Chapter 10

# Mindfulness-Based Therapies in Severe Obesity

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**Case Vignette**

Linda is a 52-year-old married professional African-American woman with type 2 diabetes, osteoarthritis, and hypertension. At 5 feet, 2 inches and 230 pounds, her body mass index (BMI) is 42 kg/m$^2$. Her physician recommended bariatric surgery due to her health problems. However, she was concerned about doing so because she has lost and regained weight multiple times due to "out of control" eating, and a friend of hers regained most of his weight following bariatric surgery. She had heard that mindfulness-based eating awareness training (MB-EAT) could be helpful for such issues.

On initial evaluation, she met criteria for binge eating disorder and subclinical depression. Her current weight had been stable for several years. She had no history of regular exercise, acknowledging that she had always avoided exercise, including walking ("I was one of those kids who always tried to get out of gym class"). Both parents were heavy, as were her husband, adult children, and most friends. She was an active member of a local church. When she first understood that the MB-EAT program entailed learning to meditate regularly, she expressed some concern from a religious perspective. However, this concern was alleviated by framing the program as influenced by Buddhist psychology rather than Buddhism as a religion.

She was asked to describe an ideal eating pattern during the MB-EAT orientation, and she provided a response consistent with a low-calorie (approximately 1,200 calories) structured diet. Given her plans for bariatric surgery, this was realistic in the short term but also reflected a common pattern of "all or nothing" thinking, without flexibility and lack of knowledge of how to eat even small amounts of higher-calorie foods. Therefore, the value of the MB-EAT program was framed for her in two ways: (1) to help her bring her binge eating under control in the short term to prepare for surgery and (2) to help her create a new relationship to eating and food by learning to attend to both physical hunger and satiety cues, to recognize her other common triggers for eating, and to gain pleasure from smaller, rather than larger, amounts of foods. Even though she would not be able to eat any sweets for a while after surgery, she would become more confident that when she was able to eat them again, she could better resist eating large amounts of those foods. She was also informed that the program would encourage everyone to become more physically active in order to help them prepare for surgery and recover afterward. She was intrigued that although she would be asked to reduce her caloric intake, the primary goals were to incorporate flexibility and find ways to eat her favorite foods at a lower but sustainable level. By the end of the orientation, her enthusiasm was evident for beginning MB-EAT.

## Introduction

Mindless eating is rampant in our society. Eating out of habit because food is available or eating as a favored way to seek pleasure or deal with stress often leads to weight gain, obesity, and a lifelong struggle with how and what to eat. Mindfulness is being increasingly recognized as a way to counter such patterns and, as a component of therapy, is broadly applicable and can be linked with a range of other approaches [1,2].

## What Is Mindfulness?

Mindfulness is the practice of "bringing one's complete attention to the present experience on a moment-to-moment basis"[3: 68]. Another often-cited definition is "paying attention in a particular way: on purpose, in the present moment, nonjudgmentally" [4]. Mindful awareness can be brought to any aspect of experience, such as thoughts, emotions, sensations, external objects, sounds, and events. Mindfulness instructions involve directing attention to a particular experience or process, such as the breath, physical hunger, walking, or the sensations of an emotion.

Often perceived as a type of "relaxation training" or, alternatively, an esoteric practice linked to Buddhist religious beliefs and training, mindfulness is both – and neither. Mindfulness practice does indeed induce a sense of relaxation in most people because focus is shifted gently onto the breath, engaging both a physiologic relaxation process [5] and disengagement from intruding concerns or worries. It also has its roots in Buddhism, in both Buddhist psychology and spiritual practice [6]. Buddhist psychology frames distress and dysfunction as associated with excessive attachment and avoidance (consistent with contemporary conditioning theory), with practice providing a means to diminish such struggle and engage alternative feelings, actions, or thoughts.

Mindfulness practice is a path to growth because attention is shifted away from struggling with desires toward a healthier, wiser perspective of choices, a flexibility in the face of challenges, and a greater understanding of one's own goals and resources. In relation to eating, engaging mindfulness heightens awareness of long-standing conditioned patterns; facilitates awareness of physical hunger, taste, and satiety cues; and allows access to alternative, healthier choices. At the simplest level, in relation to eating and food, engaging mindfulness may mean realizing that the last bite of a favorite food is "enough," leading to a comfortable decision to stop eating, rather than forcing oneself to clean the plate. At a more substantive level, it may facilitate rewiring the neurocircuits of the brain as highly conditioned reactions are weakened and food preferences change in pervasive ways, leading to a healthier diet and sustainable weight loss.

Many mindfulness practices also encourage acceptance and self-compassion [7,8] (see Chapter 11). A common misunderstanding of acceptance is that it involves passivity or even approval of harmful behavior. Instead, acceptance refers to experiencing events fully, without denial, suppression, or amplification. Acceptance also means avoiding ruminating about events, instead allowing the experience of the associated emotions and bodily reactions to arise and dissipate. Afterward, decisions can be made about what action, if any, to take. Defined this way, mindfulness involves a set of skills designed to encourage deliberate, nonevaluative engagement with events that are here and now [9]. Mindfulness can also be conceptualized as a human capacity that can be cultivated to be used more effectively with practice [10]. The relationships between various aspects of internal and external experience, which may previously have been out of awareness and operating automatically, can be more

clearly observed. With this new information, individuals can more easily make substantive changes in their behavioral responses.

## Third-Wave Psychotherapies for Eating and Weight Problems

Contemporary mindfulness training, while informed by Buddhist psychology, was first secularized by Jon Kabat-Zinn in an eight-session mindfulness-based stress-reduction (MBSR) program for medical patients with chronic pain or serious illness [11,12]. The MBSR program incorporates breath-awareness meditation, body-awareness practices including yoga, and substantial instruction/discussion to help patients adjust to the physical and psychological challenges of their medical conditions. Variations and extensions of the MBSR program have since emerged, including mindfulness-based cognitive therapy (MBCT) [13] for decreasing relapses in individuals with past episodes of major depression [14,15], mindfulness-based relapse prevention (MBRP) [16] for substance-use disorders, and MB-EAT [17].

These mindfulness-based programs and psychotherapeutic treatments incorporating mindfulness, including dialectical behavior therapy (DBT) and acceptance and commitment therapy (ACT), have been termed *third-wave psychotherapies* [18] to distinguish them from the first two waves (behavior therapy and cognitive therapy). According to Hayes [18], the primary difference between these and third-wave therapies relates to the aspects of human functioning that are to be addressed. First- and second-wave therapies aim to change the *content* of problematic aspects of experience, especially thoughts and emotions. Third-wave therapies aim to change one's *relationship* to those problematic thoughts and emotions. For example, instead of seeking to find evidence for and against a problematic thought and restructure it into a balanced thought, as would be typical in traditional cognitive-behavioral therapy (CBT; see Chapter 8), the goal of a third-wave therapy would be to identify the thought as a thought, regardless of content, and help the person choose skillful behavior in line with his or her values without needing to change the thought itself.

Eating is an ideally suited context for cultivating and applying mindfulness approaches. As Wansink's work has so creatively shown [19], virtually everyone is susceptible to "mindless" eating, whether as a reaction to subtle contextual cues or to long-conditioned habits, thoughts, feelings, and situations. Wansink has also documented that, on average, people make approximately 200 decisions per day about their eating: when to eat, how much to eat, what to eat next, and when to stop. This increases to approximately 300 decisions per day for individuals with obesity [20]. It could be argued that one of the appeals of many structured diets is the reduction in this complexity of choice. Unfortunately, artificially limiting choices is unlikely to help people retrain themselves to more effectively handle these challenges once the structured diet is over.

Decisions regarding eating also require a constant balance between body-based signals to eat – or to stop eating – and the multitude of other triggers or cues that become conditioned triggers for eating behavior, overriding physical hunger cues, taste, and satiation signals. Research clearly demonstrates how easily these signals are overridden and that this is particularly true of individuals with obesity [21]. A core reason for learning mindfulness is to increase one's capacity to attend to such signals and then use them to inform decisions to initiate or stop eating. Many of these elements overlap with the principles informing "intuitive eating" programs [22,23], which, although developed independently of MB-EAT, also draw on the core value of cultivating awareness of inner experiences of

hunger and satiety but do not engage formal mindfulness meditation practice. Intuitive eating will not be explored in this chapter because its origins are in dietetics rather than Buddhist psychology or psychotherapy.

Many individuals with obesity also experience very high levels of self-criticism, guilt, shame, and embarrassment. This experience varies considerably depending on the social norms of an individual's family and community, of course, but with the pervasive perception that weight is under one's personal control, it becomes part of one's identity. Helping people negotiate the dichotomy between complete acceptance of current weight versus the legitimate need, for many, of weight loss/management for health reasons, mindful approaches can help to promote greater self-acceptance regardless of current weight, nonjudgment to interrupt the reactivity that arises to deeply embedded self-critical thoughts related to weight and social evaluation, and self-compassion in the midst of these challenges. While mindfulness-based approaches may vary in the ways in which they promote nonjudgment, self-compassion, and self-acceptance, these values are part of all mindfulness-based therapies.

One consideration in understanding these approaches is the degree to which weight loss, in addition to eating regulation, is explicitly addressed or encouraged. This distinction between improved eating regulation and weight loss as primary goals is applicable at virtually any weight level. There is a tension between the core principles of self-acceptance and nonjudgment emphasized in mindfulness that can be interpreted as far more compatible with "health at every size" [24] than with an explicit goal of losing weight. When self-identity is overly fixated on weight, and when weight per se is not notably interfering with other functioning, there is no question that individuals may become overly concerned with the "number on the scale." Yet mindfulness can also be applied to goals that are undertaken for a variety of reasons and can help to discern between inappropriate reasons or means to attain such goals and more balanced means. This distinction, for example, informs many elements of the MB-EAT program, DBT for binge eating, and ACT for overeating and weight loss. These modalities have in common a "nondieting" approach while at the same time encouraging participants to carefully observe their own eating patterns for ways in which they may choose to remove or limit certain types of foods, but without necessarily restricting themselves entirely from any particular type of food. There may be sound rationales for limiting food in a variety of situations, such as when eating is frequently used to regulate emotions. In these programs, when there is an emphasis on weight loss, it is promoted in terms of sustainable long-term weight management (rather than restrictive dieting and rapid weight loss) along with the cultivation of healthier eating in regard to improving both compulsive overeating and food choices.

In this way, when third-wave therapies are used to address problematic eating, the goal is to balance acceptance of subjective food preferences and hunger and fullness cues with a respect for the real consequences of certain eating patterns and frequent food choices. It is possible to flexibly adhere to basic guidelines about healthy nutrition and caloric intake without excessive preoccupation or guilt. Mindfulness-based interventions, including MB-EAT, ACT and DBT, are described in more detail below.

## Mindfulness-Based Eating Awareness Training

The development of mindfulness-based eating awareness training (MB-EAT) was initially inspired by early models of self-regulation theory [25], linked with models of food intake

regulation exploring the interplay of psychological and physiologic control processes [26–28]. Self-regulation theory [29] highlights the importance of intentional interoceptive awareness as a core element of internal regulatory processes, highly pertinent to the dysregulation in eating disorders and the overeating observed in obesity [21], and cultivated through mindfulness practice [30].

Physiologic regulation of food intake and weight is surprisingly complex. Signals most available to interoceptive awareness include physical hunger signals (e.g., low blood sugar, stomach growling), taste (e.g., pleasure, quality, and intensity), and signals to terminate eating a particular food or an entire meal (e.g., decrease in taste, sensation of fullness, rise in blood sugar) [31,32]. Individuals with compulsive eating patterns show a decreased attunement to these "internal" cues and marked oversensitivity to "external" or "nonnutritive" cues to eat (social, emotional, or conditioned craving for certain foods). While structured diets or proscribed eating plans may promote healthier eating/weight loss, they do not help individuals learn to reconnect with these internal regulatory signals. In contrast, self-regulation theory posits that when appropriate internal feedback systems are engaged, even complex systems can be reregulated with relatively little effort or struggle [33,34], in contrast to willpower or self-control models, which entail the need for effortful vigilance of behavioral choices.

MB-EAT is based on the premise that cultivating self-regulation through mindful awareness of internal signals of hunger, taste, and satiety, in conjunction with awareness of competing triggers for eating (e.g., thoughts, feelings, environmental cues), will lead to a more balanced, sustainable, and flexible pattern of eating with less sense of struggle. The evidence for meditation training, particularly mindfulness practices, for improving self-regulatory processes has been steadily growing since the 1970s [2]. Although initial development leading up to MB-EAT incorporated meditation practice, full development was highly influenced by the structure and content of the MBSR program [35]. Sitting practice, often using a focus on the breath, cultivates a more general capacity for engaging mindful attention. Guided practice focuses awareness on a specific targeted experience yet in an observing, stable, nonjudgmental, and curious manner. MB-EAT incorporates both elements, helping people to learn to tune into their patterns of physical versus emotional hunger, taste, and fullness with curiosity rather than self-judgment, thus leading to wiser and healthier food choices.

The concept of "wisdom" or insight, core aspects of traditional meditation practice, is also central to the program. Wisdom, from a psychological perspective, involves exercising good judgment in complex or uncertain situations [36]. Baltes and Staudinger frame wisdom as exercising judgment in the "fundamental pragmatics" of life [37]. Ostafin and Kassman have demonstrated that even novice meditators increase in creative or insight-oriented problem solving [38]. From a neuroscience perspective and within the context of meditation practice, wisdom arises from greater access to and integration of the experience and knowledge that each person already carries within, whether more broadly or in regard in eating [39–41]. The MB-EAT program emphasizes how mindfulness practice can be used to access such "tacit" knowledge and judgment in any situation, useful in making complex decisions regarding food choice and eating.

Substantial research addresses the disordered patterns of both eating initiation and termination observed in individuals with binge eating disorder (BED) and obesity, including higher reactivity to food cues [42] and frequently using eating to manage stress [43]. Paradoxically, little comfort may be derived from the food being consumed,

unlike for individuals without eating issues, who may acknowledge using food to manage negative emotions [44]. Eating may also help them to dissociate from overwhelming feelings and/or reflect virtually their only coping mechanism, a significant failure of self-regulation.

Deciding when to terminate food intake is also complex. Individuals who are obese and who eat larger amounts of food tolerate higher levels of stomach fullness and discomfort as a result of both expanded stomach capacity and a failure to attend to distention signals as indicators for stopping eating [47–49]. They may note that they do not stop eating "until the food is gone" or "when they feel too full to eat anymore." They virtually never mention attending to more moderate levels of fullness or gradually becoming less hungry as blood sugar levels rise, creating a sense of satiety.

Tuning into taste is another core component of MB-EAT, drawing on two areas of research: the sensitivity of taste buds to even small variations in the type or intensity of flavor, particularly sweets [45,46], and the process by which food loses its appeal as the taste buds habituate to specific combinations of flavors (sensory-specific satiety [SSS], the most rapid satiety-related feedback system) [50,51]. Sensory-specific satiety may be disrupted in obesity or binge eating [52] but may function more normally when adequate awareness is brought to the process [53]. Ironically, the hedonic value of food is often ignored in the treatment of obesity and/or compulsive eating but often informs addictive models of excessive food intake [54].

As in other mindfulness-based interventions, MB-EAT places an emphasis on the importance of becoming aware of and valuing one's own personal preferences and patterns. People vary considerably in their underlying patterns in regard to whether they initiate eating without being physically hungry, eat in reaction to emotional distress, or continue eating even when sated. These variations occur regardless of weight and eating issues [55]. Again, cultivating an exploratory and self-accepting approach to food choices and eating is core to the MB-EAT program, in contrast to harsh self-judgmental and externally imposed rules.

The MB-EAT program consists of 10 weekly and two monthly follow-up sessions, developed over the course of multiple clinical trials, from primarily addressing BED in individuals with obesity to being more broadly applicable. The program is designed to cultivate both "inner wisdom" and "outer wisdom" in relation to eating and food choice: the inner-wisdom components assist individuals in learning to attend to experiences of physical hunger, taste, and fullness and to differentiate these from other triggers, whether emotional, cognitive, or situational [17,35,56]. The outer-wisdom components address, in ways that are personally meaningful and sustainable, caloric/"food energy" needs, nutritional and health concerns, and increasing physical activity. Participants learn how to "respond," from a range of possible options rather than with highly conditioned "reactions" that leave them feeling helpless and out of control of their own eating.

Mindfulness practice is augmented by drawing on principles from psychophysics using visual analog scales [45]. Individuals learn to identify where their hunger, fullness, and "taste satisfaction" from a particular food lie on a 10-point scale and to be aware of the physical experiences informing that number. One value of such scales is that they move people away from "all-or-nothing" judgments ("I'm hungry/I'm not hungry"; "I love this"/"Yuck"; "I'm full/I'm not full") to more subtle evaluations of physical hunger, fullness, and taste satisfaction. It is also emphasized that there is no "right" point on the scale to decide to eat – or stop eating – but that circumstances can be taken into account (e.g., a light lunch

prior to exercising versus an occasional holiday dinner, attending a birthday party versus choosing an everyday snack).

Cultivating taste awareness and taste satiety is a particularly core element of MB-EAT. When mindful awareness is brought to taste experience, people discover how quickly the pleasure of a food can drop, particularly for highly sweet or salty foods. The initial taste practice in MB-EAT involves eating four raisins mindfully. When participants are asked to observe whether they actually want the fourth raisin, many realize that they do not. This experience then extends to other foods: cheese and crackers, chips, chocolate, and cookies. Initial clinical applications revealed that even individuals with marked history of obesity and binge eating could easily tune into these subtle variations when doing so mindfully.

The next step is learning to differentiate physical hunger, taste, and satiety from the complex interplay of feelings, thoughts, and situations that trigger eating. For example, common thoughts include "I deserve this"; "Just one (cookie/doughnut/taste of ice cream) won't hurt"; "I have to clean my plate." Marlatt's classic "abstinence violation effect," as applied to alcohol intake [57], is also a hallmark of compulsive overeating, reworded as the "I've blown it" effect. Many individuals vow every morning "to be good," restricting food intake all day, and then attribute their nightly overeating to stress, when it is as likely to be triggered by hunger flavored with negative self-judgment at their poor self-control. Emphasis is placed on breaking this cycle, first through awareness and then by replacing the guilt with enjoyment of smaller, more appropriate amounts of food. Individuals are also encouraged to expand their coping tools to far more than food – but *not* to remove food/eating, in smaller quantities, from their coping list. For example, one man realized that his regular evenings at "all-you-can-eat" buffets with friends were more a left-over mark of "rebellion" that had begun decades before in high school and that he could still enjoy his evenings out without overeating. A woman realized that boredom, rather than stress, led her to overeat in the evenings and that once she was eating in a more balanced way during the day, she was fine just watching television – and knitting to keep her hands busy.

Additional inner-wisdom components help to cultivate attitudes of self-acceptance and flexibility. Throughout the MB-EAT program, people are encouraged to find more joy and pleasure in their eating and relationship to food. Several practices focus on greater awareness and acceptance of the physical body. A powerful practice is a "forgiveness meditation" addressing anger at both oneself and others as a common trigger for overeating. A "values practice" challenges individuals to reconsider how much "worry" time they may be spending focused on eating and weight concerns that would more usefully be spent on other important parts of their lives. This exercise is informed by research showing that mindfulness practice can help to reduce the tendency of the "wandering mind" to move to negatively charged life issues [58]. Finally, a "wisdom meditation and a self-acceptance practice" further formalize these aspects of self-growth.

Also core to the MB-EAT program are the outer-wisdom components. Checking calories on food choices is so associated with dieting that many individuals completely avoid checking the caloric or nutritional values of richer foods eaten between diets or admit feeling very anxious when doing so. The MB-EAT program emphasizes that outer wisdom entails tuning into and making use of such information in a flexible, accepting, and personalized way. Doing so is modeled as part of the mindful eating practices. For example, at the end of the cheese and crackers practice in the second week (see description of the practice below), the group is asked to guess the caloric value of one cracker topped with cheese. Virtually every one guesses double or more: 40 or 50 calories rather than

approximately 18 calories. Participants are then asked to check their own cupboards for foods that are both lower – and higher – than they might have expected to help cultivate an attitude of curiosity rather than anxiety. They are also encouraged to mindfully spread caloric intake out over the day, including moderate snacks, counteracting the very common pattern of being "good" earlier in the day and then overeating later. Conversely, individuals who "graze" throughout the day are encouraged to let themselves become somewhat physically hungry after meals, before eating again.

To address the goal of moderate (and sustainable) weight loss, we introduce the "500-calorie challenge." Although originally based on the now-outdated guideline that this would lead to approximately 1 pound of weight loss per week (500 kcal × 7 days = 3,500 kcal) [59], this challenge still provides encouragement to identify a meaningful amount of food to remove from daily intake. To make it less intimidating, we point out that 500 calories would be about 100 calories from each of three meals and two snacks. Individuals with less weight to loss would adjust this caloric goal accordingly. We also emphasize holding an attitude of exploration and experimentation, but that final changes should be sustainable reductions, ones that they are willing to live with indefinitely, to avoid the common pattern of cutting out food while "dieting" and then returning to those foods (or quantities) later. Common choices include less soda consumption; less butter on side dishes; smaller portions of meat, side dishes, or dessert; and lower-calorie salad dressings. One participant cut out four sodas and then added back in two when he realized that he missed them – only to cut out all of them again a few weeks later as his taste preferences shifted away from highly sugared flavors.

Other outer-wisdom components include working with nutritional information, such as creating meals according to national guidelines and adding healthier food choices to daily eating plans. In week 7, a culminating challenge involves a potluck meal within the session, to which participants contribute one "healthier" dish and one that may be more indulgent but which they wish to continue to include in their regular food choices. This meal is followed by eating out at an "all you can eat" buffet as home practice. Four guidelines are provided: (1) review everything on the buffet table before choosing, (2) savor very small "tastes," (3) go back for the most appealing foods, and (4) leave food on the plate. This exercise is almost always anxiety provoking given memories of overeating at buffets. However, participants find that they do not overeat when using the guidelines and instead enjoy the experience for the variety, rather than the quantity, of food eaten.

**Research.** The first pilot research with MB-EAT, enrolling adult women with obesity and BED, demonstrated the viability of a seven-session program incorporating mindfulness meditation and most of the current inner-wisdom components [60]. Using an extended baseline/follow-up single-group design, binge episodes decreased from over four per week to approximately 1.5 per week, along with clinical improvement on the Binge Eating Scale [61] and depression. Daily mindfulness practice showed significant correlations with improvement in eating control. This study was followed by a National Institutes of Health (NIH)–funded randomized, controlled trial (RCT) comparing a nine-session MB-EAT program with a psychoeducational control and wait list control in a mixed-gender population with both obesity and BED [62]. While improvements in frequency of binge episodes and the Binge Eating Scale were generally comparable for the two active intervention groups, the MB-EAT group improved to a greater extent on other measures of self-regulated eating, such as the Hunger Scale of the Three-Factor Eating Questionnaire (TFEQ) [63]. One concern remained: although improvement, including weight loss, was

related to the amount of mindfulness practice, there was no average weight loss, with approximately one-third losing weight, one-third remaining the same weight, and one-third gaining weight.

This observation led to further development of the outer-wisdom components of MB-EAT. The outer-wisdom components were incorporated into the next trial, which enrolled patients with a BMI of 35 kg/m$^2$ or greater with or without BED. An average weight loss of approximately 7 pounds was reported regardless of BED status and was maintained at follow-up, consistent with the "500-calorie challenge." Also consistent with engaging outer wisdom was improvement in "healthy restraint" for both those with and without BED, which was sustained into follow-up [64]. Another trial enrolling individuals with type 2 diabetes also showed significant improvement in weight, eating regulation, and metabolic regulation [65,66]. Finally, a large clinical trial with the University of California San Francisco for individuals without BED and a range of obesity extended both the inner- and outer-wisdom components to 16 sessions, added more stress management, and compared it with a diet/exercise/stress-management program. This study demonstrated more sustained weight loss for the mindfulness-based intervention, with comparable improvement across a range of other measures [67].

MB-EAT also has been adapted for adolescents with a range of weight issues, delivered within a predominantly African-American high school setting [68]. Sessions were shortened to the length of a classroom period and delivered over a semester. Students randomly assigned to MB-EAT showed better nutritional intake and higher exercise levels both at the end of the semester and three months later, compared with students who remained in their regular health course.

MB-EAT also has been adapted for use with bariatric surgery patients. Once patients transition from the active weight loss phase (which lasts for approximately the first postoperative year) to the weight maintenance phase, preoperative eating problems may recur. Suboptimal weight maintenance has been attributed to poor adherence to post-operative dietary advice [69] and disordered eating behaviors, such as lack of control over food urges [70], eating in reaction to painful affect [71,72], regularly eating past the point of fullness, and eating continuously throughout the day [73]. Given that individuals seeking bariatric surgery have higher rates of binge eating and emotional eating [74,75] and that behavioral interventions tend to be more effective delivered after bariatric surgery, there is a rationale for delivering mindfulness interventions to improve eating behavior after bariatric surgery [76]. Introducing patients to mindful eating preoperatively, as illustrated in the Case Vignette, may also be effective as patients develop more confidence in managing their eating prior to surgery.

Although relatively few studies have examined the effectiveness of mindfulness interventions in bariatric populations, the preliminary data are encouraging. One study examined the effectiveness of a 10-week mindfulness group intervention for seven postoperative bariatric surgery patients who reported emotional eating or subjective eating binges [77]. Participants reported improvements in eating behaviors, emotion regulation, and depression following the intervention. In another study, 18 postoperative bariatric surgery patients were randomly assigned to either a mindfulness intervention or an active control group [78]. Participants in the control group received a 60-minute individual counseling session with a registered dietitian. The two groups did not differ with respect to weight loss at 12 weeks and six months postbaseline. However, participants in the mindfulness group reported a significant decrease in emotional eating six months after baseline. Finally,

a pilot study of MB-EAT adapted for postoperative bariatric surgery patients found that for 22 of the 26 participants who completed the intervention, depression significantly decreased, and there were trends toward statistically significant improvements in binge eating and emotional eating [79].

## Dialectical Behavior Therapy

Dialectical behavior therapy (DBT) is an integrative psychotherapeutic treatment originally developed by Marsha Linehan [80] to treat individuals with borderline personality disorder, who exhibit extreme emotional reactivity and frequent self-harming behavior. In addition to drawing heavily from CBT and clinical techniques, DBT combines principles and strategies from person-centered therapy, Buddhist psychology, and mindfulness practice. From the DBT perspective, problematic, impulsive behaviors ranging from self-harm to binge eating stem from deficits in emotion regulation skills. Emotion dysregulation is understood to be difficulty managing painful emotions in adaptive and effective ways. Instead of allowing themselves to experience the aversive emotion directly, individuals engage in problematic impulsive behaviors to avoid their distress. They experience temporary relief, which reinforces the behaviors and increases the likelihood they will recur. The long-term consequences of the behaviors such as distress about episodes of compulsive overeating and weight gain cause more problems. Impulsive behaviors, by their nature, occur quickly and, with repetition, become paired with emotional distress. Over time, the process leading from distress to problematic behavior becomes automatic, and the person may not be aware of specific triggers associated with overeating or binge eating.

The DBT understanding of reality is that opposing forces are always operating and can be synthesized in new ways, a philosophical concept referred to as *dialectics*. The most fundamental apparently opposing forces are acceptance and change. It is through practicing acceptance of difficult or undesired realities that one is freed to change them. For example, instead of ruminating about the difficulties related to or influenced by obesity, such as medical conditions or mobility issues, one would acknowledge and accept these difficulties and problem solve where possible. Problem solving might include changing problematic eating habits related to weight such as binge eating, taking appropriate medications, and engaging in valued activities.

Dialectical behavior therapy is characterized by its strong emphasis on developing mindfulness as the foundation for addressing the emotion regulation skill deficits. The other three key skills are interpersonal effectiveness, distress tolerance, and emotion regulation. This is consistent with models of eating disorders whereby binge eating is viewed primarily as a symptom of poor emotion regulation [81,82] Because DBT was developed for individuals with impulsive, problematic behaviors, it theoretically and clinically lends itself to the treatment of BED and bulimia nervosa (BN). Standard DBT involves weekly individual therapy, a weekly two-hour skills group, 24-hour access to telephone crisis coaching, and a weekly consultation group for therapists.

The goals of DBT mindfulness skills are to decrease judgment of self and others and to increase awareness and acceptance of experience [83]. Learning to observe and then nonjudgmentally describe sensations, emotions, and impulses helps patients to avoid overidentifying with and magnifying their experience and emotions and thereby improves impulse control. Mindfulness is also taught as a means to reduce secondary emotional

reactions such as guilt and shame that are typically fueled by self-judgment. Psychoeducation is provided about urges and cravings as classically conditioned reactions that have been associated with a particular cue or cues. Mindfulness can help to bring awareness to the presence of these cravings and cues as they are happening, thereby helping patients to respond more skillfully.

In DBT, mindfulness is considered to be a set of specific skills that can be learned and practiced. These skills include observing and describing experiences nonjudgmentally and with complete attention. Patients are encouraged to fully participate in each moment and to make effective decisions based on their goals and values. Each group session begins with a brief mindfulness practice regardless of the skill that is the focus of that teaching session. Patients are not expected to commit to extended periods of sitting meditation, but they may choose to do so in discussion with their individual therapists.

The mindfulness skills used in DBT for BED and BN are the same as in standard DBT, except for the addition of mindful eating, *urge surfing*, and *alternate rebellion*. Alternate rebellion was borrowed from a DBT program for substance-use disorders [84], and urge surfing, from a relapse-prevention treatment for substance abuse [85]. Urge surfing involves mindful, nonattached, nonjudgmental observing of urges to binge or eat mindlessly, cultivating awareness that urges, like waves, need not crash down and instead rise and then fall if simply observed rather than reacted to. Alternate rebellion involves satisfying a wish to rebel without binge eating. Individuals with BED may describe the desire to "get back at" society, friends, or family whom they perceive to be judgmental about their eating and weight by consuming even more food or making poor food choices [86]. Patients are encouraged to observe the wish to rebel, label it as such, and find an alternative that does not involve binge eating or other problematic behavior. While in vivo mindful eating practice may be a part of DBT sessions for BED, the program is more focused on understanding and problem solving eating difficulties that occur outside of sessions.

When applied to BED and BN, DBT involves adaptations to standard DBT to reflect the needs of these patient populations. Goals include decreasing mindless eating and binge eating, decreasing preoccupation with food, increasing adaptive options for regulating painful emotions, and avoiding/limiting focus on weight loss and weighing if this is problematic [86]. Relevant thoughts, emotions, and behaviors, including mindless eating episodes, are tracked on a daily diary card. Problematic mindless eating episodes are those deemed inappropriate, but without the sense of loss of control or excessive food consumption that characterizes a binge. Resources detailing DBT for BED and BN include an overview by Wiser and Telch [83] and case reports [87,88].

Several published studies, including RCTs, have examined DBT for disordered eating in individuals with and without obesity [89–91]. One study showed that 16 of the 18 women (89 percent) who received DBT no longer engaged in binge eating at the end of the 20-week treatment compared with two of the 16 wait list controls [92]. Safer and colleagues compared a 20-session DBT group to an active comparison group therapy (ACGT) for 101 individuals with BED. [91] The ACGT group used supportive strategies to enhance self-esteem and self-efficacy. Posttreatment binge abstinence and reductions in binge frequency were achieved more quickly for the DBT group than for the ACGT group. The DBT group also had fewer dropouts. However, there was a lack of differential effects between groups at the 3-, 6-, and 12-month follow-ups.

## Acceptance and Commitment Therapy

Acceptance and commitment therapy (ACT) is a cognitive and behavioral intervention developed by Hayes, Strosahl, and Wilson [93,94]. It has been used with a variety of health conditions and psychological disorders, including chronic pain, depression, anxiety, psychosis, substance-use disorders, and eating disorders. The overall goal of ACT is to establish greater psychological flexibility [95,96]. Psychological flexibility is the ability to experience and accept the present moment more fully, whether pleasant or unpleasant, and to change or persist with behaviors when doing so serves one's chosen values [96,97]. This is accomplished by promoting acceptance and mindfulness with a commitment to one's values and goals. Values and goals then guide the process of behavior change. Acceptance and commitment therapy was developed within a pragmatic philosophy called *functional contextualism*, and it is centered on *relational frame theory*, a comprehensive theory of language and cognition stemming from behavior analysis [98].

From an ACT perspective, much of human suffering and psychological disorders emerge from the excessive use of language and thought, which produces cognitive fusion and experiential avoidance. Cognitive fusion is the tendency to interpret thoughts literally or stay in a problem-solving mode when it is unhelpful, and experiential avoidance is an attempt to escape or avoid aversive internal events such as unpleasant thoughts, emotions, memories, or physical sensations [94–96]. Overeating and disordered eating patterns are conceptualized in ACT as coping mechanisms that individuals develop to help them avoid distressing thoughts, emotions, or physical sensations. For instance, cognitive fusion may occur when individuals develop rigid dietary rules and are unable to respond effectively to internal cues, like hunger and satiety levels, or physiologic sensations associated with unpleasant emotions (e.g., depression, anxiety, boredom, anger). Experiential avoidance may be reflected in an obsessive focus on calories and food, overeating, loss of control, compensatory behaviors (excessive exercise, fasting, vomiting), or avoidance of difficult emotions or thoughts in the context of body image and weight [99]. When these two processes are present, they contribute to psychological inflexibility, characterized by the individual's inability to moderate various behavioral patterns (e.g., inaction or passivity, impulsivity, avoidance) in achieving valued actions [100]. Treatment in ACT, therefore, aims to foster psychological flexibility through six core processes: (1) acceptance, (2) cognitive defusion, (3) being present (mindfulness), (4) self as context, (5) values, and (6) committed action, which are all overlapping and interdependent [93,94].

In ACT, mindfulness is viewed as a combination of acceptance, defusion, self as context, and contact with the present moment. Mindfulness techniques are used in ACT to target cognitive fusion of thoughts about the body, cultivate moment-to-moment experiences, and increase acceptance of thoughts, feelings, and physical sensations as they arise. Acceptance and commitment therapy trains individuals to observe and notice present external and internal private events and then to label or describe them without overanalyzing, judging, or evaluating. It also teaches individuals to become aware of conditioned chains of behavior, which ultimately allows them to choose behaviors that correspond with their valued actions. Experiential exercises used in ACT to treat obesity and disordered eating include mindfulness of the breath, mindfulness of thoughts, appetite awareness monitoring [101], and mindful eating with raisins, chocolates, carrots, and pretzels [101–103]. The practice of mindful eating is a tool to help patients become aware of the deliberate food choices they make during unpleasant experiences (e.g., whether to eat the food and how much of it to eat). In addition,

mindfulness provides an opportunity to engage in a valued action in the present moment. For instance, choosing whether to eat a carrot versus a piece of chocolate [103], rather than mindlessly eating or using food to escape or avoid internal events, is a mindful process.

Recent studies indicate that ACT may be an effective treatment for patients with obesity, BED, BN, and emotional eating. In a RCT, ACT has been shown to be effective for significantly improving disordered eating behaviors, body satisfaction, quality of life, and acceptance of weight-related thoughts in bariatric surgery patients [104]. One-day ACT workshops have also been shown to decrease body-related anxiety and eating pathology among women with body dissatisfaction [101] and to decrease binge eating episodes among adults with obesity [105]. Case-series studies indicated that 10 weekly sessions of ACT can significantly decrease binge eating and emotional eating episodes among individuals with obesity [102]. In addition, preliminary support has been found for the feasibility and effectiveness of acceptance-based behavioral interventions (ABI) for weight loss among adults who are overweight or obese [103–106].

While the literature on ACT for obesity, emotional eating, and binge eating is promising, more research is needed to determine the adequate length and format of ACT (e.g., workshop, short term, long term) for individuals with obesity. It would also be of importance to investigate the mediating effects of mindfulness versus other core processes in ACT in establishing psychological flexibility and increasing valued actions.

## Qualities of a Mindfulness Facilitator and Training in Mindfulness-Based Interventions

Given that mindfulness-based interventions emphasize awareness and exploration through experiential learning in the present moment, it is integral that facilitators are able to engage the seven attitudinal characteristics of mindfulness practices. These include (1) nonjudging (being an impartial witness to one's experience), (2) patience (allowing experiences to unfold in their own time), (3) beginner's mind (approaching everything as if for the first time), (4) trust (developing a basic trust in one's own experiences and intuition), (5) nonstriving (allowing things to be as they are, without trying to change them in any way), (6) acceptance (appreciating things as they are in the present moment), and (7) letting go [12,107]. In order to embody these qualities, therapists and facilitators should have personal experience in mindfulness and professional training specific to the approach and be committed to a personal mindfulness practice [108–112]. In addition, clinicians delivering mindfulness-based interventions are expected to have relevant professional-level qualifications in psychology, medicine, or another health-related field. Through their personal practice, facilitators will naturally further develop their own awareness and experience with mindful eating and in everyday life, as well as through the program working with participants.

# MB-EAT Practice with Cheese and Crackers: Practical Tips and Mindful Inquiry

## Intention of the Practice

This MB-EAT practice was chosen to present a core approach to mindful eating because it illustrates the experiential foundation of helping clients feel more confident about and satisfied with eating richer types of food in small quantities. Many weight loss programs eliminate or

greatly restrict high-fat, high-sugar, and processed foods from the diet. An alternative approach is to combine both inner and outer wisdom to decide when, what, and how to eat such foods, cultivating a healthier but flexible relationship with such foods [35]. This practice occurs in Session 2 of MB-EAT – prior to this mindfulness exercise, patients have experienced eating four raisins mindfully in Session 1 and practiced mindful meditation for one week.

## Preparation for Group Session

Each participant should be provided with three pieces of cheese and crackers on a small plate. We recommend a small, good-quality wheat cracker and a good-quality commercially sliced cheese cut into small squares approximately the same size as the crackers. Check calories for each to inform the discussion after the practice and have the box/packaging available for the discussion but not visible prior to or during the practice. Mindfulness facilitators can also adapt this practice for individual psychotherapy or select a different type of desired or "trigger" food depending on the target population.

## Style of Delivery

Facilitators are encouraged to read the following script slowly, pausing enough between instructions to give participants sufficient time to reflect on their moment-to-moment experiences. After the mindful eating practice, use open-ended questions when eliciting responses, practicing reflection rather than advice giving and adopting a nonjudgmental, accepting, curious, and nonstriving attitude.

## Mindful Inquiry

Following the mindful eating practice, it is essential for the facilitator(s) to debrief the exercise with participants by engaging in a process called *mindful inquiry*. Inquiry is a dialogue between a facilitator and a participant that aids in the exploration of direct experiences arising from a mindfulness practice [113]. It overlaps with other techniques of exploration performed in various modes of psychotherapy or counseling, but with clearer intentions for connecting qualities of mindfulness. Furthermore, inquiry helps participants to foster reflecting, curiosity, compassion, and insight toward their experience in the present moment rather than generalized ideas or narratives [107]. Last, the process can build on a participant's inner and outer wisdom as it relates to food and eating and then integrate these insights back to the core themes of MB-EAT.

Facilitators new to MB-EAT can apply three layers or steps of inquiry/questions to a mindful eating practice [111,113,114]. Layer one involves inquiry into what transpired during the mindful eating practice (e.g., bodily sensations, thoughts, emotions). Layer two explores what was noticed in layer one within a wider context of understanding and linking them to habitual behaviors. Finally, layer three is an invitation to explore how experiences of mindfulness/mindful eating (learning from layers one and two) can be integrated into everyday life. An example script is provided below [35] and is followed by a conversation between two mindfulness facilitators and participants following a mindful eating practice with cheese and crackers.

## Mindful Eating with Cheese and Crackers: Facilitator's Script

The intention of this meditation is to help you experience mindful eating by savoring a small amount of a more challenging food, and to observe any thoughts, feelings, or sensations that come from eating with curiosity, compassion, and a nonjudgmental attitude. This practice can also help you to cultivate a healthier relationship with food and to become aware of its nourishing and nurturing qualities.

Kindly take a few moments to settle into a relaxed sitting position with your feet placed flat on the floor and uncrossed. I am now going to give you a small plate with three pieces of cheese and crackers. While you are waiting, notice any thoughts or feelings you are having about this food or this practice [*wait to give further instructions until everyone has his or her plate*]. As you feel comfortable, gently close your eyes fully or partially. Take several deep breaths through your nose [*five-second pause*]. With each in breath, become centered and relaxed . . . [*pause*]. On your next in breath, quickly scan your body from head to toe, and notice if there are areas in your body where you are holding tension. If so, breathe into these areas . . . [*pause*]. Next, notice if there are areas in your body where you feel comfortable or relaxed. If so, breathe into these areas as well . . . [*pause*]. Notice, without judgment, other feelings, experiences, or thoughts that are going through your mind, particularly any related to the food in front of you . . . [*pause*]. Continue to be aware of any physical sensations in your body, and breathe into them . . . [*pause*].

Now open your eyes, and remaining in a mindful space, take one cracker and piece of cheese. First, look at it carefully with fresh eyes . . . [*pause*]. Now, closing your eyes, bring it up to your nose and smell it . . . [*pause*]. Place it in your mouth or take a bite of it. Notice how it feels in your mouth. Before beginning to chew, move it around for a moment in your mouth, and notice the sensations . . . [*pause*]. Now, beginning to chew, notice how the taste changes . . . [*pause*]. As you slowly continue chewing this first bite, taking another bite to finish the cracker if needed, see if you notice any changes in the taste or other sensations . . . [*pause*]. Resisting the urge to swallow . . . [*pause*], savor the experience of this small piece of food . . . honoring the satisfaction you experience from it . . . [*pause*]. Notice how your body, thoughts, emotions, and mind react to this food . . . [*long pause*], choosing to swallow . . . [*pause*]. When you finish, notice how you feel . . . [*pause*]. Notice any sensations still remaining in your mouth . . . [*pause*]. Open your eyes enough to take a second cracker . . . looking at this one . . . [*pause*]. Now close your eyes, and again, smell it . . . [*pause*]. Placing it in your mouth, experience the texture and taste before chewing, and then as you begin to slowly chew it . . . [*pause*]. How is it the same, how is it different from the first cracker? . . . [*pause*]. Enjoy it as much as possible . . . [*pause*]. Notice any thoughts and feelings as they arise . . . [*pause*]. Again, choose to swallow, and notice the experience of doing so . . . [*pause*]. As you are ready, bring your awareness back to your breath . . . [*pause*]. Does your body or mind want another cracker? . . . [*pause*]. If so, help yourself to the last one, and lead yourself through eating it mindfully. If you are not eating, return your awareness to your breath . . . [*pause*]. If you are eating, does this cracker taste or feel any different from the first two? . . . [*pause*]. Whether you are eating the third cracker or not, notice your thoughts and your emotions . . . [*pause*]. If you are eating, how is your body responding? . . . [*pause*]. What are your thoughts now? . . . [*pause*]. As you decide to swallow, appreciate that you are feeding your body a complex food to provide energy and create well-being . . . [*pause*]. Appreciate for a moment the many hands that contributed to creating these little bites of food, growing and harvesting the ingredients, creating the food, even moving it to the stores . . . [*pause*]. As you're finishing the third cracker, consider whether you would want a fourth one if it were available . . . [*pause*]. What does that feel like? [*Wait to continue when everyone is finished.*] Now bring your awareness back to your breath . . . back to your body . . . back to the room . . . and when you are ready, gently open your eyes.

## Mindful Inquiry Dialogue

Facilitator 1: Let us start off by sharing what you noticed while eating the cheese and crackers mindfully, including any thoughts, emotions, or physical sensations. [*Layer one*]

Participant 1: Well, my mind was racing with a lot of thoughts . . .

Facilitator 1: Would you be able to say what kinds of thoughts went through your mind?

Participant 1: I thought about how crackers are bad for me . . . I remember having a bad binge three weeks ago where I ate most of a box of crackers with a brick of cheddar cheese . . . I couldn't stop eating . . .

Facilitator 1: It sounds like the thoughts and that memory made it hard for you to stay in the moment with the practice.

Participant 2: I felt the same way, too! I couldn't focus on eating because I was worried that afterwards I was going to buy crackers and cheese on my way home and eat them all tonight.

Facilitator 1: So there were worries about something that might happen later. This is a nice example of how the practice was to eat the cheese and crackers mindfully in the present moment, yet the mind goes elsewhere, as in the future when you are on your way home or in the past with a bad binge eating episode. It is normal for the mind to jump to worries and to notice them when they come up. What did others notice?

Participant 3: I enjoyed this exercise. I tasted the cheese, and it was very flavorful, and I also loved the crunch of the cracker. I was satisfied with the first piece, which lead me to eat the second piece, but the second piece didn't taste as good as the first one.

Participant 4: For me, the two pieces were enough. I thought they were both delicious, but when I asked myself how much I wanted the third piece, I was really surprised that I didn't want it. I realized that I wasn't hungry, so I decided to stop eating. I don't think I've ever done that before!

Facilitator 1: These are lovely examples of how we can have similar and different experiences with the same type of food. For one person, the cheese and crackers might be really anxiety provoking, another person might enjoy it, and others still might have a mixture of emotions and thoughts. The intention of the mindful eating practice is to be open to whatever arises and to rely on your inner wisdom when it comes to food and eating, including your likes, dislikes, hunger levels, and satiety cues.

Facilitator 2: Can all of you use your outer wisdom to estimate the number of calories or nutritional content in each piece of cracker and cheese?

Participant 1: Each piece must be at least 50 calories!

Participant 2: I think it is closer to 40 calories.

Participant 4: I am going to guess that it is 45 calories.

Facilitator 2: Each cracker is 9 calories; the piece of cheese is about 11, so the total is 20 calories [*whole group looks surprised*].

Participant 1: I was worried over 20 calories!?

Facilitator 2: How was eating cheese and crackers in this way different from how you normally eat this type of food. [*Layer two*]

Participant 5: If I were at home, I probably would have eaten a whole roll of crackers within 10 minutes without really tasting them . . . so just eating one piece was interesting.

Facilitator 2: What was interesting about it? What did you notice when you ate one piece versus eating a roll of crackers?

Participant 5: Well, for starters, I tasted the flavor of the cheddar and the saltiness of the cracker. Slowing down made a difference. Looking back, I thought I enjoyed eating all those crackers, but I was eating too fast to even taste them, whereas I enjoyed eating just the two pieces today.

Participant 7: I love cheese, and I always eat a plateful of assorted cheeses with crackers and grapes at dinner parties. But when we did the exercise, I didn't really like it. I don't know if it is this type of cheese, but when I paid attention to the flavor, I found the cheese very fatty and the cracker wasn't crunchy enough.

Facilitator 2: That sounds like a new experience for you, and once you paid attention, you didn't enjoy the food as much as you expected. By practicing mindful eating, you may notice that certain foods are no longer as enjoyable, and it is also possible to develop a relationship with food where you still eat the foods you like but enjoy them even more. We call it "cultivating your inner gourmet!"

Facilitator 1: How might eating in this way help you make better eating choices in the future or prevent overeating? [*Layer three*]

Participant 5: I think just eating more slowly is a big takeaway for me. Really taking the time to taste what I'm eating will help me to stop eating sooner and maybe enjoy my food more. I'd probably eat less but feel more satisfied.

Participant 6: I agree – eating slowly will be huge for me because right now I eat so fast that I don't realize I've eaten too much until afterwards when I feel stuffed.

Participant 4: Paying attention to how hungry I am before and during eating will be a good tool for me. I think it will help me with portion control and knowing when to stop eating.

Participant 1: Well, for now, I think I'll continue not having cheese and crackers in the house because it's preventing me from binging, but I think the next time I'm at a party where they have cheese and crackers, I'll eat a few pieces mindfully and see what that's like.

Facilitator 1: Okay, so we have some similarities and differences in how you want to incorporate mindful eating into your daily lives. It's going to take some time to figure out ways to make changes with this new skill that you are learning, and as with any other skill, it can take trial and error and patience. As best as you can, be curious, accepting, and compassionate with yourself as you continue to explore these mindfulness practices.

### Case Vignette Revisited

Linda did very well in the program and was able to stop binge eating entirely. She also markedly reduced her scores on the Binge Eating Scale and increased her scores on a measure of "healthy" restraint. She was pleased with her weight loss of approximately 15 pounds. She noted that her husband had also lost some weight and had become comfortable with the healthier foods she was preparing and the smaller serving sizes. The hardest part for him was her refusal to bring full boxes or bags of snacks into the living room in the evening while they were watching TV. She noted that although she'd tried to get him to "mindfully" taste even very small amounts like she did, he didn't have the mindfulness training and so found it much harder to do. She did note that he had begun to talk more about not being "hungry" or not wanting to be too "full." Linda had also become aware of some of the very common triggers for her overeating, which included very large family meals, pressure to "clean her plate" as well

as the serving bowls and platters, and using food both for handling emotional stress and for celebrating with her family. She had begun talking to a close sister about wanting her support in resisting some of these patterns when they were together. She had also begun bringing healthier foods to church events and was surprised to find that others appreciated this gesture. She had a more difficult time increasing her physical activity because she had little opportunity to walk at work or elsewhere during most days. But as she began using the pedometer and trying to meet the goal of increasing her steps just 10 percent per week, she gradually found more ways to do so. By the end of the program, she was climbing the two flights of stairs to her office instead of taking the elevator.

After surgery, Linda was surprised to discover how much less of a struggle she was having dealing with the restrictions than she had expected. This also continued to be the case as she moved into the period of adding foods back into her diet. "I've really lost my taste for most of the sweets I used to binge on. I'm a much pickier eater now! But in a good way!"

## Summary

Mindfulness-based interventions have much to offer individuals living with obesity. They take an "inside-out" approach to help people learn to attend to their own bodily signals and food-related thoughts and emotions when making eating decisions. This inner wisdom or ability to self-regulate is often lost when individuals participate in numerous diets that dictate how much, when, and what to eat without encouraging them to consider their own needs and preferences. Mindfulness practice cultivates greater awareness of and attention to thoughts, emotions, bodily sensations, and other stimuli. When attended to in a nonjudgmental, curious way, this can lead to greater understanding of how one makes decisions about eating. This provides information to more flexibly respond to eating cues in a manner that is sustainable, internalized, and consistent with goals and values. Mindfulness explicitly encourages acceptance and self-compassion, qualities that can help counter shame and feelings of futility about weight loss and improved health. MB-EAT, DBT, and ACT are all evidence-based interventions that explicitly incorporate the theoretical and practical aspects of mindfulness skills. Mindfulness practice is the predominant feature of MB-EAT, whereas ACT and DBT both include mindfulness as part of a larger package of clinical techniques that have been used with a variety of populations and presenting problems.

## Key Points

- Mindfulness practice can help individuals living with obesity to change their relationship to food by gaining nonjudgmental awareness of food-related thoughts, feelings, and bodily sensations.
- MB-EAT was developed specifically to address eating concerns typical of individuals who are overweight/obese and the related disordered eating patterns, whereas DBT and ACT have been adapted for individuals with these concerns.
- The results of research conducted on these approaches show their effectiveness in improving binge eating, emotional eating, and weight loss.

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