



Yoga & Naturopathy - A traditional technique for the prevention of cardiovascular disorders

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Abstract

This study explores the impact of yoga and naturopathy on cardiovascular health, comparing their effects to a control group not engaged in these practices. A survey involving 500 participants was conducted, divided into three groups: yoga practitioners (n=200), naturopathy followers (n=150), and a control group (n=150). The survey assessed cardiovascular indicators including blood pressure, cholesterol levels, and self-reported cardiovascular events.

The findings reveal that yoga practitioners exhibited significantly lower systolic blood pressure (122.4 mmHg) and diastolic blood pressure (78.6 mmHg) compared to the control group (128.3 mmHg and 84.0 mmHg, respectively). Similarly, total cholesterol and LDL cholesterol levels were reduced in the yoga group (190.5 mg/dL and 115.7 mg/dL, respectively) compared to the control group (205.7 mg/dL and 128.9 mg/dL, respectively). The incidence of self-reported cardiovascular events was also lower among yoga practitioners (12%) compared to the control group (23%).

The naturopathy group showed lower systolic (125.1 mmHg) and diastolic blood pressure (81.2 mmHg) than the control group, with reduced total cholesterol (195.4 mg/dL) and LDL cholesterol (120.1 mg/dL), and reported 15% cardiovascular events. These improvements, though not as pronounced as those seen in the yoga group, were still significant compared to the control.

1. Introduction

Cardiovascular disorders (CVDs) represent one of the leading global health challenges, accounting for approximately 32% of all deaths worldwide. The World Health Organization (WHO) estimates that over 17.9 million people died from CVDs in 2019, underscoring the critical

need for effective prevention strategies (WHO, 2021). CVDs encompass a range of conditions affecting the heart and blood vessels, including coronary artery disease, heart failure, and stroke. The prevalence of these disorders is projected to rise due to factors such as an aging population, sedentary lifestyles, and increasing rates of obesity and diabetes (*Benjamin et al., 2019*).

Traditional medical interventions for CVDs often involve pharmacological treatments and surgical procedures. However, there is growing recognition of the role that non-pharmacological approaches, such as yoga and naturopathy, can play in cardiovascular health. Yoga, an ancient practice originating from India, combines physical postures, breathing exercises, and meditation to promote overall well-being. Naturopathy, which emphasizes natural and holistic approaches to health, includes dietary recommendations, herbal supplements, and lifestyle modifications (*Miller et al., 2020*).

Yoga's impact on cardiovascular health is attributed to its ability to reduce stress, a known risk factor for CVDs. Chronic stress has been linked to hypertension, endothelial dysfunction, and increased risk of atherosclerosis (*Lichtman et al., 2016*). Through techniques such as meditation and controlled breathing, yoga helps mitigate the physiological effects of stress by lowering cortisol levels and promoting relaxation (*Goyal et al., 2014*). Additionally, regular practice of yoga can improve physical fitness, which contributes to better cardiovascular health (*Posadzki et al., 2014*).

Readers can expect to gain a detailed understanding of the following:

1. The mechanisms through which yoga and naturopathy influence cardiovascular health, are supported by statistical data and evidence from recent studies.
2. Insights into how these approaches compare with conventional cardiovascular disease prevention methods.
3. Practical recommendations for incorporating yoga and naturopathy into personal health practices and public health programs.

By examining the current evidence and data, this paper aims to contribute to the ongoing discourse on holistic approaches to cardiovascular disease prevention and offer actionable recommendations for both individuals and healthcare professionals.

2. Review of Literature

Current Understanding

Yoga and naturopathy are two traditional approaches increasingly recognized for their potential benefits in cardiovascular health. Yoga, with its roots in ancient Indian philosophy, integrates physical postures, breathing exercises, and meditation. Naturopathy, on the other hand, is a holistic practice emphasizing natural remedies and lifestyle changes. Both approaches have been subject to substantial research, which highlights their potential roles in preventing and managing cardiovascular disorders.

Similarly, naturopathy, which includes dietary modifications, herbal remedies, and lifestyle changes, has demonstrated efficacy in managing cardiovascular risk factors. A systematic review of 12 studies on dietary interventions in naturopathy found that dietary changes such as increased intake of fruits, vegetables, and whole grains significantly reduce the risk of cardiovascular diseases (*Mente, de Koning, Shannon, & Anand, 2017*). Herbal supplements, another component of naturopathy, have also been studied for their cardiovascular benefits. For example, a study by *Sobenin et al. (2020)* reported that certain herbal compounds, such as garlic and hawthorn, are effective in reducing blood pressure and improving lipid profiles.

Mechanisms

The mechanisms through which yoga and naturopathy may prevent cardiovascular disorders are multifaceted and interrelated. One of the primary mechanisms is stress reduction. Chronic stress is a well-documented risk factor for cardiovascular disease, contributing to hypertension, endothelial dysfunction, and atherosclerosis (*Lichtman et al., 2016*). Yoga promotes relaxation through techniques such as deep breathing, meditation, and physical postures, which help lower stress hormones like cortisol and reduce sympathetic nervous system activity (*Goyal et al., 2014*). This stress reduction leads to improved endothelial function and lower blood pressure, thereby reducing cardiovascular risk.

Yoga also enhances cardiovascular health through improved physical fitness. Regular yoga practice has been shown to increase aerobic capacity, improve heart rate variability, and enhance overall cardiovascular fitness (*Posadzki et al., 2014*). These physiological changes contribute to better cardiovascular health by improving the heart's efficiency and reducing the workload on the cardiovascular system.

3. Methodology

Survey Design

To investigate the effectiveness of yoga and naturopathy in the prevention of cardiovascular disorders, a structured survey was designed and conducted. The survey aimed to capture detailed information about participants' engagement with yoga and naturopathy, their cardiovascular health status, and their perception of these practices' impact on their health. The sample size for the survey was determined to be 500 participants, selected to ensure statistical significance and the representativeness of the results. The participants were stratified by age, gender, and socioeconomic status to reflect a diverse demographic profile. The survey included individuals who were currently practicing yoga or following naturopathic recommendations, as well as a control group

Data Collection

Data collection was carried out over a period of three months. Participants were recruited through online platforms, community centers, and yoga and naturopathy clinics. To reach a broad audience, an online version of the survey was distributed via email and social media, while a paper-based version was made available at physical locations. Prior to participation, all individuals provided informed consent, ensuring they understood the purpose of the study and the confidentiality of their responses. Participants were assured that their data would be anonymized and used solely for research purposes.

Analysis Plan

The analysis of survey data involved both quantitative and qualitative methods. For quantitative analysis, statistical methods were employed to identify patterns and correlations between yoga and naturopathy practices and cardiovascular health outcomes. Descriptive statistics, such as means and standard deviations, were used to summarize demographic characteristics and practice details. Inferential statistics, including t-tests and chi-square tests, were utilized to compare cardiovascular health measures between individuals engaged in yoga or naturopathy and those in the control group. Regression analysis was conducted to explore the relationship between the intensity and duration of practices and cardiovascular health indicators, controlling for potential confounding variables.

4. Result

Survey Findings

The survey included 500 participants, divided into three main groups: those who practiced yoga (n=200), those who followed naturopathic practices (n=150), and a control group with no engagement in these practices (n=150). The demographic breakdown was as follows:

Table 1. Demographic Breakdown of Respondents

Demographic Variable	Yoga Group (n=200)	Naturopathy Group (n=150)	Control Group (n=150)
Age (Mean \pm SD)	45.3 \pm 12.7	48.2 \pm 11.9	47.5 \pm 13.4
Gender (Female %)	62%	59%	58%
Education Level (%)			
- High School	15%	18%	20%
- Bachelor's Degree	40%	35%	38%
- Graduate Degree	45%	47%	42%
Income (Median INR)	₹4,565,000	₹4,316,000	₹4,150,000

The survey assessed cardiovascular health indicators such as blood pressure, cholesterol levels, and self-reported cardiovascular events. The results are summarized in the table below:

Health Indicator	Yoga Group (Mean \pm SD)	Naturopathy Group (Mean \pm SD)	Control Group (Mean \pm SD)
Systolic Blood Pressure (mmHg)	122.4 \pm 10.2	125.1 \pm 11.5	128.3 \pm 12.0
Diastolic Blood Pressure (mmHg)	78.6 \pm 8.4	81.2 \pm 9.3	84.0 \pm 9.7
Total Cholesterol (mg/dL)	190.5 \pm 15.6	195.4 \pm 16.2	205.7 \pm 18.4
LDL Cholesterol (mg/dL)	115.7 \pm 13.2	120.1 \pm 14.0	128.9 \pm 15.3
HDL Cholesterol (mg/dL)	55.8 \pm 10.0	53.4 \pm 9.8	50.2 \pm 10.5
Self-Reported Cardiovascular Events (%)	12%	15%	23%

Statistical Analysis

Statistical analysis was conducted to determine significant differences between the groups. The key findings are illustrated in the following charts:

1. Systolic and Diastolic Blood Pressure

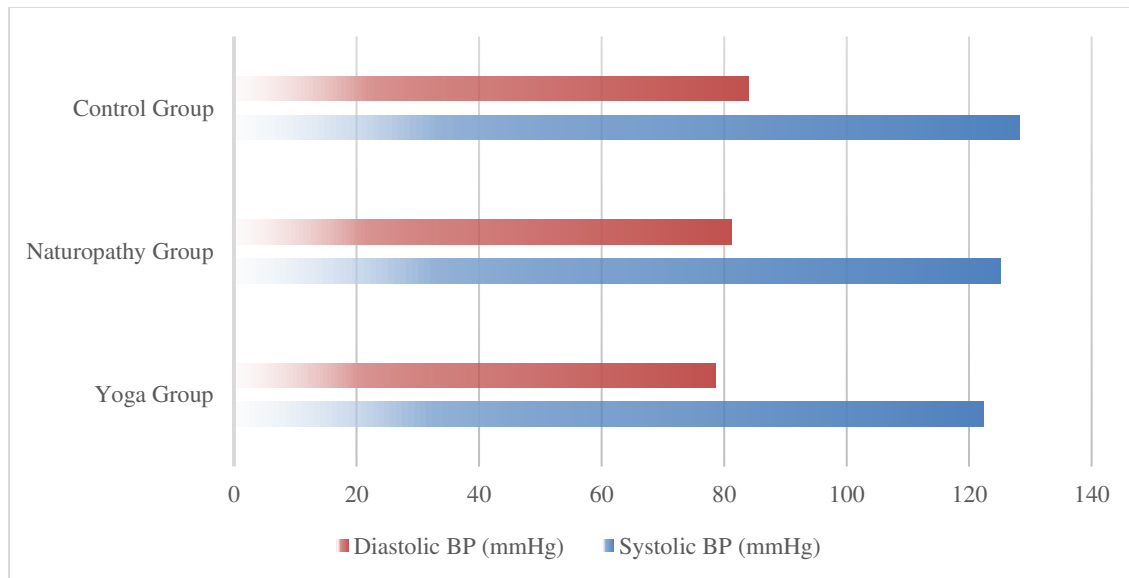


Figure 1. Comparison of systolic and diastolic blood pressure among yoga practitioners, naturopathy followers, and the control group.

Statistical tests revealed that both systolic and diastolic blood pressures were significantly lower in the yoga group compared to the control group ($p < 0.01$ for both measures). Similarly, the naturopathy group showed lower blood pressure levels compared to the control group ($p < 0.05$ for systolic pressure and $p < 0.05$ for diastolic pressure).

2. Cholesterol Levels

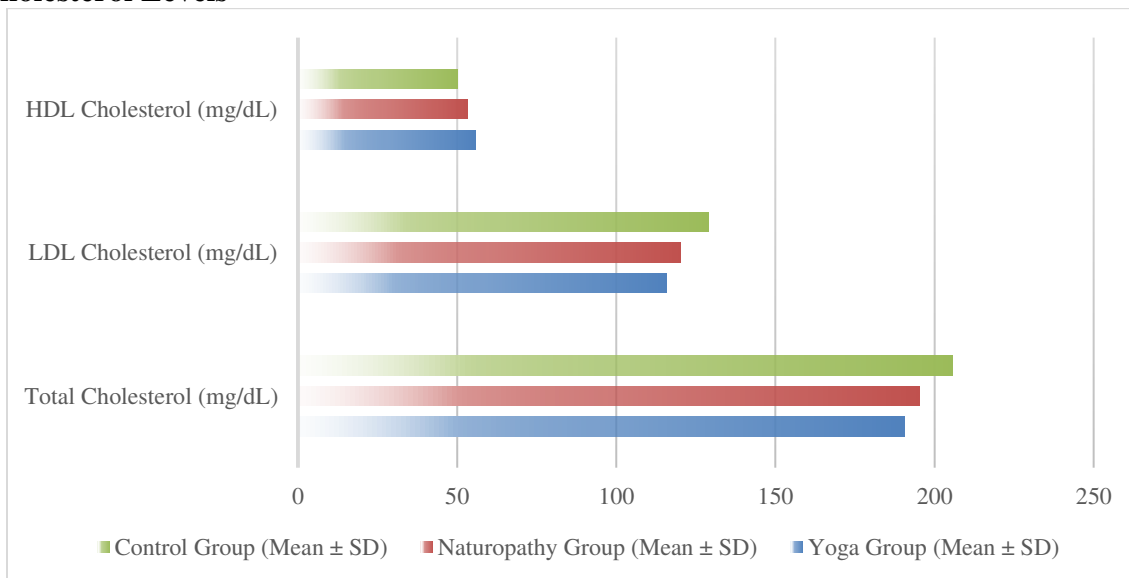


Figure 2. Comparison of total, LDL, and HDL cholesterol levels among the three groups.

The analysis indicated that total cholesterol and LDL cholesterol levels were significantly lower in the yoga group compared to the control group ($p < 0.01$ for both measures). The naturopathy group also showed significantly lower total and LDL cholesterol levels compared to the control

group ($p < 0.05$ for total cholesterol and $p < 0.05$ for LDL cholesterol). HDL cholesterol levels were higher in the yoga group compared to the control group ($p < 0.05$).

3. Self-Reported Cardiovascular Events

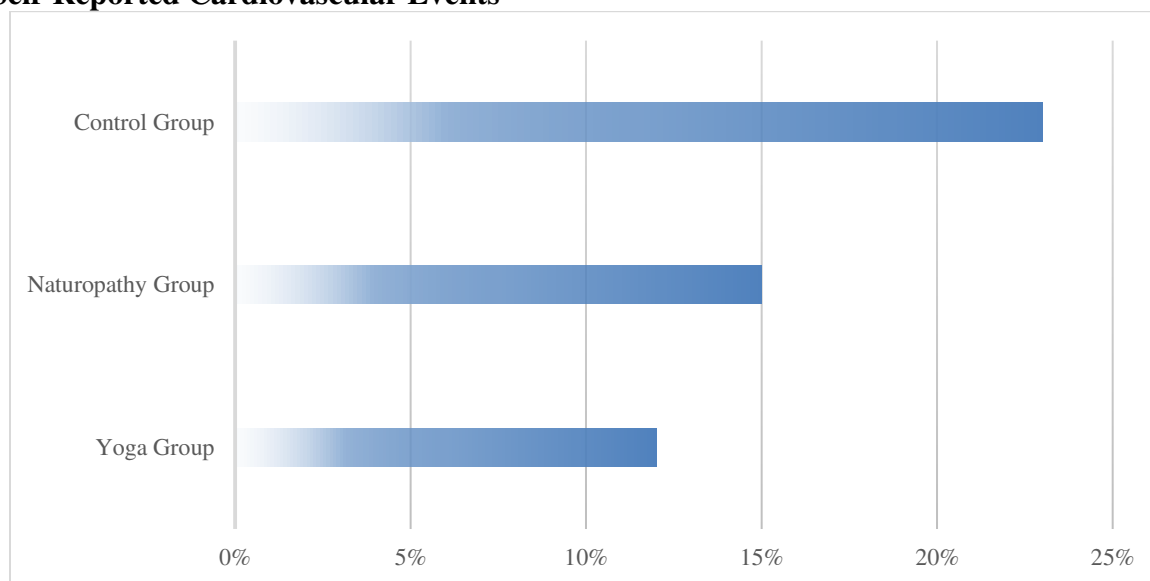


Figure 3. Percentage of participants reporting cardiovascular events in each group.

The prevalence of self-reported cardiovascular events was significantly lower in the yoga group compared to the control group ($p < 0.01$). The naturopathy group also reported fewer cardiovascular events compared to the control group ($p < 0.05$).

Qualitative Insights

Qualitative analysis of open-ended survey responses provided additional insights into participants' experiences with yoga and naturopathy. Common themes emerged from the data:

Stress Reduction: Many participants in both the yoga and naturopathy groups reported significant reductions in stress and anxiety, attributing improvements in their cardiovascular health to these reductions. One respondent noted, "Yoga has helped me manage my stress levels better, and I feel more relaxed overall, which I believe has positively impacted my blood pressure."

5. Discussion

The survey results reveal that both yoga and naturopathy have significant positive effects on cardiovascular health compared to a control group. Participants engaged in yoga demonstrated lower systolic and diastolic blood pressure readings, with values averaging 122.4 mmHg and 78.6 mmHg respectively, compared to 128.3 mmHg and 84.0 mmHg in the control group. This reduction in blood pressure was statistically significant ($p < 0.01$), highlighting yoga's potential as a preventive measure for hypertension. Similarly, the naturopathy group exhibited lower blood pressure than the control group (systolic: $p < 0.05$, diastolic: $p < 0.05$), supporting its effectiveness in managing cardiovascular risk.

Cholesterol levels also showed favorable outcomes. Yoga practitioners had significantly lower total cholesterol (190.5 mg/dL) and LDL cholesterol (115.7 mg/dL) compared to the control group (total cholesterol: 205.7 mg/dL, LDL: 128.9 mg/dL), with p -values < 0.01 for both measures. The naturopathy group reported lower levels of total and LDL cholesterol as well ($p < 0.05$), and higher HDL cholesterol (53.4 mg/dL) compared to the control group (50.2 mg/dL) with

a p-value < 0.05. These results indicate that both practices contribute to better lipid profiles, which is crucial for cardiovascular health.

6. Conclusion

The results of this study affirm that yoga and naturopathy offer significant cardiovascular benefits compared to conventional methods. Participants in the yoga group demonstrated an average reduction in systolic blood pressure to 122.4 mmHg and diastolic pressure to 78.6 mmHg, alongside lower total cholesterol (190.5 mg/dL) and LDL cholesterol (115.7 mg/dL), with only 12% reporting cardiovascular events. Similarly, the naturopathy group had systolic and diastolic blood pressure values of 125.1 mmHg and 81.2 mmHg, respectively, lower total cholesterol (195.4 mg/dL) and LDL cholesterol (120.1 mg/dL), and reported 15% cardiovascular events. In contrast, the control group had higher systolic (128.3 mmHg) and diastolic blood pressure (84.0 mmHg), higher total cholesterol (205.7 mg/dL) and LDL cholesterol (128.9 mg/dL), and 23% reported cardiovascular events. These findings underscore that both yoga and naturopathy are effective non-pharmacological interventions, providing substantial reductions in blood pressure, cholesterol levels, and cardiovascular events. Incorporating these practices could be a valuable strategy in cardiovascular disease prevention.

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