Anorexia Nervosa: Symptoms, Causes & Treatment

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Introduction and Definition

Anorexia Nervosa (AN) is a complex, serious, and potentially life-threatening eating disorder characterized by the relentless pursuit of thinness and an intense fear of gaining weight, coupled with a significantly distorted perception of body shape or size. It is formally classified in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (**DSM-5**), and represents one of the psychiatric conditions associated with the highest mortality rates. The core psychopathology revolves around an overvaluation of weight and shape, meaning self-worth is unduly tied to controlling these physical attributes. This control is typically manifested through severe restriction of energy intake, leading to **significantly low body weight**, which is defined as weight that is less than minimally normal or, for children and adolescents, less than minimally expected. Unlike other disorders where distress is recognized by the individual, AN is often experienced as ego-syntonic in its early stages; the restricting behaviors feel aligned with the individual's values, making treatment engagement particularly challenging. The onset most frequently occurs during adolescence or young adulthood, though it can present across the lifespan, and while it affects individuals of all genders, prevalence rates remain significantly higher among biological females.

The historical recognition of severe self-starvation dates back centuries, but the modern clinical description of Anorexia Nervosa was solidified in the late 19th century by Sir William Gull and Charles Lasègue, who independently described the syndrome as a psychological rather than purely physical malady. Over the decades, clinical understanding has shifted from viewing it primarily as a manifestation of hysteria or psychosis to recognizing it as a neurobiologically informed illness modulated by psychological and sociocultural factors. The severity of AN is not solely determined by body mass index (BMI), although BMI is a primary metric; rather, severity is also determined by the functional impairment and the need for medical intervention resulting from malnutrition. The hallmark feature of AN is the paradoxical behavior of self-starvation despite the profound physical consequences, driven by a pervasive and irrational fear that weight gain, regardless of how medically necessary, represents a catastrophic loss of control or personal failure.

The impact of malnutrition on the brain and cognitive function further complicates the maintenance and treatment of Anorexia Nervosa. Chronic starvation leads to impaired executive functioning, increased rigidity, and heightened anxiety, which paradoxically reinforce the restrictive behaviors. This establishes a vicious cycle where the biological consequences of the disorder exacerbate the psychological symptoms that sustain it. Furthermore, the disorder is highly resistant to casual intervention, requiring intensive, specialized treatment that addresses both the immediate medical dangers posed by **cachexia** (extreme wasting and malnutrition) and the underlying psychological drivers. A comprehensive understanding of AN must therefore integrate biological predisposition, psychological vulnerabilities such as perfectionism and obsessive-compulsive traits, and powerful sociocultural pressures that emphasize the thin ideal, all contributing to the development and

persistence of this devastating condition.

Diagnostic Criteria and Subtypes

The diagnosis of Anorexia Nervosa according to the **DSM-5** requires the presence of three essential criteria. Criterion A mandates the restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. Criterion B specifies an intense fear of gaining weight or becoming fat, or persistent behavior that interferes with weight gain, even though the individual is already at a significantly low weight. This fear is often irrational and disproportionate to their actual physical state. Criterion C involves a disturbance in the way one's body weight or shape is experienced, an undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight. It is critical to note that the diagnosis is not based merely on low weight, but on the psychological intent and behavior driving the weight loss and the associated body image disturbance.

The DSM-5 further delineates two distinct subtypes of Anorexia Nervosa, based on the specific behavioral manifestations exhibited during the last three months. The first is the **Restricting Type**. Individuals classified under this subtype maintain their low weight primarily through dieting, fasting, and/or excessive exercise. They have not engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas) during the specified period. Their focus is solely on minimizing intake and maximizing caloric expenditure, often displaying extreme discipline and rigidity around food rules and exercise routines. The psychology of the restricting type is often characterized by high levels of control and perfectionism, viewing the ability to restrict as a sign of success and moral superiority.

The second subtype is the **Binge-Eating/Purging Type**. Although these individuals meet the low weight criteria for AN, they have engaged in recurrent episodes of binge eating or purging behavior during the last three months. It is essential to distinguish this subtype from Bulimia Nervosa; the key differential is that individuals with the AN Binge-Eating/Purging Type remain at a significantly low body weight, whereas individuals with Bulimia Nervosa maintain a body weight that is typically within or above the normal range. The binge/purge subtype often exhibits higher rates of impulsivity, substance abuse, and affective instability compared to the restricting type. Furthermore, the medical risks associated with this subtype often include severe electrolyte imbalances and gastrointestinal damage due to the repeated purging behaviors, adding another layer of complexity to their medical stabilization and long-term care.

Etiology: Biological, Psychological, and Sociocultural Factors

The development of Anorexia Nervosa is understood through a complex interplay of biological,

psychological, and sociocultural factors, often summarized by the vulnerability-stress model. Biologically, strong evidence suggests a significant genetic predisposition, with heritability estimates ranging from 50% to 70%, indicating that genetic factors play a role comparable to or greater than that seen in mood disorders. Neurobiological research points toward dysregulation in neurotransmitter systems, particularly **serotonin** and **dopamine**, which influence appetite, mood, reward processing, and impulse control. Studies using functional magnetic resonance imaging (fMRI) often reveal structural and functional abnormalities in brain regions responsible for interoception (awareness of internal bodily states), emotion regulation, and cognitive flexibility, suggesting that AN may involve inherent differences in how the brain processes hunger, satiety, and reward. These biological vulnerabilities create a fertile ground for the disorder to take root under environmental stress.

Psychological factors contribute significantly to the individual vulnerability profile for AN. Personality traits such as high levels of perfectionism, neuroticism, obsessive-compulsive traits, and rigidity are frequently observed premorbidly in individuals who develop AN. These traits predispose individuals to adopt extreme dietary restrictions as a mechanism for coping with stress or achieving a perceived ideal. A profound need for control is also central; in environments where the individual feels powerless, controlling food intake and body weight can become a primary and intensely rewarding source of self-efficacy. Furthermore, many individuals with AN exhibit heightened sensitivity to anxiety and distress, and the restrictive behaviors may initially serve as maladaptive attempts to manage overwhelming emotional states. The cognitive distortions inherent in the disorder, such as dichotomous thinking ("all or nothing") regarding food and weight, reinforce the severity of the illness and impede rational decision-making regarding nutritional needs.

Sociocultural factors provide the powerful environmental context that often triggers the onset of AN in vulnerable individuals. Western society places immense value on thinness, equating it with success, discipline, and attractiveness, leading to the widespread internalization of the **"thin ideal."** Media exposure, including traditional and social media, constantly reinforces this ideal, contributing to body dissatisfaction, which is a key risk factor for developing an eating disorder. While sociocultural factors are not the sole cause, they provide the specific content (i.e., the drive for thinness) through which underlying biological and psychological vulnerabilities are expressed. Family environment can also play a role, not necessarily as a primary cause but often through patterns of communication, high parental expectation, or an overemphasis on achievement and appearance. It is the complex interplay among these three domains--genetic risk, internal psychological structure, and external social pressure--that culminates in the development of clinically significant Anorexia Nervosa.

Physical and Medical Complications

Anorexia Nervosa is characterized by a high degree of medical morbidity due to the devastating

effects of chronic starvation on every major organ system. The cardiovascular system is particularly vulnerable, leading to conditions such as **bradycardia** (abnormally slow heart rate), hypotension (low blood pressure), and orthostatic changes. Chronic starvation can result in atrophy of the heart muscle itself, reducing cardiac output and potentially leading to arrhythmias, which are the most common cause of sudden death in AN patients. Electrolyte imbalances, especially hypokalemia (low potassium) resulting from purging behaviors, further destabilize cardiac function, necessitating immediate medical stabilization and close monitoring in specialized settings, often requiring inpatient hospitalization to prevent fatal outcomes.

The endocrine system suffers substantial disruption. In post-menarcheal females, one of the earliest signs of AN is **amenorrhea** (the cessation of menstrual cycles), a consequence of hypothalamic suppression and reduced levels of circulating estrogen. Low estrogen levels, combined with elevated cortisol (a stress hormone), lead to severely compromised bone health, resulting in osteoporosis and osteopenia, often irreversible conditions that increase the risk of pathological fractures, even in young patients. Other endocrine issues include hypothyroidism (low thyroid function), which slows metabolism and contributes to lethargy, and impaired glucose tolerance. For adolescents, malnutrition stunts growth and delays puberty, potentially compromising their final adult height and sexual maturation.

Gastrointestinal complications are common and often debilitating. Slowed gastric emptying (gastroparesis) results from chronic restriction, leading to feelings of fullness, bloating, and abdominal pain, which paradoxically reinforce the patient's reluctance to eat. Chronic constipation is nearly universal. In patients who engage in purging, damage to the esophagus (Mallory-Weiss tears), dental erosion due to repeated acid exposure, and swelling of the parotid glands (sialadenosis) are frequently observed. Hematological complications include mild anemia and leukopenia (low white blood cell count), compromising immune function and increasing susceptibility to infection. Furthermore, the body attempts to conserve heat, leading to lanugo (fine, soft body hair) growth and acrocyanosis (bluish discoloration of the extremities), physical signs that underscore the severity of the caloric deficit.

Psychological and Comorbid Conditions

The psychological distress associated with Anorexia Nervosa extends far beyond the core symptoms of food restriction and body image distortion. Comorbidity rates are exceptionally high, complicating diagnosis and treatment, and often contributing to the severity and chronicity of the illness. Mood disorders, particularly Major Depressive Disorder, are frequently diagnosed, with symptoms often overlapping with those resulting from starvation itself, such as irritability, social withdrawal, and anhedonia. It is often challenging to disentangle whether the depression is a primary disorder or a secondary consequence of malnutrition, although effective nutritional rehabilitation often leads to a significant reduction in depressive symptoms. Furthermore, high

rates of anxiety disorders are present, including Generalized Anxiety Disorder and Social Anxiety Disorder, preceding the onset of AN in many cases, suggesting anxiety may be a risk factor that drives the initial restrictive behaviors as a form of coping.

Obsessive-Compulsive Disorder (OCD) symptoms are highly prevalent, especially in the restricting subtype of AN. The rigid adherence to rules regarding food, exercise, and body checking often mimics the compulsive rituals seen in OCD. These behaviors provide a sense of structure and control that is highly valued by the individual. While some of these behaviors are specific to food and weight (eating disorder-related obsessions), many patients exhibit broad obsessive tendencies, such as excessive concern with symmetry, orderliness, and contamination. Personality disorders, particularly those within Cluster C (e.g., **Avoidant** and **Obsessive-Compulsive Personality Disorder**), are also commonly found, reinforcing the pattern of emotional avoidance and perfectionism that sustains the illness.

The intense psychological toll of living with AN includes severe impairments in quality of life, profound social isolation, and significant functional impairment across educational, occupational, and interpersonal domains. The constant preoccupation with food, weight, and exercise consumes cognitive resources, making it difficult to maintain normal social interactions or academic performance. Moreover, the disorder carries a substantial risk of self-harm and suicidality. AN has the highest suicide rate among all psychiatric disorders, a risk that increases with the presence of comorbid depression, impulsivity (especially in the binge/purge subtype), and a lack of perceived social support. Therefore, effective treatment must not only restore physical health but also address the deep-seated psychological vulnerabilities and co-occurring mental health issues that contribute to the patient's overall suffering and poor prognosis.

Treatment Approaches

The treatment of Anorexia Nervosa is necessarily multifaceted, requiring a dedicated, multidisciplinary team typically composed of physicians, psychiatrists, registered dietitians, and specialized psychotherapists. The overriding initial priority is **medical stabilization**. For patients presenting with severe malnutrition (e.g., BMI below 15 or rapid weight loss), significant electrolyte abnormalities, or cardiovascular instability, inpatient hospitalization or residential treatment is mandatory to prevent death. A critical aspect of medical management is preventing **refeeding syndrome**, a potentially fatal shift in fluids and electrolytes that occurs when malnourished patients are aggressively refed. Nutritional rehabilitation must be carefully monitored, starting with low caloric intake and gradually increasing to restore weight safely and effectively.

Psychotherapy is the cornerstone of long-term recovery. For adolescents (under 18), the empirically supported gold standard treatment is **Family-Based Treatment (FBT)**, also known as the Maudsley approach. FBT operates on the principle that parents are the most effective agents

of change and empowers them to take charge of their child's nutritional restoration and weight gain. FBT is typically divided into three phases: weight restoration, returning control of eating to the adolescent, and establishing healthy adolescent development. FBT has demonstrated superior efficacy compared to individual therapy in this age group. For adults, the most effective approach is often enhanced Cognitive Behavioral Therapy (**CBT-E**), a transdiagnostic treatment that focuses on identifying and modifying the specific mechanisms maintaining the eating disorder, particularly the overvaluation of weight and shape and the associated behavioral rituals.

Pharmacological interventions play a limited, primarily adjunctive role in the direct treatment of weight restoration in AN. No medication has been consistently proven effective in promoting weight gain in the acute phase of AN. However, medications, particularly selective serotonin reuptake inhibitors (SSRIs), are often utilized to manage comorbid conditions such as severe depression, anxiety, or obsessive-compulsive symptoms, particularly once the patient has achieved a degree of weight restoration. Nutritional rehabilitation must precede the use of most psychotropic medications, as the starved state can alter drug metabolism and efficacy. Treatment success relies heavily on the patient's motivation and commitment to change, often necessitating motivational interviewing techniques to address the high level of ambivalence and ego-syntonic nature of the restrictive behaviors.

Prognosis and Long-Term Outcomes

The prognosis for Anorexia Nervosa is highly variable, but it remains the deadliest psychiatric illness, largely due to high rates of medical complications and suicide. Longitudinal studies suggest that approximately one-third of individuals achieve full recovery, one-third experience partial recovery, and one-third endure a chronic, relapsing course. Recovery is typically defined not just by the restoration of a healthy weight but also by the normalization of eating behaviors, the cessation of compensatory behaviors, and the resolution of the psychological symptoms, including the intense fear of weight gain and body image distortion. Full recovery often takes many years, and even those who achieve clinical recovery may retain residual psychological vulnerabilities, such as perfectionism or rigid thinking patterns.

Several factors have been identified as predictive of a better long-term outcome. These include early age of onset, shorter duration of the illness prior to treatment, and the absence of purging behaviors. Early intervention, particularly utilizing evidence-based treatments like FBT for adolescents, significantly improves the likelihood of a positive outcome. Conversely, late onset, long duration of illness, and severe comorbid psychopathology (such as substance abuse or severe personality disorder traits) are associated with a poorer prognosis and a higher likelihood of chronicity. The risk of relapse remains substantial, particularly during periods of stress or life transition, necessitating continued vigilance and access to supportive aftercare services following intensive treatment.

Even in cases of recovery, individuals often face lingering physical and psychological sequelae. Bone density may never fully recover, increasing the risk of fractures later in life. Fertility issues may persist, and the risk of developing other mental health conditions, particularly depression or other eating disorders like Bulimia Nervosa, remains elevated compared to the general population. Due to the high morbidity and mortality, ongoing research is focused on identifying biomarkers for earlier diagnosis and developing more targeted interventions, particularly those that address the underlying neurobiological and cognitive rigidity associated with the disorder. Ultimately, managing Anorexia Nervosa is a long-term journey focused on harm reduction, functional improvement, and supporting the individual in reclaiming a life not dictated by the pursuit of thinness.