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Diabetes and Eating Disorders — Together They're Linked With a Double Dose of Health Consequences

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Anna is 17 years old, has a medium frame, and a naturally round body type. At the age of 10, she was diagnosed with type 1 diabetes after experiencing significant weight loss. Once she began taking insulin, her weight returned to normal.

Currently, Anna eats three meals and one snack per day, adding up to about 2,200 kcal. Her medication regimen includes both basal insulin and rapid-acting insulin. Anna checks her blood sugar three times per day, and it's always in the normal range. Nevertheless, she presents with weight loss and recurrent glycosylated hemoglobin A1c levels above 12%. Anna is pleased with the 15-lb weight loss and her BMI of 18.3, but her mother is concerned about her elevated A1c levels and the associated complications.

During the initial nutrition assessment, the dietitian asked Anna why she thought her blood sugar readings were normal while her A1c levels were elevated. Anna confessed she doesn't always give herself the full dose of the rapid-acting insulin and sometimes skips it all together. This led to the discussion of how she manipulates her blood sugar readings by placing diluted juice or blood on the blood sugar test strips. She said she always takes her basal insulin to avoid diabetic ketoacidosis, a potentially life-threatening complication in which the body fails to adequately regulate ketone production, causing the accumulation of keto acids and a decrease in blood pH. Anna has been manipulating her insulin for more than six years and is beginning to show signs of microvascular complications.

Anna suffers from the dual diagnosis of type 1 diabetes and bulimia nervosa, the combination of which is characterized by bingeing on large amounts of sugary or carbohydrate-rich foods and purging the excess sugar through urination. Individuals with bulimia nervosa who don't have diabetes binge on large amounts of food but purge with the use of laxatives, self-induced vomiting, or excessive exercise to prevent weight gain.

The preferred clinical acronym for patients with type 1 diabetes and bulimia nervosa is ED-DMT1, although the lay press started using the term "diabulimia" in 2007 to identify this complex diagnosis. ED-DMT1 is defined as the manipulation of insulin to induce weight loss or avoid weight gain.[1] Although the fourth edition of the ***Diagnostic and Statistical Manual of Mental Disorders*** text revision doesn't list insulin specifically, this behavior is a form of purging calories through glycosuria.

This continuing education course will discuss the prevalence of diabetes and eating disorders, and review the symptoms and treatment strategies dietitians can use in practice to care for this vulnerable patient population.

Prevalence

According to the 2011 National Diabetes Fact Sheet from the Centers for Disease Control and Prevention, 25.8 million American children and adults have diabetes. This number represents 8.3% of the US population. One in every 400 children and adolescents has the disease and, more specifically, it affects 11.8% of adult men and 10.8% of adult women. Bulimia nervosa is more prevalent in women who have type 1 diabetes; binge-eating disorder, a condition characterized by episodes of compulsive overeating, is more prevalent in women with type 2 diabetes.[2] Having type 1 diabetes and anorexia nervosa, a psychiatric disorder associated with an unrealistic fear of weight gain, self-starvation, and a distorted body image, is extremely rare.[3]

Research data on ED-DMT1 is scarce due to the limited number of studies, sample size, diversity within the sample, methodology, and the diagnostic criteria used.[2] In addition, most of the studies include only women, so the prevalence in men is unknown. Some data suggest the ratio of ED-DMT1 is 10:1 for women and men, respectively.[4] It's estimated that women with type 1 diabetes are 2.4 times more likely to develop an eating disorder than those without diabetes, and that the mortality rate for those with ED-DMT1 triples compared with those who have diabetes alone.[4] Since most individuals are in denial in the early stages of an eating disorder, obtaining accurate data is difficult.

According to research compiled by the National Eating Disorders Association, as many as 10 million females and 1 million males in the United States suffer from an eating disorder such as anorexia nervosa or bulimia nervosa, and millions more struggle with binge-eating disorder.

Consequences of Eating Disorders in Diabetes

The behaviors associated with bulimia nervosa in diabetes patients have cognitive, emotional, and social consequences (see Table 1).

Table 1: Cognitive, Emotional, and Social Consequences of Bulimia Nervosa

Cognitive Consequences	**Emotional Consequences**
Chronic thoughts of food and eating	Depression
Disinterest in other activities	Anxiety
Distorted beliefs about food, eating, body shape and size:	Irritability
Denial	Shame
Minimization of the severity of behaviors and risks	Guilt
Blaming	Embarrassment
Avoidance	Hopelessness
Intellectualization	Fear their secret will be revealed
All-or-nothing/black-and-white thinking	Disgust of self after eating
Personalization	Low self-esteem
Overgeneralization	Feeling out of control
Magical thinking	**Social Consequences**
	Isolation

Poor concentration/memory problems Comprehension problems Difficulty making decisions	Secrecy Mistrust of self and others Decreased or loss of libido **Financial Consequence** Spending large amounts of money on binge foods **Legal Consequence** Being arrested for shoplifting food, laxatives, or other items

— Source: Bulik C, Sullivan P, Carter F, Joyce P, McIntosh V. ***Cognitive Therapy Therapist Manual for the Treatment of Bulimia Nervosa****. Christchurch, New Zealand: University of Canterbury; 1993*

Individuals with bulimia can experience chronic thoughts of food and eating, anxiety and depression, and feelings of isolation and mistrust of self and others. Patients often have distorted thinking that minimizes their concern for the long-term adverse health effects of elevated blood sugar, despite the fact they face the possibility of diabetic ketoacidosis, coma, and even death. Because of irrational thinking caused by the eating disorder and their obsession to be thin, they're willing to cope with the immediate effects of high blood sugar, such as dehydration, fatigue, and difficulty concentrating, which become a comfortable discomfort in an effort to lose weight.

If patients with weight-related type 2 diabetes develop anorexia nervosa, which is rare,[5] it's well known that the resulting weight loss may reverse the disease process of insulin resistance, and the patient may become free of diabetes symptoms. Patients with diabetes and binge-eating disorder experience increases in blood sugar levels following a binge-eating episode. The weight gain that often results from this repetitive behavior can trigger or accelerate the associated complications of diabetes, such as neuropathy and retinopathy, along with the risks of obesity, cardiovascular disease, hyperlipidemia, hypertension, difficulty breathing, sleep apnea, and increased fatigue.

Assessment

If a dietitian suspects a patient has an eating disorder, he or she should ask important questions about eating disorder behaviors during the nutrition assessment. The dietitian can ask patients if they're restricting food, bingeing, purging (eg, self-induced vomiting; misusing laxatives, diuretics, or diet pills; using ipecac to induce vomiting); manipulating insulin and blood sugar readings; exercising excessively; and engaging in eating rituals. Are they avoiding foods, distorting portions, weighing themselves frequently, and other associated behaviors?

Moreover, it's helpful to ask if there are other family members who have struggled with eating disorder issues. Asking questions about herbal remedies also should be included, since this population may use them in weight-loss efforts and experience negative side effects when used with diabetes medications.[6]

Treatment

Treatment for diabetes patients with eating disorders is complex. It often requires collaboration among members of a healthcare team to address various aspects of a patient's health (see "The Treatment Team" below). Dietitians are a vital part of this team. Nutrition counseling focuses on correcting disordered eating behaviors and beliefs about food, weight, and exercise. RDs provide patients with nutrition education, encourage them to experiment with healthful foods and behaviors, assist in normalizing food patterns, and monitor weight.[7]

One challenge dietitians face when working with diabetes patients with eating disorders is how to educate them about carbohydrate counting and label reading while avoiding the discussion of calories and weight, which is often contraindicated in individuals who are obsessed with food and body size.[7] Choosing not to discuss the patient's weight is a widely used practice in eating disorder treatment centers and by dietitians who specialize in eating disorders. Eating disorders aren't about food, calories, weight, or vanity; they're about unresolved emotional issues. Patients who focus on food and weight in an attempt to control their emotions do so with grave health consequences. This is a key factor for dietitians to understand when working with this population.

In an outpatient setting, the healthcare team must follow the patient closely. Trust between the patient and team members develops slowly, so it's important for members to be nonjudgmental of the patient's size, thoughts, and behaviors, and when validating the patient's feelings and struggles. This is best done using an individualized treatment approach. If one isn't already on the team, a referral to a certified diabetes educator with experience treating eating disorders may be warranted. The immediate goal is to stabilize the patient. The long-term goal is to regain metabolic balance, correct malnutrition and, if necessary, restore the patient to a normal weight.[7]

When treating clients who manipulate insulin intake, the healthcare team should give the responsibility of insulin administration, blood sugar monitoring, and carbohydrate counting to a parent or spouse. If a patient uses an insulin pump, switching to single injections often is recommended. Patients can earn back these responsibilities as they successfully move forward with treatment.[6]

It's important for dietitians to know that calorie counting, food restriction, and frequent weighing are contraindicated in patients with eating disorders since these behaviors are central to eating disorder obsessions used to cope with emotions.[7] Therefore, helping clients decrease these behaviors is a common goal in treatment. Using a nondiet approach such as Intuitive Eating or Health at Every Size often is more beneficial. With Intuitive Eating, the typical dieting behaviors are replaced with identifying hunger and satiety cues to determine what, when, and how much to eat. With the Health at Every Size approach, health parameters, not the size of the individual, are the main focus.

Moving patients away from the idea that there are good and bad foods is essential, since they're extremely self-critical and often judge themselves as good or bad if they eat foods labeled as such. The message should be that all foods are acceptable. Dietitians can counter their patient's negative self-talk by asking them to reframe their statements in a nonjudgmental way. The statement "I was bad yesterday because I ate pizza," can be changed to "I chose to eat pizza as part of my meal plan." The statement "I had a bad day because I ate ice cream,"

can be changed to “I ate ice cream, but I wasn’t physically hungry. What can I learn from this?” Patients will need much support with this, since positive self-talk may be foreign to them.

Eating disorders are psychological diagnoses with physiological complications. Dietitians are trained to address physiological health issues but not so much the psychological factors. Thus it’s important for RDs to receive additional training in this area, not to perform psychotherapy but to learn how best to work with these clients and their therapists.[6]

Frequent communication with the therapist and other team members on how the client presents in the RD session as well as their current eating disorder behaviors is essential for proper treatment. Psychological diagnoses that commonly occur with eating disorders may include anxiety, depression, obsessive-compulsive disorder, bipolar disorder, borderline personality disorder, and posttraumatic stress disorder. Moreover, self-harming and suicidal ideation often occur in these populations.

Dietitians working with these patients should be trained in the most common psychotherapy approaches used in treatment so healthcare team members are on the same page and can communicate effectively. Mixed messages from team members will confuse patients and interfere with treatment. Some psychotherapy treatment approaches used include cognitive behavioral therapy, dialectical behavior therapy, acceptance and commitment therapy, and psychoanalysis.[6]

Cognitive behavioral therapy addresses dysfunctional emotions, behaviors, and thought processes through a goal-oriented systematic process. It involves teaching patients to think in a different way to allow them to change their behaviors. Dialectical behavior therapy combines cognitive behavioral therapy with emotional regulation and mindfulness skills. Acceptance and commitment therapy is a cognitive behavioral therapy approach using acceptance and mindfulness strategies taken from the Buddhist religion to evoke behavior change. With psychoanalysis, repressed feelings are brought to light in an effort to resolve conflict between the conscious and unconscious.

According to Emmett Bishop, MD, FAED, CEDS, founding partner and medical director of adult services at the Eating Recovery Center in Denver and a highly respected eating disorder expert, rational behavior therapy, a form of cognitive behavioral therapy, is gaining in popularity. Rational behavior therapy is used when an individual isn’t in touch with his or her emotions, which is common in the adolescent population. It addresses how one thinks, setting aside emotions.

Craig Johnson, PhD, FAED, CEDS, chief clinical officer at the Eating Recovery Center and a leader in eating disorder research, adds that the Maudsley approach is an effective treatment for children and adolescents. The basis of Maudsley is to empower parents as authorities on feeding (or refeeding) their child; food is seen as medicine. Dietitians who are trained Maudsley practitioners can provide this treatment, although the approach assumes the parents know best about how to feed their child. In this instance, the practitioner works as a facilitator of the process.

Before taking any therapeutic approach, dietitians must resolve any body image and self-esteem issues they may have since these struggles are at the crux of eating disorders, said

Katherine Zerbe, MD, an expert in the field of eating disorders at the Oregon Psychoanalytic Center in Portland, during a 2012 presentation for the North Carolina Psychoanalytic Society. If this isn't accomplished, the dietitian's unresolved issues will negatively influence the therapeutic process and impact treatment.

Moreover, dietitians will need to understand and validate the patient's feelings without allowing their own emotions or opinions to surface. They also will need to be cognizant of transference and countertransference issues. Transference occurs when clients transfer their feelings for a family member or other person onto the clinician. Countertransference takes place when clinicians transfer their feelings onto the client.

These conflicts make it necessary for both the therapist and the dietitian to obtain ongoing supervision with difficult cases by seeking assistance and guidance from a therapist or highly trained RD. Education is ongoing and ever changing, so monthly individual or group sessions are recommended.

Counseling Strategies for Dietitians

According to Deborah Russo, PsyD, a private practitioner who specializes in eating disorders, counseling techniques that have been effective in diabetes patients with eating disorders are motivational interviewing, assessing motivation for change, and mindful eating.

Motivational Interviewing

Motivational interviewing involves recognizing that clients who need to make changes in their lives approach counseling at different levels of readiness. For motivational interviewing to be successful, four basic principles should be employed: expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy.[8]

The main goals of motivational interviewing are to establish rapport and elicit change in thought patterns to help the individual move toward behavior changes.[8] For example, patients will work on moving away from saying "I can't" and toward saying "I can" or "I'm willing," and learn to evoke language that's commitment based, such as "I will" vs. "I'll try." This involves partnership not confrontation, eliciting a response from the patient rather than focusing on didactics, autonomy rather than authority, and exploration instead of explanation.

To accomplish this, RDs can ask "What do you think prevented you from accomplishing your goal?" "What change do you see yourself making this week?" or "I'm curious about how you developed this belief. Can we explore this more?"

To be effective, dietitians must zero in on goals that are important to the patient. The goals can be small as long as they help the patient feel successful, but they should be specific, realistic, and centered on the present and future[8] (eg,"I will eat 100% of my meal plan daily" or "I will check my blood sugar three times a day without manipulation").

Assessing Motivation for Change

It's important for dietitians to determine the degree to which patients are ready to change their eating behaviors. They can do this by using what's called the Transtheoretical Model, which evaluates change as a process that involves progression through the following stages:[9]

1. **Precontemplation:** There's no intention to take action in the foreseeable future, and the patient may be unaware his or her behavior is problematic.

2. **Contemplation:** The patient is beginning to recognize his or her behavior is problematic and may review the consequences of continued actions.

3. **Preparation:** The patient intends to take action in the near future and may begin taking small steps toward behavioral change.

4. **Action:** Steps are taken to modify behavior and acquire new healthful habits.

5. **Maintenance:** The patient sustains action for a while and is working to prevent relapse.

An additional step, Termination, may be considered when there's no temptation to practice old behavior, and the patient is committed to the new behavior as a way to cope.

In this model, resuming old behaviors is viewed as a return from the Action or Maintenance stage to an earlier stage. It's not viewed as a failure but as a learning experience. Knowing what stage the patient is at will help the dietitian direct the session to best meet the patient's needs.

Mindful Eating

Mindful eating involves slowing down the eating process to appreciate all aspects of the dining experience: appearance, color, texture, aroma, taste, changes in taste and texture as one chews, and how it feels when one swallows.[10]

Eating mindfully has been gaining popularity both in dietetics and psychology. It's an effective tool to help individuals get in touch with their body's hunger and satiety cues as well as other ways the body communicates. Michelle May, MD, and Megrette Fletcher, MEd, RD, CDE, coauthors of the book ***Eat What You Love, Love What You Eat With Diabetes***, say they've been using this approach successfully with diabetes patients for many years.[10]

May uses the mindful eating technique to help patients learn what foods they like and don't like. It's been the author's experience that many people with binge-eating disorder learn that they binge on foods they don't like. This may speak to the belief that they don't deserve pleasure. These new insights can help patients eliminate those foods from their diets.

Mindful eating also helps patients make associations between emotional issues and certain foods. If patients are used to isolating themselves during meals, mindful eating principles can encourage them to eat with others.

Closing a Gap in Treatment

ED-DMT1 is defined as the manipulation of insulin to induce weight loss or avoid weight gain. Although research is limited, it's estimated that women with type 1 diabetes are twice as likely to develop an eating disorder, most often bulimia, than women without diabetes. Women with type 2 diabetes are more prone to developing binge-eating disorder. Binge-eating episodes and the weight gain that often follows can accelerate the onset of diabetes complications.

As mentioned previously, eating disorders coupled with diabetes can have cognitive, emotional, and social consequences, leading to treatment that can be complex. Close communication between members of a healthcare team is important for successful treatment.

The dietitian is a vital part of the team, assisting the individual in changing his or her perspective on food, weight, and exercise habits. A nondiet approach is recommended for this population, since obsession with calorie counting, frequent weighing, and other typical dieting behaviors are common.

Effective counseling strategies include motivational interviewing, assessing motivation for change, and mindful eating. Dietitians working with patients are advised to receive training in the most common therapeutic approaches. Often transference and countertransference as well as other negative therapeutic dynamics occur during counseling sessions, calling for regular supervision from a therapist or a more experienced, well-trained dietitian.

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The Treatment Team

Treating patients with both diabetes and an eating disorder involves becoming part of a healthcare treatment team in which members play distinct roles to ensure optimal patient care. Here's who may comprise a typical team and an explanation of each member's responsibilities:

- **Physician:** manages physical complications, monitors vital signs and labs, prescribes medications for diabetes treatment

- **Psychotherapist:** helps patients with the emotional management of diabetes and eating disorders and addresses psychological issues. He or she may monitor eating disorder symptoms to help patients develop healthful coping skills.

- **Dietitian:** teaches patients how to medically manage diabetes through diet and exercise, addresses the patient's fears about food and weight, monitors food intake and eating disorder symptoms, encourages patients to make behavior modifications, reinforces healthful coping skills, and monitors weight when appropriate

- **Psychiatrist:** manages medications for psychological issues
- **Family therapist:** assesses family dynamics and helps family members work through difficult issues, and facilitates effective communication among family members

- **Dentist:** addresses any dental or oral issues associated with eating disorders. The dentist may be the first to suspect an eating disorder.

Eating Disorder Definitions[1]

Diagnostic Criteria for Anorexia Nervosa () 307.10

- Refusal to maintain body weight at or above a minimally normal weight for age and height (eg, weight loss leading to maintenance of body weight less than 85% of that expected or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected)

- Intense fear of gaining weight or becoming fat, even though underweight

- Disturbance in the way in which one's body weight or shape is experienced, extreme influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight

- In postmenarcheal females, amenorrhea, the absence of at least three consecutive periods (A woman is considered to have amenorrhea if her menses occurs only following hormone administration [eg, estrogen].)

It's necessary to specify the type of anorexia nervosa, as follows:

- **Restricting type:** During the current episode of anorexia nervosa, the person hasn't regularly engaged in binge-eating or purging behavior (ie, self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

- **Binge-eating/purging type:** During the current episode of anorexia nervosa, the person has regularly engaged in binge-eating or purging behavior.

Diagnostic Criteria for Bulimia Nervosa (307.51)

- Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

- eating, in a discrete period of time (eg, within any two-hour period), an amount of food that's definitely larger than most people would eat during a similar period of time and under similar circumstances

- a sense of lack of control over eating during the episode (eg, a feeling that one can't stop eating or control what or how much one is eating)

- Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise

- The binge-eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for three months.

- Self-evaluation is excessively influenced by body shape and weight.

- The disturbance doesn't occur exclusively during episodes of anorexia nervosa.

Diagnostic Criteria for Eating Disorder Not Otherwise Specified (307.50)
Eating disorder not otherwise specified is the diagnosis given for an eating disorder that doesn't meet all the criteria for a diagnosis of anorexia nervosa or bulimia nervosa. This includes binge-eating disorder.

- All diagnostic criteria for anorexia nervosa are met, except the menstrual cycle is normal.

- All diagnostic criteria for anorexia nervosa are met, except weight is normal for height and age even after considerable weight loss.

- All diagnostic criteria for bulimia nervosa are met, but the frequency of binges is less than twice weekly and for duration of less than three months.

- There are recurring efforts to compensate (such as self-induced vomiting) for eating only small amounts of food, but body weight is normal for height and age.

- Regularly chewing and spitting out large quantities of food without swallowing

- Binge-eating disorder—regular episodes of binge eating but with no recurring efforts to compensate, such as purging or excessive exercise

The ***DSM-5***, to be published in May 2013, will include revisions in the criteria for anorexia nervosa and eating disorders not otherwise specified.

Possible Consequences[2,4,6]

Elevated Blood Sugar
- Polydipsia
- Polyuria, day and night
- Polyphagia
- Weight loss
- Dehydration or dry/flushed skin
- Breakdown of muscle tissue
- Fatigue
- Irregular menses
- Loss of hunger and satiety cues
- Kidney damage
- Eye disease and possibly blindness
- Vascular disease
- Neuropathy
- Hyperlipidemia
- Diabetic ketoacidosis
- Difficulty breathing
- Breath with a fruity odor
- Difficulty concentrating/confusion
- Shortened life span

- Coma
- Death

Bulimia Nervosa

- Abdominal pain and distention
- Constipation/loss of bowel function
- Irritable bowel syndrome
- Early satiety, delayed gastric emptying
- Loss of hunger and satiety cues
- Fatigue/weakness/muscle pain
- Dehydration/edema
- Barrett's esophagus
- Mallory-Weiss tears
- Esophageal cancer
- Electrolyte disturbances
- Heart arrhythmias/failure
- Reflux/gastroesophageal reflux disease
- Menstrual irregularities/infertility
- Broken blood vessels under the eyes
- Decrease in libido
- Dental erosion/caries/perimolysis
- Parotid gland enlargement (when self-induced vomiting stops)
- Russell's sign
- Thyroid irregularities
- Abnormal brain discharges
- Brain shrinkage

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Examination

1. Taking basal insulin while skimping on rapid-acting insulin may help a patient avoid diabetic ketoacidosis.
A. True
B. False

2. When working with diabetes patients with eating disorders, supervision is essential to address which of the following issues?
A. Transference and countertransference
B. Clinician's issues of body image and self-esteem that surface in counseling sessions
C. Choosing a method for nutritional counseling
D. Both A and B

3. Which eating disorder is considered extremely rare in type 1 diabetes patients?
A. Binge-eating disorder
B. Bulimia nervosa
C. Anorexia nervosa
D. None of the above

4. Women with type 1 diabetes are how much more likely to develop an eating disorder than those without diabetes?
A. 1.2 times
B. 2.4 times
C. 3.6 times
D. 4.8 times

5. Which of the following is not a principle of motivational interviewing?
A. Express sympathy
B. Develop discrepancy
C. Roll with resistance
D. Support self-efficacy

6. The Maudsley approach to treating eating disorders is most appropriate for which age group?
A. Children
B. Adolescents
C. Adults
D. Both A and B

7. Which of the following is not a consequence of both elevated blood sugars and bulimia?
A. Loss of hunger and satiety cues
B. Menstrual irregularities
C. Fatigue and dehydration
D. Mallory-Weiss tears

8. Which of the following is not one of the steps of the Transtheoretical Model?

A. Action
B. Precontemplation
C. Acknowledgment
D. Maintenance

9. Which method of nutrition counseling is useful for patients with diabetes and eating disorders?
A. Motivational interviewing
B. Transtheoretical Model
C. Mindful eating
D. All of the above

10. Eating disorders are more about which of the following?
A. Food and weight-loss issues
B. Unresolved emotional issues
C. Both A and B
D. None of the above