


# Functional medicine health coaching improved elimination diet compliance and patient-reported health outcomes

## Results from a randomized controlled trial

Christopher R. D'Adamo, PhD<sup>a,\*</sup>, Michael B. Kaplan, ND<sup>b</sup>, Patricia S. Campbell, MS<sup>c</sup>, Kerri McLaughlin, BA<sup>c</sup>, Jordan S. Swartz, MASc<sup>c</sup>, Kalea R. Wattles, ND<sup>b</sup>, Dan Lukaczer, ND<sup>b</sup>, Sandra Scheinbaum, PhD<sup>c</sup>

### Abstract

**Background:** The objective of this study was to determine whether an elimination diet with virtually provided functional medicine health coaching support would be more effective than a typical self-guided elimination diet with respect to dietary compliance and patient-reported health and quality of life.

**Methods:** A parallel arm, randomized controlled trial was conducted among a sample of healthcare professionals. Participants were randomized to either an elimination diet with 5 sessions of functional medicine health coaching support (intervention arm) or a self-guided elimination diet (control arm). Outcomes assessed at baseline and at the conclusion of the 10-week study included PROMIS Global Health (GH) and medical symptoms questionnaire (MSQ). Compliance with the elimination diet was assessed at the conclusion of the study. Baseline and end of study outcomes were compared within study arms via paired *t* tests and between study arms with unpaired *t* tests. Subgroup analysis of symptomatology at baseline was performed.

**Results:** 125 randomized participants (*n* = 64 intervention, *n* = 61 control) provided baseline outcomes data. There were statistically and clinically significant within-group improvements in patient-reported outcomes in both the intervention arm (PROMIS GH-physical = 4.68, PROMIS GH-mental = 3.53, MSQ = 28.9) and control arm (PROMIS GH-physical = 48.4, PROMIS GH-mental = 3.18, MSQ = 24.1). There were no between-group differences in the primary analysis (*P* > .1). However, participants with more symptoms at baseline had statistically and clinically significant between-group differences in PROMIS GH-mental health (3.90, *P* = .0038) and MSQ (12.3, *P* = .047) scores that favored the functional medicine health coaching arm.

**Conclusions:** An elimination diet, whether self-guided or with functional medicine health coaching support, may improve patient-reported health outcomes among relatively healthy healthcare professionals. While studies in more diverse samples are needed, functional medicine health coaching support appears to be superior to a self-guided approach with regard to both dietary compliance and improving health outcomes among those with greater symptomatology.

**Abbreviations:** AFMCP = Applying Functional Medicine in Clinical Practice, FMCA = Functional Medicine Coaching Academy, IFM = The Institute for Functional Medicine, MSQ = medical symptoms questionnaire, PROMIS-GH = PROMIS-global health.

**Keywords:** elimination diet, functional medicine, health coaching, PROMIS

## 1. Introduction

Diet has a profound impact on human health. There are a wide variety of dietary approaches that can help prevent or even reverse many common chronic diseases.<sup>[1–10]</sup> Elimination diets

are a particularly powerful approach in helping resolve diet-related illness. An elimination diet is a specialized food plan commonly used in clinical practice to identify and remove foods that may play a triggering or mediating role in many chronic

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<sup>a</sup> Center for Integrative Medicine, University of Maryland School of Medicine, Baltimore, MD, <sup>b</sup> The Institute for Functional Medicine, Federal Way, WA, <sup>c</sup> Functional Medicine Coaching Academy, Chicago, IL

\* Correspondence: Christopher R. D'Adamo, Center for Integrative Medicine, University of Maryland School of Medicine, 520 W. Lombard Street, East Hall, Baltimore, MD 21201 (e-mail: CDAdamo@som.umaryland.edu).

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symptoms and conditions. Allergic reactions to foods, such as those promoted by IgE-associated immediate hypersensitivity reactions, can be potentially life-threatening and are quickly diagnosed by medical procedures or lab tests. These types of reactions are not the focus of an elimination diet. Rather, elimination diets seek to detect foods that may be involved in delayed hypersensitivity reactions or other nonimmune-mediated mechanisms. In these cases, the cause-and-effect connection between foods and symptoms may not be readily apparent. Such food triggers are estimated to be far more prevalent than food-based allergic reactions, with nonimmune-mediated food intolerances estimated to affect 15%–20% of the population.<sup>[11]</sup>

The elimination diet is recognized as the gold standard in identifying non-IgE, nonanaphylactic food sensitivities and intolerances.<sup>[12–14]</sup> The diet involves a multiweek food removal phase in which a group of likely offending foods are removed from the diet, followed by a reintroduction or “challenge” phase in which the removed foods are systematically reintroduced. Elimination diets are widely accepted in clinical practice and promoted by many federal, state, and private health organizations for various purposes.<sup>[15–18]</sup> Clinical trials of elimination diets have been shown to reduce symptoms of inflammatory bowel disease, irritable bowel syndrome, esophagitis, and migraine headaches while potentially improving some aspects of quality of life in generally healthy adults.<sup>[19–25]</sup>

While elimination diets are a useful tool in overcoming disease and optimizing health, compliance can be difficult due to numerous physiological, psychological, and environmental barriers. Health coaching is a promising approach to overcoming compliance challenges as it has been shown to provide support in surmounting these types of challenges to lifestyle and behavior changes and reduce risk of chronic diseases.<sup>[26–31]</sup> Health coaches support clients in activating internal strengths and utilizing external resources to surmount obstacles in order to create sustainable lifestyle behavior changes. Health coaching methodologies consist of evidence-based interventions, including active listening, motivational interviewing, appreciative inquiry, positive psychology strategies, and actionable, measurable goal setting.<sup>[32–35]</sup>

Functional medicine health coaching, which offers techniques of both health coaching and functional medicine,<sup>[36–39]</sup> may be particularly valuable in helping facilitate successful elimination diets. The goal of this randomized controlled trial was to compare compliance and patient-reported global health (GH) outcomes among healthcare professionals randomized to either a typical self-guided elimination diet or an elimination diet with functional medicine health coaching support. Healthcare professionals frequently experience high levels of burnout and stress.<sup>[40–42]</sup> Previous evidence has shown that health coaching has helped other types of professionals<sup>[43–47]</sup> that typically experience high levels of stress and burnout (e.g. teachers, police, and administrators) improve psychological and physiological measures of stress. The research team hypothesized that the sample of healthcare professionals who received the functional medicine health coaching would have superior dietary compliance and patient-reported health and quality of life outcomes when compared to those on the typical self-guided elimination diet.

## 2. Materials and methods

### 2.1. Study design

A 10-week, parallel arm, randomized controlled trial was conducted to compare elimination diet compliance and patient-reported outcomes among healthcare professionals before and after either a self-guided elimination diet (control arm) or an elimination diet with functional medicine health coaching support (intervention arm).

Eligible participants were randomized to either the intervention arm or the wait-list control arm in a 1:1 allocation ratio utilizing block randomization with a block size of 4. Participants in the wait-list control arm were eligible to receive the functional medicine health coaching intervention after all study outcomes data had been collected. The clinical trial received ethical approval by WCG Institutional Review Board and was registered at ClinicalTrials.gov (NCT05551546).

### 2.2. Study population

The study population of healthcare professionals was derived from the fall 2022 Applying Functional Medicine in Clinical Practice (AFMCP) training module offered by The Institute for Functional Medicine (IFM).<sup>[48]</sup> Typical AFMCP trainings draw a diverse group of healthcare professionals from across the United States and over 20 countries around the world. The training and licensure breakdown of the AFMCP training module that preceded that from which the study sample was drawn is as follows: 42% MD/DO, 26% nurse practitioner, 5% nutrition professional, 5% physician assistant, 5% chiropractor, 3% nursing professional, 2% naturopathic doctor, 2% student, and 11% other medical professional.

The study inclusion criteria were as follows: adults  $\geq 18$  years, enrolled in the fall 2022 AFMCP training, agreed to adopt the elimination diet as outlined by IFM with no pre-planned interruption and were able to understand and write English. The study exclusion criteria were those with eating disorders within the past 10 years or who were currently pregnant or breastfeeding.

Participants enrolled in the AFMCP course were recruited via email invitation between September 10–19, 2022. Within this time period, prospective participants also received study invitations from a dedicated AFMCP course Facebook page. All outbound communications were bolstered by a study landing page at IFM.org.

### 2.3. Elimination diet

Both the intervention and control arms of the trial participated in the IFM comprehensive elimination diet. The comprehensive elimination diet is a short-term food plan designed to identify food triggers, reduce inflammation, improve intestinal permeability, and support a healthy microbiome. The initial elimination phase involves removal of common trigger foods for a minimum of 3 weeks. These foods were selected for removal due to their allergenicity profile and prevalence in the standard American diet. The IFM comprehensive elimination diet recommends avoidance of the following foods: alcohol, beef, chocolate, corn, dairy, eggs, gluten-containing grains, peanuts, pork, processed meats, shellfish, soy, refined sugar, coffee, and other caffeine-containing beverages.

Following the 3-week elimination phase, foods are systematically reintroduced. In the reintroduction phase, the goal is to identify food triggers while returning to a diet that is as diverse as possible. In this phase, a single food item is introduced, and symptoms are monitored for 48 to 72 hours. Over the monitoring period, a food reintroduction symptoms tracker is used to document reactions to the recently reintroduced food. If no reaction occurs, a new food can be reintroduced. Common reactions include changes to bowel function, joint or muscle aches, headache, nasal congestion, changes to urinary habits, skin reactions, changes to energy level, and sleep disturbance. If a reaction occurs, that food is discontinued immediately, and no new food is introduced until all symptoms have cleared. The next food is then introduced using the same procedure, and these steps are repeated until all food groups have been reintroduced.

**2.4. Intervention arm—elimination diet with functional medicine coaching support**

Participants in the intervention arm received up to 5 sessions with a health coach that were delivered virtually to provide support throughout the elimination diet. All health coaches who provided the intervention were certified by the Functional Medicine Coaching Academy (FMCA). FMCA was established in collaboration with IFM in 2015 to train health coaches in the functional medicine model and prepare them to work on collaborative care teams to help functional medicine-trained clinicians address chronic disease through diet and lifestyle changes. The FMCA curriculum integrates coaching methodologies with principles of functional medicine, positive psychology, functional nutrition, the psychology of eating, and mind–body medicine. To date, approximately 4000 coaches have been trained in this model through FMCA.<sup>[49]</sup> This large pool of certified coaches allowed each study participant to be provided with a unique coach. The typical structure of the 5 coaching sessions is provided in Table 1.

**2.5. Control arm—self-guided elimination diet**

All participants in the self-guided elimination diet control arm were provided with the following IFM elimination diet

**Table 1**  
**Overview of functional medicine health coaching intervention to support elimination diet.**

1st session	The foundation session is where the coach and client begin to develop rapport and outline the client's goals. This occurs before the start of the elimination diet to provide motivation, expectations, education, and preparation.
2nd session	This can occur during week 1 of the elimination diet to support working through the implementation of an elimination diet.
3rd session	This session is recommended to occur during week 3 of the elimination diet to prepare for the reintroduction of foods.
4th session	A session is recommended while the client is reintroducing foods; this is typically the most difficult part of the elimination diet as clients may be experiencing food reactions.
5th session	A wrap-up session is recommended after all of the food reintroductions to support the client with maintenance, goals to move forward, and reflection.

**Table 2**  
**Overview of elimination diet webinar topics.**

1. Elimination diet overview and resources (8 min)	This introductory webinar highlights the elimination diet food plan, discusses contraindications to the elimination diet, and reviews relevant handouts, recipes, and resources.
2. Reactions and remedies (8 min)	This webinar focuses on remediation of possible elimination diet reactions, including GI symptoms, blood sugar fluctuations, food cravings, and weight loss.
3. Movement and lifestyle (17 min)	This webinar discusses strategies for goal setting related to personalized modifiable lifestyle factors, including exercise, stress reduction, and sleep.
4. Supporting detoxification and food reintroduction (14 min)	In part 1 of this webinar, strategies for supporting healthy biotransformation and elimination are reviewed. The second part of this session guides participants through the reintroduction phase of the elimination diet, including instructions for tracking foods and associated symptoms and navigating common challenges.
5. Elimination diet: putting it all together (7 min)	This final webinar reviews indications for an elimination diet and discusses implementation of the elimination diet in clinical practice.

materials: comprehensive guide, food plan, weekly planner and recipe guide, food reintroduction and symptoms tracker, and access to 5 asynchronous webinars hosted by IFM clinical staff. These webinars were designed to guide participants through all phases of a comprehensive elimination diet, including preparation, elimination, and reintroduction phases. A description of the 5 webinar topics is provided in Table 2.

**2.6. Outcomes**

The primary outcome was the 10-item PROMIS Global Health (PROMIS GH), version 1.2. The PROMIS GH is a patient-reported survey that was designed for use in complex heterogeneous patient populations. The PROMIS GH measures health status across several physical and mental health areas.<sup>[50]</sup> The PROMIS GH has been validated extensively, including for online data collection as was performed in this study.<sup>[51–53]</sup> The physical and mental health domains of the PROMIS GH are scored and reported separately.<sup>[52]</sup> PROMIS GH *t* score distributions are standardized such that a 50 represents the mean for the general population of the United States, with the standard deviation around that mean of 10 points. Scores range from 0 to 100, with higher scores indicating better health. An improvement of at least 2 points in the *t* score is considered the minimally important change.<sup>[54]</sup> PROMIS GH surveys were collected from participants at baseline and at the conclusion of the study.

Secondary outcomes included the medical symptoms questionnaire (MSQ) and an elimination diet compliance assessment. The MSQ is a multisystem inventory of 71 items that rates symptom severity across all major organ systems. Scores range from 0 to 284, with lower scores indicating better health. The MSQ is commonly utilized in clinical settings and has been used to track responses of patients to treatments in published research.<sup>[55–57]</sup> Dietary compliance was measured using a single-item assessment on a 0–10 scale that asks the participant to self-rate how well they followed a diet, with higher scores indicating better compliance. This dietary compliance assessment has been used previously in published randomized controlled trials.<sup>[58]</sup>

**2.7. Assessment of adverse events**

The typical effects of an elimination diet (e.g., temporary change to bowel frequency, cold-like symptoms, headache, and mild fatigue) were explained to participants as part of the elimination diet curriculum. Coaches were also trained in these potential changes and further communicated these to participants in the coaching interaction. An adverse event report form was provided to both coaches and participants to capture details of any bona fide adverse event occurring during the study (e.g., rapid weight loss).

**2.8. Sample size estimation**

Assuming a 2-tailed  $\alpha$  of 0.05, 80% power, and a standard deviation of 3 points in the difference of PROMIS GH means between arms, a sample size of 120 participants was estimated to detect a difference of approximately 1 point in PROMIS GH scores between study arms. This minimally detectable difference fell comfortably beneath the minimally important change in PROMIS GH scores. In order to account for unknown levels of dropout in this intervention in which the consent, intervention, and data collection were all performed online, a conservative estimate of 25% dropout was employed when recruiting potential participants. As such, 139 participants were randomized to either the functional medicine health coaching intervention or self-guided control arms of the study.

## 2.9. Statistical methods

Descriptive statistics were computed to provide baseline and demographic characteristics by study arm. Comparisons of baseline participant characteristics by study arm were performed using unpaired *t* tests for continuous variables and Chi-square tests or Fisher exact test for categorical variables. Pre- and postintervention study outcomes were compared within study arms using paired *t* tests and between study arms using unpaired *t* tests. The primary analyses were conducted under the intention-to-treat approach. As a complement to the randomization, the robustness of the primary analyses to confounding was evaluated with covariate-adjusted linear regression modeling. Since the study sample was drawn from a relatively healthy population of healthcare professionals, median-split subgroup analysis based on baseline symptoms of the PROMIS GH and MSQ were performed to evaluate potential differences in outcomes in study arms among participants with greater symptomatology at baseline. In addition, separate analyses of each of the domains of the MSQ were conducted to evaluate the potential for symptom-specific differences between study arms. Finally, while receiving all 5 coaching sessions was not a requirement for the intervention, a subgroup analysis was conducted comparing the control arm to those who received the full complement of health coaching sessions in the intervention arm. The proportion of subjects reporting at least 1 adverse event were tabulated in each treatment group and compared using Fisher exact test. Statistical significance was defined as 2-tailed  $P < .05$ .

All analyses were performed in SAS version 9.4.1 (SAS Institute Inc., Cary, NC).

## 3. Results

The CONSORT flow diagram detailing study participant eligibility assessment, randomization, and follow-up is provided in Figure 1.

About 125 participants ( $n = 61$  for the intervention arm,  $n = 64$  for the control arm) provided baseline data and were included for analysis. About 100% of study participants in both arms who provided baseline data also provided follow-up data. The baseline characteristics of the study participants by study arm allocation are provided in Table 3. In brief, the study sample was predominantly composed of: adults  $< 55$  years of age (87.8%), females (89.9%), Caucasians (70.5%), from the United States (69.1%). The sample was composed of a diverse group of healthcare professionals, with medical doctors/doctors of osteopathy the most common professional group in the sample (30.6%). There were no differences in any characteristics between study arms at baseline ( $P > .2$ ).

Self-reported compliance with the elimination diet was greater in the functional medicine health coaching intervention arm than in the self-guided control arm (8.33 vs 5.92, respectively,  $P < .0001$ ).

The patient-reported outcomes before and after the elimination diet by study arm are presented in Table 4. Baseline

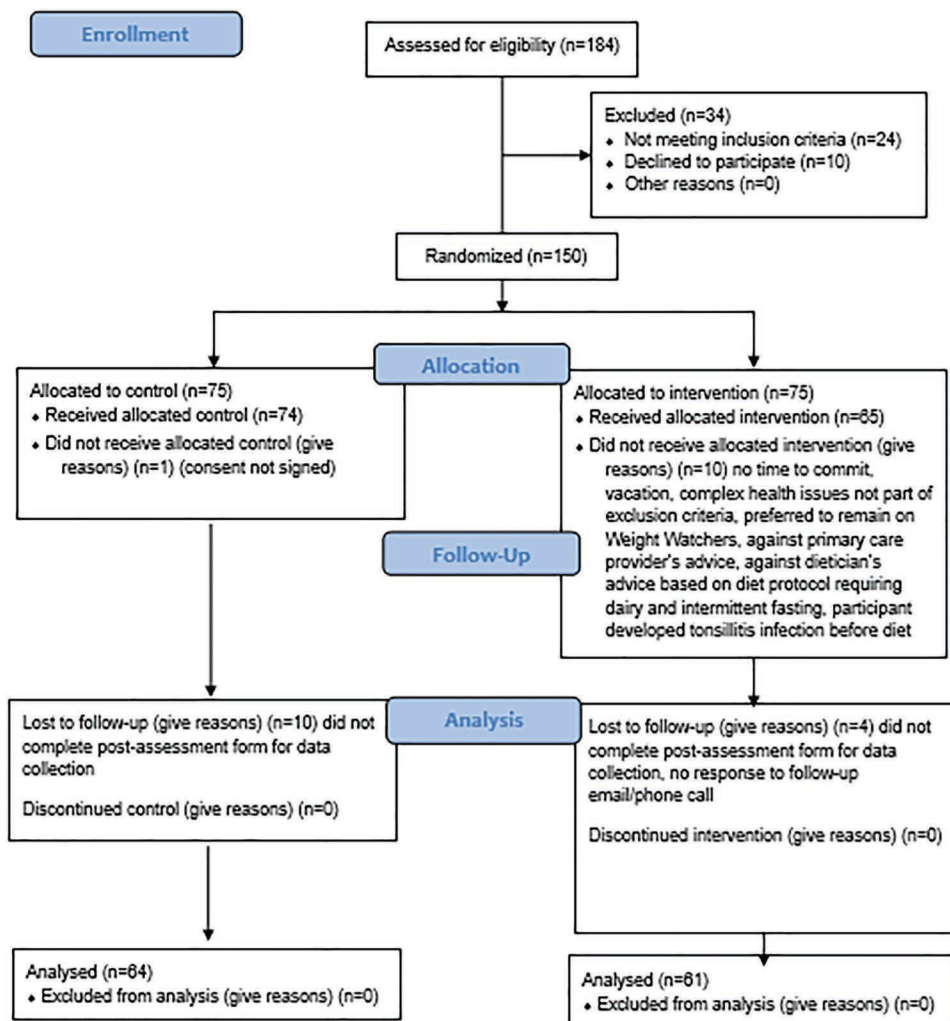


Figure 1. CONSORT flow diagram.



patient-reported health outcomes were comfortably within 1 standard deviation of PROMIS GH population means and thus reflective of a relatively healthy study sample. There were no meaningful differences in patient-reported health outcomes between the 2 study arms at baseline ( $P > .2$ ).

There were statistically and clinically significant within-group improvements in the PROMIS GH-physical health domain scores after the elimination diet in both the intervention (4.68) and control (3.53) arms of the study ( $P < .0001$ ). There were also statistically and clinically significant within-group improvements in the PROMIS GH-Mental Health domain scores after the elimination diet in both the intervention (4.87) and control (3.18) arms of the study ( $P < .0001$ ). The between-group differences between the intervention and control arms in neither the physical health (1.15) nor mental health (1.69) arms of the study were significant ( $P > .10$ ). The results of the covariate-adjusted linear regression models confirmed the findings of the primary outcome analyses.

There were significant within-group improvements in the total MSQ scores after the elimination diet in both the intervention

(−28.9) and control (−24.1) arms of the study ( $P < .0001$ ). The between-group difference in total symptoms score before and after the elimination diet was not statistically significant (−4.8,  $P = .33$ ). However, there were significant between-group improvements favoring the functional medicine health coaching intervention arm in the eyes (−0.90,  $P = .03$ ) and nose (−1.61,  $P = .003$ ) domains. There were no domains for which between-group improvements significantly favored the control group ( $P > .3$ ).

### 3.1. Subgroup analyses

About 60% ( $n = 33$ ) of the intervention group reported receiving the full complement of 5 functional medicine health coaching sessions. The subgroup of participants who received all 5 functional medicine health coaching sessions had greater compliance with the intervention diet than the self-guided control group (8.58 vs 5.92,  $P < .0001$ ). There were no other differences in any of the other study outcomes when comparing this subgroup of intervention participants to the control group ( $P > .3$ ).

The baseline symptomatology median-split (medians: PROMIS GH-mental health = 45.8, PROMIS GH-physical health = 50.8, MSQ = 44) subgroup analyses revealed greater improvements in study outcomes in the functional medicine health coaching intervention arm than in the self-guided control arm. As was the case in the primary analysis of the full study sample, there were statistically and clinically significant within-group changes in all study outcomes after the elimination diet in both the intervention and control arms: PROMIS GH mental-control = 4.37, PROMIS GH mental-intervention = 8.26, PROMIS GH physical-control = 6.20, PROMIS GH physical-intervention = 7.05, MSQ control = −34.5, MSQ intervention = −46.8, ( $P < .0001$ ). In addition, there were statistically and clinically significant between-group differences in PROMIS GH-Mental Health scores (3.90,  $P = .0038$ ) and MSQ scores (12.3,  $P = .047$ ) that favored the functional medicine health coaching group over the self-guided control group.

There were no adverse events reported in either arm of the study.

## 4. Discussion

This randomized controlled trial revealed that virtually-delivered functional medicine health coaching was feasible and associated with superior elimination diet compliance as compared to a typical self-guided elimination diet control situation. In addition, while statistically and clinically significant within-group improvements in patient-reported health outcomes were noted after the elimination diet in both study arms, between-group improvements favored the functional medicine health coaching arm among participants who were experiencing greater symptomatology at baseline.

**Table 3**  
Baseline characteristics of study sample.

Characteristic	Self-guided control ( $n = 64$ )	Functional medicine health coaching ( $n = 61$ )	<i>P</i> value
Age group (%)			
18–24	4.7	1.6	0.4
25–34	25.0	29.5	
35–44	25.0	31.1	
45–54	40.6	24.6	
55–64	4.7	11.5	
65 and older	0.0	1.6	
Race or ethnicity (%)			
Caucasian	65.6	75.4	0.2
Hispanic	12.5	3.3	
Asian or Pacific Islander	12.5	9.8	
Black or African-American	6.3	3.3	
Multiracial	3.1	4.9	
Arab	0.0	3.3	
Gender (% female)	93.8	86.9	0.2
Nationality (% United States)	71.9	70.4	0.7
Professional licensure (%)			
Medical doctor/doctor of osteopathy	29.7	31.2	0.6
Nurse practitioner or physician assistant	34.3	29.5	
Other*	36.0	39.3	

\* Other healthcare professionals included pharmacists, naturopathic doctors, chiropractors, nutritionists, and registered nurses

**Table 4**  
Patient-reported outcomes pre- and postelimination diet by study arm.

Outcome	Self-guided control			Functional medicine health coaching			Between-arm difference, <i>P</i> value**
	Pre	Post	<i>P</i> value*	Pre	Post	<i>P</i> value*	
	( <i>n</i> = 74)	( <i>n</i> = 64)		( <i>n</i> = 65)	( <i>n</i> = 61)		
PROMIS global health—mental health, mean (SD)	45.4 (7.6)	48.6 (8.3)	<0.0001	45.8 (6.8)	50.6 (5.3)	<0.0001	0.1
PROMIS global health—physical health, mean (SD)	48.4 (8.1)	51.7 (7.0)	<0.0001	49.6 (6.6)	54.5 (6.4)	<0.0001	0.2
Medical symptoms questionnaire—total score, mean (SD)	52.5 (31.4)	28.5 (25.4)	<0.0001	46.3 (26.1)	18.0 (13.9)	<0.0001	0.3

\*Within-arm *P* values determined by paired *t* tests

\*\*Between-arm *P* values determined by unpaired *t* tests

The results of this study noted among a sample of relatively healthy healthcare professionals suggest that the benefits of an elimination diet may extend beyond the more classical usages of this dietary approach for autoimmunity, digestive disorders, and other chronic diseases as noted in the literature. Previous studies have evaluated the efficacy of a targeted elimination diet guided by IgG antibody testing in overweight/obese adults and by specific IgE allergy testing in patients with eosinophilic esophagitis or asthma.<sup>[22,25,59]</sup> In addition, for those patients with inflammatory conditions, positive changes in immune responses measured through serum IgG food antibodies and peak eosinophil counts have been used to suggest a beneficial health impact of the elimination diet.<sup>[23,25]</sup> However, a targeted elimination diet that recognizes and removes food triggers may not only help alleviate disease-specific symptomatology, it may also help to both reduce hyperactive immune responses and to support healthy microbiome composition and function.<sup>[20–25,59–61]</sup> In addition, the systematic elimination and reintroduction of foods in an elimination diet can be helpful in identifying foods that may be causing sub-clinical inflammation and other relatively mild adverse reactions that may collectively impair quality of life. Further studies are warranted to confirm the positive impact of an elimination diet on patient-reported health and quality of life metrics in other relatively healthy populations.

While elimination diets may offer health benefits to a larger than currently recognized segment of the population in light of the improvements in patient-reported outcomes noted in both arms of this study, compliance with this dietary approach is often challenging for a variety of reasons. Confusion regarding the selection of foods to be eliminated, the timing of food reintroduction, symptoms frequently noted with food reintroduction, and emotional attachment to foods identified as problematic all contribute to compliance issues. Compliance may be particularly challenging in populations with complex health issues and more severe symptoms. The authors hypothesize that the superior improvements in both compliance and patient-reported health outcomes among participants at or above the median baseline symptomatology in the functional medicine health coaching arm may be due to the tailored support that was offered to these participants experiencing symptoms. The benefits of support and external accountability have been noted in previous studies of clinical populations with extensive symptoms, and the authors believe that support may also underlie the benefits of the coaching provided in this study.<sup>[62–64]</sup>

Another interesting and potentially related finding in this study were the large improvements noted in the self-reported mental health of participants who received functional medicine health coaching, both in the primary analysis (4.87 points) and median-split symptomatology subgroup analysis (4.87 and 8.26 points, respectively, in PROMIS GH-mental health scores). The difference between the improvements noted in the intervention and self-guided control arms was itself statistically and clinically significant (3.90 points,  $P = .0038$ ). The high levels of burnout and stress among healthcare professionals relative to other professions may contribute to the particularly profound benefits of the functional medicine health coaching on the mental health of this study sample.<sup>[40–42]</sup> Previous studies have demonstrated that elimination diets can improve measures of cognition and sleep, which is strongly associated with mental health and quality of life.<sup>[25,65–67]</sup> While this study did not directly evaluate the sleep of participants, the research team hypothesizes that enhanced sleep may be one of the mechanisms underlying the dramatic mental health improvements in both arms of this study.

Strengths of this study include the randomized controlled design, the high follow-up rate (89.9%) of outcomes data across both study arms, and the utilization of the validated and commonly studied PROMIS-global health metric. The virtual delivery of the functional medicine health coaching and online data collection may also contribute to enhanced replicability

and scalability of such an intervention approach to other settings. There were also several key limitations. This was a relatively healthy sample, and further studies are needed to draw inference for chronic disease populations with a more uniform set of symptoms. However, median-split symptomatology subgroup analysis revealed greater benefits of the functional medicine health coaching among participants with more symptoms at baseline. Furthermore, this study expands the evidence base supporting elimination diets among chronic disease populations to relatively healthy populations. A related inferential limitation pertains to the sample of healthcare professionals under study. It is conceivable that healthcare professionals may respond differently to both self-guided and functional medicine health coaching-supported elimination diets than other populations. Dietary compliance was also self-reported in this study. The research team felt that more objective measurements, such as urinary nitrogen and sodium excretion, would not be feasible with this regionally diverse sample of healthcare professionals from whom all other study data were collected virtually. In addition, in the absence of standardized dietary components, it would be difficult to utilize urinary nutrient excretion or blood-based biomarkers to quantify compliance across the varying foods being consumed by study participants in the elimination diet approach. This study did not formally assess and evaluate the baseline dietary intake of the study participants. It is possible that the baseline diets of the intervention and control arms of the study could have differed, which could potentially confound the impact of both the elimination diet and the functional medicine health coaching. However, the randomization balanced all other key baseline characteristics, and the research team does not expect that baseline diets differed meaningfully between study arms. Finally, longer term studies would be useful in evaluating whether the benefits noted in this study persist over time. The virtual delivery of the elimination diet instruction, functional medicine health coaching intervention, and data collection process lend itself to feasibility of such studies.

While this randomized controlled trial revealed that an elimination diet is associated with improvements in patient-reported health and quality of life outcomes among a relatively healthy sample of healthcare professionals, and greater improvements in dietary compliance and outcomes can be achieved among those with more extensive symptoms with functional medicine health coaching support, future studies are needed to replicate these findings in samples of more heterogeneous study populations and among those with more homogenous symptomatology. Further investigation comparing the impact of an elimination diet with and without functional medicine health coaching support on clinical outcomes, medication usage, and healthcare utilization is also warranted.

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## Author contributions

**Conceptualization:** Christopher D'Adamo, Michael B. Kaplan, Patricia S. Campbell, Kalea R. Wattles, Sandra Scheinbaum.

**Formal analysis:** Christopher D'Adamo, Jordan S. Swartz.

**Investigation:** Christopher D'Adamo, Michael B. Kaplan, Patricia S. Campbell, Kerri McLaughlin, Kalea R. Wattles, Dan Lukaczer.

**Methodology:** Christopher D'Adamo, Michael B. Kaplan, Patricia S. Campbell.

**Supervision:** Christopher D'Adamo, Sandra Scheinbaum.

**Writing—original draft:** Christopher D'Adamo, Michael B. Kaplan.

**Writing—review & editing:** Michael B. Kaplan, Patricia S. Campbell, Kerri McLaughlin, Jordan S. Swartz, Kalea R. Wattles, Dan Lukaczer, Sandra Scheinbaum.

**Project administration:** Patricia S. Campbell, Kerri McLaughlin, Kalea R. Wattles.

**Data curation:** Kerri McLaughlin, Jordan S. Swartz.

**Software:** Jordan S. Swartz.

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