

# Approach to anorexia nervosa and atypical anorexia nervosa in adolescents

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## Abstract

**Objective** To address screening, diagnosis, and treatment of adolescents with anorexia nervosa and atypical anorexia nervosa in primary care.

**Sources of information** A literature search was conducted in PubMed using the subject headings *anorexia nervosa*, *adolescents*, *COVID-19*, *review*, *guidelines*, and *primary care*. Applicable articles were reviewed, with key recommendations summarized. Most evidence is level I.

**Main message** Recent studies suggest that the global COVID-19 pandemic contributed to an increase in the incidence of eating disorders, particularly among teenagers. This has resulted in increasing responsibility for primary care providers regarding the assessment, diagnosis, and management of these disorders. Moreover, primary care providers are in ideal positions to identify adolescents at risk of eating disorders. Early intervention is of utmost importance for avoiding long-term health consequences. High rates of atypical anorexia nervosa indicate a need for providers to have awareness of weight biases and stigmas. Treatment primarily involves a combination of renourishment and psychotherapy, generally through family-based therapy, with pharmacotherapy playing a lesser role.

**Conclusion** Anorexia nervosa and atypical anorexia nervosa are serious, potentially life-threatening illnesses that are best addressed through early detection and treatment. Family physicians are in an optimal position to screen for, diagnose, and treat these illnesses.

Anorexia nervosa (AN) and atypical anorexia nervosa (AAN) are serious, potentially life-threatening illnesses that are best addressed through early detection and treatment. Recent studies suggest that the global COVID-19 pandemic has contributed to an increase in the incidence of eating disorders (EDs), particularly among teenagers.<sup>1,2</sup> Primary care providers (PCPs) play an important role in addressing screening, diagnosis, and treatment of adolescents with AN or AAN.

## Case introduction

A 14-year-old female patient presents to your clinic for assessment owing to 4 months of amenorrhea. The patient reports previously regular cycles since menarche at age 12. She discloses feeling lonely during the COVID-19 pandemic and becoming increasingly preoccupied with weight, expressing a strong desire to “become healthier” through exercising and monitoring her food intake. She reports feeling lower mood and more anxiety, as well as having difficulty concentrating. You measure her vital signs, height, and weight. You have not seen her in person for 2 years. Her last height and weight measurements are from age 12 and both had been at the 75th percentile and had tracked at this percentile throughout childhood. Today, her height remains around the 75th percentile, but her weight is now at the 25th percentile. Based on her growth charts, you estimate her current

## Editor’s key points

- ▶ The Ottawa Disordered Eating Screen for Youth is a brief questionnaire that can be used in conjunction with regular visits with adolescents to screen for eating disorders.
- ▶ Renourishment and psychotherapy, particularly family-based therapy, are the cornerstones of treatment for anorexia nervosa and atypical anorexia nervosa in adolescents.
- ▶ In terms of pharmacotherapy, antidepressants confer limited benefit until weight restoration has occurred, although there is emerging evidence for second-generation antipsychotics to manage distress during the acute phase of treatment.
- ▶ Atypical anorexia nervosa is associated with serious health outcomes, and the increase in the incidence of this disorder observed during the COVID-19 pandemic should prompt primary care providers to rethink how they approach weight with patients, challenge weight-based stereotypes, and shift from a focus on weight to a focus on healthy behaviour.

weight to be approximately 80% of what it should be. Her heart rate is 55 beats per minute at rest and her blood pressure is 100/70 mm Hg with an orthostatic change in heart rate of 28 beats per minute. You order relevant blood work and an electrocardiogram, which reveals sinus bradycardia.

### Sources of information

A literature search was conducted in PubMed using the subject headings *anorexia nervosa*, *adolescents*, *COVID-19*, *review*, *guidelines*, and *primary care*. The focus of our review is geared toward older children and teenagers. Articles of relevance were reviewed, summarized, and cited as appropriate. The level of evidence for most treatment recommendations was level I. When level I or II evidence was not available, the expert opinions of 2 of the authors (W.S., M.L.N.) and consensus statements were used as level III evidence.

### Main message

**Impact of COVID-19 on EDs in adolescents.** The COVID-19 pandemic has been associated with an increase in the incidence of EDs.<sup>1,2</sup> Compared with those seen in 2019, young people assessed for EDs in 2020 tended to be more severely ill and were significantly more likely to be medically unstable ( $P=.005$ ).<sup>2</sup> Loss of activities, routine, and social interaction along with increased time on social media because of COVID-19 pandemic restrictions have been identified as having contributed to the increased rate of EDs.<sup>3</sup> Moreover, as the demand for specialized treatment programs has increased,<sup>2</sup> PCPs are increasingly faced with diagnosing and managing patients with these illnesses. The importance of early identification and treatment for young people with AN or AAN is related to the high rates of morbidity and mortality associated with both illnesses, and to the fact that outcomes for AN are directly related to length of illness and speed of weight restoration.<sup>4-7</sup>

**Definitions.** *Anorexia nervosa* is a restrictive ED that often begins in adolescence.<sup>8</sup> *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition, criteria for diagnosis are outlined in **Box 1**.<sup>9</sup> The term *atypical anorexia nervosa* is used to describe an individual with a history of living in a larger body who becomes preoccupied with weight or shape and loses a considerable amount of weight but nonetheless remains in a range considered *healthy* (eg, dropping from the 95th percentile to the 50th percentile).<sup>8</sup> Recently, an increased prevalence of patients with AAN (who would not meet the underweight criteria but meet all other criteria) has been observed.<sup>10</sup> Weight loss in this population may not always be recognized as problematic.<sup>11,12</sup> This is concerning, as studies suggest that patients with AAN exhibit serious psychological distress and demonstrate similar risks related to malnutrition.<sup>13</sup> Equally concerning are reports by patients with

#### Box 1. DSM-5 criteria for the diagnosis of anorexia nervosa

Class:

- A. Restriction of intake which leads to a substantial change in body weight
- B. Intense fear of gaining weight or becoming fat, or persistent behaviour that interferes with weight gain
- C. Disturbance in body weight or shape, self-worth influenced by body weight or shape, or persistent lack of recognition of the seriousness of low body weight

Specifiers:

- Restricting type—during the past 3 mo, weight loss is accomplished primarily through dieting, fasting, or excessive exercise (individual has not regularly engaged in binge eating or purging)
- Binge-eating and purging type—during the past 3 mo has regularly engaged in binge eating or purging

DSM-5—*Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. Data from the DSM-5.<sup>9</sup>

AAN that health-related counselling contributed to illness onset and progression.<sup>14</sup>

**Understanding EDs.** Eating disorders in young people are often associated with personality traits and characteristics such as obsessiveness, perfectionism, anxiety, and depression.<sup>15</sup> With AN and AAN, individuals experience obsessive thoughts that they are eating too much, that they will gain weight, or that they must compensate in some way for consumed calories. The behaviour directed at weight loss is often compulsive—for example, calorie restriction, purging, or overexercising.<sup>16</sup> While EDs are fuelled by negative feelings, they often begin with weight loss.<sup>17</sup> As weight loss ensues, the malnourished brain becomes increasingly focused and obsessed, which in turn fuels the disorder, propelling increased compulsive behaviour directed at weight loss.<sup>16</sup> Ultimately, weight gain is necessary for recovery.

**Screening for EDs in adolescents.** The British 5-item SCOFF questionnaire is a commonly used screening tool with high sensitivity for AN.<sup>18,19</sup> The 2-item Ottawa Disordered Eating Screen for Youth was developed as a short and accurate screening tool for earlier detection of general disordered eating thoughts and behaviour in youth (**Table 1**).<sup>20</sup> Monitoring height and weight is also important, as it allows PCPs to assess and correlate whether emotional difficulties are impacting weight.

**Initial assessment.** An initial visit should contain a focused history and physical examination with emphasis on ED symptoms (restricting, bingeing, purging, overexercising) and the patient's safety. Subsequent visits should involve more discussion with respect to daily nutritional intake and weight history as well as a focused

mental health review involving stressors, self-critical thoughts, mood, suicidality, self-harm, sleep, substance use, energy level, and concentration.<sup>21</sup> If applicable, a menstrual history should be obtained. Common physical symptoms of EDs should also be asked about, including reflux esophagitis, constipation, nausea, presyncope, palpitations, chest pain, weakness, fatigue, lanugo, dry skin, hair loss, muscle cramps, joint pain, pallor, easy bruising, and cold intolerance.<sup>22</sup> Signs of severe purging may include abrasions on knuckles, poor dentition, halitosis, and salivary gland hypertrophy.<sup>22</sup>

Physical examination should include measurement of weight, height, temperature, and postural vital signs (heart rate and other vital signs measured after lying horizontally for 5 minutes and then again after standing for 2 minutes). Many clinicians encourage blind weight measurement, where the patient is weighed wearing only a gown, facing away from the scale, and the weight is not reported to the patient.<sup>23</sup>

When providing a patient or their family members with a diagnosis of AN or AAN, the seriousness should be underscored. Families and patients should be informed that these diagnoses are often due to a combination of genetic, environmental, and social factors.<sup>16</sup> Providers should emphasize the need for weight restoration, including a discussion of the medical and psychological effects of insufficient nutrition and the long-term health outcomes. When appropriate, providers should empower caregivers to take control of nutrition. When available, patients should be referred to the nearest specialized ED program, and families should be provided with psychoeducational resources (Table 2) and directed to a therapist and a dietitian with relevant expertise.

At an early visit, a treatment goal weight (TGW) should be determined. We recommend, when possible, using a patient's prior growth curve to project weight as if they had continued to grow along their curve without weight loss.<sup>24</sup> In younger teenagers, TGW should be

reassessed at least every 6 months. Return of regular menstrual function, if applicable, may also serve as an indication that a patient is approaching their TGW.<sup>24</sup> In patients with AAN, it is important that issues related to weight bias and stigma do not influence the determination of an optimal TGW, which will be higher than the 50th-percentile body mass index for age.

Depending on the degree of clinical concern, initial blood work may include complete blood count; assessment of renal function; and measurement of electrolyte, extended electrolyte, liver enzyme, albumin, vitamin B12, ferritin, and lipid levels. Other investigations can also be considered to rule out other causes of symptoms, including measurement of thyroid-stimulating hormone, luteinizing hormone, follicle-stimulating hormone, estradiol, androgen, and C-reactive protein levels and erythrocyte sedimentation rate. Urinalysis can assist with assessment for hydration status, the presence of ketones, and proteinuria. An electrocardiogram should be done to rule out bradycardia, arrhythmias, and corrected QT interval prolongation.<sup>25</sup> Providers should be aware that certain symptoms (such as purging) also require specific ongoing monitoring. If any indications for hospitalization listed in Box 2 are met, the patient should be sent to the nearest emergency department.<sup>26,27</sup>

**Outpatient treatment overview.** Assessment and management of patients with EDs require regular in-person visits given the need for physical examination and measurement of weight and vital signs. Further, assurance of a confidential setting is paramount. If patients do not meet any of the criteria for inpatient management (Box 2),<sup>26,27</sup> then outpatient weight restoration is the treatment of choice. The core components of treatment are renourishment and psychotherapy, with family-based therapy

**Table 1. The ODES-Y screening questions: A positive screening result (yes to both questions) should prompt further questioning about intake, weight and shape preoccupation, and eating disorder symptoms.**

QUESTION	RESPONSE
Over the past 3 mo has your weight or shape influenced how you think about (judge) yourself as a person?	Yes or no
Over the past 6 mo have you fasted (skipped at least 2 meals in a row) or eaten what other people would regard as an unusually large amount of food (eg, a quart of ice cream) given the circumstance, and experienced a loss of control (felt like you couldn't stop eating or control how much you were eating)?	Yes or no

ODES-Y—Ottawa Disordered Eating Screen for Youth.  
Data from Obeid et al.<sup>20</sup>

**Table 2. Recommended Canadian resources for patients and caregivers**

NAME	CONTACT
National Eating Disorder Information Centre and helpline	Website: <a href="https://nedic.ca/">https://nedic.ca/</a> This website provides information, education, recovery-oriented resources, referrals, and support for Canadians Helpline: 866-633-4220
BC Children's Hospital's Kelty Mental Health Resource Centre	Website: <a href="https://keltyeatingdisorders.ca/">https://keltyeatingdisorders.ca/</a> This website provides general information on eating disorders and support for individuals living in British Columbia
Canped: understanding eating disorders in adolescence	Website: <a href="http://canped.ca/">http://canped.ca/</a> This Canadian website provides general information aimed primarily at caregivers providing support for individuals with eating disorders

being the most effective treatment.<sup>21</sup> Family-based therapy involves a multidisciplinary team including a PCP as well as a psychologist or psychotherapist and, if available, a dietitian experienced in treating EDs. Ensuring an open line of communication between team members is essential to maintaining a uniform approach.

**Psychotherapy.** In family-based therapy, the entire family supports recovery. Initially, caregivers should be encouraged to oversee 3 meals and 3 snacks per day.<sup>21</sup> If a patient is unable to complete their nutrition plan, they may be offered supplements and progress toward full intake of solid food. During this phase, the ED can be externalized, meaning that it is discussed as an external force that is putting thoughts into a patient's head and compelling them to behave in ways that jeopardize their health.<sup>28</sup> As a patient improves and reaches their TGW, they can transition to taking on more independence in eating.<sup>21</sup> For older teens or those without families who are able to support them, cognitive-behavioural therapy for EDs is the recommended treatment.<sup>29</sup>

**Monitoring.** The frequency of medical visits should correlate with the degree of weight suppression and severity of ED symptoms. For patients with acute weight loss, in-person appointments may be required weekly to ensure patients remain medically stable. At each visit, weight and orthostatic vital signs should be tracked, followed by a check-in with the patient and caregivers. If weight is not

increasing appropriately, contributing factors—such as purging or secretive compulsive overexercising—should be explored in a compassionate and nonblaming way. Management considerations may include increased supervision around meals, reassessing frequency and intensity of exercise, and addressing stressors. If weight or overall status continue to decline, patients should be referred to a specialized program. As nutrition increases, care should be taken to evaluate risk of refeeding complications. Blood work should be checked monthly, at minimum, during the initial renourishment stage and more frequently if a patient is actively purging or if there are concerns about medical stability. Regular electrocardiographic monitoring may also be required. Clinicians could also suggest initiating a multivitamin with iron and vitamin D.

Patients at acute risk of refeeding syndrome, generally those with a higher degree of malnutrition at presentation (ie, <75% TGW), should be admitted for renourishment.<sup>30</sup> Gastrointestinal complaints are common during the acute phase of refeeding and will likely resolve with continued feeding; these can be quite distressing, however, and may require symptomatic treatment.<sup>31,32</sup>

**Treatment of comorbidities.** Malnutrition can result in many psychological and cognitive effects, including irritability, anxiety, depression, obsessive preoccupations, mood swings, insomnia, and impaired concentration and cognition.<sup>33</sup> In the context of AN and AAN, this can make it difficult to diagnose and treat comorbidities, as psychological symptoms may have been present prior to the ED, may be associated with weight gain, or may stem from malnutrition.<sup>34,35</sup>

**Pharmacotherapy.** The primary treatments for AN are renourishment and psychotherapy, with limited roles for pharmacotherapy. Antidepressants confer limited benefit until the brain has been renourished. They may be considered where there is a clear comorbidity that merits antidepressant treatment but only once the patient approaches their TGW.<sup>36,37</sup> There is emerging evidence for use of second-generation antipsychotics, particularly olanzapine, in the acute phase of treatment.<sup>38</sup>

### Case resolution

It is clear that your patient meets the diagnostic criteria for AN, restricting subtype. You explain this to her and to her mother, and they both become tearful. You determine that outpatient treatment would be optimal. You discuss the effects of malnutrition and explain that her brain and body need energy to repair, and that nutrition is the primary medicine her body needs. You refer her to a specialized dietitian and a psychologist, and you monitor her every 2 weeks to begin with. Although distress is initially associated with weight gain, her feelings of anxiety and low mood gradually improve with renourishment.

#### Box 2. Acute indications for hospitalization for AN or AAN in a young person

The following indicate a need for hospitalization:

- <75% of treatment goal weight
- Arrested growth or development
- Core temperature <35.6°C (<96.0°F)
- Heart rate <50 BPM in the daytime or <45 BPM overnight
- Blood pressure <90/60 mm Hg or orthostatic hypotension (sustained increase in pulse of >40 BPM or a sustained decrease in blood pressure of >10 diastolic or >20 systolic mm Hg/min from lying to standing)
- ECG showing arrhythmia, prolonged QTc interval, or severe bradycardia
- Electrolyte abnormalities (eg, hypoglycemia, hyponatremia, hypophosphatemia, hypokalemia, hypomagnesemia)
- Uncontrolled bingeing or purging
- Dehydration
- Poorly controlled mental health or other medical diagnosis that is resulting in a barrier to care for the eating disorder (eg, severe depression, obsessive compulsive disorder, type 1 diabetes mellitus, etc)
- Active suicidal ideation

AN—anorexia nervosa, ANN—atypical anorexia nervosa, BPM—beats per minute, ECG—electrocardiogram, QTc—corrected QT.  
Data from van der Leer et al and the Society for Adolescent Health and Medicine.<sup>26,27</sup>

## Conclusion

Anorexia nervosa and AAN are serious, potentially fatal illnesses that are best addressed through early detection and treatment. Treatment requires weight restoration along with psychoeducation and psychotherapy. Insufficient nutrition and lack of weight restoration have devastating effects on physical and mental health. Primary care providers are ideally positioned to identify teenagers at risk of EDs and to initiate management. 🌿

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### Contributors

All authors contributed to the literature review and to preparing the manuscript for submission.

### Competing interests

None declared

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