

Effect of Therapeutic Juice Fasting on Lipid Profile, Body Composition, and Quality of Life in Subjects with Primary Dyslipidaemia

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Abstract

Background: Primary dyslipidaemia is a major modifiable risk factor for cardiovascular disease. Therapeutic juice fasting is a classical naturopathic intervention used to support metabolic reset and lipid modulation.

Objectives: To evaluate the effect of a 10-day therapeutic juice fasting protocol on serum lipid profile, anthropometric measures, and quality of life in subjects with primary dyslipidaemia.

Materials and Methods: A single-group pre–post pilot study was conducted on 10 participants (9 female, 1 male; mean age 42.4 ± 9.92 years) at GNCYMCH, Mysore. Participants received a structured therapeutic juice fasting regimen (fresh orange, sweet lime, and lemon juices with hot jaggery-lemon water) for 10 days. Outcomes included body weight, BMI, waist–hip ratio, total cholesterol (TC), triglycerides (TG), LDL, HDL, HDL/LDL ratio, and quality of life (QOL). Data were analysed using Wilcoxon signed-rank and paired t-tests; effect sizes were expressed as Cohen's d.

Results: Highly significant reductions were observed in weight (-3.99 kg, $p = 0.002$, $d = -3.00$) and BMI (-1.42 kg/m², $p = 0.002$, $d = -2.27$). QOL improved markedly ($+28.55$ points, $p = 0.002$, $d = 1.98$). Favourable trends were seen in TC (-12.99 mg/dL), LDL (-11.13 mg/dL), and TG (-7.35 mg/dL), but these did not reach statistical significance. HDL showed a non-significant decrease. All participants lost weight and improved QOL.

Conclusion: Therapeutic juice fasting produced significant short-term reductions in weight and BMI and a large improvement in quality of life, with favourable but non-significant trends in atherogenic lipids. Larger controlled trials are warranted.

Keywords: Primary dyslipidaemia; therapeutic juice fasting; lipid profile; body mass index; quality of life; naturopathy

1. Introduction

Dyslipidaemia—characterised by elevated total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), and/or triglycerides (TG), or reduced high-density lipoprotein cholesterol (HDL-C)—is a central driver of atherosclerosis and cardiovascular disease [1,2]. In India, approximately 79% of the adult population exhibit abnormality in at least one lipid parameter [4]. Primary dyslipidaemia arises from genetic and metabolic factors independent of secondary causes such as uncontrolled diabetes or hypothyroidism.

Lifestyle and dietary interventions remain foundational. Therapeutic juice fasting, a classical naturopathic practice involving exclusive consumption of fresh fruit and vegetable juices for a defined period, is used to support detoxification, caloric restriction, and metabolic reset [21,22]. Evidence specific to its effect on the lipid profile in primary dyslipidaemia remains limited. The present pilot study evaluated a 10-day therapeutic juice fasting protocol on lipid parameters, anthropometry, and quality of life.

2. Aims and Objectives

Primary aim: To evaluate the effect of therapeutic juice fasting on the serum lipid profile in subjects with primary dyslipidaemia.

Objectives:

1. To assess changes in TC, TG, LDL, HDL, and HDL/LDL ratio.
2. To assess changes in body weight, BMI, and waist–hip ratio.
3. To assess change in quality of life.

3. Review of Literature

Primary dyslipidaemia is driven by genetic defects affecting lipoprotein synthesis, transport, or clearance [5,11,12]. Elevated LDL and triglyceride-rich lipoproteins promote arterial retention, inflammation, and oxidative modification, accelerating atherosclerosis [13,14]. Standard management includes lifestyle modification and, when indicated, statins and other lipid-lowering agents [18,19]. Naturopathic approaches emphasise dietary regulation, therapeutic fasting, yoga, and lifestyle counselling [20]. Short-term juice fasting has been reported to influence body composition and selected metabolic markers in healthy individuals [22], but controlled data in primary dyslipidaemia are scarce.

4. Materials and Methods

4.1 Study Design and Setting

A single-group pre–post pilot study was conducted at the Outpatient Department of Government Nature Cure and Yoga Medical College & Hospital (GNCYMC&H), Mysore.

4.2 Participants

Ten participants (9 female, 1 male; mean age 42.4 ± 9.92 years, range 22–53) with primary dyslipidaemia were enrolled. All completed the protocol.

Inclusion criteria:

- Age 18–55 years with primary dyslipidaemia (elevated TC, TG, LDL and/or reduced HDL)
- Willingness to provide written informed consent

Exclusion criteria:

- Secondary dyslipidaemia
- Chronic hypertension, diabetes mellitus, renal disease, or other systemic illness

4.3 Ethical Considerations

Written informed consent was obtained. Participation was voluntary and confidentiality was maintained.

4.4 Intervention

Participants followed a 10-day therapeutic juice fasting protocol consisting exclusively of freshly prepared orange juice, sweet lime juice, lemon juice, and hot jaggery water with lemon, administered at regular intervals under supervision. No solid food was permitted. Juices were prepared immediately before consumption.

4.5 Outcome Measures

Anthropometry: Body weight (kg), BMI (kg/m²), waist–hip ratio.

Lipid profile: Fasting TC, TG, LDL, HDL (mg/dL), and HDL/LDL ratio.

Quality of Life: Validated questionnaire (higher scores = better QOL).

4.6 Statistical Analysis

Descriptive statistics were calculated. Normality of differences was assessed by Shapiro–Wilk test. Wilcoxon signed-rank (primary) and paired t-tests were reported. Effect size was Cohen’s d (paired). Significance was set at two-tailed $\alpha = 0.05$.

5. Results

All 10 participants completed the intervention (9 female, 1 male; mean age 42.4 ± 9.92 years).

5.1 Primary Outcomes

Table 1 summarises descriptive statistics and Table 2 the change scores and inferential results.

Outcome	Time	Mean	SD	Median	Min–Max	N
Weight (kg)	Pre	81.01	17.36	74.70	64–126	10
	Post	77.02	16.31	71.25	61–119	10
BMI (kg/m ²)	Pre	32.26	6.03	30.75	25.4–45.8	10
	Post	30.84	5.61	29.15	24.6–43.1	10
TC (mg/dL)	Pre	204.42	27.92	207.5	157–236	10

	Post	191.43	19.13	196.5	154–220	10
LDL (mg/dL)	Pre	130.09	32.05	138.1	53–169	10
	Post	118.96	21.76	127.4	79–146	10
TG (mg/dL)	Pre	152.35	85.33	131	92–384	10
	Post	145.00	81.97	129	78–372	10
HDL (mg/dL)	Pre	44.80	9.16	44.9	27–59	10
	Post	41.40	4.58	42.0	34–47	10
QOL Score	Pre	53.92	11.13	52.7	34–69	10
	Post	82.47	7.38	84.5	69–93	10

Table 1. Descriptive statistics (n = 10)

Outcome	Mean Δ	SD Δ	Wilcoxon p	t-test p	Cohen's d	Improved
Weight (kg)	−3.99	1.33	0.002	<0.001	−3.00	10/10
BMI (kg/m²)	−1.42	0.62	0.002	<0.001	−2.27	10/10
TC (mg/dL)	−12.99	19.67	0.064	0.066	−0.66	9/10
LDL (mg/dL)	−11.13	16.82	0.061	0.066	−0.66	9/10
TG (mg/dL)	−7.35	16.36	0.193	0.189	−0.45	7/10
HDL (mg/dL)	−3.40	9.98	0.373	0.310	−0.34	4/10
QOL Score	+28.55	14.40	0.002	<0.001	1.98	10/10

Table 2. Change scores and inferential statistics (n = 10)

5.2 Graphical Representation

Figure 1 shows grouped mean ± SD comparisons. Figure 2 presents individual outcome panels.

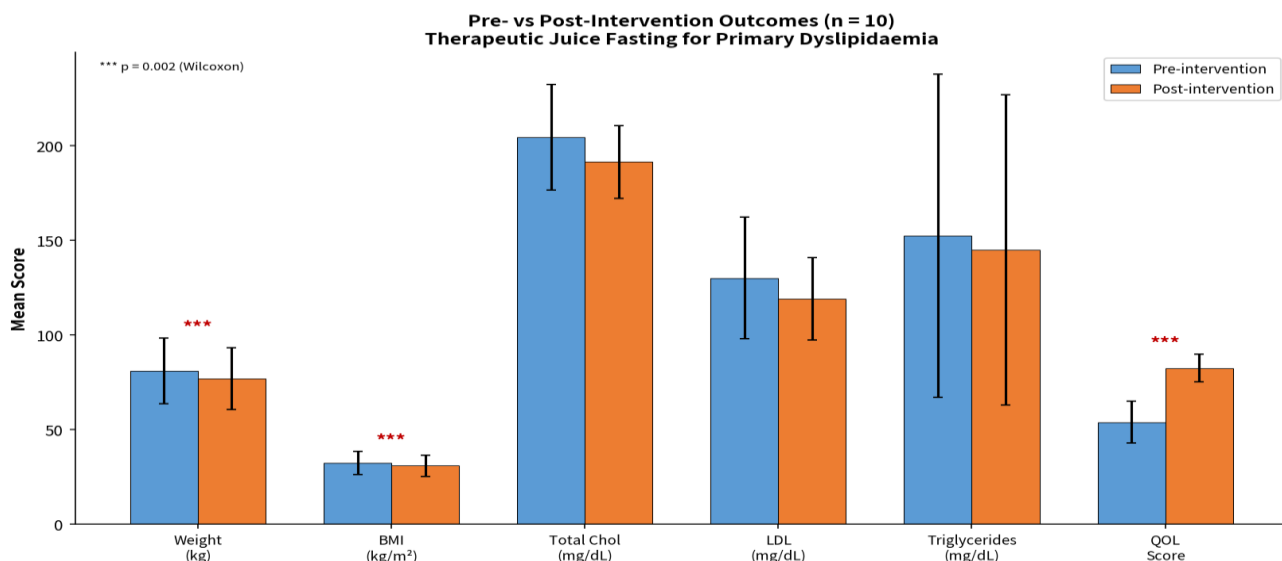


Figure 1. Mean pre- and post-intervention scores (± SD). *** p = 0.002.

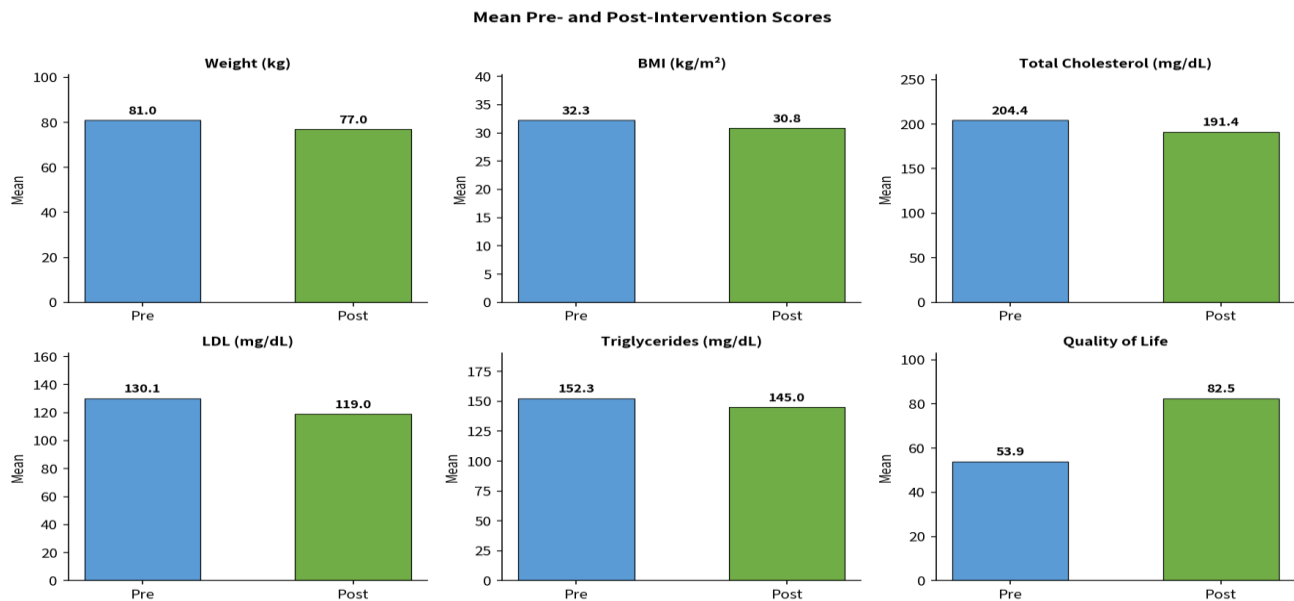


Figure 2. Mean pre- and post-intervention scores by outcome measure.

6. Discussion

In this pilot study, a 10-day therapeutic juice fasting protocol produced highly significant reductions in body weight and BMI and a large improvement in quality of life. Favourable directional trends were observed for total cholesterol, LDL, and triglycerides, although these did not reach conventional statistical significance, likely reflecting limited power and inter-individual variability. HDL did not improve and showed a non-significant mean decrease.

The robust anthropometric and QOL effects are consistent with the caloric restriction and metabolic effects of short-term juice fasting [21,22]. The lipid trends align with the expected direction of benefit but require confirmation in larger samples. Limitations include the small sample ($n = 10$), absence of a control group, short duration, single-centre design, and predominance of female participants. One outlier with extreme triglycerides increased variance.

Despite these limitations, the consistency of weight loss and QOL improvement, together with the practicality and safety of supervised juice fasting, support further controlled investigation of this naturopathic modality in primary dyslipidaemia.

7. Conclusion

Within the limitations of this single-group pilot study, therapeutic juice fasting significantly reduced weight and BMI and substantially improved quality of life in subjects with primary dyslipidaemia. Favourable but non-significant trends were observed in atherogenic lipid fractions. Larger randomised controlled trials are needed to confirm effects on the lipid profile.

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Conflict of Interest

The authors declare no conflict of interest.

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