Original Research Article

To study the effect of structured yoga module on cardiometabolic parameters

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Abstract

Background & Method: This study was conducted in Department of Physiology, Index Medical College Hospital & Research Centre (Faculty of Medicine & Health Sciences) & Malwanchal University, Indore. The ethical clearance was be taken for the study from the Ethical Committee of the Institute, subjects of both sex from Index Campus was be selected for the study, subject to the criteria described below. Respiratory rate, pulse and blood pressure 5ml of blood sample was be taken after overnight fasting and serum was be analyzed Lipid profile, Triglycerides, Total cholesterol, HDL, LDL & VLDL**Result:** The chi-square statistic is 0.0245. The p-value is 0.048517. The result is significant at $p < .05$. The chi-square statistic is 0.0364. The p-value is 0.03156. The result is significant at $p < .05$. The chi-square statistic is 0.5402. The p-value is 0.041654. The result is significant at $p < .05$.**Conclusion:** Stress is a major public health problem and one of the approaches to address this problem is through yoga. The findings of the study demonstrate the efficacy of yoga exercise on fasting blood glucose, lipid profile, oxidative stress markers and antioxidant status in obese patients. The response observed using yoga exercise is more significant in obese individuals when compared with non-obese individuals. These findings suggest that yoga intervention has therapeutic preventative and protective effects in obese patients by decreasing oxidative stress. Also waist circumference correlates better with uric acid levels than BMI.

Keywords: yoga, cardio, metabolic, stress, obesity.

Introduction

"Yoga" originates from a Sanskrit root "yuj" which implies association, or burden, to join, and to direct and focus one's consideration. Standard act of yoga advances quality, continuance, adaptability and encourages attributes of neighborliness, empathy, and more prominent discretion, while developing a feeling of serenity and well-being[1]. Overweight was characterized as a BMI ≥23 kg/m2 however <25 kg/m2 for the two sexual orientations (in light of the World Health Organization Asia Pacific Guidelines) with or without stomach weight (AO) [2]. Summed up heftiness (GO) was characterized as a BMI ≥ 25 kg/m2 for the two sexual orientations (in light of the World Health Organization Asia Pacific Guidelines) with or without stomach weight (AO). Stomach heftiness (AO) was characterized as a midsection boundary (WC) ≥ 90 cm for men and ≥ 80 cm for ladies with or without GO. Disengaged summed up weight (IGO) was characterized as a BMI ≥ 25 kg/m2 with abdomen circuit of < 90 cm in men and < 80 cm in ladies. Separated stomach weight (IAO) was characterized as a midriff periphery of ≥ 90 cm in men or ≥ 80 cm in ladies with a BMI < 25 kg/m2. Joined weight (CO): Individuals with both GO and AO. Non large subjects: Individuals without either GO or AO. Heftiness is a becoming worldwide pandemic and reason for non-transmittable ailments. Yoga is one of the viable approaches to diminish pressure which is one of the reasons for stoutness. Heftiness/overweight is a genuine issue and this is getting serious around the world. It is expanding in urban populace in India and other south Asian countries[3]. Stoutness may additionally bother poor HRQOL on the off chance that it coincides with interminable illnesses, traded off work life, and helpless mental self portrait. This unfriendly influence of stoutness on HRQOL might be improved with weight reduction[4]. Way of life mediations, including dietary modification or physical action, improve HRQOL in obesity for the most part through weight reduction. The benefits of weight reduction is by all accounts two dimensional. In the first place, weight reduction as such improves the physical movement, mental self view, and acknowledgment, bringing about improved social and enthusiastic prosperity. Second, it decreases the hazard for incessant maladies by lessening pressure and inflammation[5].Yoga has been the subject of exploration in the previous barely any decades for remedial purposes for current pestilence infections like mental pressure, stoutness, diabetes, hypertension, coronary illness, and constant obstructive pneumonic malady. Singular examinations report advantageous impact of yoga in these conditions, demonstrating that it very well may be utilized as non pharmaceutical measure or supplement to medicate treatment for treatment of these conditions[6]. In any case, these investigations have utilized just yoga asana, pranayama, or potentially brief times of reflection for helpful purposes. General recognition about yoga is additionally the equivalent, which isn't right. Yoga in truth implies association of individual cognizance with the incomparable awareness. It includes eight rungs or appendages of yoga, which incorporate yama, niyama, asana, pranayama, pratyahara, dharana, dhyana, and samadhi. Extraordinary act of these prompts self-acknowledgment, which is

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the essential objective of yoga[7]. An investigative glance at the rungs and the objective of yoga shows that it is a comprehensive lifestyle prompting a condition of complete physical, social, mental, and otherworldly prosperity and agreement with nature. This is as opposed to absolutely monetary and material formative objective of present day development, which has brought social agitation and natural devastation[8&9].

Materials & Method

This study was conducted in Department of Physiology, Index Medical College Hospital & Research Centre (Faculty of Medicine & Health Sciences) & Malwanchal University, Indore from Dec 2018 to Jan 2021. The ethical clearance was be taken for the study from the Ethical Committee of the Institute, subjects of both sex from Index Campus was be selected for the study, subject to the criteria described below. Consent was taken from the subjects prior to involving in the study on a consent form.

Inclusion Criteria

i. Family history of obesity
ii. Age group of 17-50 in both genders
iii. Patients who can able to perform yog
iv. iv Body mass index (BMI) >35 kg/m2

Exclusion Criteria

I Subjects with known hepatic, renal, hematological or any organ disorder.
II Subjects on any long term medication or drugs.
III Smokers and alcoholics.
IV Subject already practising Yoga.

Vitals: Respiratory rate, pulse and blood pressure 5ml of blood sample was be taken after overnight fasting and serum was be analyzed for following
Lipid profile.
Triglycerides
Total cholesterol
HDL
LDL
VLDL

Results

Table 1: Age Distribution

	Case			Control			
S. No.	**Age Group**	**No.**	**Percentage**	**Age Group**	**No.**	**Percentage**	**P Value**
1	18-30	33	41.77	18-30	26	32.09	.025543
2	31-40	28	35.44	31-40	39	48.14	
3	41-50	18	22.79	41-50	16	19.77	

The chi-square statistic is 1.7296. The p-value is .025543. The result is significant at p < .05.

Table 2: Gender Distribution

	Case			Control			
S. No.	**Age Group**	**No.**	**Percentage**	**Age Group**	**No.**	**Percentage**	**P Value**
1	Male	47	59.49	Male	41	50.61	.025917
2	Female	32	40.51	Female	40	49.39	

The chi-square statistic is 0.2732. The p-value is .025917. The result is significant at p < .05**.**

Table 3: Systolic BP

S. No.	**Mean**	**SD**	**Max.**	**Min.**
Case	114.924	3.864	122	98
Control	102.962	9.706	119	81

1.

Table 4: Mean Arterial Pressure

S. No.	**Mean**	**SD**	**Max.**	**Min.**
Case	38.308	1.288	40.66	32.66
Control	34.320	3.235	39.66	27

Table 5: Cholesterol

Parameter	**Base line value Mean±SD**	**After 30 sittings of yoga Mean±SD**	**After 60 sittings of yoga Mean±SD**	**P Value**
Case	165.29±23.64	163.33±23.58	161.91±23.64	0.048517
Control	162.53±24.83	163.14±24.75		

The chi-square statistic is 0.0245. The p-value is 0.048517. The result is significant at p < .05.

Table 6: LDL

Parameter	**Base line value Mean±SD**	**After 30 sittings of yoga Mean±SD**	**After 60 sittings of yoga Mean±SD**	**P Value**
Case	120.60±26.77	119.51±26.77	117.63±26.93	0.03156
Control	111.37±26.98	112.54±27.38		

The chi-square statistic is 0.0364. The p-value is 0.03156. The result is significant at p < .05**.**

Table 7: Triglycerides

Parameter	Base line value Mean±SD	After 30 sittings of yoga Mean±SD	After 60 sittings of yoga Mean±SD	P Value
Case	94.56±30.58	89.56±30.58	86.96 30.78	0.041654
Control	93.46±32.30	95.76±34.20		

The chi-square statistic is 0.5402. The p-value is 0.041654. The result is significant at $p < .05$.

Discussion

Stress is a widely prevalent phenomenon in modern society and has become a global public health problem, it may account for deprived quality of life, lower mental health, reduced work efficiency, greater suffering, and increased physician visits besides being a risk factor for several chronic diseases such as coronary heart disease, hypertension, diabetes mellitus, and others[10]. Globally more than 350 million suffer from depression, approximately 4.7% of the world population. Prevalence of anxiety disorder is estimated to be 7.3% of the world population[11]. Current therapy for depression and anxiety consists of pharmaceuticals medication electro convulsive therapies, psychological therapies, complementary and life time interventions or combination of these.Some people do not go for treatment and some people do not speak about their condition and few patients remain depressed despite using medications, so there is huge interest in the complimentary medicine and mind body life style intervention[12]. Yoga has become popular and appealing for many people and is suitable for people with psychiatric health issues. Yoga includes broad focus on mind body lifestyle intervention and is seen as a way to promote both physical and mental health, rather than just a treatment of mental health. Many researches, several systematic review and metanalysis suggest potential benefit of yoga in reducing mental abnormality. The practice of yoga consists of set of physical postures which are maintained for certain time. Obesity adversely effects quality of life which then acts a barrier to weight loss and Weight Loss maintenance. Hence those interventions which positively influence the quality of life along with weight reduction are considered for sustained weight loss in person with obesity[13]. Prior work showed better quality of life if in obese adults who had experience of yoga compare to yoga naive obese adults.Many subjects have shown progress in quality of life with yoga intervention. In India more than 135 million of Indians are affected by obesity according to WHO criteria men waist (WC 85 CM), WHR 0.90 and women WC (80 CM) and WHR 0.80. An article have mentioned, that occurrence of obesity is more in urban than in rural. Various studies have suggested that obesity is more in women as compared to male[14].The present study focuses on management of obesity and stress through intervention of various forms of yoga. Prior studies have shown improvement of anthropometric parameters in yoga group as compared to control group weight reduction was also significant in yoga group but not in control group, the findings of current studies are supported by previous work.

Conclusion

Stress is a major public health problem and one of the approaches to address this problem is through yoga. The findings of the study demonstrate the efficacy of yoga exercise on fasting blood glucose, lipid profile, oxidative stress markers and antioxidant status in obese patients. The response observed using yoga exercise is more significant in obese individuals when compared with non-obese individuals. These findings suggest that yoga intervention has therapeutic preventative and protective effects in obese patients by decreasing oxidative stress. Also waist circumference correlates better with uric acid levels than BMI.

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