

Effect of Simplified Kundalini Yoga and Walking on Selected Physiological Variables among Obese School Boys

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Abstract

The Present Random group experimental study was designed to find out the effect of Simplified Kundalini Yoga and Walking on selected Physiological Variables among Obese School Boys. It was hypothesized that there would be significant differences in Physiological variables such as Body Mass Index (BMI) and Resting Pulse Rate among Obese School Boys due to the influences of Simplified Kundalini Yoga and Walking than the control group. It was also hypothesized that there would be significant difference on selected physiological variables among Obese school boys between Simplified Kundalini Yoga and Walking. To achieve the purpose of the study, 45 Obese (BMI of 30 to 35) school boys from Kanchipuram aged between 14 to 18 years were selected randomly. The subjects were divided into two experimental groups and a control group of 15 subjects each in a group. Experimental groups underwent Simplified Kundalini Yoga and Walking respectively for the period of 12 weeks, six days per week of one hour basically, then slightly increased to 1.15 hours and 1.30 hours. The control group was not exposed to any specific training. The pre-test and post- test was conducted before and after the training for all the groups. The Body Mass Index (BMI) was measured by Weighing machine and Meter Scale and Resting Pulse Rate was measured by BP Monitor machine. The data collected from the subjects were treated statistically through using Analysis of Covariance (ANCOVA) to determine the significant difference. Scheffe's post hoc test was used to find out the paired mean differences. The Hypotheses were tested at 0.05 level of confidence. The results and the conclusions of the study showed that Simplified Kundalini Yoga and walking were effective in decreasing significantly as result of Body Mass Index (BMI) and Resting Pulse Rate among Obese School boys than the control group and simplified Kundalini yoga was effective than walking in decreasing Body mass index (BMI) and resting pulse rate among school boys.

Keywords: Simplified Kundalini Yoga, Walking, Body Mass Index (BMI), Resting Pulse Rate and Obesity.

Introduction

Today, more than at any other time in the history of humanity, people are facing stresses and strains that are beyond their control. There is an unprecedented rise in psychosomatic and mental illnesses. The evolution identity of an individual is lost. Happiness, freedom and peace have become empty words. Health is the very foundation of happy life (Vethathiri Maharishi). Obesity, an ailment characterized by an excessive accumulation of body fat, is fast emerging as world's single most preventable health problem. Obesity is the sixth most major contributor to a host of disorders and diseases. It is estimated that of 2.1 billion are Obese, worldwide. 9.8% of men are obese globally. One in every two American adults will be obese by 2030. Obesity will create tremendous economic burden in the country (WHO).

Yoga is a needed and a powerful remedy not only for the day to day problems but also to overcome niggling health problems. The philosophy of yoga is "Caring, Sharing and empowering". Simplified Kundalini Yoga (SKY) provides an excellent means for returning to normal body weight without any side effect and an inspired life like,

- Improve our physical endurance (Simplified Yoga Exercise)
- Reduces the mental frequency (Meditations)
- Enhances awareness (Introspection)
- Improves intellectual sharpness and understanding (Kaya Kalpa) (Vethathiri Maharishi, 2008)

Purpose of the Study

The present study was to find out the effect of Simplified Kundalini Yoga and Walking on selected Physiological variables among Obese School boys.

Hypothesis

It was hypothesized that there would be significant difference in Physiological variables such as Body Mass Index (BMI) and Resting Pulse Rate among Obese School boys due to the influences of Simplified Kundalini Yoga and Walking than the Control group.

It was also hypothesized that there would be significant difference on selected Physiological variables among Obese school boys between Simplified Kundalini Yoga and Walking.

Review of Related Literature

Sahay, B.K (2007) studied the science of yoga was an ancient one; Studies have confirmed the useful role of yoga in the control of diabetes mellitus and Obesity. The observed decreases in adiponectin and leptin (ratio = 0.86, 95 % CI 0.74-1.01, and ratio = 0.94, 95 % CI 0.87-1.01, respectively). BMI z-score ($r = 0.136$; $P = 0.010$). There was a decrease in free fatty acids. There was an increase in lean body mass and decrease in body fat percentage, results are consistent with the hypothesis that regular yoga practice can benefit individuals who wish to maintain or lose weight. The author of the study concluded that yoga can play an important role in decreasing the risk factors of Obesity and Diabetes diseases.

McCaffrey, R, et al. (2005) studied to determine the effectiveness of a yoga program on blood pressure, heart beat rate, stress and BMI a group of Obesity and hypertensive patients in Thailand were studied, with the experimental group showing significantly decreased mean stress scores and blood pressure, heart rate, and body mass index levels compared with the control group. BMI z (?=-0.21, $p=0.02$) and explained a significant proportion of unique variance in post treatment BMI z (?R (2) =0.04). Mean observed by authors heart rates were 55% and 82% of maximal heart rate during Yoga and Meditation respectively. Further

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studies are suggested to determine the effects of yoga on hypertension in Thailand.

Haines, D.J, et al. (2007) studied College faculty and staff participated in a one-group pre post test study to determine whether the 12-week walking intervention had an effect on body mass index (BMI), blood pressure, heart beat rate, blood glucose, and cholesterol. The authors observed differences between baseline and follow-up in BMI ($p = .024$), heart rate ($p = 2$ to 3), blood glucose ($p = .06$), and total cholesterol ($p = .09$). The program had a moderate effect on fitness, mood, health awareness, nutrition, and health. The regular Walking can benefit individuals who wish to maintain or lose weight and control the Heart beat rate.

Methodology

To achieve the purpose of the Random group experimental study, 45 Obese (BMI of 30 to 35) School boys from Kanchipuram aged between 14 to 18 years were selected randomly; the subjects were divided into two experimental groups of Simplified Kundalini Yoga (SKY) and Walking and a control group (CG) of 15 subjects each.

Experimental groups underwent Simplified Kundalini Yoga (SKY) and Walking respectively for the period of 12 weeks, six days per week of one hour basically, then slightly increased to 1.15 hours and 1.30 hours in the morning. The Control group (CG) was not exposed to any specific training but they participated in their regular activities.

Simplified Kundalini Yoga was given to the experimental group which include Simplified Kundalini Yoga Exercise, Kaya Kalpa Yoga, Nadi suddhi Pranayama, Meditations (Agha, Thuriya and Shanti) and Introspection. Walking was given which include Warm Up, Walking and Warm Down.

The selected variable, Body Mass Index (BMI) was measured by Weighing Machine and Meter Scale and Resting Pulse Rate was measured by BP Monitor Machine.

Results and Discussions

The data pertaining to the variables collected from the three groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of confidence.

The Analysis of Covariance (ANCOVA) on Body Mass Index (BMI) of the Simplified Kundalini Yoga (SKY), Walking and the Control Group (CG) was analyzed and are presented in table I, and Scheffe's adjusted Post hoc test are presented in table I (A).

Table -I

Analysis of Co-variance (ANCOVA) of Data on Simplified Kundalini Yoga Walking and the Control Group in Body Mass Index (BMI)

Test	Simplified Kundalini Yoga	Walking	Control	SV	SS	df	MS	F
Pre test	29.51	28.09	29.73	between	23.60	2.00	11.80	2.85
				within	1414.62	42.00	33.68	
Post test	26.75	26.48	30.53	between	153.51	2.00	76.75	3.43*
				within	939.14	42.00	22.36	
Adjusted	27.06	27.28	30.05	between	106.84	2.00	53.42	29.85*
				within	73.36	41.00	1.79	
Mean gain	2.76	1.61	-0.80					

*Significant at 0.05 level of confidence. Table F ratio at 0.05 level of Confidence for (2, 42 and 2, 41) = 3.21, 3.22 respectively

The obtained F -ratio values were greater than the table value, it indicates that there was significant difference among the post test and adjusted post-test means of the SKY, Walking and the CG on BMI.

Table - I (A)

Scheffe's Test for Differences of the Adjusted Post-Hoc Paired Means of Body Mass Index (BMI)

Simplified Kundalini Yoga	Walking	Control	Mean Difference	CD at 5% Level
27.06	27.28		0.22	1.23
27.06		30.05	2.99*	1.23
	27.28	30.05	2.77*	1.23

* Significant at 0.05 level of Confidence

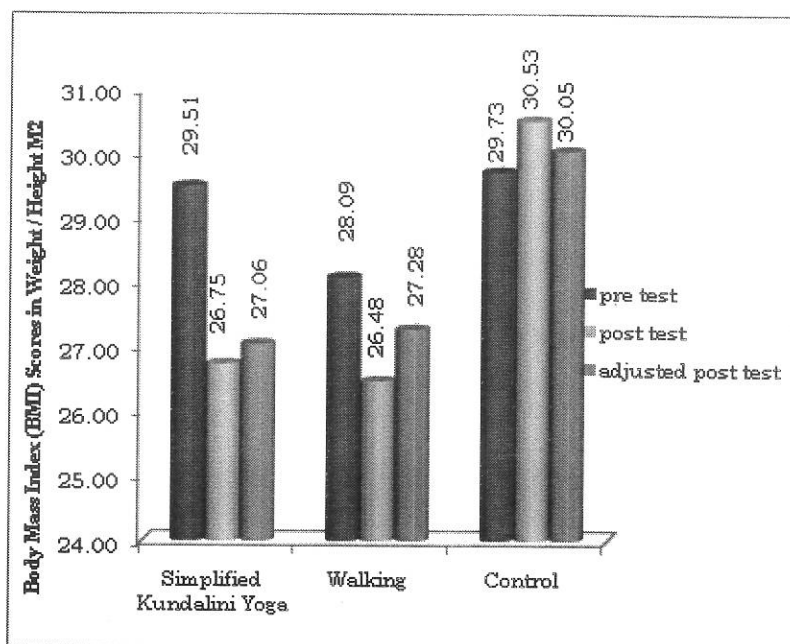
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According to Scheffe's post hoc test paired means of Body Mass Index (BMI) shows that there was significant difference between SKY and CG, Walking and CG. But there was no significant difference between SKY and Walking. However, the SKY was found effective in decreasing the Body Mass Index (BMI) than Walking group.

The pre- test, post- test and adjusted post -test mean values of Simplified Kundalini Yoga Group (SKY) Walking Group and Control Group (CG) on Body Mass Index (BMI) were graphically presented in Figure 1.

Figure-1

Mean Scores of Pre, Post Tests and Adjusted Post Test of Sky Walking and Control Group on Body Mass Index (BMI)



The results of the study showed that Body Mass Index (BMI) decreased significantly as a result of Simplified Kundalini Yoga and Walking than the Control group. Hence, the hypothesis was accepted at 0.05 level of confidence. Systematic Simplified Kundalini Yoga decreased the Body Mass Index (BMI) effectively than Walking. The above findings can also be substantiated by observations made by renowned experts Sahay BK (2007), Haines DJ, et al. (2007).

The Analysis of Covariance (ANCOVA) on Resting Pulse Rate of the Simplified Kundalini Yoga (SKY), Walking and the Control Group (CG) was analyzed and are presented in table II and Scheffe's adjusted Post hoc test are presented in table II (A).

Table -II

**Analysis of Co-variance (ANCOVA) of Data on Simplified Kundalini
Yoga Walking and the Control Group in Resting Pulse Rate**

Test	Simplified Kundalini Yoga	Walking	Control	SV	SS	df	MS	F
Pre test	86.53	86.20	88.80	between	60.04	2.00	30.02	3.08
				within	3886.53	42.00	92.54	
Post test	80.73	85.00	91.07	between	808.93	2.00	404.47	5.37*
				within	3165.87	42.00	75.38	
Adjusted	81.24	85.76	89.80	between	545.16	2.00	272.58	14.16*
				within	789.06	41.00	19.25	
Mean gain	5.80	1.20	-2.27					

*Significant at 0.05 level of confidence. Table F ratio at 0.05 level of Confidence for (2, 42 and 2, 41) = 3.21, 3.22 respectively.

The obtained F-ratio values were greater than the table value; it indicates that there was significant difference among the post test and adjusted post-test means of the SKY, Walking and the CG on Resting Pulse Rate.

Table - II (A)

**Scheffe's Test for Differences of the Adjusted Post-Hoc Paired
Means of Resting Pulse Rate**

Simplified Kundalini Yoga	Walking	Control	Mean Difference	CD at 5% Level
81.24	85.76		4.52*	4.02
81.24		89.80	8.56*	4.02
	85.76	89.80	4.04*	4.02

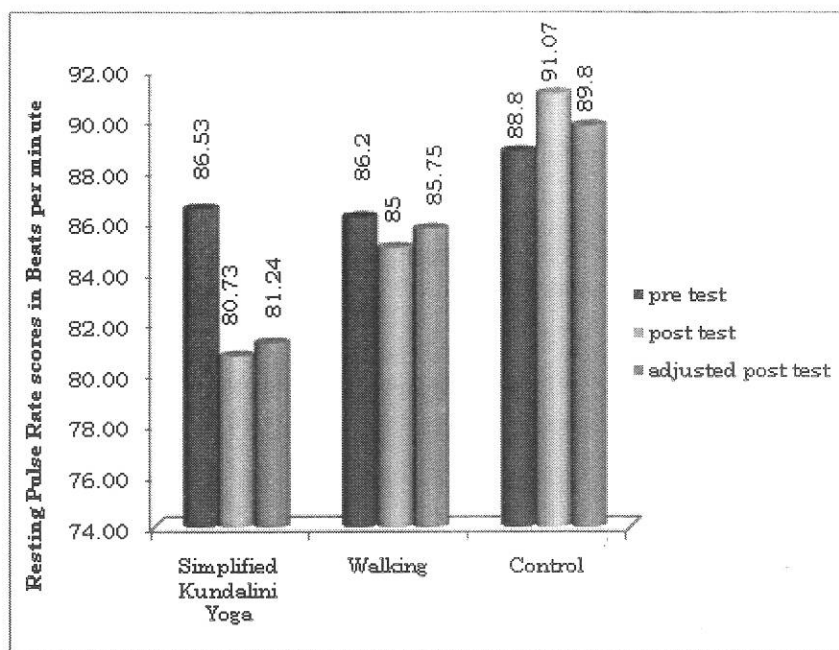
* Significant at 0.05 level of Confidence

According to Scheffe's post hoc test paired means of Resting Pulse Rate shows that there was significant difference between SKY and WALKING, SKY and CG, WALKING and CG. However, the SKY was found effectively in decreasing the Resting Pulse Rate than walking group.

The pre-test, post-test and adjusted post-test mean values of Simplified Kundalini Yoga group (SKY), Walking and Control group (CG) on Resting Pulse Rate was graphically presented in Figure 2:

Figure-2

Mean Scores of Pre Post Tests and Adjusted Post Test of Sky Walking and Control Group on Resting Pulse Rate



The results of the study showed that Resting pulse Rate decreased significantly as a result of Simplified Kundalini Yoga and Walking than the Control group. Hence, the hypothesis was accepted at 0.05 level of confidence. Systematic Simplified Kundalini Yoga decreased the Resting Pulse Rate effectively than the Walking. The above findings can also be substantiated by observations made by renowned experts McCaffrey R, et al. (2005), Haines DJ, et al (2007).

Conclusions

Simplified Kundalini Yoga and Walking decreased Body Mass Index (BMI) and Resting Pulse Rate among Obese School Boys than the control group.

Simplified Kundalini Yoga was slightly effective than Walking on Body Mass Index and Resting Pulse Rate among Obese School Boys.

References

Haines DJ, et al.(2007), A pilot intervention to promote walking and wellness and to improve the health of college faculty and staff. *J Am Coll Health*. pp.55(4):219-25.

McCaffrey. R, et al.(2005), The effects of yoga on hypertensive persons in Thailand.
Holist Nurs Pract. Pp.19(4):173-80.

Sahay BK (2007) - Role of yoga in diabetes. Assoc Physicians India,121(6), 55.

Vethathri Maharishi, (2008) Simplified Kundalini Yoga Physical Exercise, Erode:
Vethathri Publications, pp.11-46

Vethathri Maharishi,(2008) KayaKalpa Yoga Practices, Erode: Vethathri
Publications,pp.1-20

Vethathri Maharishi (2008) Yoga for Human Excellence -Meditation Practices,
Erode: Vethathri Publications, pp.3-32

Vethathri Maharishi (2008) Yoga for Human Excellence - Introspection, Erode:
Vethathri Publications, pp.101-112

The data derived from who (World Health Organization) through
www.healthyamericans.org.

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