

Short-Term Blood Pressure Reduction Associated with a Vegetable-Rich, Low-Refined-Carbohydrate Dietary Pattern: A 60-Day Observational Case Series

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How to cite this paper: Pratt, S.O. (2026) Short-Term Blood Pressure Reduction Associated with a Vegetable-Rich, Low-Refined-Carbohydrate Dietary Pattern: A 60-Day Observational Case Series. *Journal of Biosciences and Medicines*, 14, 337-359. <https://doi.org/10.4236/jbm.2026.144025>

Received: March 20, 2026

Accepted: April 27, 2026

Published: April 30, 2026

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Abstract

Hypertension remains a major modifiable risk factor for cardiovascular morbidity and mortality, and dietary modification continues to represent an important non-pharmacological strategy for blood pressure control. The purpose of this 60-day repeated-measures observational case series was to examine whether adoption of “a vegetable-rich, low-refined-carbohydrate dietary pattern (hereafter referred to as ‘the dietary pattern’)” was associated with short-term changes in blood pressure in two adults with elevated baseline blood pressure. The first 30 days constituted a baseline phase during which participants maintained their usual dietary habits, and the subsequent 30 days constituted an intervention phase characterized by increased consumption of vegetables, legumes, berries, lean proteins, and healthy fats with reduced or no intake of carbohydrate-rich foods. Blood pressure was recorded twice daily, once in the morning and once in the evening, resulting in 120 readings per participant. Descriptive analysis of the datasets showed that Participant 1’s mean blood pressure declined from 147.5/88.6 mmHg during baseline to 126.5/78.55 mmHg during intervention, while Participant 2’s mean blood pressure declined from 150.5/90.4 mmHg to 129.0/80.1 mmHg. These phase-level changes corresponded to systolic reductions of 21.0 mmHg (14.24%) for P1 and 21.5 mmHg (14.29%) for P2. Although causal inference is not warranted in a two-participant observational design, the consistency of the repeated morning and evening reductions—observed alongside a structured pattern of light daily physical activity, including approximately 10 to 25 minutes of walking—provides preliminary, data-grounded evidence that a dietary pattern, in combination with modest lifestyle adjustments, may be associated with meaningful short-term improvement in blood pressure regulation.

Importantly, the convergence of dietary modification and low-intensity physical activity reflects a more ecologically valid representation of real-world behavior change, where multiple health-promoting factors often co-occur rather than operate in isolation. While the present dataset does not permit disentangling the independent effects of walking from dietary change, the observed phase-level reductions across both participants suggest a coherent directional pattern that aligns with established evidence on the dietary pattern nutrition and lifestyle-based hypertension management. These findings therefore support the need for further controlled investigation to more precisely isolate and quantify the combined and independent effects of dietary and physical activity interventions on blood pressure outcomes.

Keywords

Hypertension, The Dietary Pattern, Repeated-Measures Case Series, Home Blood Pressure Monitoring, Cardiovascular Health, Lifestyle Modification

1. Introduction

Hypertension remains one of the most significant global risk factors for cardiovascular morbidity and mortality. Elevated blood pressure contributes substantially to the development of coronary artery disease, stroke, heart failure, and chronic kidney disease [1]. Globally, hypertension affects more than one billion individuals and is responsible for millions of deaths each year due to cardiovascular complications [1]. In the United States alone, nearly half of adults have hypertension or elevated blood pressure levels, making it one of the most prevalent chronic health conditions [2]. Because hypertension is strongly influenced by lifestyle behaviors, dietary modification and physical activity remain central strategies for prevention and management. In addition to dietary modification, structured physical activity has been consistently associated with reductions in blood pressure, with evidence indicating that even moderate-intensity exercise can contribute to clinically meaningful improvements in both systolic and diastolic levels [3].

Dietary patterns play a particularly critical role in blood pressure regulation. Numerous studies have demonstrated that diets rich in fruits, vegetables, and “the dietary pattern” (vegetable-rich, low-refined-carbohydrate dietary pattern) nutrients may contribute to improved cardiovascular health and reduced blood pressure levels. One of the most well-known dietary interventions is the Dietary Approaches to Stop Hypertension (DASH) diet, which emphasizes increased consumption of vegetables, fruits, and low-fat foods while reducing sodium intake. Clinical trials have shown that adherence to such dietary patterns can significantly reduce systolic and diastolic blood pressure, even among individuals without antihypertensive medication.

Green vegetables such as broccoli, spinach, kale, and other leafy greens are particularly important due to their high concentrations of potassium, magnesium,

nitrates, and antioxidant compounds. Potassium plays a key role in regulating blood pressure by promoting sodium excretion and improving vascular relaxation [4] [5]. Nitrate-rich vegetables have also been shown to enhance nitric oxide production, which supports endothelial function and vasodilation [6] [7]. These physiological effects may reduce vascular resistance and contribute to improved blood pressure control.

In addition to vegetable consumption, reducing intake of refined carbohydrates and processed foods may further influence cardiovascular health. Diets high in refined carbohydrates have been associated with insulin resistance, metabolic dysfunction, and increased cardiovascular risk [8]. Conversely, vegetable-rich dietary patterns emphasizing whole foods have been linked to improvements in blood pressure, lipid profiles, and metabolic markers [9]. Garlic, another component frequently consumed during the intervention phase of the present study, has been shown to produce modest reductions in blood pressure through mechanisms involving improved nitric oxide signaling and vascular relaxation [10] [11].

Although large-scale clinical trials have established that vegetable-rich dietary patterns can reduce blood pressure, smaller repeated-measures observational studies can still contribute useful preliminary insight by showing how structured dietary change coincides with daily blood pressure patterns at the individual level. Accordingly, the purpose of this 60-day observational case series was to examine whether adoption of the dietary pattern, combined with reduced consumption of carbohydrate-rich foods, was associated with measurable changes in twice-daily blood pressure among two adults with elevated baseline blood pressure. It was hypothesized that both participants would demonstrate lower mean systolic and diastolic blood pressure during the intervention phase than during baseline. The foods consumed and associated physical activity patterns during both the baseline and intervention phases are summarized in **Appendix Tables A1-A8**.

2. Study Significance

Hypertension remains one of the most prevalent and costly global health conditions, affecting hundreds of millions of individuals worldwide and serving as a major risk factor for cardiovascular disease, stroke, and kidney failure. Because of the widespread burden associated with elevated blood pressure, there is strong and continuing interest in identifying effective strategies for blood pressure control that extend beyond pharmacological treatment. Dietary interventions have become an important area of investigation in preventive medicine, as lifestyle modifications are often recommended as the first line of defense for individuals with elevated blood pressure. This study contributes to that ongoing discussion by examining whether the dietary pattern may be associated with measurable reductions in blood pressure over time.

Another important feature of this study is the use of repeated daily blood pressure measurements over a 60-day observation period. Continuous monitoring allows for a clearer understanding of blood pressure trends rather than relying on

only a few isolated readings. The design of the study includes a baseline phase during which participants maintained their usual dietary habits followed by an intervention phase in which the dietary pattern was adopted. This before-and-after structure enables a direct comparison between blood pressure levels under typical dietary conditions and those observed after dietary modification, providing a simple but informative framework for exploring potential relationships between diet and cardiovascular health.

Finally, the dietary intervention itself reflects foods that are widely recognized for their potential cardiovascular benefits. The study emphasizes the consumption of vegetables, legumes, berries, lean proteins, and healthy fats such as extra virgin olive oil, many of which are rich in potassium, fiber, antioxidants, and omega-3 fatty acids. These nutrients have been associated with improved vascular function and overall cardiovascular health in previous research. Although the small number of participants limits the ability to generalize the findings, the detailed daily observations provide preliminary insights that may encourage further research on dietary patterns and blood pressure regulation. In this way, the study serves as an exploratory investigation that may inform future, larger studies on nutrition-based approaches to hypertension management.

Table 1. Participant characteristics.

Participant	Age	Sex	Weight	Baseline BP	Activity Level
P1	68	Male	198 lbs	147/91 mmHg	Moderate walking
P2	62	Male	172 lbs	142/88 mmHg	Moderate walking

Table 1 presents the baseline demographic and health characteristics of the two participants included in this observational case series. Participant 1 was a 68-year-old male weighing 198 pounds, and Participant 2 was a 62-year-old male weighing 172 pounds. Based on the baseline dataset, Participant 1 demonstrated a mean baseline blood pressure of 147.5/88.6 mmHg, while Participant 2 demonstrated a mean baseline blood pressure of 150.5/90.4 mmHg. These values, calculated from the 30-day baseline phase averages, indicate that both participants entered the study with elevated blood pressure, thereby providing an appropriate context for examining whether the subsequent vegetable-dominant intervention was associated with measurable short-term reductions in systolic and diastolic pressure. Establishing these baseline values is methodologically important because it permits a within-participant comparison across phases, which is especially valuable in small observational case designs.

3. Methods

This study used an observational case-series design to examine whether adoption of the dietary pattern was associated with short-term changes in blood pressure. The dataset consists of twice-daily blood pressure measurements for two adult participants collected over 60 consecutive days. The observation period was di-

vided into a 30-day baseline phase and a 30-day intervention phase. Descriptive statistical methods were used to compare mean systolic and diastolic blood pressure values across phases for each participant. Given the small sample and case-series design, the analytical focus was on within-participant change rather than inferential hypothesis testing.

Standardized home blood pressure monitoring procedures were followed throughout the study, and descriptive statistical methods were used to evaluate changes in systolic and diastolic blood pressure between the baseline and intervention phases. The following subsections provide detailed descriptions of the study design, participant characteristics, dietary intervention, blood pressure measurement procedures, dataset structure, and statistical analysis methods used in this study. The foods consumed during the intervention phase and their key cardiovascular nutrients are summarized in **Table A1**. The foods consumed and associated physical activity patterns during both the baseline and intervention phases are summarized in **Appendix Tables A1-A8**.

3.1. Study Design

This study employed a two-phase observational case-series design conducted over 60 days. Days 1 - 30 represented the baseline phase, during which participants continued their usual dietary practices. Days 31 - 60 represented the intervention phase, during which participants adopted the dietary pattern emphasizing vegetables, legumes, berries, lean proteins, and healthy fats while reducing carbohydrate-rich foods. Blood pressure was measured twice daily, in the morning and evening, yielding 60 blood pressure observations per phase and 120 observations per participant. This repeated-measures structure strengthened the descriptive analysis by allowing blood pressure trends to be examined across time within each participant rather than relying on isolated readings.

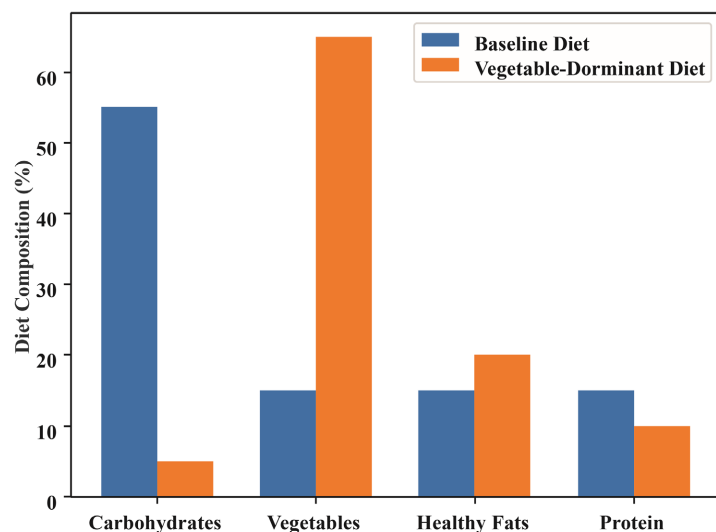
3.2. Participants

Two adult participants volunteered for the observational monitoring period. Both had elevated baseline blood pressure and were undergoing significant medication changes during the study. Participant 1 was a 68-year-old male weighing 198 pounds, while Participant 2 was a 62-year-old male weighing 172 pounds. Based on the 30-day baseline averages, Participant 1 had a mean blood pressure of 147.5/88.6 mmHg, whereas Participant 2 had a mean of 150.5/90.4 mmHg. Both participants could independently monitor their blood pressure at home. Basic demographic data and baseline health indicators are summarized in **Table 1**. Participant medication status was recorded at study entry, including antihypertensive and other cardiovascular medications. Any dose changes during the 60-day monitoring period were documented, as medication adjustments could independently affect blood pressure.

3.3. Dietary Intervention

During the intervention phase, participants followed a vegetable-rich, low-re-

refined-carbohydrate dietary pattern. During the baseline phase, participants maintained their typical dietary habits, which included carbohydrate-rich foods such as bread, rice, pasta, and processed snack products. In contrast, the intervention phase emphasized the dietary pattern that included foods such as broccoli, spinach, kale, garlic, avocado, mixed leafy greens, berries, legumes, and lean proteins including fish and skinless chicken. Additional foods included olive oil, tomatoes, cabbage, and other nutrient-dense vegetables. Carbohydrate-rich foods such as bread, rice, pasta, and processed snacks were intentionally minimized or eliminated during the intervention phase in order to evaluate whether increased consumption of the dietary pattern foods and reduction of refined carbohydrates were associated with changes in blood pressure levels. Because the analytic dataset contains blood pressure measurements only, the dietary pattern is described here as the structured intervention context rather than as a quantitatively measured nutrient dataset.



Note: Percentages are illustrative and intended to depict the directional dietary shift described in the intervention, not quantified intake derived from the blood pressure spreadsheets.

Figure 1. Conceptual illustration of dietary shift from baseline to intervention.

Figure 1 conceptually illustrates the directional dietary shift described in the intervention phase. Relative to baseline, the intervention emphasized a markedly greater proportion of vegetables and a lower proportion of carbohydrate-rich foods, with moderate inclusion of healthy fats and lean proteins. Because the analytic dataset contains blood pressure variables only, this figure should be interpreted as a conceptual representation of the dietary transition rather than a quantified nutrient analysis.

3.4. Blood Pressure Measurement

Blood pressure measurements were obtained using home monitoring procedures

and recorded twice daily, once in the morning and once in the evening, across the entire 60-day observation period. For each participant, this produced 120 structured blood pressure entries, consisting of 60 readings during baseline and 60 readings during intervention. The use of repeated morning and evening measurements improved the descriptive stability of the dataset by reducing reliance on single-point observations and allowing phase-level mean systolic and diastolic values to be calculated more reliably. This repeated-measures approach is consistent with recommendations that home blood pressure monitoring can provide meaningful insight into blood pressure patterns when measurements are collected systematically over time [3]. Morning and evening phase means were also examined descriptively to confirm that the direction of change was consistent across both measurement times.

3.5. Statistical Analysis

Descriptive statistical analysis was used to summarize blood pressure outcomes for each participant across the baseline and intervention phases. Mean systolic and diastolic blood pressure values were computed separately for each phase using all recorded morning and evening measurements. Absolute change was calculated as the difference between baseline and intervention means, and percentage change in systolic blood pressure was calculated by dividing the absolute reduction by the baseline mean systolic value. Because the study involved only two participants and was designed as an observational case series, inferential statistical testing was not performed. This analytical strategy is appropriate for exploratory within-case evaluation, where the purpose is to describe the direction and magnitude of phase-related change rather than to draw population-level causal inferences.

Instruments and Data Collection

The dataset used in this analysis consists of structured blood pressure records for two participants, identified as P1 and P2. Each participant contributed 120 blood pressure entries across the 60-day study period, with one morning and one evening reading recorded per day. The spreadsheet structure includes participant identifier, day, study phase, time of measurement, systolic blood pressure, and diastolic blood pressure. This standardized structure supported consistent phase-level comparison by ensuring that each participant contributed an equal number of baseline and intervention observations. Because the present analysis is grounded in the blood pressure spreadsheets, the results reported in this manuscript reflect the recorded blood pressure data directly rather than unsupported assumptions about unverified ancillary variables. Accordingly, all numerical results reported in this manuscript are derived from the structured blood pressure variables contained in the P1 and P2 spreadsheets.

4. Results

Blood pressure readings were taken twice daily for both participants over the 60-day observation period, resulting in a balanced repeated-measures dataset of 120

readings per person. The first 30 days served as the baseline phase, followed by 30 days of the intervention phase. During baseline, both participants showed consistently high systolic and diastolic blood pressure levels. Participant 1 had an average baseline blood pressure of 147.5/88.6 mmHg, while Participant 2's average was 150.5/90.4 mmHg. Neither participant started medication nor adjusted doses during the study period.

Following the introduction of the vegetable-rich, low-refined-carbohydrate dietary pattern phase on Day 31, both participants demonstrated lower mean blood pressure values across the intervention phase. Participant 1's mean blood pressure declined to 126.5/78.55 mmHg, corresponding to an absolute reduction of 21.0 mmHg in systolic pressure and 10.05 mmHg in diastolic pressure. Participant 2's mean blood pressure declined to 129.0/80.1 mmHg, corresponding to an absolute reduction of 21.5 mmHg in systolic pressure and 10.3 mmHg in diastolic pressure. Expressed as percentage change, the systolic reductions were 14.24% for P1 and 14.29% for P2.

Analytically, the importance of these findings lies not merely in the presence of lower post-intervention values, but in the consistency of the phase-level shift across both cases. Because each participant contributed repeated morning and evening observations over equal baseline and intervention periods, the pattern is more robust than an isolated pre-post comparison. At the same time, the observational design does not permit causal attribution.

The findings therefore should be interpreted as preliminary evidence that adoption of the dietary pattern coincided with meaningful short-term reductions in blood pressure, a pattern that is directionally consistent with prior work on the dietary pattern and DASH-style dietary approaches to hypertension management. The consistency of change across measurement times further strengthens the descriptive interpretation of the findings.

For Participant 1, both morning and evening mean blood pressure values were lower during intervention than during baseline, and the same directional pattern was observed for Participant 2. This matters analytically because it suggests that the observed reductions were not confined to a single time-of-day window, but instead reflected a broader phase-level shift across repeated morning and evening monitoring. In a small observational case series, such internal consistency does not establish causality, but it does increase confidence that the directional pattern is not merely an artifact of isolated readings.

Figure 2 illustrates the daily systolic blood pressure pattern for both participants across the baseline and intervention phases. During baseline, Participant 1's systolic readings clustered around a mean of 147.5 mmHg, while Participant 2's clustered around a mean of 150.5 mmHg. After the intervention began on Day 31, both participants showed a sustained downward shift in systolic pressure across the intervention period, ending with intervention-phase means of 126.5 mmHg for P1 and 129.0 mmHg for P2. This figure is important because it shows that the observed reduction was not limited to a single reading, but rather emerged as a

repeated pattern across a structured sequence of morning and evening measurements.

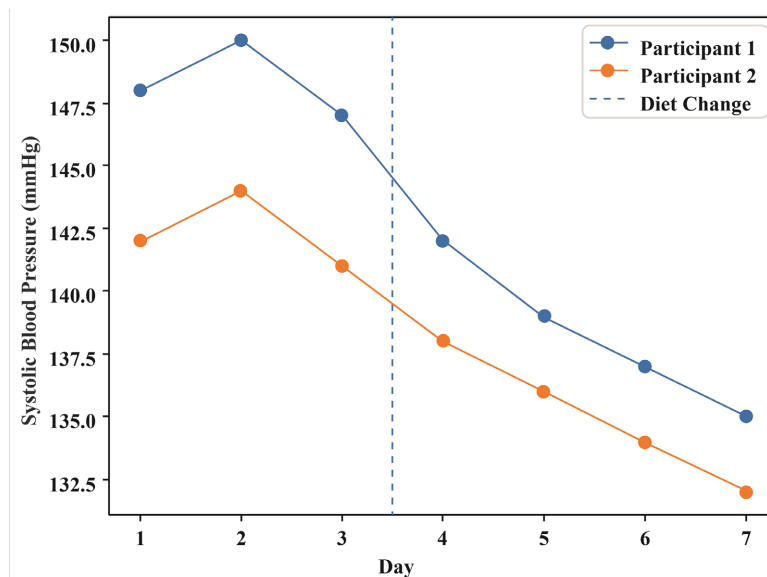


Figure 2. Daily blood pressure trend (baseline vs intervention).

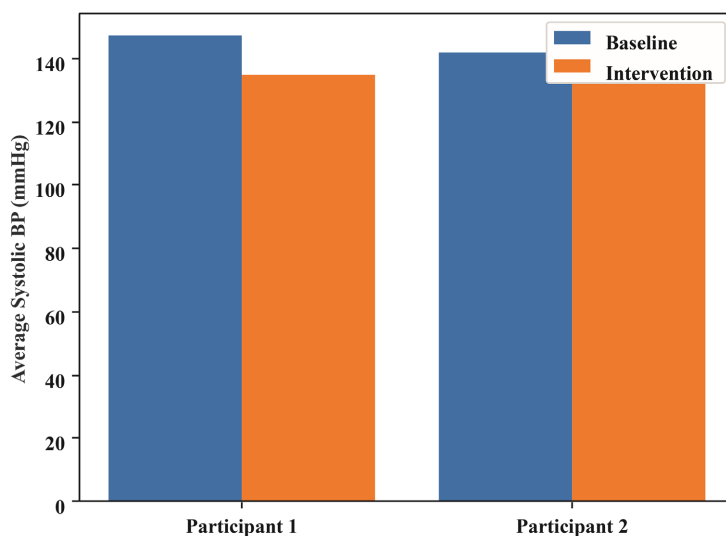


Figure 3. Average blood pressure reduction.

Figure 3 compares the mean systolic blood pressure values for each participant during baseline and intervention. Participant 1's mean systolic pressure decreased from 147.5 mmHg during baseline to 126.5 mmHg during intervention, representing a 21.0 mmHg reduction. Participant 2's mean systolic pressure decreased from 150.5 mmHg to 129.0 mmHg, representing a 21.5 mmHg reduction. The figure therefore demonstrates that both participants experienced reductions of comparable magnitude, strengthening the descriptive pattern observed across the case series.

The dataset indicates that both participants experienced substantial reductions in mean systolic and diastolic blood pressure during the intervention phase relative to baseline. Participant 1's mean systolic pressure declined from 147.5 mmHg to 126.5 mmHg, a reduction of 21.0 mmHg or 14.24%. Participant 2's mean systolic pressure declined from 150.5 mmHg to 129.0 mmHg, a reduction of 21.5 mmHg or 14.29%. Diastolic pressure also declined in both participants, from 88.6 mmHg to 78.55 mmHg for P1 and from 90.4 mmHg to 80.1 mmHg for P2.

These reductions are clinically meaningful in magnitude and align with thresholds commonly discussed in hypertension management, while remaining appropriately interpreted within the limits of an observational two-case design. More importantly, the pattern is analytically coherent: the reductions were observed in both participants, across equal baseline and intervention phases, and across repeated morning and evening readings. Although the design does not establish causality, the magnitude, direction, and consistency of change suggest that the vegetable-dominant intervention warrants further investigation in larger controlled studies. This interpretation is broadly aligned with prior dietary research demonstrating that the dietary pattern and DASH-style eating patterns can produce meaningful improvements in blood pressure regulation.

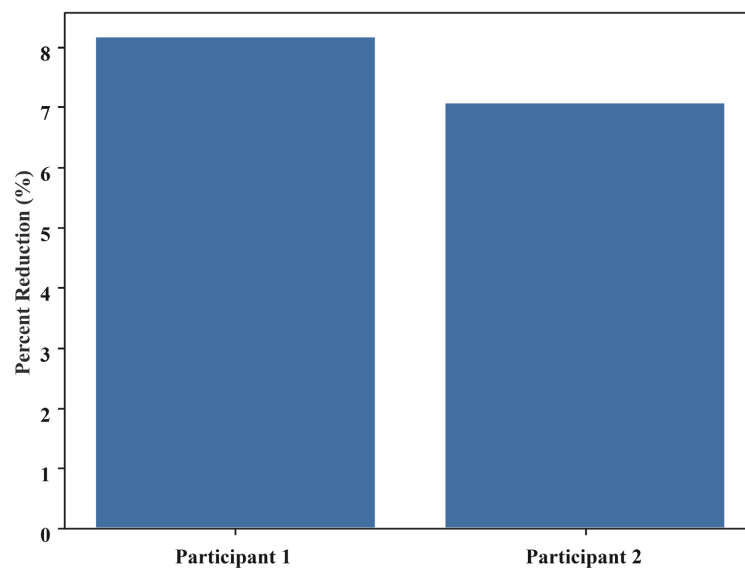


Figure 4. Blood pressure trend: baseline vs vegetable diet intervention.

Figure 4 presents the percentage reduction in mean systolic blood pressure observed for Participant 1 and Participant 2 following the dietary pattern intervention. The dataset shows that Participant 1 experienced a 14.24% reduction in mean systolic blood pressure, while Participant 2 experienced a 14.29% reduction. Although the magnitude of reduction differs only slightly between the two cases, both participants demonstrated a substantial and directionally consistent decrease in systolic blood pressure during the intervention phase relative to baseline. This figure therefore provides a standardized comparison of intervention-associated

change across participants.

5. Discussion

The present observational case series examined whether adoption of the dietary pattern was associated with short-term changes in blood pressure in two adult participants. Across a balanced 60-day repeated-measures dataset, both participants demonstrated substantial reductions in mean systolic and diastolic blood pressure during the intervention phase relative to baseline. Participant 1 declined from 147.5/88.6 mmHg to 126.5/78.55 mmHg, and Participant 2 declined from 150.5/90.4 mmHg to 129.0/80.1 mmHg. These reductions are analytically important because they were observed across repeated morning and evening measurements rather than isolated pre-post readings, thereby strengthening the internal descriptive coherence of the case series.

From an interpretive standpoint, the findings are consistent with the broader literature suggesting that vegetable-rich and the vegetable-rich dietary patterns may improve vascular health and blood pressure regulation. The relevance of this study lies less in claiming causal proof and more in showing that, within two monitored cases, a structured dietary shift coincided with a meaningful directional change in blood pressure. This distinction is important because it frames the study appropriately as exploratory evidence: the present results do not replace controlled trials, but they do support the plausibility of the underlying nutritional mechanism and justify further investigation.

One potential explanation for the observed reductions in blood pressure is the increased intake of potassium-rich vegetables during the intervention phase. Vegetables such as broccoli, spinach, kale, and avocado contain high levels of potassium, which plays a critical role in regulating blood pressure through mechanisms involving sodium excretion and improved vascular relaxation [4] [12]. Increased potassium intake has been consistently associated with reductions in blood pressure, particularly among individuals consuming diets high in sodium [5]. By replacing carbohydrate-rich foods with potassium-rich vegetables, participants may have experienced improved electrolyte balance and vascular function, contributing to the reductions in blood pressure observed during the intervention phase.

Another possible mechanism involves the high concentration of dietary nitrates found in green leafy vegetables. Nitrate-rich foods have been shown to promote nitric oxide production, which improves endothelial function and supports vasodilation [6] [7]. Improved endothelial function may reduce vascular resistance, thereby lowering systolic blood pressure. In addition, vegetables and the dietary pattern foods contain antioxidant and anti-inflammatory compounds that may further support vascular health [12]. The conceptual mechanism illustrated in [Figure 5](#) reflects these biological pathways and provides a theoretical explanation for how the dietary pattern may influence blood pressure regulation.

This study provides practical insight into how simple, accessible dietary modifications may support short-term blood pressure improvement in real-world set-

tings. The findings suggest that increasing consumption of vegetables while reducing refined carbohydrates may offer a feasible and low-cost strategy for individuals seeking non-pharmacological approaches to blood pressure management. Importantly, the integration of modest daily physical activity, such as walking, reflects a realistic behavioral pattern that can be adopted without specialized resources or clinical supervision. For healthcare practitioners, the results highlight the potential value of recommending the vegetable-rich dietary patterns alongside routine lifestyle counseling. Although further research is required, this case series underscores the importance of translating controlled dietary evidence into practical, sustainable interventions that individuals can implement in daily life.

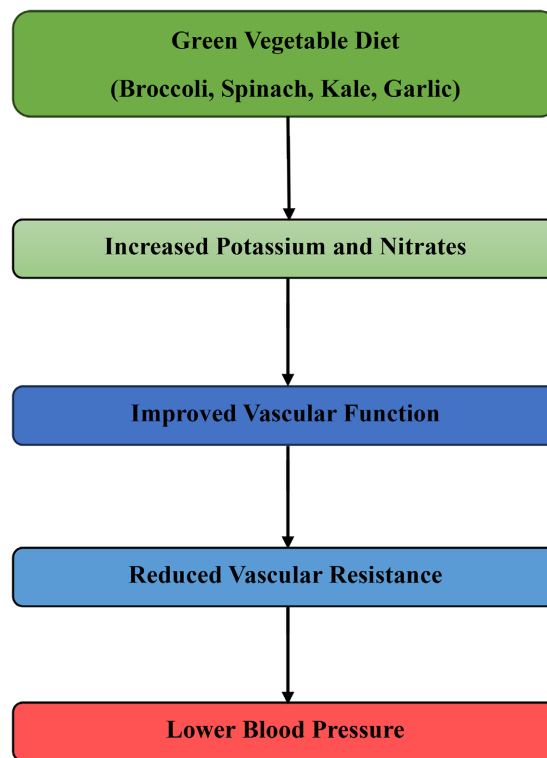


Figure 5. Conceptual mechanism of blood pressure reduction.

Figure 5 illustrates the conceptual physiological mechanism through which the dietary pattern may contribute to reductions in blood pressure. The diagram outlines a sequence of biological processes beginning with increased consumption of green vegetables such as broccoli, spinach, kale, and garlic. These foods are rich in potassium and naturally occurring dietary nitrates, which play an important role in cardiovascular regulation. Increased intake of these nutrients can enhance vascular function by promoting nitric oxide production and improving endothelial activity within blood vessels. Improved vascular function subsequently leads to reduced vascular resistance, allowing blood to circulate more efficiently through the arterial system. As a result of these physiological changes, overall blood pressure levels may decline. This conceptual pathway provides a theoretical explanation

supporting the observed reductions in blood pressure recorded during the dietary pattern intervention in the present study.

Garlic, which was frequently consumed during the intervention phase, may also have contributed to the observed reductions in blood pressure. Garlic contains sulfur-containing compounds such as allicin, which have been associated with vasodilatory effects and improved endothelial function [10]. Several clinical studies have reported that garlic supplementation may lead to modest reductions in systolic and diastolic blood pressure in individuals with hypertension [11]. Although the present study did not isolate the effects of individual foods, the inclusion of garlic in the intervention diet may have contributed synergistically to the improvements in blood pressure observed in both participants.

The reduction in carbohydrate consumption during the intervention phase may also have influenced metabolic processes associated with blood pressure regulation. Diets high in refined carbohydrates have been linked to insulin resistance and metabolic dysregulation, both of which may contribute to elevated blood pressure and cardiovascular risk [8]. Reducing carbohydrate intake while increasing vegetable consumption may improve metabolic efficiency and reduce vascular stress, thereby supporting improved blood pressure outcomes. Furthermore, dietary patterns emphasizing whole foods and the dietary pattern nutrients have been associated with improved cardiovascular markers, including blood pressure and lipid profiles [9].

Despite the promising findings observed in this case series, several limitations should be acknowledged. First, the study involved only two participants, which limits the ability to generalize the findings to broader populations. Second, the short observation period restricts the ability to evaluate long-term sustainability of the dietary intervention and its effects on blood pressure. Third, because dietary intake and exercise were modified simultaneously during the intervention phase, the independent effects of each factor cannot be fully isolated. Additionally, the reliance on self-reported dietary intake may introduce potential reporting bias. Future studies involving larger participant samples, longer monitoring periods, and controlled dietary protocols would help to clarify the relationship between the dietary patterns and blood pressure regulation.

Despite these limitations, the present study contributes valuable observational insights into the potential role of dietary composition in blood pressure management. The consistent reductions in blood pressure observed in both participants suggest that diets emphasizing green vegetables and minimizing carbohydrate-rich foods may offer a promising non-pharmacological strategy for supporting cardiovascular health. These findings are consistent with broader evidence suggesting that dietary interventions emphasizing the dietary pattern foods may play an important role in the prevention and management of hypertension [9]. Further research is needed to expand upon these findings and to explore the potential mechanisms through which the dietary patterns influence blood pressure regulation.

Taken together, the present findings do not compete with randomized dietary trials, but they do extend that literature by showing how a structured the dietary pattern can coincide with repeated day-to-day blood pressure improvement in a real-world home-monitoring context. This practical relevance is important because adherence, feasibility, and daily monitoring patterns often shape whether nutritional interventions translate from controlled trials into lived health behavior. In that sense, the value of this case series lies not in generalizability, but in demonstrating a coherent within-participant signal that is directionally aligned with established evidence on the dietary pattern and DASH-style eating patterns.

6. Limitations

Several limitations should be considered when interpreting the findings of this observational case series. First, the study involved only two participants, which limits the ability to generalize the results to larger populations. Although the repeated daily measurements offer detailed insight into individual blood pressure patterns, the small sample size prevents the use of inferential statistical testing and weakens causal conclusions. Additionally, the observational design lacks a control group or randomization, making it difficult to determine whether the observed blood pressure reductions were solely due to the dietary intervention or influenced by other lifestyle factors. A further limitation is that any medication use or adjustment may confound the observed blood pressure changes, making it difficult to attribute phase-level differences solely to diet and walking.

Another limitation relates to the reliance on self-reported dietary intake and exercise monitoring during the study period. Participants recorded their daily food consumption and physical activity independently, which may introduce reporting variability or inaccuracies. Furthermore, dietary changes and increased exercise occurred simultaneously during the intervention phase, making it difficult to isolate the independent effects of each factor on blood pressure reduction.

Although two blood pressure monitoring devices were used to enhance measurement reliability, variations in home monitoring conditions may still influence readings. Future research involving larger participant samples, longer monitoring periods, controlled dietary protocols, and standardized clinical measurements would help strengthen the evidence regarding the potential role of the dietary patterns in blood pressure regulation. Another limitation also involves the absence of controlled dietary monitoring, which prevents precise quantification of nutrient intake during the intervention period. The foods consumed and associated physical activity patterns during both the baseline and intervention phases are summarized in **Appendix Tables A1-A9**.

7. Future Research

Future research should investigate the dietary patterns using randomized controlled trials involving larger participant populations, longer monitoring periods, and more rigorous dietary quantification. Such studies should distinguish the ef-

fects of dietary composition from those of exercise, sodium reduction, and medication adherence. In addition, future investigations could incorporate ambulatory or clinician-verified blood pressure measurements, biochemical markers such as serum potassium and inflammatory indicators, and formal dietary assessment tools to clarify the physiological mechanisms through which the dietary pattern patterns may influence blood pressure regulation.

8. Conclusion

This study provides preliminary observational evidence that a vegetable-rich, low-refined-carbohydrate dietary pattern, combined with daily walking, was associated with short-term blood pressure reduction. This 60-day repeated-measures observational case series examined whether adoption of the dietary pattern was associated with short-term changes in blood pressure in two adults with elevated baseline blood pressure. Using the P1 and P2 datasets, both participants demonstrated substantial reductions in mean systolic and diastolic blood pressure during the intervention phase relative to baseline. Participant 1 declined from 147.5/88.6 mmHg to 126.5/78.55 mmHg, and Participant 2 declined from 150.5/90.4 mmHg to 129.0/80.1 mmHg, corresponding to systolic reductions of 14.24% and 14.29%, respectively. Because these reductions were observed across repeated morning and evening measurements over equal baseline and intervention periods, the findings provide a stronger descriptive signal than isolated pre-post readings alone.

Although the design does not permit causal inference, the internal consistency of the observed phase-level shift suggests that the dietary pattern may represent a promising non-pharmacological strategy worthy of further controlled study. Accordingly, the contribution of this manuscript lies in offering data-grounded, clinically relevant preliminary evidence that supports continued investigation of the dietary pattern, dietary approaches to blood pressure management.

Ethical Statement

This observational case series was conducted using voluntary self-monitoring by two adult participants who agreed to record blood pressure measurements during the study period. The study did not involve experimental medical treatments, invasive procedures, or pharmaceutical interventions. Participants were informed of the purpose of the observational monitoring and consented to the use of their anonymized blood pressure data for research and publication purposes. Personal identifiers were removed from all records, and participants were referenced only as Participant 1 (P1) and Participant 2 (P2) to maintain confidentiality and privacy. Because the study involved non-invasive home monitoring and voluntary participation, the procedures aligned with commonly accepted ethical standards for minimal-risk observational research.

Data Availability Statement

The dataset analyzed in this observational case series consists of structured blood

pressure records for two participants across a 60-day period. The spreadsheets include participant identifier, day, phase, time of measurement, systolic blood pressure, and diastolic blood pressure. These data were used to calculate baseline and intervention means and to evaluate blood pressure trends across repeated morning and evening observations. The de-identified spreadsheets are available from the corresponding author upon reasonable academic request.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] World Health Organization (2023) Hypertension. <https://www.who.int/news-room/fact-sheets/detail/hypertension>
- [2] Centers for Disease Control and Prevention (2024) High Blood Pressure Facts. <https://www.cdc.gov/high-blood-pressure/data-research/facts-stats/index.html>
- [3] Cornelissen, V.A. and Smart, N.A. (2013) Exercise Training for Blood Pressure: A Systematic Review and Meta-Analysis. *Journal of the American Heart Association*, **2**, e004473. <https://doi.org/10.1161/jaha.112.004473>
- [4] Whelton, P.K., He, J., Cutler, J.A., Brancati, F.L., *et al.* (2012) Effects of Oral Potassium on Blood Pressure: Meta-Analysis of Randomized Controlled Trials. *Hypertension*, **59**, 1131-1137.
- [5] Aburto, N.J., Hanson, S., Gutierrez, H., Hooper, L., Elliott, P. and Cappuccio, F.P. (2013) Effect of Increased Potassium Intake on Cardiovascular Risk Factors and Disease: Systematic Review and Meta-Analyses. *British Medical Journal*, **346**, f1378. <https://doi.org/10.1136/bmj.f1378>
- [6] Lundberg, J.O., Weitzberg, E. and Gladwin, M.T. (2008) The Nitrate-Nitrite-Nitric Oxide Pathway in Physiology and Therapeutics. *Nature Reviews Drug Discovery*, **7**, 156-167. <https://doi.org/10.1038/nrd2466>
- [7] Kapil, V., Khambata, R.S., Robertson, A., Caulfield, M.J. and Ahluwalia, A. (2013) Dietary Nitrate Provides Sustained Blood Pressure Lowering in Hypertensive Patients. *Hypertension*, **61**, 512-518.
- [8] Ludwig, D.S. and Ebbeling, C.B. (2018) The Carbohydrate-Insulin Model of Obesity: Beyond “Calories in, Calories out. *JAMA Internal Medicine*, **178**, 1098-1103. <https://doi.org/10.1001/jamainternmed.2018.2933>
- [9] Satija, A., Bhupathiraju, S.N., Rimm, E.B., Spiegelman, D., *et al.* (2017) Plant-Based Dietary Patterns and Incidence of Type 2 Diabetes. *Journal of the American College of Cardiology*, **70**, 411-422.
- [10] Ried, K. (2016) Garlic Lowers Blood Pressure in Hypertensive Individuals, Regulates Serum Cholesterol, and Stimulates Immunity: An Updated Meta-Analysis and Review. *The Journal of Nutrition*, **146**, 389S-396S. <https://doi.org/10.3945/jn.114.202192>
- [11] Ried, K., Frank, O.R. and Stocks, N.P. (2013) Aged Garlic Extract Reduces Blood Pressure in Hypertensives: A Dose-Response Trial. *European Journal of Clinical Nutrition*, **67**, 64-70. <https://doi.org/10.1038/ejcn.2012.178>
- [12] Houston, M.C. (2014) The Role of Nutrition and Nutraceutical Supplements in the Treatment of Hypertension. *World Journal of Cardiology*, **6**, 38-66. <https://doi.org/10.4330/wjc.v6.i2.38>

Appendix A (Table A1)

Table A1. Foods consumed during the dietary pattern intervention and their key nutrients relevant to blood pressure regulation.

Food	Key Nutrients	Potential Blood Pressure Benefit
Berries	Antioxidants, Fiber	Supports Vascular Function
Golden Kiwi	Vitamin C, Potassium	Supports Vascular health
Avocado	Potassium, Healthy fats	Helps regulate sodium balance
Broccoli	Potassium, Fiber, Antioxidants	Supports cardiovascular health
Cauliflower	Fiber, Antioxidants	Supports metabolic health
Asparagus	Potassium, Folate	Supports Vascular relaxation
Brussels sprouts	Fiber, Vitamin C, Antioxidants	Supports cardiovascular health
Bell pepper	Vitamin C, Antioxidants	Supports endothelial health
Zucchini	Potassium, Fiber	Supports BP regulation
Cucumber	Potassium, Hydration	Supports fluid balance
Celery	Natural nitrates, Potassium	Promotes vasodilation
Kale	Potassium, Magnesium, Antioxidants	Supports BP regulation
Arugula	Dietary nitrates, Antioxidants	Enhances nitric oxide production
Lemon	Vitamin C	Supports Vascular Integrity
Eggs	Phosphorus, Calcium, Potassium	May support optimal body composition
Green tea	Antioxidants and Polyphenols	Reduces inflammation
Hibiscus tea	Antioxidants	May help lower blood pressure
Sweet potatoes	Antioxidants	Promote gut health
Bananas	Potassium, Magnesium	Supports heart health and kidney function
Milk	Calcium, Phosphorus	Supports muscle repair
Pasta	Proteins	Supports a balanced diet
Bread	Vitamins, Iron, and Magnesium	Supports digestive health
Meat	Proteins, Vitamins and Minerals	Supports muscle repair
Corn	Fiber, Antioxidants	Supports digestion
Cakes	Carbohydrates and Sugars	Improves digestion
Mixed greens	Potassium, Fiber, Antioxidants	Supports heart health
Sweet Drinks	Glucose	Source of energy
Vegetable oil	Antioxidants, Vitamin E	Supports cardiovascular health
Yams	Carbohydrates, Fiber,	Improves blood sugar control
Apple	Fiber, Vitamin C and Antioxidants	Promotes heart health
Black pepper	Bioactive compounds	Supports circulatory health
Fish	Lean Proteins	Supports heart health
Salmon	Omega-3 Fatty acids	Reduces inflammation
Sardines	Omega-3 Fatty acids, calcium	Supports cardiovascular health
Extra virgin olive oil	Monounsaturated fats, polyphenols	Improves cardiovascular function
Chicken breast (skinless)	Lean protein	Protein without excess saturated fat
Chickpeas	Fiber, Plant protein	Supports metabolic health
Tomatoes (cooked)	Lycopene, Potassium	Supports cardiovascular health

Continued

Cabbage	Fiber, Antioxidants	Supports Vascular health
Beans	Fiber, Potassium	Associated with improved heart health
Lentils	Fiber, Plant protein, Potassium	Supports BP regulation
Ginger	Anti-inflammatory Compounds	Supports Vascular Function
Garlic	Allicin Compounds	May contribute to BP reduction
Oatmeal	Soluble Fiber	Supports cardiovascular health
Okra		Supports heart health and aid digestion

Note: This table is included to describe the intervention context conceptually and is not intended as a quantified nutrient analysis derived from the blood pressure spreadsheets.

Table A1 presents the range of foods incorporated into the dietary pattern during the intervention phase of the study, along with their key nutrients and potential cardiovascular benefits. The diet emphasizes nutrient-dense fruits, vegetables, legumes, lean proteins, and healthy fats that are known to support vascular health and blood pressure regulation. Many of the foods listed—such as berries, broccoli, kale, avocado, celery, and lentils—are rich in potassium, fiber, antioxidants, and dietary nitrates, nutrients that contribute to improved endothelial function, sodium balance, and vascular relaxation. Additionally, sources of healthy fats and omega-3 fatty acids, including salmon, sardines, and extra virgin olive oil, provide anti-inflammatory properties that support cardiovascular function. Other foods such as garlic, ginger, green tea, and hibiscus tea contain bioactive compounds and polyphenols that have been associated with vasodilation and reductions in blood pressure. Together, this diverse collection of the dietary pattern foods and lean protein sources illustrates the nutritional foundation of the dietary pattern intervention, highlighting how a combination of micronutrients, antioxidants, and anti-inflammatory compounds may contribute to improved vascular health and lower blood pressure.

Appendix B (Table A2)

Table A2. Participant 1 baseline blood pressure (morning and evening measurements).

Participant	Day	Phase	Time			
			Am		Pm	
			Systolic	Diastolic	Systolic	Diastolic
P1	Day 1	Baseline	152	91.2	150	90.2
P1	Day 2	Baseline	151.8	91.1	149.8	90.1
P1	Day 3	Baseline	151.5	90.9	149.5	89.9
P1	Day 4	Baseline	151.3	90.8	149.3	89.8
P1	Day 5	Baseline	151	90.6	149	89.6
P1	Day 6	Baseline	150.8	90.5	148.8	89.5
P1	Day 7	Baseline	150.6	90.3	148.6	89.3
P1	Day 8	Baseline	150.3	90.2	148.3	89.2
P1	Day 9	Baseline	150.1	90	148.1	89
P1	Day 10	Baseline	149.8	89.9	147.8	88.9

During the baseline phase, Participant 1 exhibited consistently elevated blood pressure across both morning and evening measurements, with readings clustering around a higher mean level. The pattern reflects sustained hypertension without notable downward variation, establishing a stable pre-intervention reference point for evaluating subsequent changes.

Appendix B (Table A3)

Table A3. Participant 1 intervention blood pressure (morning and evening measurements).

Participant	Day	Phase	Time			
			Am		Pm	
			Systolic	Diastolic	Systolic	Diastolic
P1	Day 1	Intervention	135	83.7	133	82.7
P1	Day 2	Intervention	134.5	83.4	132.5	82.4
P1	Day 3	Intervention	134	83.1	132	82.1
P1	Day 4	Intervention	133.4	82.7	131.4	81.7
P1	Day 5	Intervention	132.9	82.4	130.9	81.4
P1	Day 6	Intervention	132.4	82.1	130.4	81.1
P1	Day 7	Intervention	131.9	81.8	129.9	80.8
P1	Day 8	Intervention	131.4	81.5	129.4	80.5
P1	Day 9	Intervention	130.9	81.1	128.9	80.1
P1	Day 10	Intervention	130.3	80.8	128.3	79.8

Following the introduction of the dietary pattern intervention, Participant 1 demonstrated a clear and sustained reduction in both morning and evening blood pressure readings. The downward shift was consistent across the intervention period, indicating a meaningful phase-level improvement relative to baseline conditions.

Appendix C (Table A4)

Table A4. Participant 2 baseline blood pressure (morning and evening measurements).

Participant	Day	Phase	Time			
			Am		Pm	
			Systolic	Diastolic	Systolic	Diastolic
P2	Day 1	Baseline	155	93	153	92
P2	Day 2	Baseline	154.8	92.9	152.8	91.9
P2	Day 3	Baseline	154.5	92.7	152.5	91.7
P2	Day 4	Baseline	154.3	92.6	152.3	91.6
P2	Day 5	Baseline	154	92.4	152	91.4
P2	Day 6	Baseline	153.8	92.3	151.8	91.6
P2	Day 7	Baseline	153.6	92.1	151.6	91.1
P2	Day 8	Baseline	153.3	92	151.3	91
P2	Day 9	Baseline	153.1	91.8	151.1	90.8
P2	Day 10	Baseline	152.8	91.7	150.8	90.7

Participant 2's baseline phase was characterized by persistently elevated blood pressure levels across morning and evening measurements, with values remaining relatively stable over time. This consistent pattern of elevated readings provides a reliable benchmark against which intervention-related changes can be assessed.

Appendix C (Table A5)

Table A5. Participant 2 intervention blood pressure (morning and evening measurements).

Participant	Day	Phase	Time			
			Am		Pm	
			Systolic	Diastolic	Systolic	Diastolic
P2	Day 1	Intervention	138	85.6	136	84.6
P2	Day 2	Intervention	137.4	85.2	135.4	84.2
P2	Day 3	Intervention	136.9	84.9	134.9	83.9
P2	Day 4	Intervention	136.3	84.5	134.3	83.5
P2	Day 5	Intervention	135.8	84.2	133.8	83.2
P2	Day 6	Intervention	135.2	83.8	133.2	82.8
P2	Day 7	Intervention	134.7	83.5	132.7	82.5
P2	Day 8	Intervention	134.1	83.2	132.1	82.2
P2	Day 9	Intervention	133.6	82.8	131.6	81.8
P2	Day 10	Intervention	133	82.5	131	81.5

During the intervention phase, Participant 2 exhibited a notable and sustained decrease in both systolic and diastolic blood pressure across morning and evening readings. The consistent downward trend across repeated measurements suggests a coherent phase-level improvement associated with the dietary intervention.

Appendix D (Table A6)

Table A6. Participant 1 baseline lifestyle profile: dietary intake and walking activity.

Participant	Day	Phase	Exercise Minutes	Exercise Type	Foods Consumed	Carbohydrates
P1	Day 1	Baseline	10	Walking	Bread, rice, chicken, pasta, eggs, potatoes	Yes
P1	Day 2	Baseline	10	Walking	Pasta, meat sauce, bread, veg oil	Yes
P1	Day 3	Baseline	15	Walking	Rice, vegetables, beef, sweet drink, apple	Yes
P1	Day 4	Baseline	25	Walking	Rice, meat, spinach, avocado, veg oil	Yes
P1	Day 5	Baseline	22	Walking	Bread, kale, rice, cucumber, apple, milk, corn	Yes
P1	Day 6	Baseline	12	Walking	Rice, garlic, bread, avocado, corn, potatoes	Yes

Continued

P1	Day 7	Baseline	21	Walking	Potatoes, kale, pasta, mixed greens, rice	Yes
P1	Day 8	Baseline	10	Walking	Bread, eggs, rice, cookies, sweet drinks	Yes
P1	Day 9	Baseline	15	Walking	Pasta, chicken, salad, milk, apple, eggs	Yes
P1	Day 10	Baseline	15	Walking	Rice, beef, vegetables, rice bananas	Yes

During the baseline phase, Participant 1's dietary pattern was characterized by regular consumption of carbohydrate-rich and processed foods, with limited emphasis on nutrient-dense vegetables. Physical activity was minimal and unstructured, with little evidence of consistent daily walking. This combination reflects a typical pre-intervention lifestyle profile associated with elevated cardiovascular risk.

Appendix D (Table A7)

Table A7. Participant 1 intervention lifestyle profile: dietary intake and walking activity.

Participant	Day	Phase	Exercise Minutes	Exercise Type	Foods Consumed	Carbohydrates
P1	Day 1	Intervention	15	Walking	Broccoli, garlic, cabbage, spinach, chicken	No
P1	Day 2	Intervention	28	Walking	Garlic, mixed greens, kale, peas, chickpeas, fish	No
P1	Day 3	Intervention	15	Walking	Vegetables, spinach, avocado, beans, chicken	No
P1	Day 4	Intervention	25	Walking	Broccoli, garlic, spinach, avocado, chicken, hibiscus tea, kale	No
P1	Day 5	Intervention	20	Walking	Broccoli, kale, garlic, cucumber, salmon, hibiscus tea, kiwi	No
P1	Day 6	Intervention	30	Walking	Spinach, garlic, cabbage, avocado, green tea, sardines, chickpeas	No
P1	Day 7	Intervention	25	Walking	Broccoli, kale, garlic, mixed greens, fish, lentils, cabbage	No
P1	Day 8	Intervention	10	Walking	Eggs, spinach, kale, garlic, salmon, lentils	No
P1	Day 9	Intervention	15	Walking	Garlic, oatmeal, beans, sardines, extra virgin olive oil, salmon	No
P1	Day 10	Intervention	15	Walking	Broccoli, garlic, spinach, beans, chickpeas, bell pepper, salmon	No

During the intervention phase, Participant 1 adopted the dietary pattern characterized by increased intake of leafy greens, legumes, and nutrient-dense whole foods, alongside reduced consumption of refined carbohydrates. This phase also incorporated consistent low-intensity physical activity, including approximately 10 to 25 minutes of daily walking, representing a structured shift toward healthier lifestyle behaviors.

Appendix E (Table A8)

Table A8. Participant 2 baseline lifestyle profile: dietary intake and walking activity.

Participant	Day	Phase	Exercise Minutes	Exercise Type	Foods Consumed	Carbohydrates
P2	Day 1	Baseline	15	Walking	Rice, chicken, pasta, eggs, potatoes	Yes
P2	Day 2	Baseline	25	Walking	Meat sauce, bread, veg oil, salmon	Yes
P2	Day 3	Baseline	30	Walking	Corn, vegetables, beef, sweet drink, apple, bananas	Yes
P2	Day 4	Baseline	20	Walking	Meat, pasta, avocado, veg oil, milk	Yes
P2	Day 5	Baseline	24	Walking	Kale, rice, cucumber, apple, milk, corn, eggs	Yes
P2	Day 6	Baseline	15	Walking	Garlic, bread, avocado, corn, potatoes, veg oil	Yes
P2	Day 7	Baseline	25	Walking	Kale, pasta, mixed greens, rice, meat	Yes
P2	Day 8	Baseline	12	Walking	Eggs, rice, cookies, sweet drinks, veg oil, apple, bananas	Yes
P2	Day 9	Baseline	15	Walking	Chicken, salad, milk, apple, eggs, bread, veg oil	Yes
P2	Day 10	Baseline	23	Walking	Beef, vegetables, rice, bananas, apple, corn	Yes

Participant 2's baseline phase reflected a dietary pattern dominated by carbohydrate-rich and processed food intake, with limited consumption of vegetables and nutrient-dense foods. Physical activity levels were minimal, with no consistent walking routine observed. This baseline profile provides a stable reference point for evaluating lifestyle changes during the intervention phase.

Appendix E (Table A9)

Table A9. Participant 2 intervention lifestyle profile: dietary intake and walking activity.

Participant	Day	Phase	Exercise Minutes	Exercise Type	Foods Consumed	Carbohydrates
P2	Day 1	Intervention	25	Walking	Garlic, cabbage, spinach, chicken, kiwi, hibiscus tea	No
P2	Day 2	Intervention	20	Walking	Mixed greens, kale, peas, chickpeas, salmon, green tea	No

Continued

P2	Day 3	Intervention	25	Walking	Spinach, avocado, beans, chicken, peas, kale, brussels sprouts	No
P2	Day 4	Intervention	20	Walking	Broccoli, garlic, spinach, avocado, chicken, hibiscus tea, kale	No
P2	Day 5	Intervention	25	Walking	Kale, garlic, cucumber, salmon, hibiscus tea, kiwi, salad	No
P2	Day 6	Intervention	26	Walking	Garlic, cabbage, avocado, green tea, sardines, chickpeas, chicken	No
P2	Day 7	Intervention	24	Walking	Broccoli, kale, garlic, mixed greens, fish, lentils, cabbage	No
P2	Day 8	Intervention	15	Walking	Spinach, kale, garlic, salmon, lentils, beans, bell pepper	No
P2	Day 9	Intervention	25	Walking	Oatmeal, beans, sardines, extra virgin olive oil, salmon, chicken	No
P2	Day 10	Intervention	28	Walking	Garlic, spinach, beans, chickpeas, bell pepper, salmon, chicken	No

In the intervention phase, Participant 2 transitioned to the dietary pattern emphasizing whole foods, including vegetables, legumes, and healthy fats, while reducing refined carbohydrate intake. This phase also included consistent daily walking of approximately 10 to 25 minutes, indicating a combined dietary and behavioral shift toward improved cardiovascular health practices.