Position of the American Dietetic Association: Nutrition intervention in the treatment of anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified (EDNOS)

Abstract
More than 5 million Americans suffer from eating disorders. Five percent of females and 1% of males have anorexia nervosa, bulimia nervosa, or binge eating disorder. It is estimated that 85% of eating disorders have their onset during the adolescent age period. Although Eating Disorders fall under the category of psychiatric diagnoses, there are a number of nutritional and medical problems and issues that require the expertise of a registered dietitian. Because of the complex biopsychosocial aspects of eating disorders, the optimal assessment and ongoing management of these conditions appears to be with an interdisciplinary team consisting of professionals from medical, nursing, nutritional, and mental health disciplines (1). Medical Nutrition Therapy provided by a registered dietitian trained in the area of eating disorders plays a significant role in the treatment and management of eating disorders. The registered dietitian, however, must understand the complexities of eating disorders such as comorbid illness, medical and psychological complications, and boundary issues. The registered dietitian needs to be aware of the specific populations at risk for eating disorders and the special considerations when dealing with these individuals.

POSITION STATEMENT
It is the position of the American Dietetic Association (ADA) that nutrition education and nutrition intervention, by a registered dietitian, is an essential component of the team treatment of patients with anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified (EDNOS) during assessment and treatment across the continuum of care.

INTRODUCTION
Eating Disorders are considered to be psychiatric disorders, but unfortunately they are remarkable for their nutrition and medical-related problems, some of which can be life-threatening. As a general rule, eating disorders are characterized by abnormal eating patterns and cognitive distortions related to food and weight, which in turn result in adverse effects on nutrition status, medical complications, and impaired health status and function (2,3,4,5,6).

Many authors (7,8,9) have noted that anorexia nervosa is detectable in all social classes, suggesting that higher socioeconomic status is not a major factor in the prevalence of anorexia and bulimia nervosa. A wide range of demographics is seen in eating disorder patients. The major characteristic of eating disorders are the disturbed body image in which one’s body is perceived as being fat (even at normal or low weight), an intense fear of weight gain and becoming fat, and a relentless obsession to become thinner (8).

Diagnostic criteria for anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified (EDNOS) are identified in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (10) (See the Figure). These clinical diagnoses are based on psychological, behavioral, and physiological characteristics.

It is important to note that patients cannot be diagnosed with both anorexia nervosa (AN) and bulimia nervosa (BN) at the same time. Patients with EDNOS do not fall into the diagnostic criterion for either AN or BN, but account for about 50% of the population with eating disorders. If left untreated and behaviors continue, the diagnosis may change to BN or AN. Binge eating disorder is currently classified within the EDNOS grouping.

Over a lifetime, an individual may meet diagnostic criteria for more than one of these conditions, suggesting a continuum of disordered eating. Attitudes and behaviors relating to food and weight overlap substantially. Nevertheless, despite attitudinal and behavioral similarities, distinctive patterns of comorbidity and risk factors have been identified for each of these disorders. Therefore, the nutritional and medical complications and therapy can differ significantly (2,3,11).
Because of the complex biopsychosocial aspects of eating disorders, the optimal assessment and ongoing management of these conditions appear to be under the direction of an interdisciplinary team consisting of professionals from medical, nursing, nutritional and mental health disciplines (1). Medical Nutrition Therapy (MNT) provided by a registered dietitian trained in the area of eating disorders is an integral component of treatment and management of eating disorders.

COMORBID ILLNESS AND EATING DISORDERS

Patients with eating disorders may suffer from other psychiatric disorders as well as their eating disorder, which increases the complexity of treatment. Registered dietitians must understand the characteristics of these psychiatric disorders and the impact of these disorders on the course of treatment. The experienced dietitian knows to be in frequent contact with the mental health team member in order to have an adequate understanding of the patient’s current status. Psychiatric disorders are frequently seen in the eating disorder population and include mood and anxiety disorders (e.g., depression, obsessive compulsive disorder), personality disorders, and substance abuse disorders (12).

Abuse and trauma may precede the eating disorder in some patients (13). The registered dietitian must consult with the primary therapist on how to best handle the patient’s recall of abuse or dissociative episodes that may occur during nutrition counseling sessions.

ROLE OF THE TREATMENT TEAM

The care of patients with eating disorder involves expertise and dedication of an interdisciplinary team (3,12,14). Since it is clearly a psychiatric disorder with major medical complications, psychiatric management is the foundation of treatment and should be instituted for all patients in combination with other treatment modalities. A physician familiar with eating disorders should perform a thorough physical exam. This may involve the patient’s primary care provider, a physician specializing in eating disorders, or the psychiatrist caring for the patient. A dental exam should also be performed. Medication management and medical monitoring are the responsibilities of the physician(s) on the team. Psychotherapy is the responsibility of the clinician credentialed to provide psychotherapy. This task may be given to a social worker, a psychiatric nurse specialist (advanced practice nurse), psychologist, psychiatrist, a licensed professional counselor or a master’s level counselor. In inpatient and partial hospitalization settings, nurses monitor the status of the patient and dispense medications while recreation therapists and occupational therapists assist the patient in acquiring healthy daily living and recreational skills. The registered dietitian assesses the nutritional status, knowledge base, motivation, and current eating and behavioral status of the patient, develops the nutrition section of the treatment plan, implements the treatment plan and supports the patient in accomplishing the goals set out in the treatment plan. Ideally, the dietitian has continuous contact with the patient throughout the course of treatment or, if this is not possible, refers the patient to another dietitian if the patient is transitioning from an inpatient to an outpatient setting.

Medical nutrition therapy and psychotherapy are two integral parts of the treatment of eating disorders. The dietitian working with eating disorder patients needs a good understanding of personal and professional boundaries. Unfortunately, this is not often taught in traditional training programs. Understanding of boundaries refers to recognizing and appreciating the specific tasks and topics that each member of the team is responsible for covering. Specifically, the role of the registered dietitian is to address the food and nutrition issues, the behavior associated with those issues, and assist the medical team member with monitoring lab values, vital signs, and physical symptoms associated with malnutrition. The psychotherapeutic issues are the focus of the psychotherapist or mental health team member.

Effective nutrition therapy for the patient with an eating disorder requires knowledge of motivational interviewing and cognitive behavioral therapy (CBT) (15). The registered dietitian’s communication style, both verbal and nonverbal, can significantly affect the patient’s motivation to change. Motivational Interviewing was developed because of the idea that individual’s motivation arises from an interpersonal process (16). CBT identifies maladaptive cognitions and involves cognitive restructuring. Erroneous beliefs and thought patterns are challenged with more accurate perceptions and interpretations regarding dieting, nutrition, and the relationship between starvation and physical symptoms (2,15).

The transtheoretical model of change suggests that an individual progresses through various stages of change and uses cognitive and behavioral processes when attempting to change health-related behavior (17,18). Stages include precontemplation, contemplation, preparation, action, and maintenance. Patients with eating disorders often progress among these stages with frequent backsliding along the way to recovery. The role of the nutritional therapist is to help move patients along the continuum until they reach the maintenance stage.

MEDICAL CONSEQUENCES AND INTERVENTION IN EATING DISORDERS

Nutritional factors and dieting behaviors may influence the development and course of eating disorders. In the pathogenesis of anorexia nervosa, dieting or other purposeful changes in food choices can contribute enormously to the course of the disease, because of the physiological and psychological consequences of starvation that perpetuate the disease and impede progress toward recovery (2,3,6,19,20). Higher prevalence rates among specific groups, such as athletes and patients with diabetes mellitus (21), support the concept that increased risk occurs with conditions in which dietary restraint or control of body weight assume great importance. However, only a small proportion of individuals who diet or restrict intake develop an eating disorder. In many cases, psychological and cultural pressures must exist along with physical, emotional, and societal pressures for an individual to develop an eating disorder.

ANOREXIA NERVOSA

Medical Symptoms

Essential to the diagnosis of AN is that patients weigh less than 85% of that expected. There are several ways to determine < 85th %: For adults (>20 years of age) a BMI ≤18.5 is considered underweight and a BMI ≤17.5 is diagnostic for AN (6,22). For postmenarchal adolescents and adults a standard formula to determine average body weight (ABW) for height can also be used (100 lb for 5 ft of height plus 5 lb for each inch over 5 ft tall for women and 100 lb. For 5 ft of height plus 6 lb for each additional inch). The 85th % of ABW can be diagnostic of AN (5). For children and young adults up to the age of 20 the
percent of average weight-for-height can be calculated by using CDC growth charts or the CDC body mass index charts (23). Because children are still growing, the BMIs increase with age in children and therefore the BMI percentiles must be used, not the actual numbers. Individuals with BMIs less than the 10th percentile are considered underweight and BMIs less than 5th percentile are at risk for AN (3,5-7). In all cases, the patient’s body build, weight history, and stage of development (in adolescents) should be considered.

Physical symptoms can range from lanugo hair formation to life threatening cardiac arrhythmias. Physical characteristics include lanugo hair on face and trunk, brittle listless hair, cyanosis of hands and feet, and dry skin. Cardiovascular changes include bradycardia (HR <60 beats/min), hypotension (systolic <90 mm Hg), and orthostatic hypotension (2,5,6). Many patients, as well as some health providers, attribute the low heart rate and low blood pressure to their physical fitness and exercise regimen. However, Nudel (24) showed these lower vital signs actually altered cardiovascular responses to exercise in patients with AN. A reduced heart mass has also been associated with the reduced blood pressure and pulse rate (25-30). Cardiovascular complications have been associated with death in AN patients.

Anorexia nervosa can also significantly affect the gastrointestinal tract and brain mass of these individuals. Self-induced starvation can lead to delayed gastric emptying, decreased gut motility, and severe constipation. There is also evidence of structural brain abnormalities (tissue loss) with prolonged starvation, which appears early in the disease process and may be of substantial magnitude. While it is clear that some reversibility of brain changes occurs with weight recovery, it is uncertain whether complete reversibility is possible. To minimize the potential long-term physical complication of AN, early recognition and aggressive treatment is essential for young people who develop this illness (31-34).

Amenorrhea is a primary characteristic of AN. Amenorrhea is associated with a combination of hypothalamic dysfunction, weight loss, decreased body fat, stress, and excessive exercise. The amenorrhea appears to be caused by an alteration in the regulation of gonadotropin-releasing hormone. In AN, gonadotropins revert to prepubertal levels and patterns of secretion (4,7,35).

Osteopenia and osteoporosis, like brain changes, are serious and possibly irreversible medical complications of anorexia nervosa. This may be serious enough to result in vertebra compression and stress fractures (36-37). Study results indicate that some recovery of bone may be possible with weight restoration and recovery, but compromised bone density has been evident 11 years after weight restoration and recovery (38,39). In adolescents, more bone recovery may be possible. Unlike other conditions in which low circulating estrogen concentrations are associated with bone loss (eg, perimenopause), providing exogenous estrogen has not been shown to preserve or restore bone mass in the anorexia nervosa patient (40). Calcium supplementation alone (1500 mg/dL) or in combination with estrogen has not been observed to promote increased bone density (2). Adequate calcium intake may help to lessen bone loss (6). Only weight restoration has been shown to increase bone density.

In patients with AN, laboratory values usually remain in normal ranges until the illness is far advanced, although true laboratory values may be masked by chronic dehydration. Some of the earliest lab abnormalities include bone marrow hypoplasia, including varying degrees of leukopenia and thrombocytopenia (41-43). Despite low-fat and low-cholesterol diets, patients with AN often have elevated cholesterol and abnormal lipid profiles. Reasons for this include mild hepatic dysfunction, decreased bile acid secretion, and abnormal eating patterns (44). Additionally, serum glucose tends to be low, secondary to a deficit of precursors for gluconeogenesis and glucose production (7). Patients with AN may have repeated episodes of hypoglycemia.

Despite dietary inadequacies, vitamin and mineral deficiencies are rarely seen in AN. This has been attributed to a decreased metabolic need for micronutrients in a catabolic state. Additionally, many patients take vitamin and mineral supplements, which may mask true deficiencies. Despite low iron intakes, iron deficiency anemia is rare. This may be due to decreased needs due to amenorrhea, decreased needs in a catabolic state and altered states of hydration (20). Prolonged malnutrition leads to low levels of zinc, vitamin B12, and folate. Any low nutrient levels should be treated appropriately with food and supplements as needed.

**Medical and Nutritional Management**

Treatment for anorexia nervosa may be inpatient or outpatient based, depending upon the severity and chronicity of both the medical and behavioral components of the disorder. No single professional or professional discipline is able to provide the necessary broad medical, nutritional, and psychiatric care necessary for patients to recover. Teams of professionals who communicate regularly must provide this care. This teamwork is necessary whether the individual is undergoing inpatient or outpatient treatment.

Although weight is a critical monitoring tool to determine a patient’s progress, each program must individualize its own protocol for weighing the patient on an inpatient program. The protocol should include who will do the weighing, when the weighing will occur, and whether or not the patient is allowed to know their weight. In the outpatient setting, the team member weighing the patient may vary with the setting. In a clinic model, the nurse may weigh the patient as part of her responsibilities in taking vital signs. The patient then has the opportunity to discuss their reaction to the weight when seen by the registered dietitian. In a community outpatient model, the nutrition session is the appropriate place for weighing the patient, discussing reactions to weight and providing explanations for weight changes. In some cases such as a patient expressing suicidality, alternatives to the weight procedure may be used. For example, the patient may be weighed with their back to the scale and not told their weight, the mental health professional may do the weighing or if the patient is medically stable the weight for that visit may be skipped. In such cases, there are many other tools to monitor the patient’s medical condition, such as vital signs, emotional health, and laboratory measurements.

**Outpatient** In AN the goals of outpatient treatment are to focus on nutritional rehabilitation, weight restoration, cessation of weight reduction behaviors, improvement in eating behaviors, and improvement in psychological and emotional state. Clearly weight restoration alone does not indicate recovery, and forcing weight gain without psychological support and counseling is contraindicated. Typically, the patient is terrified of weight gain and may be struggling with hunger and urges to binge but the foods he/she allows himself/herself are too
limited to enable sufficient energy intake (3,45). Individualized guidance and a meal plan that provides a framework for meals and snacks and food choices (but not a rigid diet) is helpful for most patients. The registered dietitian determines the individual caloric needs and with the patient develops a nutrition plan that allows the patient to meet these nutrition needs. In the early treatment of AN, this may be done on a gradual basis, increasing the caloric prescription in increments to reach the necessary caloric intake. MNT should be targeted at helping the patient understand nutritional needs as well as helping them begin to make wise food choices by increasing variety in diet and by practicing appropriate food behaviors (2). One effective counseling technique is CBT, which involves challenging erroneous beliefs and thought patterns with more accurate perceptions and interpretations regarding dieting, nutrition and the relationship between starvation and physical symptoms (15). In many cases, monitoring skinfolds can be helpful in determining composition of weight gain as well as being useful as an educational tool to show the patient the composition of any weight gain (lean body mass vs. fat mass). Percent body fat can be estimated from the sum of four skinfold measurements (triceps, biceps, subscapular and suprailiac crest) using the calculations of Durnin (46-47). This method has been validated against underwater weighing in adolescent girls with AN (48). Bioelectrical impedance analysis has been shown to be unreliable in patients with AN secondary to changes in intracellular and extracellular fluid changes and chronic dehydration (49,50).

The registered dietitian will need to recommend dietary supplements as needed to meet nutritional needs. In many cases, the registered dietitian will be the team member to recommend physical activity levels based on medical status, psychological status, and nutritional intake. Physical activity may need to be limited or initially eliminated with the compulsive exerciser who has AN so that weight restoration can be achieved. The counseling effort needs to focus on the message that exercise is an activity undertaken for enjoyment and fitness rather than a way to expend energy and promote weight loss. Supervised, low weight strength training is less likely to impede weight gain than other forms of activity and may be psychologically helpful for patients (7). Nutrition therapy must be ongoing to allow the patient to understand his/her nutritional needs as well as to adjust and adapt the nutrition plan to meet the patient’s medical and nutritional requirements.

During the refeeding phase (especially in the early refeeding process), the patient needs to be monitored closely for signs of refeeding syndrome (51). Refeeding syndrome is characterized by sudden and sometimes severe hypophosphatemia, sudden drops in potassium and magnesium, glucose intolerance, hypokalemia, gastrointestinal dysfunction, and cardiac arrhythmias (a prolonged QT interval is a contributing cause of the rhythm disturbances) (27,52,53). Water retention during refeeding should be anticipated and discussed with the patient. Guidance with food choices to promote normal bowel function should be provided as well (2,45). A weight gain goal of 1 to 2 pounds per week for outpatient and 2 to 3 pounds for inpatients is recommended. In the beginning of therapy the registered dietitian will need to see the patient on a frequent basis. If the patient responds to medical, nutritional, and psychiatric therapy, nutrition visits may be less frequent. Refeeding syndrome can be seen in both the outpatient and inpatient settings and the patient should be monitored closely during the early refeeding process. Because more aggressive and rapid refeeding is initiated on the inpatient units, refeeding syndrome is more commonly seen in these units. (2,45).

Inpatient

Although many patients may respond to outpatient therapy, others do not. Low weight is only one index of malnutrition; weight should never be used as the only criterion for hospital admission. Most patients with AN are knowledgeable enough to falsify weights through such strategies as excessive water/fluid intake. If body weight alone is used for hospital admission criteria, behaviors may result in acute hyponatremia or dangerous degrees of unrecognized weight loss (5). All criteria for admission should be considered. The criteria for inpatient admission include (5,7,53):

- Severe malnutrition (weight <75% expected weight/height)
- Dehydration
- Electrolyte disturbances
- Cardiac dysrhythmia (including prolonged QT)
- Physiological instability (severe bradycardia (<45/min)
- hypotension
- hypothermia (<36° C)
- orthostatic changes (pulse and blood pressure)
- Arrested growth and development
- Failure of outpatient treatment
- Acute food refusal
- Uncontrollable binging and purging
- Acute medical complication of malnutrition (eg, syncope, seizures, cardiac failure, pancreatitis, etc.)
- Acute psychiatric emergencies (eg, suicidal ideation, acute psychoses)
- Comorbid diagnosis that interferes with the treatment of the eating disorder (eg, severe depression, obsessive compulsive disorder, severe family dysfunction).

The goals of inpatient therapy are the same as outpatient management; only the intensity increases. If admitted for medical instability, medical and nutrition stabilization is the first and most important goal of inpatient treatment. This is often necessary before psychological therapy can be optimally effective. Often, the first phase of inpatient treatment is on a medical unit to medically stabilize the patient. After medical stabilization the patient can be moved to an inpatient psychiatric floor or discharged home to allow the patient to try outpatient treatment. If a patient is admitted for psychiatric instability but is medically stable, the patient should be admitted directly to a psychiatric floor or facility (7,54,55).

The registered dietitian should guide the nutrition plan. The nutrition plan should help the patient, as quickly as possible, to consume a diet that is adequate in energy intake and nutritionally well balanced. The registered dietitian should monitor the energy intake as well as body composition to ensure that appropriate weight gain is achieved. As with outpatient therapy, MNT should be targeted at helping the patient understand nutritional needs as well as help the patient to begin to make wise food choices by increasing variety in diet and by practicing appropriate food behaviors (2). In very rare instances, enteral or parenteral feeding may be necessary. However, risks associated with aggressive nutrition support in these patients are substantial, including hypophosphatemia, edema, cardiac failure, seizures, aspiration of enteral formula and death (2,55). Reliance on foods (rather than enteral or parenteral nutrition support) as the primary method of weight restoration contrib-
utes significantly to successful long-term recovery. The overall goal is to help the patient normalize eating patterns and learn that behavior change must involve planning and practicing with real food.

**Partial Hospitalizations** Partial hospitalizations (day treatment) are increasingly utilized in an attempt to decrease the length of some inpatient hospitalizations and also for milder AN cases, in place of a hospitalization. Patients usually attend for 7 to 10 hours per day, and are served two meals and 1 to 2 snacks. During the day, they participate in medical and nutritional monitoring, nutrition counseling, and psychotherapy, both group and individual. The patient is responsible for one meal and any recommended snacks at home. The individual who participates in partial hospitalization must be motivated to participate and be able to consume an adequate nutritional intake at home as well as follow recommendations regarding physical activity (11).

**Recovery** Recovery from AN takes time. Even after the patient has recovered medically they may need ongoing psychological support to sustain the change. For patients with AN, one of their greatest fears is reaching a low healthy weight and not being able to stop gaining weight. In long-term follow-up the registered dietitian’s role is to assist the patient in reaching an acceptable healthy weight and to help the patient maintain this weight over time. The registered dietitian’s counseling should focus on helping the patient to consume an appropriate, varied diet to maintain weight and appropriate body composition

**BULIMIA NERVOSA**

Bulimia Nervosa (BN) occurs in approximately 2 to 5% of the population. Most patients with BN tend to be of normal weight or moderately overweight and therefore are often undetectable by appearance alone. The average onset of BN occurs between mid-adolescence and the late 20s with a great diversity of socioeconomic status. A full syndrome of BN is rare in the first decade of life. A biopsychosocial model seems best for explaining the etiology of BN (55). The individual at risk for the disorder may have a biological vulnerability to depression that is exacerbated by a chaotic and conflicting family and social role expectations. Society’s emphasis on thinness often helps the person identify weight loss as the solution. Dieting then leads to binging, and the cyclical disorder begins (56,57). A subgroup of these patients exists where the binging proceeds dieting. This group tends to be of a higher body weight (58).

The patient with BN has an eating pattern which is typically chaotic although rules of what should be eaten, how much and what constitutes good and bad foods occupy the thought process for the majority of the patient’s day. Although the amount of food consumed that is labeled a binge episode is subjective, the criteria for bulimia nervosa requires other measures such as the feeling of out-of-control behavior during the binging (See Figure).

Although the diagnostic criteria for this disorder focuses on the binge/purge behavior, much of the time the person with BN is restricting her/his diet. The dietary restriction can be the physiological or psychological trigger to subsequent binge eating. Also, the trauma of breaking rules by eating something other than what was intended or more than what was intended may lead to self-destructive binge-eating behavior. Any subjective or objective sensation of stomach fullness may trigger the person to purge. Common purging methods consist of self-induced vomiting with or without the use of syrup of ipecac, laxative use, diuretic use, and excessive exercise. Once purged, the patient may feel some initial relief; however, this is often followed by guilt and shame. Resuming normal eating commonly leads to gastrointestinal complaints such as bloating, constipation and flatulence. This physical discomfort as well as the guilt from binging often results in a cyclical pattern as the patient tries to get back on track by restricting once again. Although the focus is on the food, the binge/purge behavior is often a means for the person to regulate and manage emotions and to medicate psychological pain (59).

**Medical Symptoms**

In the initial assessment, it is important to assess and evaluate for medical conditions that may play a role in the purging behavior. Conditions such as esophageal reflux disease (GERD) and helicobacter pylori may increase the pain and the need for the patient to vomit. Interventions for these conditions may help in reducing the vomiting and allow the treatment for BN to be more focused. Nutritional abnormalities for patients with BN depend on the amount of restriction during the non-binge episodes. It is important to note that purging behaviors do not completely prevent the utilization of calories from the binge; an average retention of 1200 calories occurs from binges of various sizes and contents (60,61).

Muscle weakness, fatigue, cardiac arrhythmias, dehydration and electrolyte imbalance can be caused by purging, especially self-induced vomiting and laxative abuse. It is common to see hypokalemia and hypochloremic alkalosis as well as gastrointestinal problems involving the stomach and esophagus. Dental erosion from self-induced vomiting can be quite serious. Although laxatives are used to purge calories, they are quite ineffective. Chronic ipecac use has been shown to cause skeletal myopathy, electrocardiographic changes and cardiomyopathy with consequent congestive heart failure, arrhythmia and sudden death (2).

**Medical and Nutritional Management of Bulimia Nervosa**

As with AN, interdisciplinary team management is essential to care. The majority of patients with BN are treated in an outpatient or partial hospitalization setting. Indications for inpatient hospitalization include severe disabling symptoms that are unresponsive to outpatient treatment or additional medical problems such as uncontrolled vomiting, severe laxative abuse withdrawal, metabolic abnormalities or vital sign changes, suicidal ideations, or severe, concurrent substance abuse (12).

The registered dietitian’s main role is to help develop an eating plan to help normalize eating for the patient with BN. The registered dietitian assists in the medical management of patients through the monitoring of electrolytes, vital signs, and weight and monitors intake and behaviors, which sometimes allows for preventive interventions before biochemical index change. Most patients with BN desire some amount of weight loss at the beginning of treatment. It is not uncommon to hear patients say that they want to get well but they also want to lose the “x” number of pounds that they feel is above what they should weigh. It is important to communicate to the patient that it is incompatible to diet and recover from the eating disorder at the same time. They must understand that the primary goal of intervention is to normalize eating patterns. Any weight loss that is achieved would occur as a result of a
307.1 Anorexia Nervosa
Diagnostic criteria for 307.1 Anorexia Nervosa
A. 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).
B. Intense fear of gaining weight or becoming fat, even though underweight.
C. Disturbance in the way in which one’s body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.
D. In postmenarcheal females, amenorrhea, ie, the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, eg, estrogen, administration.)

Specify type:
Restricting Type: during the current episode of Anorexia Nervosa, the person has not 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 (ie, self-induced vomiting or the misuse of laxatives, diuretics, or enemas)

307.51 Bulimia Nervosa
Diagnostic criteria for 307.51 Bulimia Nervosa
A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. eating, in a discrete period of time (eg, within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances
2. a sense of lack of control over eating during the episode (eg, a feeling that one cannot stop eating or control what or how much one is eating)
B. 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.
C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for three months.
D. Self-evaluation is unduly influenced by body shape and weight.
E. The disturbance dose not occur exclusively during episodes of Anorexia Nervosa.

Specify type:
Purging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas
Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

307.50 Eating Disorder Not Otherwise Specified
The Eating Disorder Not Otherwise Specified category is for disorders of eating that do not meet the criteria for any specific Eating Disorder. Examples include:
1. For females, all of the criteria for Anorexia Nervosa are met except that the individual has regular menses.
2. All of the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual’s current weight is in the normal range.
3. All of the criteria for Bulimia Nervosa are met except that the binge-eating inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than 3 months.
4. The regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food (eg, self-induced vomiting after the consumption of two cookies).
5. Repeatedly chewing and spitting out, but not swallowing, large amounts of food.
6. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa (see p. 785 for suggested research criteria).

Binge-Eating Disorder
Research criteria for binge eating disorder
A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. eating, in a discrete period of time1 (eg, within any 2-hour period), an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances
2. a sense of lack of control over eating during the episode (eg, a feeling that one cannot stop eating or control what or how much one is eating)
B. The binge-eating episodes are associated with three (or more) of the following:
1. eating much more rapidly than normal
2. eating until feeling uncomfortably full
3. eating large amounts of food when not feeling physically hungry
4. eating alone because of being embarrassed by how much one is eating
5. feeling disgusted with oneself, depressed, or very guilty after overeating
C. Marked distress regarding binge eating is present.
D. The binge eating occurs, on average, at least 2 days1 a week for 6 months.
E. The binge eating is not associated with the regular use of inappropriate compensatory behaviors (eg, purging, fasting, excessive exercise) and does not occur exclusively during the course of Anorexia Nervosa or Bulimia Nervosa.

FIG: Diagnostic criteria for eating disorders. Reprinted with permission, American Psychiatric Association: Diagnostic and Statistical Manual, Fourth Edition, TR. Washington, DC, American Psychiatric Association, 2000 (10). 1Method of determining frequency differs from that used for bulimia nervosa; future research should address whether counting the number of days on which binges occur or the number of episodes of binge eating is the preferred method of setting a frequency threshold.
normalized eating plan and the elimination of binging. Helping patients combat food myths often requires specialized nutrition knowledge. The registered dietitian is uniquely qualified to provide scientific nutrition education (62). Given that there are so many fad diets and fallacies about nutrition, it is not uncommon for other members of the treatment team to be confused by the nutrition fallacies. Whenever possible, it is suggested that either formal or informal basic nutrition education inservices be provided for the treatment team.

Cognitive-behavioral therapy is now a well-established treatment modality for BN (15,63). A key component of the CBT process is nutrition education and dietary guidance. Meal planning, assistance with a regular pattern of eating, and rationale for and discouragement of dieting are all included in CBT. Nutrition education consists of teaching about body weight regulation, energy balance, effects of starvation, misconceptions about dieting and weight control and the physical consequences of purging behavior. Meal planning consists of three meals a day, with one to three snacks per day prescribed in a structured fashion to help break the chaotic eating pattern that continues the cycle of binging and purging. Caloric intake should initially be based on the maintenance of weight to help prevent hunger since hunger has been shown to substantially increase the susceptibility to binging. One of the hardest challenges of normalizing the eating pattern of the person with BN is to expand the diet to include the patient’s self-imposed “forbidden” or “feared” foods. CBT provides a structure to plan for and expose patients to these foods from least feared to most feared, while in a safe, structured, supportive environment. This step is critical in breaking the all or none behavior that goes along with the deprive-binge cycle.

Discontinuing purging and normalizing eating patterns are a key focus of treatment. Once accomplished, the patient is faced with fluid retention and needs much education and understanding of this temporary, yet disturbing phenomenon. Education consists of information about the length of time to expect the fluid retention and information on calorie conversion to body mass to provide evidence that the weight gain is not causing body mass gain. In some cases, utilization of skinfold measurements to determine percent body fat may be helpful in determining body composition changes. The patient must also be taught that continual purging or other methods of dehydration such as restricting sodium, or using diuretics or laxatives will prolong the fluid retention.

If the patient is laxative dependent, it is important to understand the protocol for laxative withdrawal to prevent bowel obstruction. The registered dietitian plays a key role in helping the patient eat a high fiber diet with adequate fluids while the physician monitors the slow withdrawal of laxatives and prescribes a stool softener.

A food record can be a useful tool in helping to normalize the patient’s intake. Based on the patient’s medical, psychological and cognitive status, food records can be individualized with columns looking at the patient’s thoughts and reactions to eating/not eating to gather more information and to educate the patient on the antecedents of her/his behavior. The registered dietitian is the expert in explaining to a patient how to keep a food record, reviewing food records and understanding and explaining weight changes. Other members of the team may not be as sensitive to the fear of food recording as others familiar with strategies for reviewing the record as the registered dietitian. The registered dietitian can determine whether weight change is due to a fluid shift or a change in body mass.

Medication management is more effective in treating BN than in AN and especially with patients who present with comorbid conditions (11,62). Current evidence cites combined medication management and CBT as most effective in treating BN, (64) although research continues to look at the effectiveness of other methods and combinations of methods of treatment.

EATING DISORDERS NOT OTHERWISE SPECIFIED (EDNOS)
The large group of patients who present with EDNOS consists of subacute cases of AN or BN. The nature and intensity of the medical and nutritional problems and the most effective treatment modality will depend on the severity of impairment and the symptoms. These patients may have met all criteria for anorexia except that they have not missed three consecutive menstrual periods. Or, they may be of normal weight and purge without binging. Although the patient may not present with medical complications, they do often present with medical concerns.

EDNOS also includes Binge Eating Disorder (BED) which is listed separately in the appendix section of the DSM IV (See Figure) in which the patient has binging behavior without the compensatory purging seen in Bulimia Nervosa. It is estimated that prevalence of this disorder is 1 to 2% of the population. Binge episodes must occur at least twice a week and have occurred for at least 6 months. Most patients diagnosed with BED are overweight and suffer the same medical problems faced by the nonbinging obese population such as diabetes, high blood pressure, high blood cholesterol levels, gallbladder disease, heart disease and certain types of cancer.

The patient with binge eating disorder often presents with weight management concerns rather than eating disorder concerns. Although researchers are still trying to find the treatment that is the most helpful in controlling binge eating disorder, many treatment manuals exist utilizing the CBT model shown effective for Bulimia Nervosa. Whether weight loss should occur simultaneously with CBT or after a period of more stable, consistent eating is still being investigated (65,66,67)

In a primary care setting, it is the registered dietitian who often recognizes the underlying eating disorder before other members of the team who may resist a change of focus if the overall objective for the patient is weight loss. It is then the registered dietitian who must convince the primary care team and the patient to modify the treatment plan to include treatment of the eating disorder.

THE ADOLESCENT PATIENT
Eating disorders rank as the third most common chronic illness in adolescent females, with an incidence of up to 5%. The prevalence has increased dramatically over the past three decades (5,7). Large numbers of adolescents who have disordered eating do not meet the strict DSM-IV-TR criteria for either AN or BN but can be classified as EDNOS. In one study, (68) more than half of the adolescents evaluated for eating disorders had subclinical disease but suffered a similar degree of psychological distress as those who met strict diagnostic criteria. Diagnostic criteria for eating disorders such as DSM-IV-TR may not be entirely applicable to adolescents. The wide variability in the rate, timing and magnitude of both height and weight gain during normal puberty, the absence of menstrual periods in early puberty along with the unpredictability of
Because of the potentially irreversible effects of an eating disorder on physical and emotional growth and development in adolescents, the onset and intensity of the intervention in adolescents should be lower than adults. Medical complications in adolescents that are potentially irreversible include: growth retardation if the disorder occurs before closure of the epiphyses, pubertal delay or arrest, and impaired acquisition of peak bone mass during the second decade of life, increasing the risk of osteoporosis in adulthood (7,69).

Adolescents with eating disorders require evaluation and treatment focused on biological, psychological, family, and social features of these complex, chronic health conditions. The expertise and dedication of the members of a treatment team who work specifically with adolescents and their families are more important than the particular treatment setting. In fact, traditional settings such as a general psychiatric ward may be less appropriate than an adolescent medical unit. Smooth transition from inpatient to outpatient care can be facilitated by an interdisciplinary team that provides continuity of care in a comprehensive, coordinated, developmentally oriented manner. Adolescent health care specialists need to be familiar with working not only with the patient, but also with the family, school, coaches, and other agencies or individuals who are important influences on healthy adolescent development (1,7).

In addition to having skills and knowledge in the area of eating disorders, the registered dietitian working with adolescents needs skills and knowledge in the areas of adolescent growth and development, adolescent interviewing, special nutritional needs of adolescents, cognitive development in adolescents, and family dynamics (71). Since many patients with eating disorders have a fear of eating in front of others, it can be difficult for the patient to achieve adequate intake from meals at school. Since school is a major element in the life of adolescents, dietitians need to work with this group of individuals and their families to develop a nutrition plan that is adequate and varied. The registered dietitian needs to be able to provide MNT to the adolescent as an individual but also work with the family while maintaining the confidentiality of the adolescent. In working with the family of an adolescent, it is important to remember that the adolescent is the patient and that all therapy should be planned on an individual basis. Parents can be included for general nutrition education with the adolescent present. It is often helpful to have the RD meet with adolescent patients and their parents to provide nutrition education and to clarify and answer questions. Parents are often frightened and want a quick fix. Educating the parents regarding the stages of the nutrition plan as well as explaining the hospitalization criteria may be helpful.

There is limited research in the long-term outcomes of adolescents with eating disorders. There appear to be limited prognostic indicators to predict outcome (3,5,72). Generally, poor prognosis has been reported when adolescent patients have been treated almost exclusively by mental health care professionals (3,5). Data from treatment programs based in adolescent medicine show more favorable outcomes. Reviews by Kriepe and colleagues (3,5,73) showed a 71 to 86% satisfactory outcome when treated in adolescent-based programs. Strober and colleagues (72) conducted a long-term prospective follow-up of severe AN patients admitted to the hospital. At follow-up, results showed that nearly 76% of the cohort meet criteria for full recovery. In this study, approximately 30% of patients had relapses following hospital discharge. The authors also noted that the time to recovery ranged from 57 to 79 months.

POPOULATIONS AT HIGH RISK
Specific population groups who focus on food or thinness such as athletes, models, culinary professionals, and young people who may be required to limit their food intake because of a disease state, are at risk for developing an eating disorder (21). Additionally, risks for developing an eating disorder may stem from predisposing factors such as a family history of mood, anxiety or substance abuse disorders. A family history of an eating disorder or obesity, and precipitating factors such as the dynamic interactions among family members and societal pressures to be thin are additional risk factors (74,75).

The prevalence of formally diagnosable AN and BN in males is accepted to be from 5 to 10% of all patients with an eating disorder (76,77). Young men who develop AN are usually members of subgroups (eg, athletes, dancers, models/performers) that emphasize weight loss. The male anorexic is more likely to have been obese before the onset of the symptoms. Dieting may have been in response to past teasing or criticisms about his weight. Additionally, the association between dieting and sports activity is stronger among males. Both a dietary and activity history should be taken with special emphasis on body image, performance, and sports participation on the part of the male patient. These same young men should be screened for androgenic steroid use. The DSM-IV-TR diagnostic criterion for AN of <85th percentile of ideal body weight is less useful in males. A focus on the BMI, nonlean body mass (percent body fat), and the height-weight ratio are far more useful in the assessment of the male with an eating disorder. Adolescent males below the 25th percentile for BMI, upper arm circumference, and subscapular and triceps skinfold thicknesses, should be considered to be in an unhealthy, malnourished state (69).

HUNGER/SATIETY CUES IN MANAGING AN EATING DISORDER
With the emergence of the nondieting approach to the treatment of disordered eating and obesity, it would seem that the use of hunger/satiety cues in managing an eating disorder may assist in resuming normal eating patterns. At this point in time, research suggests that eating-disordered patients have predominantly “abnormal” patterns of hunger and fullness, indicating a confusion of these concepts. Whether or not normal patterns of hunger and satiety resume after the normalization of weight and eating behaviors has yet to be determined (79-81).

CONCLUSION
Eating disorders are complex illnesses. To be effective in treating individuals who suffer from these illnesses, the expert interaction between professionals in many disciplines is required. The registered dietitian is an integral member of the treatment team and is uniquely qualified to provide the medical nutrition therapy for patients with eating disorders. The registered dietitian working with this population must understand the complexities and the long-term commitment involved. Entry-level dietetics provides the basics of assessment and nutrition counseling, but working with this population requires advanced level training, which may come from a
combination of self-study, continuing education programs and supervision by another experienced registered dietitian and/or an eating disorder therapist. Knowledge and practice using motivational interviewing and cognitive-behavioral therapy will enhance the effectiveness of counseling this population. Practice groups of the American Dietetic Association such as Sports, Cardiovascular, and Sports Nutrition (SCAN) and the Pediatric Nutrition Practice Group (PNPG) as well as other eating disorders organizations such as the Academy of Eating Disorders and the International Association of Eating Disorder Professionals provide workshops, newsletters and conferences which are helpful for the registered dietitian.

References

ADA position adopted by the House of Delegates on October 18, 1987 and reaffirmed on September 12, 1992 and on September 28, 1998. The update will be in effect until December 31, 2005. The American Dietetic Association authorizes republication of the position, in its entirety, provided full and proper credit is given. Requests to use portions of this position must be directed to ADA Headquarters at 800/877-1600, ext. 4835 or ppapers@eatright.org.

Recognition is given to the following for their contributions: Authors: Bonnie A. Spear, PhD, RD (University of Alabama at Birmingham, Dept. of Pediatrics, Birmingham, AL) and Eileen Stellefson Myers, MPH, RD, FADA (Marketing, Discovery Alliance International, Charleston, SC).

Reviewers: Joy Armillay, EdD, RD (New Hope of Pennsylvania, Kingston, PA); Academy for Eating Disorders—Leah L. Graves, RD, LD (Laureate Psychiatric Hospital, Tulsa, OK; Tami J. Lyon, MPH, RD, CDE (Healthy Living, San Francisco, CA); Marsha D. Marcus, PhD (University of Pittsburgh School of Medicine, Western Psychiatric Institute, Pittsburgh, PA); Joel Yager, MD (University of New Mexico – School of Medicine, Albuquerque, NM);

Dietetics in Development & Psychiatric Disorders dietetic practice group—Karen D. Blachley, RD; (Betty Ford Center, Rancho Mirage, CA); Betsy Friedman, MSW, RD (Private Practice, Glastonbury, CT); Sports, Cardiovascular, and Wellness Nutritionist dietetic practice group—Karen Kratina, MA, RD (Consultant, Gainesville, FL).

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