melzter (1978). The data were collected on prior and immediately after the training programmes on Body mass index (BMI). The ANCOVA (Thomson and Nelson 1996) was used as statistical tool whenever the programmes F ratio for adjusted post test was found to be significant the scheffe's post hoc test to determine the paired mean difference . The level of significant was fixed at 0.05 level of confidence. The result of the study reveals that due to effect to twelve weeks of yoga training and physical exercise training on Body mass index has significantly altered of untrained youth.

KEYWORDS: Yoga,Physical exercise and BMI.

INTRODUCTION

In ancient days in India yoga is a way of life which includes changes in mental attitude and diet and the practices of specific technique such as yoga (means posture), pranayama (pran means air and ayama means to hold) and meditation(dhyan).The word yoga has originated from the Sanskrit word YUJ(it means to join or to union).yoga is to keep physically as well as mentally fit. Yoga pose are also designed to tone and exercise the muscle of the body to eliminate excess fat and make it more flexible and stronger. A

combination of yoga and breathing techniques were shown to reduce BMI in 177 obese person after 7 days of yoga intervention. In the context of physical fitness, 'exercise' refers to any activity involving a fairly high degree of physical movements that makes one breathless and sweaty if it is done vigorously. During physical exercise one has breathe more deeply to get more oxygen into the lungs and the heart must beat harder and faster to pump blood to the muscles. The physical benefits of exercise are unarguable but there are physiological benefits also. Many people have sound sleep after exercise, wake up more refreshers and more alert and better able to concentrate than when they are unfit. Exercise of the right sort should make one feel better, live longer and have less illness (Tony Smith, 1983). BMI is a ratio of total body weight to height. Several relations have been proposed but one used most frequently weight (in kilo grams) divided by height (in meters) square (weight, kg/ht/m^2 (kg/m^2). Calculated BMI can then be compared against standard value to determine whether individual has acceptable body weight is overweight or obese. Risk of increased morality from high values of BMI is described by 9 values I. Shaped curve BMI value from 15 to 25 represents no excess morality risk and over 40 a high risk of great morality (Brary, 1985).

REVIEWS

Helena (2015) conducted the effect of yoga practice on muscle fitness and body composition in middle age women with overweight .Type 2 diabetic besides hyperglycemia and deranged lipid profile is an impaired insulin secretion, peripheral insulin resistance and obesity which have become a major health concern worldwide. Yoga is a physical and mental discipline that originated in Indian culture over2,000 years ago .The aim of the present study was to determine the impact of general programme of yoga on the muscle fitness, body composition and metabolic risk factors in middle age women with overweight . 30 middle age women with overweight were randomly assigned to the yoga intervention group or the control group. Muscle endurance and flexibility, fat percentage, body mass index(BMI),blood glucose and lipids level were obtained, before and after 8 weeks of yoga practice, Data analyzed with independent t test by SPSS 19.Data indicates that significant increased in muscle endurance ($p=0.012$) and flexibility($p=0.049$) occurred in yoga group but not control group. Significantly decreased in BMI and fat percentage than control group observed ($p<0.0001$).There were no significant difference between control and yoga group in glucose, total triglyceride and total cholesterol. These findings suggest the middle age women with overweight may benefit from yoga practice to improve the muscle fitness and body composition.

Duncan *et al.* (2009) examining the impact of physical activity on children's body image has been limited and equivocal. The current researchers examined the effect of 6-week circuit-based training on body esteem and body mass index (BMI) in 68 British children (34 boys and 34 girls, aged 10-11 years, 16% overweight, 7% obese). The body esteem scale for children (BES-C) was administered to both the intervention group and control group, pre, post and 6 weeks post the intervention. BMI was directly assessed from height and body mass pre- and post-intervention. The results of this study revealed that, as compared to the control group, participation in 6-week circuit training significantly improved body esteem scores post-intervention. However, these scores were not sustained 6 weeks

post-intervention. The improvement in body esteem scores from pre- to post-intervention was greater for girls as compared to boys. Additionally, BMI decreased significantly in the intervention group compared to the control group.

METHODOLOGY

To achieve the purpose of the study forty five students studying in the Alagappa Government Arts College ,Alagappapuram ,Karaikudi were selected as subjects at random . The age of the selected subjects ranged between 19 to 22 years. Group-I (n=15) underwent one hour Yoga training, Group-II underwent one hour Physical exercise and group-III (n=15) acted as control group. Group III did not participate any special training programme. The Body mass index (BMI) was dependent variable. The yoga training and physical exercise were independent variable.Yoga training and Physical exercises are for six (Monday to Friday) morning sessions (6.30 am to 7.30 am) per week for twelve weeks. The experimental group-I underwent the following Yoga training. The Yoga programme consists of one hour including warming up and limbering down .The yoga exercise consists of bhujangasana,naukasana,dhanursana,trikonaasan,tadaasana,halaasana,suryanamaskar,kapalbhathi,nadishodhana,bhastrika,dhayan(omkar chanting) and shavaasana. Participants were taught yoga practices and were supervised by the trained and experienced yoga trainees. Physical training exercises consists of high knee action, plank, bent knee sit ups, jumping jack, push ups, bicycle crunch, half squat, single hand push ups ,skipping, and hyper extension. However individual differences were taken into account which fixing load. The over load principle was applied. Progressively workload was increased in four weeks once. The body mass index (BMI) was assessed by using formula BMI = weight was measured by weighing machine in (kg)/ height was mesred by stadiometer (meters)^2 kg/m^2 Melzter (1978). The data were collected on prior and immediately after the training programmes on Body mass index (BMI). The ANCOVA (Thomson and Nelson 1996) was used as statistical tool whenever the programmes F ratio for adjusted post test was found to be significant the scheffe's post hoc test to determine the paired mean difference . The level of significant was fixed at 0.05 level of confidence.

TABLE-I ANALYSIS OF THE DATA

Body mass index (BMI)

The data collected prior to and after the experimental period on body mass index(BMI) for circuit training group, aerobic training group and control group were analysed presented in table-I and Figure-I

TABLE-I

ANALYSIS OF COVARIANCE ON BODY MASS INDEX (BMI) FOR YOGA TRAINING GROUP, PHYSICAL EXERCISES TRAINING GROUP AND CONTROL GROUP

Test	Yoga Training Group	Physical exercises Training Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	"F" Ratio
Pre-test								
Mean	25.84	25.72	25.20	Between	3.50	2	1.75	1.99
S.D	1.08	0.96	0.74	Within	36.99	42	0.88	
Post-test								
Mean	24.01	23.75	25.06	Between	14.45	2	7.22	12.67*
S.D	0.60	0.85	0.80	Within	23.94	42	0.57	
Adjusted Post-test								
Mean	23.99	23.74	25.09	Between	14.39	2	7.19	12.45*
				Within	23.68	41	0.58	

*Significant at .05 level of confidence.

The table value required for significance at .05 level with df 2 and 42 & 2 and 41 are3.222 and 3.226 respectively.

The adjusted post test means values for yoga training, physical exercises training and control groups were 23.99, 23.74 and 25.09 respectively. The obtained 'F' ratio value of 12.45 of adjusted post – test scores for yoga training, physical exercises training and control groups was higher than the required table value of 3.226 for significance with df 2 and 41 at .05 level of confidence. The above statistical analyses indicates that there was a significant improvement in body mass index (BMI) after the training periods further to determine which of the paired means has a significant improvement, Scheffe'S test was applied. The result of the follow- up test is presented in table-II and Figure-II.

TABLE-II

SCHEFFE'S POST HOC TEST FOR THE DIFFERENCE BETWEEN THEADJUSTED POST TEST MEAN OF BODY MASS INDEX (BMI)

Sl. No.	Mean Difference		Confidence Interval		
	Yoga Training	Physical exercises training	Control Group	Mean difference	Confidence interval
1.	23.99	23.74	-	0.25*	0.70
2.	23.99	-	25.09	1.10*	0.70
3.	-	23.74	25.09	1.35*	0.70

significant at 0.05 level of confidence.

Table -II shows that the adjusted post –test mean difference in body mass index(BMI) between Yoga training group and control group and physical exercise training group and control group were 1.10 and 1.33 which was significant at .05 level of confidence. Adjusted post – test mean difference between yoga training group and physical exercise training group was 0.25 which was insignificant at .05 level of confidence.

The mean values for yoga training, physical exercise training and control groups were graphically represented in figure-I.

FIGURE-I

ANALYSIS OF COVARIANCE ON BODY MASS INDEX (BMI) FOR YOGA TRAINING GROUP, PHYSICAL EXERCISES TRAINING GROUP AND CONTROL GROUP

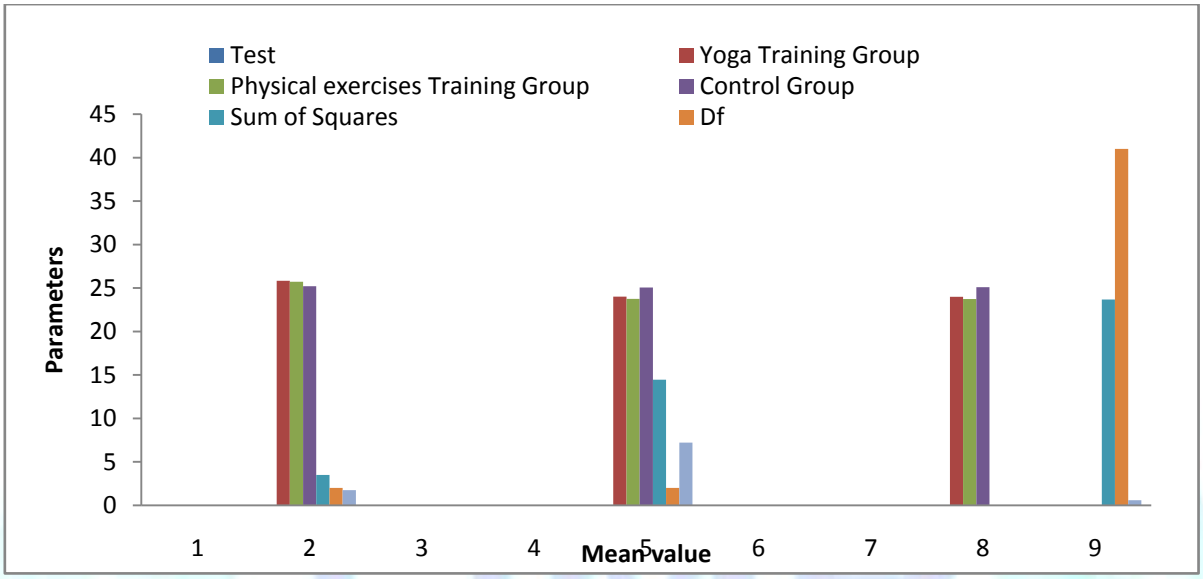
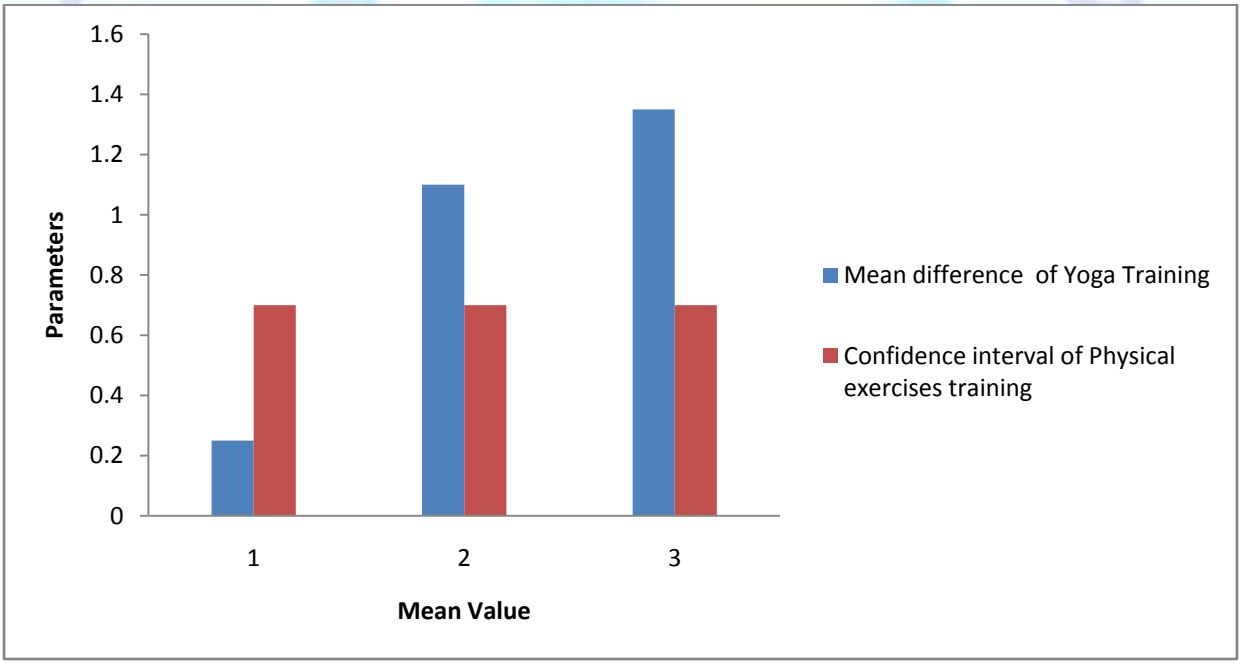


FIGURE-II

SCHEFFE'S POST HOC TEST FOR THE DIFFERENCE BETWEEN THEADJUSTED POST TEST MEAN OF BODY MASS INDEX (BMI)



Conclusion

From the analysis of the data the following conclusions were drawn.

The result of the study reveals that due to effect to twelve weeks of yoga training and physical exercise training on Body mass index has significantly altered of untrained youth. There was no significant difference found between experimental groups in altering Body mass index (BMI). The significant reduction of Body mass index (BMI) caused by yoga training was supported by Helena et al (2015) ., Duncan *et al.* (2009).,Gokal et.al.,(2007) and Chidambararaja.S., (2015) . Regular yoga or physical exercises are necessary for promoting health and preventing many illnesses.

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