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Effect Of 4 Weeks Yoga And Continuous Running On Body Mass Index Of College Students

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Abstract

A lot of tailor made and general physical fitness training programs are developed and are in place for good health. The search for an ideal fitness training program that improves health related fitness is never ending. There are controversies due to different kinds of training program in choosing and using them for non-sports persons especially those youth who are medically unfit. Each university student in the present study had been diagnosed medically with at least one lifestyle related metabolic disorder. This study was aimed to see the effect of 4-week yoga and continuous running on Body Mass Index of college students. Depending on scientific evidence it was hypothesized that there will be significant difference, between pre and post training BMI values. Repeated measures experimental research design was used; pertaining to data collection pre and post and male students in the age group of 20 to 25 years performed yoga asana followed by continuous running. Statistical analysis such as mean, standard deviation, paired sample t-test and tables by entering the data into SPSS version-20 and MS Excel 2007. 60 students of mean age: 20.82±1.51yrs; mean height 1,67 ± .068 meters; mean body mass 71.6 ± 5.35 Kg showed statistically significant difference at $P<0.05/0.01$ in the body weight and BMI value.

Keywords; Yoga, Running, BMI, Body weight

Introduction

Fitness means something a little different to everyone. It is more than just how less time one take to cover 100 meter distance or how many weights can can one lift. For those fitness freaks it is increased enjoyment in life: getting sick less often, relieving stress, burning calories, better sleep, improved disposition, and so many more. Unless habitual it is beyond the imagination of laggards to understand the psycho-physiological benefits of engaging in regular fitness. WHO's recommendation is to engage in at least 30 minutes moderate intensity regular exercise Days a week for all adults. Achieving fitness and working out does not mean an hour or two on the treadmill every day, and it doesn't mean marathon

weight training. The key to achieving and maintaining fitness is keeping training and workouts fun. Challenging, and varied. Unless one is training specifically for a marathon, there is no reason to spend countless hours running long distances or to do 3 sets of 10 repetitions on the same exercises three days a week. A combination of Lifting, jogging, cycling, yoga, calisthenics/bodyweight exercises (push-up, pull-up, dips, etc.), sprinting, swimming, ply metrics, stretching in group workouts can be fun and socially rich experience. In today's youth there is alarming lack of awareness with regard to fitness and exercise goal setting as an essential ingredient is forming a healthy habit which is later realized by them after they have left the university/college and when getting into jobs. Setting exercise and fitness goals can help the youth stay more productive for a longer duration and in the state of good mental condition despite stress and anxiety from work and family obligations in the later life. Specific short, middle, and long term goals to workout can do wonders in forming these healthy habits. There is luckily a wide and affordable variety of workouts one can choose from. Bajkul Milani Mahavidyalaya is blessed with good topographic variation, immense greenery; space, less traffic, secure and safe and hostellers have an ideal place and time to form healthy fitness arid exercise habits while pursuing their studies. Unhealthy eating habits, excessive smoking, drinking, inactivity and others. The present study was undertaken to highlight the alarming rate of possible metabolic disorders amongst BMM students and empower them to take up fitness and exercise as one of the informed choice of activities to promote and develop health related fitness. Body mass index has been used as a fairly reliable indicator of body weight. It may however overestimate and underestimate for muscular body mass and athletic body respectively. The subjects in the present study had been sedentary and were not involved in any kind of regular exercise in the past 2 years,

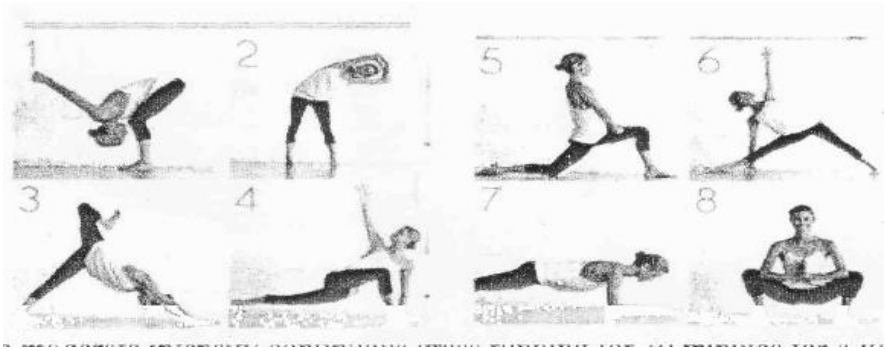
Research Design

The researcher used repeated measure experimental research design in which the participants were tested once and then trained for four weeks and they were tested again post training.

Methodology:

60 male students of Bajkul Milani Mahavidyalaya in the age group of 18 to 23 years performed yoga asana followed by continuous running each morning for a total workout of 1 hour duration. Purposive sample of participants who were being declared medically unfit in the last 6 months but they were free of risk factors arising out of taking up moderate intensity workouts. It was ascertained through various reliable sources that none of them had any sever injury or operation or any other medical condition in the past 1 year. The experimental procedures and potential risks were explained prior to the study, and all participants provided written, informed consent. Training Program:

a. Yoga routine: Each posture was repeated twice to be retained for 10 seconds, two repetitions each morning. Total duration 30 minutes.



b. Post yoga easy to moderate intensity continuous grass running for 30 minutes for 4 weeks each morning.

Instruction to subjects

Subjects were instructed to avoid vigorous exercises for at least 48hr prior to attending tests and training program. They were advised to consume their normal pre-training diet. Height and body weight measurement of each subject was recorded.

Procedure:

a. Pre intervention measurement of height and body weight to compute BMI
b. Pre intervention measurement of body weight to compute BMI

Body weight

Digital manual body glass weighing scale; Capacity: 150kg; Graduation: O.lkg; and N.W:1.9KG was used to measure participants' body mass. As the body weight fluctuates during different time of the day, all readings were taken in the evening (5:30- 6:00). The subjects dressed light clothing and barefoot, got on to the each side of the scale with weight distributed evenly between the feet. The measurement was taken three times and the average was taken with the participants standing ahead. The body weight was measured to the nearest of1Kg.

Height measure:

Stadiometer apparatus is low cost and quick test for measuring height. As equipment, steel ruler and tape measure placed against a wall. Procedure, subject standing height was the measured to the maximum distance from the floor to the highest point on the head, when the subject was facing directly ahead. Shoes should be off, feet together, and arms by the sides. Heels, buttocks and upper back should also be in contact with the wall when the measurement was made. Reliability of stadiometer height

measurement can vary throughout the day. So to ensure reliability height should be measured at the same time of day. Height measurement was taken in the morning (6:30-7:30).

Measurement of BMI:

Following formula was used to measure Body Mass Index:

$$\text{BMI} = \frac{\text{mass(kg)}}{(\text{height (m)})2}$$

WHO Expert Consultation proposed a new BMI cut-off 23.0kg/m2 for public health action 2004. Overweight fir BMI above 23.0 jg/m2 and obese for those who have BMI above 25 kg/m2 as international standards for adults, an ideal BMI is in the 18.05-24.9 range. If BMI of 25-29.9is overweight obese.

Statistical Analyses

Statistical analysis such as mean, standard deviation paired sample t-test, tables, histogram and figures by entering the data into SPSS version-20.P-values less than 0.05 and 0 .01 were considered significant.

Results & Discussion

Table-1 below shows Mean and SD of Age and height of the students (N=60) as measured at the beginning of fitness training. Mean age of the students was 20.82 ± 1.51 years and height measured in meters was 1.67 a: 0.06. Pre-training 90% of the students were found overweight but none in the obese category as per WHO revised BM1 norms. 82% Bajkul Milani Mahavidyalay students were having normal BMI post 4 weeks yoga, running training. Body weight reduction of all the students after the training but BMI of only 18 % came to normal range post training.

Table-1

Mean and SD of Age and height of the students

	N	Mean	Std. Deviation	Std. Error Mean
Age in years height in meters	60	20.82	1.513	.195

Table-2 shows paired samples t-Test of body weight of students. Upon comparison of Pre-training mean 'and SD (71.66 ± 5.35) of body weight and post training mean and SD (67.83 ± 4.27), t was found to be 10.30 and was highly significant at .000 level.

Table-2

Paired Samples T-Test of body weight of students

Variable	Mean	N	Std. Deviation	T	Df	Sig. (2-tailed) (p-value)
Weight in kg (per)	71.6603	60	5.35824	10.307**	59	.000
Weight in kg (post)	67.8353	60	4.27065			

* Significant at the 0,000 level

Table-3 shows paired samples t-Test of body mass index of students. Upon comparison of Pre-training mean and SD (25.66 = 2,07) of BMI and post training BMI mean and SD (24.30 ± ! .76), t was found to be 10.48 was highly significant at .000 level.

Table-3

Paired Samples T-Test of BMI of students

Variable	Mean	N	Std. Deviation	T	Df	Sig. (2-tailed) (p-value)
BMI PRE training	25.6665	60	2.07508	10.484**	59	.000
BMI post training	24.3009	60	1.76314			

**** is significant at the 0.000 level**

The result of descriptive statistics in pre and post test mean presented in tables 4 and 5 shows significant improvement in the BMI and reduction of body weight of students was being observed.

Body composition, as measured by hydrostatic weighing, and body weight did not change as a result of Hatha yoga practice in a study by Mark et. al . (2001). Prior yoga investigations that calculated body composition by measuring skin fold thickness yielded mixed results. Madhavi et al. (1985) showed that 3 months of yoga training led to a significant reduction in percent body fat, thereby resulting in an increase in fat free mass. In a study by Shirley Telles et. al (2010), significant reduction in BMI of a single group of 47 persons was observed on the first and last day of a yoga and diet change program.

Shirley Telles et. al. (2014) study compared the effects of 90 minutes/day for 15 days of supervised yoga or supervised walking on body composition in 68 overweight and obese persons. Both yoga and walking groups showed a significant decrease in: BMI, and other variables.

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