Anorexia Nervosa: Treatment Types

What We Know

- Anorexia nervosa (AN) is a life-threatening eating disorder characterized by severely restrictive eating behavior that results in inadequate consumption of calories and essential nutrients to support normal body functions and growth. Due to an intense fear of weight gain and a negative self-image, persons with AN starve themselves and/or exercise excessively, losing more weight than is healthy. In a state of prolonged starvation, the body’s metabolic processes become significantly impacted resulting in physiologic complications, including cardiac impairment, osteoporosis, muscle breakdown, and dental erosion. (8,10,11,12)

  - Physical indicators of AN and poor or inadequate nutrition include the following: (10,12)
    - Recent extreme weight loss or underweight
    - Significant undesirable weight changes are as follows:
      - +/-5% during a 30-day period or +/-10% during a 6-month period (3,15)
      - Weight loss of 10–20% in a 6-month period indicates moderate protein-calorie malnutrition
      - Weight loss of > 10% of the patient’s habitual weight over any period of time is considered a risk factor for malnutrition (3)
      - Weight loss of > 20% in 6-month period indicates severe protein-calorie malnutrition
    - Body mass index (BMI) can be calculated to assess a person’s weight status. Calculate BMI by dividing body weight (kilograms) by height (meters squared) or 703 multiplied by weight (pounds) and divided by height (inches squared) (2,3,10,12)
      - Underweight: < 18.5; normal: 18.5–24.9; overweight: 25–29.9; obese: > 30
      - The severity of AN can be categorized by BMI as follows: (14)
        - Mild: ≥ 17.0–18.49
        - Moderate AN: 16–16.99
        - Severe AN: 15–15.99
        - Extreme AN: < 15
      - In some cases, body composition testing (e.g., dual-energy x-ray absorptiometry scan [DXA], skin calipers) may be necessary. (2)
    - Listless or apathetic demeanor
    - Dizziness or fainting; hypotension
    - Fatigue
    - Insomnia
    - Dry, brittle hair, or hair loss
    - Soft (i.e., downy) hair covering arms and legs
    - Dry or yellowed skin
    - Constipation
    - Weak muscles
    - Poor reflexes
    - Absence of menstruation
The harmful effects of AN during adolescence can extend throughout life causing abnormalities related to fertility, metabolism, and weight control in adulthood. Successful treatment of AN requires a multidisciplinary team of medical, mental health, and nutrition experts. Primary treatment goals for AN include:

- preventing complications and mortality associated with AN by correcting nutritional deficiencies and restoring normal body weight
- treating comorbid conditions and behavioral disorders associated with AN
- restoring patient autonomy by improving self-control, reducing dysfunctional behaviors and thoughts, and promoting healthy habits to prevent relapse

Outpatient treatment, which often includes nutritional therapy, individual and family psychosocial interventions, and medication, is the mainstay of AN treatment and the most cost-effective treatment delivery method. Nutritional therapy includes education about the importance of restoring the patient to normal weight, dispelling misconceptions about nutrition, encouraging realistic perceptions of hunger and satiety, identifying nutritional goals, and normalizing eating habits (e.g., learning to eat regularly and consume larger food portions more appropriately sized to the patient’s ideal body weight).

Nutritional intervention, including nutritional counseling by a registered dietitian (RD) is an essential component of the treatment of patients with AN.

- A 24-hour dietary recall used in combination with a 3-day diet history (i.e., patient recall of all foods and beverages consumed in a 3-day period that includes 1 weekend day) can be useful tools for evaluating the patient’s dietary strengths and weaknesses and establishing nutritional goals.
- Identify foods generally consumed, food preferences, diet-related cultural/religious beliefs, and medically prescribed dietary interventions.

Psychosocial therapy is an essential component of AN treatment; recovery without psychological intervention is unusual. Options include individual and group therapy in the form of cognitive behavioral therapy (CBT) or psychotherapy.

- CBT is used to identify and address underlying psychological issues that may contribute to AN focusing on the thought processes surrounding food, eating, self-esteem, and body image that can lead to dysfunctional behaviors or relapse. Group CBT techniques include role-playing, thought-restructuring activities and worksheets, behavioral modification, discussion of interpersonal deficits, and investigation of evidence and counter evidence for faulty personal beliefs.

- Psychotherapy for patients with AN focuses on uncovering the unconscious source of emotions relevant to dysfunctional eating behavior.

Family therapy for prepubescent or adolescent patients who reside at home is associated with favorable outcomes; however, families characterized by harsh criticism or overprotective behaviors may benefit more from individual therapy. A minimum of 6-months of therapy is recommended.

- In traditional family-based therapy, the adolescent retains control over eating (e.g., parents do not control food portions or choices).

The Maudsley model of family-based therapy is a newer family-based AN treatment approach that assigns control of the adolescent’s nutrition choices, including portion size, and exercise regimen to the parents; this approach is associated with moderate to good outcomes in 90% of cases.

The role of pharmacologic therapy in the treatment of AN is less clear than that of nutritional rehabilitation or psychosocial interventions; nevertheless, patients with AN who have comorbid conditions (e.g., anxiety, depression, obsessive-compulsive disorder) may require psychotropic drugs and/or selective serotonin reuptake inhibitors (SSRIs) adjunctively with CBT or psychotherapy.

- Although several open-label trials (i.e., a study in which all participants know which treatment is being evaluated and administered) have shown atypical antipsychotics (e.g., risperiDONE, OLANZapine, QUETiapine) to be effective in resolving the perception of distortion in body image and alleviating anxiety and depression in select patients with AN, authors of a recent meta-analysis found insufficient evidence to conclude that antipsychotics are associated with increased body weight and related outcomes in females with AN.

- SSRIs (e.g., FLUoxetine, citalopram, sertraline) do not appear to be effective as initial treatment for patients with AN, but they may be helpful in weight maintenance in patients who have regained weight.

Use of a mandometer—a interactive computerized scale that is placed under a plate, allowing the patient to visualize his or her rate of eating—has been proposed as a way to re-establish a healthy hunger and satiety balance in patients with AN;
however, researchers in a trial found that mandometer treatment was no more effective than usual treatment in promoting initial weight gain or preventing relapse\(^{13}\)

- Inpatient hospitalization is reserved for patients who have severe physical and/or mental impairment and those for whom outpatient treatment was unsuccessful. Admission to facilities that specialize in AN is preferred over admission to general medical facilities\(^{(1,5-11)}\)
  - Hospitalization is necessary for persons with fluid imbalances, vitamin and mineral deficiencies, protein and energy malnutrition, and/or depression. Criteria for referral to an inpatient setting include body weight less than 75% of ideal weight; supine heart rate < 50 beats per minute; symptomatic hypotension or syncope; hypokalemia (potassium < 2.5 mEq/L); rapid weight loss that cannot be arrested in the outpatient setting; failure of outpatient treatment; and refusal to eat (sometimes called “food refusal”\(^{(1,11)}\))
  - Goals of inpatient care include increasing weight and stabilizing hemodynamics\(^{(1,4,11)}\)
    - Initial nutrition usually includes ~250 kcal more than the patient’s routine consumption with caloric intake increased by 250 kcal each subsequent day\(^{(11)}\)
    - Oral intake is usually tolerated and is recommended unless the patient refuses to eat or is severely malnourished. Enteral or parenteral nutrition may be used in these instances; however, caution must be used in order to avoid adverse effects of refeeding syndrome (i.e., a condition manifested by fluid and electrolyte disturbances that occur after reinstatement of nutrition to malnourished individuals characterized by decreased serum phosphorus, decreased serum potassium, edema)\(^{(11)}\)
    - Researchers in a study of 35 adolescents with AN report that current refeeding recommendations for hospitalized patients with AN resulted in initial weight loss and slow weight gain, while higher calorie diets were associated with faster weight gain and shorter hospital stay, suggesting that more aggressive refeeding regimens may be warranted\(^{(5)}\)
  - In a randomized controlled trial of AN treatments, investigators found little support for the clinical efficacy or cost-effectiveness of lengthy inpatient psychiatric treatment for AN. Additionally, the study found little support for the efficacy in inpatient treatment in patients who failed to respond to outpatient treatment\(^{(6)}\)
  - Patients with AN who have been restored to normal body weight through treatment typically continue to exhibit behavioral eating disturbances leaving them at high risk for relapse\(^{(4,11,13)}\)

**What We Can Do**

- Learn about types of treatment for AN so you can accurately assess your patients’ personal characteristics and health education needs; share this information with your colleagues
- Observe your patients for signs and symptoms of AN\(^{(4,11)}\)
- Request referral to a mental health clinician who specializes in eating disorders for assessment and therapy for underlying mental health symptoms\(^{(4)}\)
- Become familiar with laboratory tests that may be ordered by the treating clinician, including CBC, liver function tests, TSH, electrolytes, and EKG\(^{(11)}\)
- Assess patient progress daily until severity of physical symptoms has declined; monitor for signs and symptoms of refeeding syndrome\(^{(11)}\)
- Reinforce clinician instructions about individual recommendations for physical activity level, nutritional requirements, follow-up appointments, and possible referrals

**Related Guidelines**

- See criteria for referral to an inpatient setting and guidelines for refeeding under *What We Know*, above
Coding Matrix

References are rated using the following codes, listed in order of strength:

- **M** Published meta-analysis
- **SR** Published systematic or integrative literature review
- **RCT** Published research (randomized controlled trial)
- **R** Published research (not randomized controlled trial)
- **C** Case histories, case studies
- **G** Published guidelines
- **RV** Published review of the literature
- **RU** Published research utilization report
- **QI** Published quality improvement report
- **L** Legislation
- **PGR** Published government report
- **PFR** Published funded report
- **PP** Policies, procedures, protocols
- **X** Practice exemplars, stories, opinions
- **GI** General or background information/texts/reports
- **U** Unpublished research, reviews, poster presentations or other such materials
- **CP** Conference proceedings, abstracts, presentation

References