

Physiological and Psychological Effects of Ekadashi Upavasa (Fasting Ritual) on Women: A Prospective Cohort Study on Metabolism, Immunity, and Mental Clarity

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Abstract

Background: Ekadashi Upavasa, a traditional bi-monthly fasting ritual, is believed to offer physical, mental, and spiritual benefits. However, its scientific impact on metabolism, immunity, and mental clarity remains underexplored. This prospective cohort study evaluates these effects among women practicing the ritual at Krishna Temple, Amlah, over six months. **Methods:** A total of 800 women aged 25–50 years were recruited from Krishna Temple, Amlah, for this study, conducted from June 2024 to December 2024. Baseline assessments measured physiological parameters, including blood glucose, lipid profiles, body mass index (BMI), and basal metabolic rate (BMR). Immune function was evaluated using inflammatory markers, including C-reactive protein (CRP) and cytokine levels. Mental clarity and emotional well-being were assessed using the Cognitive Clarity Index (CCI) and the Profile of Mood States (POMS). Participants underwent assessments before and after each Ekadashi fasting day throughout the study period. **Results:** Findings indicate significant improvements in metabolic markers, including reduced blood glucose and lipid levels, enhanced fat oxidation, and decreased systemic inflammation. Psychological outcomes suggest greater mental clarity, emotional stability, and reduced stress post-fasting. **Conclusion:** Ekadashi Upavasa appears to have significant physiological and psychological benefits. The study provides scientific validation for this traditional fasting practice and encourages its inclusion in holistic health strategies.

Keywords: Ekadashi fasting, metabolism, immunity, cognitive clarity, inflammation, mental health

INTRODUCTION

Fasting, a practice embraced across various cultures and religions, has been revered not only as a spiritual practice but also as a means of improving physical health and emotional well-being [1, 2]. Among the diverse forms of fasting, Ekadashi Upavasa, a ritual observed in Hinduism, stands out for

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its deep spiritual significance and purported health benefits. Ekadashi, which occurs twice a month according to the Hindu lunar calendar, involves abstaining from grains and certain other foods for 24 hours. This fast is believed to purify the body and mind, promoting spiritual growth and a deeper connection to the divine [2–4]. Though the practice has ancient roots, the scientific investigation into its physiological and psychological effects remains limited, leaving a gap in understanding the potential health benefits it may offer.

The physiological effects of fasting have been well-documented in various forms of intermittent fasting and caloric restriction studies, which show positive outcomes in metabolism, immune function,

and cognitive health. These benefits include improved insulin sensitivity, lowered blood pressure, reduced inflammation, and enhanced brain function [3]. However, most studies focus on intermittent fasting schedules, like the 16:8 method, where participants fast for 16 hours and eat within an 8-hour window, or caloric restriction without specific religious or cultural context. Ekadashi fasting, on the other hand, has remained underexplored, particularly in relation to its impact on metabolic health, immunity, and emotional well-being [4–6].

Recent evidence highlights the role of inflammatory markers in disease progression and overall health, suggesting that practices, like fasting, may help regulate these markers, potentially reducing the risk of cardiovascular diseases, diabetes, and autoimmune disorders. In addition to these physiological benefits, fasting is thought to influence the mental state, with several studies suggesting that fasting can improve cognitive function and contribute to emotional stability by reducing stress and promoting clarity of thought. However, scientific inquiry into the specific impacts of Ekadashi fasting on these outcomes is sparse, and its effects on emotional health and cognitive clarity remain largely anecdotal within the context of Hindu spiritual traditions [4–7].

Given the growing interest in holistic health approaches that combine both spiritual and physical well-being, it is essential to explore the potential benefits of Ekadashi Upavasa. This prospective cohort study aims to fill the gap by scientifically evaluating the metabolic, immune, and psychological effects of Ekadashi fasting among women who regularly observe this practice at Krishna Temple in Amloh, India. By providing empirical evidence, this study seeks to validate the health-promoting effects of this ancient fasting tradition and encourage its integration into modern health management strategies.

RATIONALE OF THE STUDY

Intermittent fasting (IF) has gained recognition for its metabolic and cognitive benefits, but structured religious fasting, such as Ekadashi, remains understudied. This study aims to examine the physiological and psychological effects of Ekadashi Upavasa among women who practice it regularly.

Objectives

- *Primary Objective:* To assess the impact of Ekadashi fasting on metabolic parameters (blood glucose, lipid profile, BMI, BMR).
- *Secondary Objective:* To evaluate its effects on immune function using inflammatory markers (CRP, cytokines).
- *Tertiary Objective:* To analyse changes in mental clarity and emotional well-being using CCI and POMS.

MATERIAL & METHODS

Study Design and Participants

This prospective cohort study was conducted on 800 women aged 25–50 years who regularly observe Ekadashi fasting at Krishna Temple, Amloh. “This study was reviewed and approved by the Institutional Ethics Committee of Desh Bhagat Hospital. Participants were recruited voluntarily, and all participants provided informed consent before enrolment, and the study adhered to the ethical principles outlined in the Declaration of Helsinki”.

INCLUSION AND EXCLUSION CRITERIA

Inclusion Criteria

Women aged 25–50 years regularly observing Ekadashi fasting for at least 1 year. Willing to undergo physiological and psychological assessments.

Exclusion Criteria

The criteria were like women with pre-existing metabolic disorders, e.g., diabetes, hyperlipidemia, pregnant or lactating women, and individuals on medications affecting metabolism or cognition.

Data Collection and Assessments

Participants underwent pre- and post-fasting assessments for six months (June–December 2024).

Physiological Parameters

- *Blood Glucose Levels*: Measured using fasting blood glucose (FBG) and post-fasting blood glucose (PBG).
- *Lipid Profile*: Total cholesterol, HDL, LDL, triglycerides (TG).
- *BMI and BMR*: Calculated using digital weighing scales and metabolic rate analyzers.

Immune Function

- *C-Reactive Protein (CRP)*: Marker of systemic inflammation.
- *Cytokine Levels*: Pro-inflammatory cytokines (IL-6, TNF- α) measured via ELISA.

Psychological Assessments

- *Cognitive Clarity Index (CCI)*: Assesses mental clarity and focus.
- *Profile of Mood States (POMS)*: Evaluates emotional stability, stress, and mood fluctuations.

RESULTS

This study was carried out among 800 subjects who were on Ekdashi fast. The outcomes are depicted in Tables 1-3, respectively.

METABOLIC CHANGES

Significant reductions in blood glucose, lipid levels, and BMI post-fasting indicate improved metabolic efficiency.

Table 1. The data illustrate the metabolic changes in pre-fasting & post-fasting.

Parameter	Pre-Fasting (Mean $\pm$ SD)	Post-Fasting (Mean $\pm$ SD)	p-value
Fasting Blood Glucose (mg/dL)	97.8 $\pm$ 9.8	86.2 $\pm$ 8.9	<0.001*
Total Cholesterol (mg/dL)	209.3 $\pm$ 14.9	187.5 $\pm$ 13.8	<0.01*
BMI (kg/m ²)	26.3 $\pm$ 2.7	24.6 $\pm$ 2.4	<0.05*
Basal Metabolic Rate (BMR) (kcal/day)	1515 $\pm$ 108	1592 $\pm$ 115	<0.05*

IMMUNE RESPONSE

Lower CRP and cytokine levels post-fasting suggest reduced systemic inflammation.

Table 2. This table shows immune response of patients in pre- & post-fasting conditions.

Parameter	Pre-Fasting (Mean $\pm$ SD)	Post-Fasting (Mean $\pm$ SD)	p-value
C-Reactive Protein (CRP) (mg/L)	3.2 $\pm$ 0.5	2.3 $\pm$ 0.4	<0.05*
IL-6 (pg/mL)	5.8 $\pm$ 1.1	4.2 $\pm$ 1.0	<0.05*
TNF- α (pg/mL)	8.6 $\pm$ 1.4	7.1 $\pm$ 1.3	<0.05*

PSYCHOLOGICAL EFFECTS

Increased CCI scores suggest improved cognitive clarity, while reduced POMS scores indicate enhanced emotional stability.

Table 3. This table shows physiological effects on patients in pre- & post-fasting conditions.

Parameter	Pre-Fasting (Mean $\pm$ SD)	Post-Fasting (Mean $\pm$ SD)	p-value
Cognitive Clarity Index (CCI)	67.9 $\pm$ 8.6	82.5 $\pm$ 8.1	<0.001*
Profile of Mood States (POMS)	64.8 $\pm$ 9.4	50.9 $\pm$ 7.8	<0.001*

This study demonstrates significant physiological and psychological benefits of Ekadashi fasting among 800 women aged 25–50 years. Metabolic improvements included a reduction in fasting blood glucose (97.8 ± 9.8 to 86.2 ± 8.9 mg/dL, $p < 0.001$), total cholesterol (209.3 ± 14.9 to 187.5 ± 13.8 mg/dL, $p < 0.01$), and BMI (26.3 ± 2.7 to 24.6 ± 2.4 kg/m², $p < 0.05$), along with a BMR increase (1515 ± 108 to 1592 ± 115 kcal/day, $p < 0.05$), suggesting enhanced energy metabolism and fat oxidation. Immune function improved with decreased CRP (3.2 ± 0.5 to 2.3 ± 0.4 mg/L, $p < 0.05$), IL-6 (5.8 ± 1.1 to 4.2 ± 1.0 pg/mL, $p < 0.05$), and TNF- α (8.6 ± 1.4 to 7.1 ± 1.3 pg/mL, $p < 0.05$), indicating reduced systemic inflammation. Psychological assessments showed higher Cognitive Clarity Index (67.9 ± 8.6 to 82.5 ± 8.1 , $p < 0.001$) and lower POMS scores (64.8 ± 9.4 to 50.9 ± 7.8 , $p < 0.001$), reflecting improved mental clarity, emotional stability, and reduced stress. These findings suggest that Ekadashi fasting may serve as a holistic approach to metabolic regulation, immune modulation, and cognitive enhancement, supporting its integration into lifestyle and health management strategies.

DISCUSSION

The findings suggest that Ekadashi Upavasa positively impacts metabolic health, immune function, and psychological well-being. The reductions in blood glucose and lipid levels align with previous studies on intermittent fasting. The observed decline in inflammatory markers indicates potential benefits for immune regulation. Additionally, improvements in mental clarity and emotional stability suggest that fasting may enhance cognitive and emotional resilience [8–10].

Implications for Holistic Health

Ekadashi Upavasa combines dietary restriction with spiritual practices, which may contribute to its unique health benefits. Future studies should explore its long-term effects and compare it with other fasting regimens.

CONCLUSIONS

Ekadashi Upavasa appears to have significant physiological and psychological benefits. The study provides scientific validation for this traditional fasting practice and encourages its inclusion in holistic health strategies.

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