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CASE AND COMMENTARY: PEER-REVIEWED ARTICLE

Should Clinicians Ever Recommend Supplements to Patients Trying to Lose Weight?

Melinda M. Manore, PhD, RDN and Megan Patton-Lopez, PhD, RDN

Abstract

Helping patients lose weight can mitigate their risk of chronic disease and improve their quality of life. Over-the-counter dietary supplements for weight loss, however, are not reviewed or approved for safety or efficacy, nor does evidence support their clinical use. This commentary on a case suggests 3 reasons why clinicians cannot ethically recommend these supplements to patients: these products' safety and efficacy are unknown, ingredient lists might not be complete, and advertising could be misleading. This article reviews facts clinicians should know regarding over-the-counter weight loss products and explains how they can support, educate, and promote culturally and individually sensitive weight-management strategies.

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Case

Ms S is a 42-year-old Latina woman with a body mass index (BMI) of 30.2 kg/m² and a long history of dieting for weight loss. She gained weight with her 2 pregnancies and is now heavier by 56 pounds, 10 of which she gained during the COVID-19 pandemic. As an administrative assistant, she sits most of the day and has no planned physical activity. Her mother, who has a BMI of 37 kg/m², was diagnosed with type 2 diabetes at age 50 and has experienced a mild stroke. Ms S takes no prescription medications but has risk factors for chronic disease: fasting blood glucose (110 mg/dL), lipids (total cholesterol of 220 mg/dL and low-density lipoprotein cholesterol of 100 mg/dL), and blood pressure (138/89 mmHg). Ms S has made an appointment to address her weight gain and ways to improve her health without taking medications. Her overall goal is not to have the same health issues as her mother. A friend has recommended that Ms S consider taking a fat-burning weight loss supplement.

Ms S has tried many diets over the years, but they have not worked with her family's lifestyle; she has 2 active teenage boys who play sports and a husband who is a construction manager. She loves to cook and prepares many traditional dishes learned from her mother, who emigrated from Mexico. When she does not have time to cook, the

family orders takeout food (3 to 4 times per week). Coming to see a physician for weight loss help has been difficult, since she is not sure a physician will understand her weight struggles.

Commentary

Ms S's case highlights the difficulty many women face in managing weight gain with pregnancy and juggling the stress of work, home, and family. Although extensive research emphasizes that lifestyle changes are required for successful weight loss,^{1,2} each year millions of consumers turn to unproven over-the-counter weight loss supplements to "quick start" their weight loss attempts, hoping this time things will be different.^{3,4} Below, we discuss the safety and efficacy of over-the-counter weight loss supplements and suggest ways clinicians can discuss weight loss with patients like Ms S.

Weight Loss Supplements

Efficacy. In 2019, Americans spent more than \$2 billion on over-the-counter weight loss supplements.⁴ The US Food and Drug Administration (FDA) does not review or approve nonprescription, over-the-counter dietary supplements for safety or efficacy and does not require certification of substance purity on labels, although it does require listing of all ingredients.^{5,6} Manufacturers might also add adulterants (eg, sibutramine, fenfluramine, laxatives, and diuretics) to produce weight loss, which is illegal, and these adulterants pose significant safety concerns.^{7,8,9} Finally, research reviews of over-the-counter weight loss supplements show that the products have little efficacy and pose potentially serious risk of harm.^{5,10,11} Clinical studies for weight loss supplements typically include only 1 or 2 ingredients in a trial, lack a control group, are not double-blinded, and require lifestyle changes.⁵

The American Medical Association *Code of Medical Ethics* states that the physician shall "use sound medical judgment on patients' behalf, and to advocate for their patients' welfare."¹² Thus, a physician **cannot ethically recommend** an over-the-counter weight loss supplement since the safety and efficacy of the actual ingredients are not known, as might be the entirety of the ingredients. Sharing these concerns with patients will help them understand and appreciate why their clinician is not recommending the supplement they want to use.

Mechanisms and common ingredients. Weight loss supplements typically rely on 4 general mechanisms: (1) blocking carbohydrate or fat absorption, (2) increasing metabolism and "fat burn" (eg, through caffeine, green tea, or carnitine), (3) changing body composition (eg, through conjugated linoleic acid or chromium), or (4) suppressing appetite (eg, through soluble fibers or chili pepper).^{7,13} Ms S's multi-ingredient supplement is marketed as increasing metabolism (caffeine, green tea, cayenne pepper)^{7,13,14} and improving fat oxidation (carnitine).^{7,15} Below is a quick overview of common over-the-counter weight loss supplement ingredients.

- *Caffeine.* The amount of caffeine might not be listed on the label and could range from 150-500 mg per serving or more. Caffeine intake that does not exceed 400 mg/day is not associated with dangerous, negative side effects, but higher intake increases risk of insomnia, irritability, heart palpitations, and anxiety.¹³
- *Green tea extract.* Catechins are the active ingredient in green tea.⁷ All adverse effects reported for green tea are from the use of extracts and not beverages.⁷

The European Food Safety Authority concluded that catechin intake of less than 800 mg/day does not cause increased transaminase activity associated with liver toxicity.¹⁶ However, products are not required to list the total catechin content on the label.

- *Carnitine*. Carnitine has been extensively studied and is generally considered safe, but there is no evidence that it produces clinically significant weight loss.^{13,15}
- *Cayenne pepper extract*. Capsaicin is the primary active ingredient in hot peppers and is hypothesized to support weight loss through increasing energy expenditure and lipid oxidation while reducing appetite.¹⁴ Capsaicin is not a magic bullet for weight loss, however, and its long-term impact is small.^{14,17,18}

Discussing Weight Loss With Patients

Addressing weight loss supplement use with a patient can be tricky. On one hand, quick dismissal can be interpreted as judgmental. On the other, a patient who feels pressured by a friend to use a supplement might need a reason *not* to use that supplement. These questions can help clinicians discuss supplement use with patients like Ms S, with a goal of directing them toward weight management approaches that are safe and culturally appropriate.

1. Why do you want to use this weight loss dietary supplement?
2. How much does it cost?
3. How frequently do you plan to take it and at which dose?
4. What are the **health risks**?

Once a patient understands why a supplement cannot be clinically recommended, the clinician should discuss past weight loss attempts, challenges and **barriers to healthy eating** and physical activity, and available social support for making lifestyle changes.

Finally, weight management discussions can be difficult if the health care practitioner is also overweight.¹⁹ Clinicians should consider their approach to this dilemma should it arise (eg, sharing their own struggles with positive lifestyle changes). Clinicians should also be aware that some overweight patients might assume that a thin clinician will not understand their struggles. Assure patients that they are not alone and that help and support are available.

Recommending a Weight Loss Program

Weight loss and management are challenging in our current environment of readily available energy-dense foods and a sedentary lifestyle. Telling the patient to “eat less and exercise more” does not work.^{20,21,22} Ms S will only be successful if she believes she can follow the approach agreed on, has support in setting achievable goals, and has a realistic plan to reach those goals.

Clinicians should discuss the **impact of excess weight** on health with patients like Ms S before a best weight loss approach is determined. For overweight and obese adults, even a weight loss of 5% to 7% can decrease major chronic disease risk factors.^{1,23} For example, the Diabetes Prevention Program showed that a 7% decrease in body weight reduced the risk of conversion from impaired glucose tolerance to type 2 diabetes by 58%.²⁴ The Finnish National Diabetes Prevention Program also showed a 69% risk reduction for type 2 diabetes with a 5% reduction in body weight.^{25,26} The American Heart Association, the American College of Cardiology, and the Obesity Society²⁷ have

outlined guidelines for the management of obesity in adults for the reduction of chronic disease risk.

There is no magic diet for weight loss. Almost any diet that reduces energy intake will produce weight loss if followed.¹ Explaining dynamic energy balance and the many factors that contribute to one's body weight will help reduce patients' guilt about past weight loss failures.²⁸ Research shows that extreme weight loss approaches do not work for most patients²⁹ and can slow metabolic rate, which makes it even harder to keep the weight off.^{30,31} Clinicians should emphasize moderate, achievable weight loss and health goals and the importance of lifelong healthy lifestyle changes over quick, dramatic weight loss.

There are a number of successful, evidence-based lifestyle approaches focused on diet quality, energy intake, physical activity, and behavior therapy that reduce weight and chronic disease risk factors.^{1,24,26,27} These programs typically include group or individual sessions for at least 6 months, are led by trained interventionists, and address diet, physical activity, and behavior modification.^{1,21} Clinicians should remind their patients like Ms S that lifestyle change can be difficult and requires time and support from family and friends.^{21,27} Research shows that social support is an important predictor of improved diet and increased physical activity.^{32,33} Successful weight loss maintainers report that, in addition to maintaining a healthy diet and physical activity, body weight monitoring is key to keeping off excess weight.^{1,34} Bray and Ryan¹ provide a comprehensive review of these programs and various diets for weight loss. Clinicians should be ready to provide referrals if their facility does not offer a comprehensive weight loss and management program.

Determinants of Healthy Body Weight

It is essential to provide culturally and individually appropriate support and guidance regarding weight loss. Among Latina women, cultural, social, and economic factors play an important role in attitudes, beliefs, and behaviors associated with body weight, dietary habits, and physical activity.³⁵ For example, the cultural importance of obligation to one's family and family relationships (familism), which is relevant in Latinx cultures,³⁶ is associated with less successful weight management among Mexican American women.³⁷ Thus, in counseling Latina women, clinicians should consider the role of family responsibilities and integrate strategies that work toward the patient's achieving 2 goals: weight loss and fulfilling family needs.³⁸ Access to stores carrying healthy foods³⁹ and to neighborhood parks⁴⁰ improve nutrition and physical activity, respectively. Unfortunately, many neighborhoods **lack access to these resources**, which makes meeting diet and physical activity recommendations challenging. Connecting patients to appropriate resources will improve their weight management success.³²

Conclusion

Lifestyle changes that result in weight loss can be difficult to implement and maintain, but success can be achieved if patients take part in evidence-based programs that provide appropriate support and education. These programs need to address the social and cultural beliefs concerning weight loss, body size, and family dynamics and barriers that prevent healthy weight loss and maintenance. Finally, over-the-counter weight loss supplements marketed to consumers are not regulated by the FDA for safety or efficacy, and research does not support their use. Thus, it is not ethical to recommend them to patients.

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Melinda M. Manore, PhD, RDN is an emeritus professor of nutrition in the School of Biological and Population Sciences at Oregon State University in Corvallis. She is the author of more than 150 scientific publications, book chapters, reviews, and textbooks and has mentored more than 40 nutrition and exercise graduate students. Her research and teaching focus on energy balance in active and sedentary individuals, chronic disease prevention, dietary and energy expenditure assessment, and sport nutrition.

Megan Patton-Lopez, PhD, RDN is an associate professor at Western Oregon University in Monmouth. Her research and practice focus on promoting healthy eating and active living among children and families through culturally affirming and equitable public health programs and policies. Past projects include childhood obesity prevention among school-age Latino youth, food security and community nutrition assessment among Latino mothers in rural Oregon, and increasing health care access among Latino farmworkers.

Editor's Note

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