ORIGINAL Research

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Improving Nutritional Habits With No Diet Prescription: Details of a Nutritional Coaching Process

Abstract: *Thousands of dollars are spent today with policies encouraging physical activity and healthy eating, but nutritional consultation per se has continuously failed to yield consistent and lasting results. The aim of this case report is to detail and evaluate nutritional coaching (employing health coaching techniques) in promoting lifestyle changes, enabling improvement of nutritional and body composition associated parameters. The patient in this study had previously engaged in a series of different diet regimens, all of which failed in achieving the proposed aim. After 12 nutritional coaching sessions (one per week) with the strategy presented herein, reductions in body fat mass and in total body weight were attained. Nutritional habits also improved, as the patient showed decreased total energy intake, decreased fat intake, and increased fiber ingestion. Daily physical activity and energy expenditure were enhanced. The coaching program was able to induce immediate health benefits using a strategy with the patient at the core of promoting his own lifestyle changes. In conclusion, the nutritional coaching strategy detailed was effective at helping our patient develop new eating patterns and improve related health parameters.*

Keywords: health coaching; eating habits; nutritional education

The onset of most modern diseases is associated with lifestyle habits, and thus, the best way to prevent disease is through behavioral changes.[1] The enormous potential effects of health behavior changes on mortality, morbidity, and health care costs provide ample motivation for the concept of lifestyle medicine, that is, evidence-based practice of assisting individuals and families to adopt and sustain behaviors that can improve health and quality of life.[2] Treating type 2 diabetes[3] is an example of how developing new habits can effectively improve health.

One of the most important contemporary health problems is the global prevalence of overweight and obesity. In the United States, health problems associated with obesity are a leading cause of mortality, second only to health problems associated with smoking. The need to lose weight is well understood; however, the process is difficult, and a recent estimate reveals less than 1 in 100 persons will be successful in achieving sustained weight loss to normal weight.[4] Ironically, Field and colleagues[5] showed, on nearly 17 000 children ages 9 to 14 years, that dieting was a significant predictor of weight gain. Moreover, the risk of binge eating increased with the frequency of dieting. The authors concluded, "In the long term, dieting to control weight is not effective, it may actually promote weight gain." Moreover, Mann and collagues,[6] in their article "Diets Are Not the Answer," reviewed 31 studies of the long-term outcomes of calorie-restricting diets and concluded dieting is a consistent predictor of weight gain. They noted up to two thirds of the people regained more weight than lost. Weight regain or weight cycling is also associated with increased health problems such as risk for myocardial infarction, stroke, and diabetes[7] and lowered high-density lipoprotein cholesterol.[8] Hence, not only is obesity a health threat but repeated unsuccessful

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attempts to lose weight apparently may contribute to further health problems.

The practice of dieting often comes down to simply limiting caloric intake. Whether advised by a dietician or self-induced, it forces people to follow a prescription and modify their daily routine to conform to the diet. Such a plan might foster in the patient the notion that food is an enemy, thereby provoking dramatic food intake reduction. The patient may check in with a dietitian every 30 or 45 days to monitor compliance to the prescribed diet. The traditional dietitian consultation, as well as that of other health care professionals, imposes an acute intervention strategy, and the process usually results in an unsuccessful attempt at weight loss. The importance of an intervention resulting in new eating habits,[7] forged in a relationship with a health professional but driven by the patient, is potentially important to improving the success rate of weight loss attempts. In such a setting, doctors do not simply give a pill to treat disease but actually help patients care for themselves and guide them to effectively influence their own health.[9] This helping relationship concept is based on theories of health coaching, in which a coach assists a coachee who is driving his/her own process of healthy behavior change. Another feature of health coaching is bringing in additional therapies to assist with successful behavior change. A recent study with pediatric cancer survivors reported a strong association between complementary medicine and lifestyle therapies identifying those with commitment to general wellness. The authors concluded that the use of one-on-one therapy may promote use of other therapies, and this potential synergistic effect should be targeted in future interventions.[10]

Health and wellness coaching involve a process facilitating healthy, sustainable behavior changes by challenging a patient to listen to his or her inner wisdom, identify personal values, and transform personal goals into action. Health coaching draws on the principles of positive psychology and the practices of motivational interviewing[11] and goal setting. Health coaches educate and support patients to achieve their health goals through lifestyle and behavior adjustments. Rather than teaching a skill or prescribing a plan, this process encourages individuals to explore inner strengths, thereby improving confidence and making improvements from within.[12]

In this study, we applied the concepts of health coaching in a strict fashion to promote weight loss in an obese and treatment-resistant patient. The patient and coach entered the process understanding weight loss is the goal and other health behaviors (eg, stress, smoking, etc). Yet it was understood that, in the long term, discussing nutrition and body composition might trigger a synergistic effect rendering the patient prone to adopting other healthy behaviors. This nutritional coaching model allowed the establishment of a coach-patient relationship using health coaching tools such as motivational interviewing, wellness vision sharing, and goal setting. The hope is that nutritional coaching helps a patient find inner motivation and tools to realize self-determined goals empowering achievement of better eating habits and weight loss. Therefore, the aim of this study was to examine the effects of the nutritional coaching process on the eating habits and body composition of an obese, weight loss–resistant patient.

Methods

This study was an in-depth, single case investigation on nutritional coaching intervention effects. Data, both clinical outcomes and coaching results related to visioning and goal setting, were collected before, during, and after the coaching intervention. The study was approved by the Ethic and Research Committee of School of Physical Education and Sport (University of Sao Paulo). The patient was informed of the experimental procedures before he gave his informed written consent to participate.

Presenting Concerns

The patient was a male, aged 42 years, and employed as a businessman. Over the prior 7 years, he was subjected to varying and numerous nutrition interventions in order to modify body composition and blood biochemistry. He had already succeeded in losing weight many times (5 times), yet every time all weight was regained in a matter of 2 to 6 months. On finishing a diet, he reported feeling "free to eat everything that had been prohibited during the dieting period." Therefore, it is clear that all previous interventions failed in rendering sustainable nutrition modifications adopted by the patient as a new habit.

Timeline Assessments

The patient was interviewed to evaluate daily nutritional routines and also submitted to anthropometric measurements. Nutritional intake was assessed by 24-hour recall at baseline, after 6 weeks (POST 6), and after 12 weeks (POST 12). Body composition, skinfolds, girths, and breadth were measured, and Kerr's protocol was used to calculate muscle, fat, and residual mass at baseline, after 6 weeks (POST 6), and after 12 weeks (POST 12). The plan was to assess the quality of the body composition change. Level of physical activity and energy expenditure were assessed at 4, 8, and 12 weeks with a commercially available, wrist-worn health band (Nike FuelBand). This was done to see if nutritional coaching was prompting motivation for physical activity practice.

Nutritional Coaching Intervention

After completing initial evaluations, the patient went through 12 nutritional coaching sessions, scheduled for 45 minutes each, 1 per week, over 12 weeks. Half of the sessions were carried out face-to-face and half were electronic (using the Internet—Skype). During nutritional coaching sessions, general coaching strategies and tools were employed such as motivational interviewing, decisional balance,[13] positive psychology[14] (gratitude, three blessing exercise), ambivalence, nonviolent communication, mindfulness,[15] and strategies to change habits.[16] No diet was prescribed by the

coach, and the patient continuously brought up questions and propositions on how, where, and when he could start to change his nutritional habits. The patient, rather than the coach, presented arguments for change.

The coach conducting all sessions was certified by Sociedade Brasileira de Coaching, a Brazilian school certified by the Association for Coaching. She was also certified as a Wellness Coach by Wellcoaches through Carevolution. The coach had been practicing for 1 year at the commencement of this study and worked at *Instituto Vita*. The patient was not charged any fee for coaching sessions as part of agreeing to participation in the research process.

To further detail the nutritional coaching process, one of the first steps was to establish the readiness of the patient to change, and with that purpose, we adopted the transtheoretical model.[17] Understanding stage of change augments use of appropriate coaching techniques and avoids prematurely encouraging new equivocal behaviors that might discourage change. Another important first step was to establish a trusting relationship with the patient by building rapport using techniques such as genuineness, eye contact, good energy, warmth, good quality of voice, a feeling of connectedness, being comfortable and relaxed, mindful listening, being supportive, and adopting positive body language and physical gestures. With a relationship forming, a next step was to create a wellness vision, which is a statement by the patient revealing aspirations to reach his highest potential. In the present context, the patient was asked to focus on nutrition, diet, and weight loss, but a complete wellness vision can include physical, emotional, social, spiritual, and financial realms of life. Motivational interviewing was a primary tool used and is characterized by a focus on the present rather than the past. The emphasis is on the communication, concentrating on internal motivating factors, and on the exploration of individual core values and goals. Finally, our coaching sessions heavily relied on goal setting: a collaborative effort for behavior change between coach and patient. Using motivational interviewing, the patient's strengths, values, and desires are determined and then the vision is set in place. After this, specific short-term goals are set so that the patient is able to move in the direction of his newly formed vison.

An example of a nutritional goal-setting coaching conversation is given in the following:

> Coach: What you would like to change about your eating habits?
> Patient: I would like to reduce the amount of fried food that I eat.
> Coach: Ok, what is your intake today and what you would like it to become?
> Patient: Now a days I have once a day some fried food and I would like to reduce to 2 per week.
> Coach: Ok, on a scale of 0 to 10, how confident are you that you can reduce your fried food intake from 7 to 2 times a week?
> Patient: 7 to 8, because it is really important to me, and I had already done this before. So I know that I can.

During the sessions, the coach worked with motivational interviewing principles and avoided arguing for change while using open-ended questions, reflections, and believing in the patient's ability to change. Between sessions the patient and coach exchanged messages via email and text message to update tasks. A website called Coach Accountable was set up and used to remind the patient about what was discussed in the last session. If by 2 days after a session the patient did not send a message, the coach would reach out with an email, or a text message, asking how he was doing. Every goal accomplished by the patient was recorded and available for the coach to view. This regular communication between the coach and the patient was an integral part of the strategy used.

Results

Coaching Findings

The patient's wellness vision was the following:

> I am 25 pounds lighter, I play tennis without losing my breath and I am more physically active during my day. My motivators are to have physical conditions to play my tennis, feeling more comfortable in my clothes and also less anxious during meal time.

Patient also declare:

> I am so tired about losing and regaining weight. I really want to lose and to keep my new weight for the rest of my life, having better nutritional habits such as eating less fried food, drinking less alcoholic beverages, enhancing the amount of fruits in my diet. I also would like to be a more physically active person.

The patient started the program doing one class of tennis per week. He also was used to driving to travel short distances, always using the elevator besides other less active behaviors. During the program he increased the tennis classes to 3 per week, and we also hired a person to help him start running.

Clinical Findings

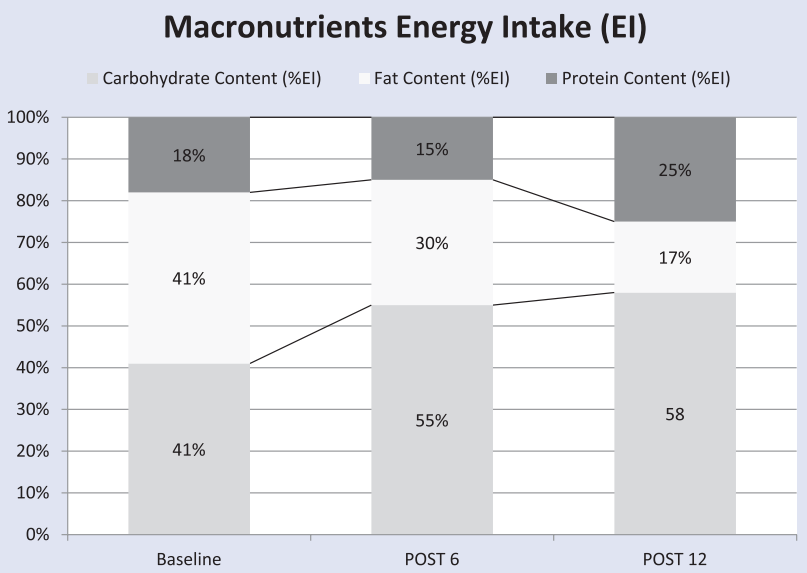
As shown in Table 1, total energy intake was reduced from baseline to 6 weeks, and this effect was even more pronounced after 12 weeks of the nutritional coaching program. Similarly, Figure 1 shows that fat intake was also reduced, and protein, carbohydrate, and fiber (Table 1) increased toward healthier proportions in the diet.

Table 2 illustrates the effects during the coaching process on body composition, weight, and fat mass over 12 weeks. A reduction in body weight was accompanied by a decrease in fat mass while the percentage of muscle mass increased (see Figure 2). The intervention period was also accompanied by a reduction in waist circumference. It is well established the reducing waist circumference reduces the risk of cardiovascular diseases due to the fact that this specific anatomical store of fat expansion is associated with inflammatory responses in the body.[18]

It was also evident that the nutritional coaching period was also associated with a favorable modification in daily physical

Figure 1.

Macronutrients Energy Intake Over Time.



Abbreviations: POST 6, after 6 weeks of coaching; POST 12, after 12 weeks of coaching.

Table 1.

Dietary Characteristics.

	Baseline	POST 6	POST 12
Energy intake (kcal/day)	2200	1850	1500
Fiber (g/day)	8	25	30

Abbreviations: POST 6, after 6 weeks of coaching; POST 12, after 12 weeks of coaching.

activities. Table 3 demonstrates that the patient increased the number of steps daily as energy expenditure increased. This trend for greater activity progressed as the coaching process progressed. Enhanced physical activity, though not suggested by the coach, verifies synergies of the nutritional coaching process as the patient extended behavioral change to other important health practices.

Discussion

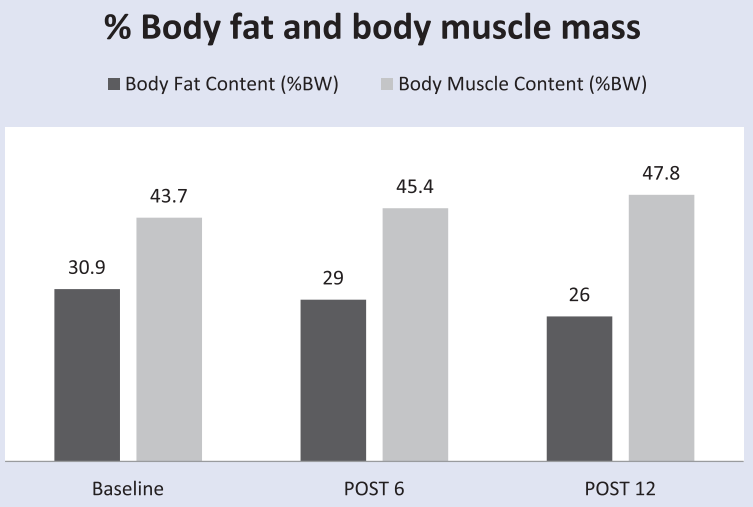
We detailed a nutritional coaching process resulting in beneficial clinical outcomes for a patient proven to be resistant to traditional dietary intervention. This finding is supported by the work of King and colleagues,[19] who evaluated the effects of one-on-one nutritional education and used goal setting, motivational lessons, and follow-up to improve lifestyle behaviors. A majority of patients showed willingness to implement a healthy lifestyle, leading the authors to conclude that personalized coaching tailored to a patient's goal could be successful. Appel and others[20] also demonstrated the effectiveness of health coaching for the purpose of long-term weight loss, while another study demonstrated positive outcomes of a coaching program on physiological endpoints (body mass index reduction) and behavioral outcomes in terms of improved dietary intake and physical activity, improved quality of life, self-reported well-being, as well as satisfaction outcomes.[21] A telephone-assisted counseling program consisting of 4 coaching sessions and offered to Rotarians (body mass index > 27) was valued highly with 83% of the participants ready to recommend it to other club members. In summary, our results follow others demonstrating successful weight loss is possible using counseling, coaching, and educational strategies. We have extended and detailed these results by applying coaching techniques specifically for nutritional purposes and found it produces beneficial health changes. There are limitations to our work particularly related to being a case study and not having long-term results to report. Further research is needed to elucidate best practices for generalization of nutritional coaching and also for determining effectiveness of the process in the long term. It is hoped that our work is promising enough to help stimulate such future study.

It was hoped that engaging in the nutritional coaching process, with a focus on eating behaviors, might trigger a synergistic effect leading to adoption of other healthy lifestyle changes. We found this to indeed be the case as our patient also enhanced physical activity habits along with positive dietary changes. We did not set out to formally study potential synergies between lifestyle changes but find it interesting and informative that such a phenomenon occurs. The association between addressing nutritional goals using coaching strategies and adoption of other healthy lifestyle changes may be highly beneficial to changes in patient health status and is a topic worthy of future study.

There is an emerging consensus among policymakers, professional organizations, clinicians, and payers across many nations that health care requires substantial change. Much of the money is directed to treat diseases

Figure 2.

Body Composition Over Time.



Abbreviations: BW, body weight; POST 6, after 6 weeks of coaching; POST 12, after 12 weeks of coaching.

Table 2.

Body Composition Characteristics.

	Baseline	POST 6	POST 12
Body weight (kg)	111.0	106.0	102.2
BMI (kg/m^2)	36.7	35	33
Waist circumference (cm)	107	103	99.3

Abbreviations: POST 6, after 6 weeks of coaching; POST 12, after 12 weeks of coaching; BMI, body mass index.

Table 3.

The Patient's Physical Activity Characteristics.

	Baseline	POST 6	POST 12
Steps per day	4872	7028	8371
Energy expenditure per day	950	1183	1400

Abbreviations: POST 6, after 6 weeks of coaching; POST 12, after 12 weeks of coaching.

associated with unhealthy lifestyles and could be saved if companies had employees with healthier living habits. Others understand the potential of the coaching process with respect to services to support healthy eating, physical activity, and weight management, and hope to use sustained coaching service in promoting usage or participation in prevention/wellness services.[9] Obesity, and related lifestyle disorders, along with strategies for weight loss are among the top challenges facing employee wellness programs and public health in general. However, self-induced diets and dietary professionals' dependence on acute prescriptive interventions do not favor the emergence and sustenance of the new eating habits in patients.[22] Furthermore, the traditional physician advice to "lose weight" often results in more risk because of the likelihood of weight loss-regain cycle.[7] Moreover, there are reports stating physicians often lack the knowledge and skill to counsel a patient about lifestyle interventions.[23] Coaching, and nutritional coaching specifically, holds promise for health care professionals. This strategy provides a technique intended to empower a patient to make healthy lifestyle changes bringing new potential for weight management success. Accordingly, physicians should be encouraged to refer obese and overweight patients to those with nutritional coaching abilities so their good advice for weight loss has a better chance of success.

Conclusion

To our knowledge, this is the first study detailing strategies for a specific nutritional coaching intervention while also reporting positive changes in nutrition behavior and improved clinical results. The strategy reported herein takes into consideration individual values and aims, assessed in detail. The coaching process supports development of a helping relationship while encouraging a patient to identify his or her vision, needs, and goals. Moreover, coaching aims to help in organizing routines and priorities, while putting the patient in control of his or her health destiny. Unlike dieting in the conventional ways, which may make people fatter,[24] nutritional coaching appears to promote improved body composition, beneficial lifestyle changes, and better health. AJLM

References

1. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004;291:1238-1245.
2. Lianov L, Johnson M. Physician competencies for prescribing lifestyle medicine. *JAMA*. 2010;304:202-203.
3. Pereira LO, Lancha Jr AH. Effect of insulin and contraction up on glucose transport in skeletal muscle. *Prog Biophys Mol Biol*. 2004;84:1-27.
4. Fildes A, Charlton J, Rudisill C, Littlejohns P, Prevost AT, Gulliford MC. Probability of an obese person attaining normal body weight: cohort study using electronic health records. *Am J Public Health*. 2015;105:e54-e59.
5. Field AE, Austin SB, Taylor CB, et al. Relation between dieting and weight change among preadolescents and adolescents. *Pediatrics*. 2003;112:900-906.
6. Mann T, Tomiyama AJ, Westling E, Lew AM, Samuels B, Chatman J. Medicare's search for effective obesity treatments: diets are not the answer. *Am Psychol*. 2007;62:220-233.
7. French SA, Folsom AR, Jeffery RW, Zheng W, Mink PJ, Baxter JE. Weight variability and incident disease in older women: the Iowa Women's Health Study. *Int J Obes Relal Metab Disord*. 1997;21:217-223.
8. Olson MB, Kelsey SF, Bittner V, et al. Weight cycling and high-density lipoprotein cholesterol in women: evidence of an adverse effect: a report from the NHLBI-sponsored WISE Study. *J Am Coll Cardiol*. 2000;36:1565-1571.
9. O'Hara BJ, Phongsavan P, Gebel K, Banovic D, Buffett KM, Bauman AE. Longer term impact of the mass media campaign to promote the GetHealthy Information and Coaching Service®: increasing the saliency of a new public health program. *Health Promot Pract*. 2014;15:828-838.
10. Karlik JB, Ladas EJ, Ndao DH, Cheng B, Bao YY, Kelly KM. Associations between healthy lifestyle behaviors and complementary and alternative medicine use: integrated wellness. *J Natl Cancer Inst Monogr*. 2014;2014:323-329.
11. Miller WR, Rollnick S. *Motivational Interviewing: Preparing People for Change*. New York, NY: Guilford Press; 2002.
12. Starr J. *The Coaching Manual: The Definitive Guide to the Process, Principles, and Skills of Personal Coaching*. 2nd ed. Harlow, England: Pearson Prentice Hall; 2008.
13. Botelho R. *Motivational Practice Guidebook*. 2nd ed. Rochester, NY: MHH Publications; 2004.
14. Seligman MEP. *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*. New York, NY: Atria Paperback; 2004.
15. Kabat-Zinn J. *Full Catastrophe Living*. Revised ed. New York, NY: Batan Books; 2013.
16. Duhigg C. *The Power of Habit. Why We Do What We Do and How to Change*. London, England: Random House Books; 2013.
17. Prochaska JO, Norcross JC, DiClemente CC. *Changing for Good: A Revolutionary Six-Stage Program for Overcoming Bad Habits and Moving Your Life Positively Forward*. New York, NY: HarperCollins; 1995.
18. Despres JD, Lemieux I. Abdominal obesity and metabolic syndrome. *Nature*. 2006;444:881-887.
19. King J, Harris J, Kuo D, Daghigh F. Nutri one-on-one: improving patients' metabolic profile with one-on-one nutritional coaching in a clinical setting. *FASEB J*. 2014;28:627.
20. Appel LJ, Clark JM, Yeh H, et al. Comparative effectiveness of weight-loss interventions in clinical practice. *N Engl J Med*. 2011;365:1959-1968.
21. Aoun S, Osseiran-Moisson R, Shahid S, Howat P, O' Connor M. Telephone Lifestyle Coaching: Is It Feasible as a Behavioral. Change Intervention for Men? *J Health Psychol*. 2012; 17:227-236.
22. O'Neil A, Hawkes AL, Atherton JJ, et al. Telephone-delivered health coaching improves anxiety outcomes after myocardial infarction: the "ProActive Heart" trial. *Eur J Prev Cardiol*. 2014;21:30-38.
23. Huang J, Yu H, Marin E, Brock S, Carden D, Davis T. Physicians' weight loss counseling in two public hospital primary care clinics. *Acad Med*. 2004;79:156-161.
24. Karim NA. Dieting makes people fat. *J Obes Weight Loss Ther*. 2015;5:242.