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Effect of selected yogic practices on lipid profile levels among overweight women in Kozhikode city

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Abstract

The aim of this study was to assess the effectiveness of a 20-week yogic practice protocol, incorporating Asana, Pranayama, and Relaxation techniques, in improving overall physical function and lipid profile levels in a group of overweight women. Additionally, we aimed to compare the outcomes between the yoga protocol group and a control group. Elevated levels of high-density lipoprotein (HDL), low-density lipoprotein (LDL), and total cholesterol are important risk factors for coronary heart disease. Another well-established predictor of cardiovascular disease is obesity, which has become widespread and reached epidemic proportions in developed countries, including Poland. For this study, we recruited 40 subjects who were randomly allocated to two groups: the yoga group (YG) and the control group (CG). The yoga group participated in a 5-month program, five days a week. After the intervention, we observed that HDL-C levels were maintained in the yoga group, with a reduction in the Enzymatic Calorimetric Method test (YG – 42.55, $p < 0.05$; CG – 39.70, $p < 0.05$). Additionally, low-density lipoprotein (LDL-C) was reduced, with the Enzymatic Calorimetric Method test showing a greater reduction in the yoga group (YG – 116.956, $p < 0.05$; CG – 145.494, $p < 0.05$), and total cholesterol was reduced, with the Enzymatic Calorimetric Method test showing a greater reduction in the yoga group (YG – 1144.99, $p < 0.05$; CG – 1051.52, $p < 0.05$).

In summary, yogic training proved beneficial in improving HDL-C and reducing LDL-C, and total cholesterol levels. Furthermore, yoga practice demonstrated superior benefits in enhancing dynamic balance.

Keywords: Yoga, overweight, biochemical, lipid profile

Introduction

Obesity and overweight have emerged as significant global health challenges, contributing to the growing burden of chronic diseases worldwide. According to the World Health Organization (WHO), obesity is a prevalent public health concern that often receives insufficient attention, affecting both developed and developing nations. (1) The WHO reports that obesity rates have nearly tripled since 1975, with over 1.9 billion adults classified as overweight and more than 650 million as obese in 2016. This alarming increase underscores the urgent need to explore effective and holistic approaches to address this pressing health concern.

In recent years, traditional practices of Yoga have garnered attention for their benefits in promoting physical and mental well-being. Yoga, originating from the ancient Indian discipline, encompasses physical postures, breathing exercises, and meditation techniques to achieve harmony between the mind and body. These practices are believed to have profound effects on various physiological and psychological aspects, including cardiovascular health, stress reduction, and emotional well-being. Moreover, they encourage mindfulness and self-awareness, leading to positive lifestyle changes that could impact weight management.

This study aims to investigate the impact of Yogic practices on biochemical parameters and overall health in overweight women. The research intends to explore whether Yogic practices can serve as viable alternative and complementary interventions to manage health concerns related to overweight and obesity.

Through this research, we aim to provide insights into the benefits of Yogic practices for enhancing the health and well-being of overweight women.

The findings of this study are of great significance for healthcare professionals, policymakers, and individuals seeking holistic methods to address the complex challenges associated with overweight and obesity. By understanding the impact of these traditional practices, we hope to pave the way to support individuals in their pursuit of a healthier and more balanced life.

Methods

A total of 40 overweight women within the age range of 30 to 45 years were selected for this study. The selected subjects were divided into two equal groups, with each group consisting of 20 overweight women:

- a) **Group I:** Yoga Training Group.
- b) **Group II:** Control Group.

The age of the subjects ranged from 30 to 45 years.

The following dependent variables were selected for this study

Lipid Profile

- a) HDL.
- b) LDL.
- c) Total cholesterol.

The following independent variables were selected for this study

Selected Yogic practices

- a) Asanas (postures).
- b) Pranayama (breathing exercises).
- c) Relaxation techniques.

Pre-tests and post-tests were conducted before and immediately after the training.

Sample size: 40 overweight women.

Research Design: A Simple Random Group Design was used to assess the impact of selected yogic practices. Eligible participants were randomly assigned to one of two groups: the yoga group or control group.

Study Duration: 20 weeks.

Study Procedure

- a) The study included women aged between 30 and 45.
- b) Pedigree details were collected for the selected adult

overweight women.

- c) Recorded data was analyzed statistically. Selected overweight women were provided with training in Yoga, learning how to perform different practices. They were taken to a common point at the Yoga Center, where the training was given, with proper monitoring. Pre-tests and post-tests were conducted. Each day, the training lasted for one hour. The session began with a prayer and continued with the specified practices. Modifications were introduced for both groups for those who needed additional support.

Inclusion criteria

- a) The inclusion criteria included a BMI of 25 kg/m² or higher and no history of any major medical conditions.
- b) Overweight women within the age range of 30 to 45 years were selected.

Exclusion criteria

Individuals with pre-existing heart conditions or contraindications to physical activity.

Interventions

Yogic Practice Group: The Yogic practice group engaged in a 20-week program consisting of selected asanas, pranayama, and meditation techniques. The sessions were conducted five days a week, each lasting for 40 to 60 minutes, with the intensity gradually increasing. Certified yoga instructors conducted the yoga sessions.

Participants: The study participants were randomly selected and consisted of overweight women aged between 30 to 45 years. The inclusion criteria for participants included a BMI of 25 kg/m² or higher, no history of any major medical conditions, and a willingness to participate in the 20-week intervention program.

Study Design: This research utilized a pre-test and post-test study design with a control group. The participants were assigned to either the Yogic practice group or the control group based on their preference and availability.

Anthropometric Measurements: Before the intervention, BMI was calculated using the standard formula: BMI = weight (kg) / height (m)².

Results of HDL- C

The pre-test and the post-test mean, standard deviation, and adjusted post-test mean of the data on High Density Lipoprotein are presented in the table

Table 1: Analysis of covariance of data on high density lipoprotein between pre and post-tests of experimental and control group

Group	Control	Yoga	Source of variance	Sum of squares	DF	Mean square	'F' Ratio
Pre Test Mean	40.45	39.35	Between	12.100	1	12.100	0.532
SD	3.57587	5.71494	Within	863.500	38	22.724	
Post-test Mean	39.95	42.30	Between	55.225	1	55.225	1.326
SD	7.74919	4.82428	Within	1583.150	38	41.662	
Adjusted Post-test mean	39.70	42.55	Between	80.092	1	80.092	2.109
			Within	1404.877	37	37.970	

0.05 level of significance for 1 & 37 degrees of freedom = 4.104, 1 & 38 degrees of freedom = 4.096

The post-test means on High Density Lipoprotein of the control and the experimental groups are 39.95 and 42.30 respectively. The obtained 'F' ratio value 1.326 for the post-test data is lesser than the required table value 4.096 for 1 & 38 degrees of freedom at 0.05 level of significance. It discloses that there is no statistically significant difference between the control and the experimental groups on High-

Density Lipoprotein after the experimental training. The adjusted post-test means on High Density Lipoprotein of the control and the experimental groups are 39.70 and 42.55 respectively. The obtained 'F' ratio value 2.109 for the adjusted post-test data is lesser than the required table value 4.104 for 1 & 37 degrees of freedom at 0.05 level of significance. It shows that there is no significant change on

High Density Lipoprotein as a result of the experimental training. Since there is no significant difference, the

hypothesis has been rejected, The results by and large were in conformity with the findings of Swahney *et al.*

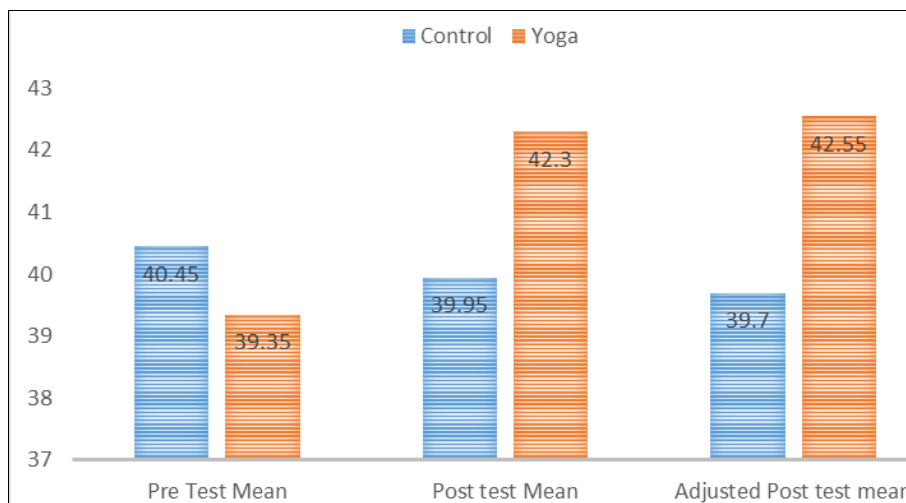


Fig 1: High density lipoprotein

Table 2: Analysis of covariance of data on low density lipoprotein between pre and post-tests of experimental and control group

Group	Control	Yoga	Source of variance	Sum of squares	DF	Mean square	'F' Ratio
Pre Test Mean	136.30	163.05	Between	7263.025	1	7263.025	10.531
SD	26.28368	26.23873	Within	26206.750	38	689.661	
Post-test Mean	139.05	124.40	Between	2146.225	1	2346.225	4.005
SD	24.82672	21.34035	Within	20363.750	38	535.88	
Adjusted Post-test mean	145.494	116.956	Between	6831.171	1	4831.171	20.438
			Within	12366.991	37	334.243	

0.05 level of significant for 1 & 37 degrees of freedom = 4.104, 1 & 38 degrees of freedom = 4.096

Table - 2 shows that the post-test means on Low Density Lipoprotein of the control and the experimental groups are 139.05 and 124.40 respectively. The obtained 'F' ratio value 4.005 for the post-test data is lesser than the required table value 4.096 for 1 & 38 degrees of freedom at 0.05 level of significance. It discloses that there is no statistically significant difference between the control and the experimental groups on Low Density Lipoprotein after the experimental period. The adjusted post-test means on Low-Density Lipoprotein of

the control and the experimental groups are 146.494 and 116.956 respectively. The obtained 'F' ratio value 20.438 for the adjusted post-test data is greater than the required table value 4.104 for 1 & 37 degrees of freedom at 0.05 level of significance. It shows that there is significant change on the Low Density Lipoprotein as a result of the experimental period. Since the result has revealed that there is significant difference, the hypothesis is accepted. The results by and large were in conformity with the findings of Swahney *et al.* [4], Mahajan [5] and, Sinha *et al.*

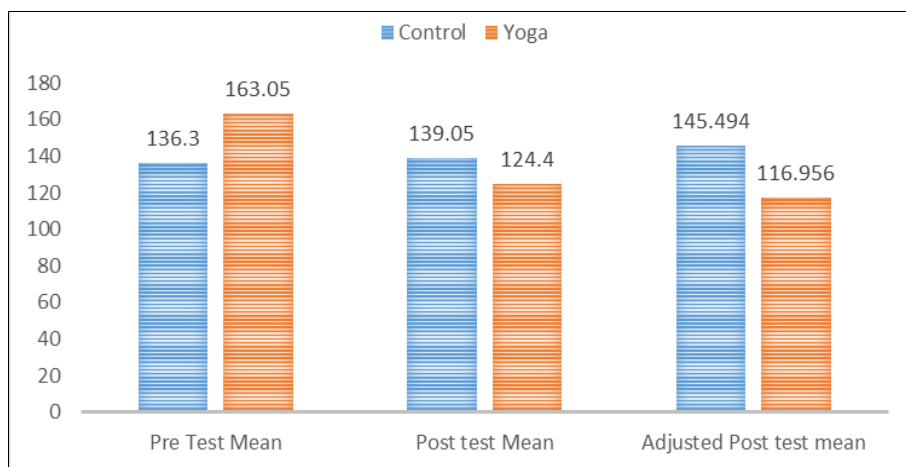


Fig 2: High density lipoprotein

Table 3: Analysis of covariance of data on low density total cholesterol between pre and post-tests of experimental and control group

Group	Control	Yoga	Source of variance	Sum of squares	DF	Mean square	'F' Ratio
Pre Test Mean	1047.50	1054.00	Between	422.50	1	422.50	0.48
SD	31.44	27.61	Within	33255.00	38	875.13	
Post-test Mean	1142.00	1054.50	Between	76562.50	1	76562.50	78.18

SD	32.05	30.52	Within	37215.00	38	919.34	
Adjusted Post-test mean	1144.99	1051.52	Between	86269.12	1	86269.12	348.15
			Within	9168.34	37	247.79	

0.05 level of significance for 1 & 37 degrees of freedom = 4.104, 1 & 38 degrees of freedom = 4.096

Table - 3 shows that the post-test means on total cholesterol of the control and the experimental groups are 1054.50 and 1142.00 respectively. The obtained 'F' ratio value 78.18 for the post-test data is lesser than the required table value 4.096 for 1 & 38 degrees of freedom at 0.05 level of significance. It discloses that there is no statistically significant difference between the control and the experimental groups on total cholesterol after the experimental period.

The adjusted post-test means on total cholesterol of the control and the experimental groups are 1051.52 and 1144.99

respectively. The obtained 'F' ratio value 348.15 for the adjusted post-test data is greater than the required table value 4.104 for 1 & 37 degrees of freedom at 0.05 level of significance. It shows that there is a significant change on the total cholesterol as a result of the experimental period. Since the result has revealed that there is a significant difference, the hypothesis is accepted.

The result of this study showed that there was a significant difference among yoga and control groups on the changes in total cholesterol after twenty weeks of training.

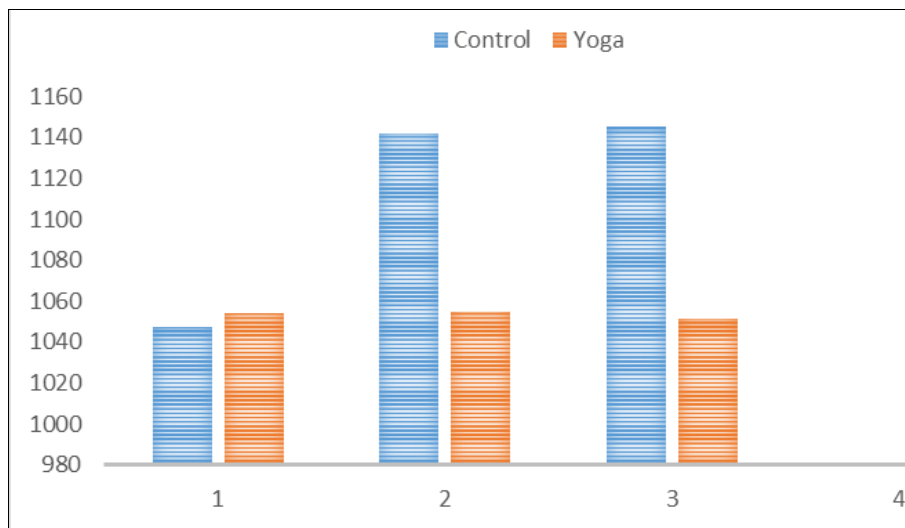


Fig 3: Total cholesterol

Discussions

The report by the World Health Organization (WHO) on obesity prevention and management serves as a foundational resource within the field of public health. It comprehensively addresses the worldwide obesity epidemic, emphasizing the importance of addressing this issue on a population-wide scale. The report underscores the vital role of lifestyle factors, including physical activity and dietary choices, in the effective management and prevention of obesity.

Lipid Profile Variables

High-Density Lipoprotein (HDL): There are no significant differences between the control and experimental groups in the pre-test and post-test. However, the High-Density Lipoprotein level slightly increased in the post-test of the experimental group compared to the control group.

Low-Density Lipoprotein (LDL): A significant difference in Low-Density Lipoprotein is observed in the pre-test between the control and experimental groups. Due to 20 weeks of yogasanas, pranayama, and relaxation techniques, the Low-Density Lipoprotein level decreased in the post-test of the experimental group compared to the control group.

Total cholesterol: A significant difference in total cholesterol is observed in the pre-test between the control and experimental groups. Due to 20 weeks of yogasanas, pranayama, and relaxation techniques, the total cholesterol level decreased in the post-test of the experimental group compared to the control group.

Conclusion

Based on the research findings, the following conclusions were drawn in the present study

The results of biochemical variables like High-Density Lipoprotein showed no significant differences in the pre-test between the experimental and control groups. However, there was a significant difference in the pre-test for Low-Density Lipoprotein and total cholesterol in the control group. After a period of twenty weeks of yogasanas, pranayama, and relaxation techniques, biochemical variables like Low-Density Lipoprotein and total cholesterol significantly decreased in the post-test of the experimental group when compared to both the pre-test control and experimental groups. It is inferred that yoga practice did not lead to significant changes in High-Density Lipoprotein in both the pre-test and post-test, as well as the adjusted post-test mean for both control and experimental groups.

References

1. World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO consultation. (1-253). World Health Organ Tech Rep Ser. 2000;894:1-12. [PubMed] [Google Scholar] [Ref list]
2. Jagadeeswari S. Comparative study on flexibility among yoga and Bharatanatyam practicing student; c2017.
3. Moses R. Effect of Yoga on flexibility and respiratory measures of vital capacity and breath holding time; c1972.
4. Ravikumar H. Effect of select yogic practices and aerobic

- exercises on somatotype components and its relationship with health related physical fitness and biochemical variables; c2012.
5. Radhika G Milli, *et al.* Effect of selected yogic practices and aerobics exercises on psychological, physiological and physical variables of secondary school children; c2020.
 6. Tasleem Arif Sheikh. Effect of Yogasanas practice on obesity of school going girl students in Jammu region; c2019.
 7. Chia-Liang Dai, *et al.* Yoga as an Alternative Therapy for Weight Management in Child and Adolescent Obesity: A Systematic Review and Implications for Research; c2020.
 8. Namrata B, *et al.* Comparative Study of Effect of Specific Yogasanas and Exercise in Obesity; c2020.
 9. Kamraju M, *et al.* Yoga and Weight Management; c2023.
 10. Milad Azami, *et al.* Effect of Yoga on Lipid Profile and C-reactive Protein in Women; c2019.
 11. Kyoung-Bae Kim, *et al.* Effects of Exercise on the Body Composition and Lipid Profile of Individuals with Obesity: A Systematic Review and Meta-Analysis; c2019.
 12. Floriana S, *et al.* Overweight, Obesity, and Depression- A Systematic Review and Meta-analysis of Longitudinal Studies; c2010.
 13. Swatmarama -Haṭha Yoga Pradīpikā
 14. Sris Chandra Vasu-The Gheranda Samhita: A Treatise On Hatha Yoga
 15. Swami Satyananda Saraswati-Asana Pranayama Mudra Bandha