

## Eating disorders in adolescents: role of the pediatrician. Recommendations of the Adolescence Branch of the Chilean Society of Pediatrics

### Trastornos de la conducta alimentaria en adolescentes: rol del pediatra. Recomendaciones de la Rama de Adolescencia de la Sociedad Chilena de Pediatría

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#### What do we know about the subject matter of this study?

Eating disorders are very severe diseases that usually have their onset in adolescence. There are evidence-based interventions for their prevention in the care of adolescents. In addition, early detection and proper management of these disorders are essential for a favorable prognosis.

#### What does this study contribute to what is already known?

The Adolescent Branch of SOCHIPE provides practical recommendations on interventions that can be implemented during adolescent care, for the prevention of eating disorders, early detection and evaluation of those who already have them, and their timely and effective referral to specialized treatment.

#### Abstract

Eating disorders (ED) have become relevant in Chilean pediatrics. Their treatment must be preferably carried out by multidisciplinary teams with specialty or a high degree of training in the problem. However, general pediatricians have a fundamental role both in the prevention and in the early detection of these pathologies. The purpose of this publication is to provide them with practical recommendations on interventions that can be carried out during adolescent care for the prevention of ED, the early detection and evaluation of those who already have them, and their timely referral to specialized treatment.

#### Keywords:

Eating disorders;  
adolescent;  
pediatrics;  
prevention;  
early detection

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## Introduction

Eating disorders (ED) have been progressively acquiring a relevance in Chilean pediatrics since they usually begin in adolescence<sup>1</sup>, are associated with significant morbidity and mortality<sup>2,3</sup> and, although this has not been objectified due to the lack of studies, in the clinical sphere there is the perception that they have significantly increased.

Their treatment should be comprehensive and preferably carried out by multidisciplinary teams specialized or with a high degree of training in both ED and adolescence<sup>4</sup>. Some of the professionals will come from subspecialties of Pediatrics, especially Adolescence and Nutrition, in addition to other specialties necessary for the management of the medical complications that these cases present (e.g., endocrinology, gynecology, cardiology, and gastroenterology).

However, general pediatricians play a fundamental role in coping with eating disorders, since their broad and close relationship with the child and youth population, puts them in a privileged position to favor their prevention and early treatment, which is key to a favorable prognosis. The objective of this publication is to provide practical recommendations on the interventions that can be implemented during adolescent care, for the prevention of ED, early detection, and evaluation of those who already present them, and their timely and effective referral to specialized treatment.

## Role of the pediatrician

### 1. Prevention

Pediatricians can contribute to the prevention of ED by implementing a series of evidence-based recommendations during adolescent care. These are addressed in a clinical report published in 2016 by the Committees on Nutrition and Adolescence, and the Section on Obesity of the American Academy of Pediatrics<sup>1</sup>, who suggests the following for joint prevention of ED and obesity:

- a. Discourage dieting, skipping meals, and the use of weight loss medications; instead, encourage and support healthy eating and physical activity behaviors that can be maintained. The focus should be on having a healthy life and habits rather than on weight.
- b. Promote a positive body image among adolescents. Do not encourage or focus on body dissatisfaction as a reason for dieting.  
It is very important to not increase body dissatisfaction during the care of adolescents with overweight and obesity, as it is common for them to already feel it, which increases their vulnerability. One

must be careful with comments about their weight and/or shape, avoiding the use of words that can undermine their self-esteem, such as “fat”, “obese” and “extremely obese”<sup>5</sup>.

- c. Encourage families to eat together more often.
- d. Encourage them not to talk about weight, but rather about healthy eating and physical activity to stay healthy, and to facilitate these in their homes. Unfortunately, “weight /fat talk” (talking, make fun of/teasing, etc., about one’s weight or that of others) is common today, with negative consequences for the psychological and physical health of adolescents, especially for women, and if it occurs in the family environment. “Fat talk” is associated with ED and several risk factors for these pathologies, including, among others, body dissatisfaction, concern about body image, depression, perception of socio-cultural pressure to be slim, and the drive towards slimness<sup>6</sup>. Also, “weight talk” by parents towards their children (even the well-intentioned one, to stimulate weight loss in those with overweight by excess), is associated with poorer body self-perception and greater involvement in diets and dysfunctional eating behaviors<sup>7</sup>.
- e. Ask if there is history of abuse or bullying in overweight or obese adolescents and address the problem with them and their families.
- f. Carefully monitor weight loss in an adolescent who needs to lose weight, to ensure that she or he does not develop medical complications from undernutrition.

### 2. Early detection

The trend of those suffering from ED to deny or hide them favors their late diagnosis, which impacts negatively on their chances of recovery<sup>8,9</sup>. Therefore, it is important that pediatricians actively investigate them during the adolescent health supervision visits<sup>10,11</sup> and in the care of those young people at risk<sup>12</sup>.

- a. *Screening for ED in the Adolescent Health.* Supervision Visits. It will include assessing the adolescents’ level of satisfaction with their body image and the practices they use for weight control, which will help to recognize early symptoms of ED<sup>10</sup>. Also, the menstrual history -in the case of female- and the physical examination may provide relevant complementary information. The latter, through the nutritional and growth and development of the adolescent, by determining their weight, height, BMI, and Tanner stages, which should be monitored over time.
- b. *Screening for ED in the care of at-risk adolescents.* It should be done periodically<sup>12</sup>. Among the risk factors for ED most likely to be detected in the

consultation are female sex; family history of ED; early puberty; dissatisfaction with body image and/or excessive concern about food, weight and shape, wishing to be thinner or to reduce some part of the body or increase the musculature in the case of many males; thin-ideal internalization; obesity; dieting; parental “weight talk” or “fat talk”; pressure to be thin from parents and/or friends; fat-shaming from family and/or friends; practicing ballet or sports that require a thin body; low self-esteem; perfectionism; and depression<sup>7,13-18</sup>. Young people with chronic diseases that require specific nutritional management (e.g., type 1 diabetes mellitus, cystic fibrosis, celiac disease, and inflammatory bowel disease) may also be at increased risk for developing ED<sup>12,19</sup>. Those adolescents whose consultations are related to weight, shape, and/or eating deserve special attention since they are also at a significantly higher risk of presenting these disorders<sup>20,21</sup>.

- c. *Screening of ED with instruments.* In order to simplify the screening process for these pathologies and make it available to those non-specialists, brief instruments have been developed, which are easy and quick to administer and interpret. The SCOFF<sup>22</sup> is the most studied and widespread of these. However, most validation studies of this instrument have been carried out in the adult population<sup>23</sup>, and there is little research on adolescents, so its value is still to be determined in this age group.

In all the above cases, if an ED is suspected, the pediatrician should perform a more in-depth evaluation, as suggested below.

### ***Initial evaluation of ED***

It aims to diagnose the ED and its type, detect associated medical complications, establish the existence of conditions (medical, psychological, and social) that determine the need for hospitalization or emergency interventions, and to inform the patient and parents of the findings and the required treatment, motivating them to do it. In order to carry it out, the basic strategies and skills for the clinical care of adolescents and the specificities of the approach to ED should be considered. An article published by one of the authors (24) goes into greater detail about the first ones. The last ones are described below.

It is important to adopt an attitude of listening, welcoming, and empathy during the evaluation, showing also seriousness and concern according to the problem, which will help those adolescents and/or parents who are not aware of the relevance of these diseases, to develop problem awareness.

It should be noted that the diagnosis of EDs is emi-

nently clinical and especially done through a thorough anamnesis.

### ***History***

It is necessary to explore the existence of cognitive and behavioral alterations typical of ED, associated physical symptoms, relevant personal and family history, previous treatments, and those psychosocial aspects that require an urgent approach, in addition to evaluating the degree of understanding of the problem and the motivation to receive help of both the patient and her or his parents.

#### ***• Cognitive and behavioral disorders typical of ED***

To find them out, the following questions are recommended<sup>9,25,26</sup>, to which others have been added that are considered useful and necessary:

- How do you feel about your body? If you had a magic wand and could change something about it, what would you change? Have you ever been afraid of gaining weight or getting fat?
- Have you tried to lose weight? What have you tried? Since when?
- Have you decreased the size of the portions you eat? Do you skip meals? What foods that you used to eat do you avoid or forbid? Since when do you do that? Also, explore eating rituals and recent conversion to vegetarianism for weight control.
- What did you eat yesterday? (Quantity and quality of breakfast, lunch, tea time, dinner, and snacks).
- Do you count calories? If you do, how many do you eat a day?
- Do you drink non-caloric liquids (water, tea, coffee, soda, or other) to avoid eating or to lose weight? How much do you drink per day? Since when or during which period?
- Have you ever binged? How often? At what times? Since when or during what period? Triggers? Do you restrict your intake after binge eating?
- Have you ever make yourself vomit? How often? When (after a binge or in other circumstances)? Since when or during which period?
- Have you taken laxatives, diuretics, medications, “natural” products, or others for weight control (in males, have you used supplements or medications to increase your muscle mass)? What type, how much, and how often? When (after a binge or in other circumstances)? Since when or during which period?
- Do you exercise? What kind, intensity, duration, and frequency? How much stress do you get from missing a workout? Have you continued to exercise despite being sick or injured?
- How often do you weigh yourself?

- Have you ever been your highest weight? When was it? How tall were you at the time?
- What has been your minimum weight in the last year? When was it? How tall were you at that time?
- How much would you like to weigh? What do you think is your healthy weight?
- Do you frequently look at, touch, or measure any part(s) of your body in order to assess your weight or shape?
- How much of your day is spent thinking about food, weight, and shape? How much of your energy is invested in your weight and shape?

It is important to directly explore each of these aspects so that they do not go unnoticed. It should be kept in mind that the simple denial of problems by the adolescent does not exclude the possibility that she or he is suffering from ED, and even less so if her or his parents, peers, teachers, or coach suspect it, where there is a high probability that the disorder exists<sup>27</sup>.

• *Associated medical symptoms*

They can be reviewed in the article "Eating Disorders in Adolescents. A comprehensive approach" in this same issue of the journal.

• *Relevant personal and family history*

The growth and development of the adolescent, the gynecological history if females (including the age at menarche, regularity of cycles, date of last period and contraception), and family history of obesity, ED, and other psychiatric disorders should be investigated (25).

• *Psychosocial evaluation*

Explore the existence of psychiatric co-morbidity that requires emergency interventions (e.g., suicide risk) and risk behaviors that need to be addressed promptly (e.g., self-harm and unprotected sex).

• *Degree of understanding of the problem and motivation to receive help of the patient and parents.*

These must be determined in order to make a good referral.

In general, it is very important to include the parents in obtaining the history in cases in which an ED is suspected, since the information given by the patients is often unreliable. However, it should be kept in mind that sometimes parents are unaware of the ED or in denial of the problem. Postponing asking about issues that are very sensitive to the adolescent for when one is alone with her/him is suggested. This space must be protected in order to respect her/his progressive autonomy and to bond with her/him.

In these cases, not only are the usual sensitive questions (sexual behavior, drug use, etc.) are sensitive, but also those related to ED behaviors that young people wish others did not know about (e.g., vomiting and its frequency, binge eating, its content and frequency, use of laxatives and other weight control medications). The joint interview will also make it easier for parents to be aware of what the adolescent has experienced and to assess the dynamics associated with the disease, including the level of conflict the youth and family are having at mealtimes, and how they are coping.

Other skills that should be especially kept in mind when performing the history in these cases are:

- Avoid value judgments and/or negative or surprising attitudes towards behaviors that the patient is already finding difficult to share since he/she will be inhibited from doing so and will increase the resistance to the situation.
- Externalize the disease. This technique is especially indicated in patients who are resistant to recognizing their problem and taking steps to change it. Language is used to make the ED a separate entity from the young person ("It is not you, but anorexia that makes you behave this way"). This helps the adolescent recognize thoughts and behaviors that she or he tends to deny due to guilt, shame, or other reasons, and makes it possible for the patient to "fight the ED" (this "external enemy") in conjunction with her or his family and the health professional, to prevent the ED from "getting away with it". It allows the patient to be cleared, without depriving her/him of the responsibility of overcoming the problem, which generates conditions so that she/he can tell what is happening and take action to solve it.

**Physical examination**

It must be complete and should include:

- Vital signs: temperature; respiratory rate; heart rate, and blood pressure in supine and standing position.
- Anthropometry: weight and height.
- BMI calculation and recording it in appropriate curves<sup>28</sup>. The use of BMI in these cases may be not enough to make a nutritional diagnosis, especially in patients with Atypical Anorexia Nervosa (AN) who began their ED with overweight or obesity because, despite having experienced very significant and rapid weight loss and presenting the same complications as cases of AN, they may have a normal BMI. The Society for Adolescent Health and Medicine of the United States, based on the recommendations of the American Academy of Pediatrics, the American Society for Parenteral and Enteral Nutrition, and the Academy of Nutrition

and Dietetics, proposes to classify the malnutrition degree in patients with ED, considering the parameters included in Table 1.

- Recording of height in appropriate curves<sup>28</sup>, observing its evolution compared with previous measurements, and making height diagnosis.
- Pubertal development: Tanner's stages.
- Detection of alterations associated with ED (see in "Eating disorders in adolescents. A comprehensive approach" in this same issue of the journal).

Special care must be taken when weighing these patients, since weight is the subject of much of their fears. The fear of being forced to gain weight can lead them to artificially increase it by consuming excessive liquids or hiding objects in their clothes or hair, therefore, the young person should be weighted wearing a minimum of clothing or a gown and after having urinated. Subsequently, her/his feelings about the outcome should be explored and if there is significant frustration or distress, it will be necessary to contain her/him, using, for example, the externalization of the illness ("I understand that it is the illness that makes you feel that your weight is excessive, but the curves show us that it is absolutely normal"). If it is anticipated that the adolescent's reaction to the weight will be too intense and will hinder the evolution, not showing her/him the weight can be an option.

### **Differential diagnosis (Table 2)**

That of ED essentially includes medical and psychiatric pathologies that are associated with significant changes in the level of intake and/or body weight (decrease in the case of AN and increase in Bulimia Nervosa (BN) and Binge Eating Disorder) and/or obsessions and compulsive behaviors regarding eating, weight and/or shape, in addition to vomiting in the case of BN<sup>29</sup>.

### **Initial laboratory evaluation<sup>25,30,31</sup>**

The laboratory tests are only complementary and aimed at detecting complications and rule out other conditions that may explain the symptoms (differen-

tial diagnosis). They should include complete blood count, biochemical profile, plasma electrolytes, venous blood gas analysis, 25-hydroxy vitamin D, complete urinalysis and, if there is significant weight loss, also include blood creatinine, thyroid function tests, and blood magnesium. If there is vomiting or suspicion of it, blood amylase can be added.

An electrocardiogram (EKG) should be done in all patients with electrolyte abnormalities, significant weight loss or purging, and/or cardiovascular symptoms or signs, and consider an echocardiogram in the latter.

Additional tests (LH, FSH, estradiol) may be indicated for adolescents with amenorrhea and, if it has lasted 6 months or more, a bone densitometry should be performed, using age-appropriate computer software. In males with AN, testosterone should be considered. If there is uncertainty about the diagnosis, it will be necessary to perform other tests as appropriate, such as : erythrocyte sedimentation rate (ERS), tests to rule out celiac disease, brain CT scan or MRI, and studies of the upper or lower gastrointestinal system.

Table 3 details the abnormalities that initial tests may show. However, they may be normal, even if there is significant malnutrition<sup>2</sup>. It is important to explain to patients, ideally in advance, that normal laboratory tests do not indicate the absence of ED or severity, in order to prevent them from trying to use it as an argument to deny the problem and resist treatment.

### **Feedback of the diagnostic hypothesis and indications**

Once the evaluation is completed, the pediatrician must make a summary to the young person, informing her/him of the findings, diagnosis(s), risks, and preliminary indications, including the need for referral to a specialized outpatient treatment program or hospitalization, as the case may be. The pediatrician should also provide an opportunity for the young person to express concerns and resolve questions. If there are ED behaviors that she/he had hidden from their parents (e.g. vomiting), the professional will have to raise the need to open them up to their parents, negotiating - in an empathetic and respectful way - the best way to do

**Table 1. A proposed classification of the degree of malnutrition for adolescents with eating disorders**

	Mild	Moderate	Severe
% median BMI	80-90%	70-79%	< 70%
BMI z score	-1 to -1.9	-2 to -2.9	-3 or greater
Weight loss	> 10% body mass loss	> 15% body mass loss	> 20% body mass loss in 1 year or >10% body mass loss in 6 months

One or more of the above mentioned would suggest mild, moderate, or severe malnutrition. BMI: body mass index. Golden et al., 2015<sup>30</sup>; Society for Adolescent Health and Medicine, 2015<sup>33</sup>.

**Table 2. Differential diagnosis of eating disorders**

Anorexia Nervosa	Bulimia Nervosa or Binge Eating Disorder
<p>- Endocrine diseases:</p> <ul style="list-style-type: none"> <li>• Hyperthyroidism</li> <li>• Addison's disease</li> <li>• Diabetes Mellitus</li> </ul> <p>Gastrointestinal diseases:</p> <ul style="list-style-type: none"> <li>• Inflammatory bowel disease</li> <li>• Celiac disease</li> <li>• Peptic ulcer</li> </ul> <p>Neoplasms:</p> <ul style="list-style-type: none"> <li>• Tumors of the central nervous system</li> <li>• Other cancers</li> </ul> <p>Other medical diseases:</p> <ul style="list-style-type: none"> <li>• Chronic infections (eg, tuberculosis)</li> </ul> <p>Psychiatric disorders:</p> <ul style="list-style-type: none"> <li>• Obsessive-compulsive disorder</li> <li>• Anxiety disorders</li> <li>• Depressive disorders</li> <li>• Rumination disorder</li> <li>• Avoidant/restrictive food intake disorder (ARFID)</li> </ul>	<p>Medical diseases:</p> <ul style="list-style-type: none"> <li>• Obesity</li> <li>• Insulinoma</li> <li>• Hypothalamic tumors</li> <li>• Gastric outlet obstruction</li> <li>• Hyperemesis gravidarum</li> <li>• Prader-Willi syndrome</li> <li>• Kleine-Levin syndrome</li> <li>• Klüver-Bucy syndrome</li> </ul> <p>Psychiatric disorders:</p> <ul style="list-style-type: none"> <li>• Anorexia nervosa (binge-eating/purging subtype)</li> <li>• Obsessive-compulsive disorder</li> <li>• Depressive disorders</li> <li>• Body dysmorphic disorder</li> </ul>

Adapted from Mairs y Nicholls, 2016<sup>29</sup>.**Table 3. Potential abnormal findings in initial laboratory tests in eating disorders**

Test	Abnormalities
Complete blood count	Anemia, leukopenia, thrombocytopenia
Comprehensive panel	Glucose: ↓ (poor nutrition) Blood urea nitrogen: ↑ (dehydration) Calcium: slightly ↓ (poor nutrition at the expense of bone) Phosphate: ↓ (poor nutrition) Total protein/albumin: ↑ in early malnutrition at the expense of muscle mass, ↓ in later malnutrition Alanine aminotransaminase (ALT), aspartate aminotransaminase (AST): ↑ (starvation)
Electrolytes	Sodium: ↓ (water loading or laxatives) Potassium: ↓ (vomiting, laxatives, diuretics) Chloride: ↓ (vomiting, laxatives), ↑ (laxatives)
Venous blood gas	Bicarbonate: ↑ (vomiting), ↓ (laxatives)
Magnesium	↓ (poor nutrition, laxative use)
Creatinine	↑ (dehydration, renal dysfunction), ↓ (muscle wasting)
Amylase	↑ (vomiting, pancreatitis)
Thyroid function tests	T3 ↓, T4 normal or ↓, TSH normal or ↓ (euthyroid sick syndrome)
Gonadotropins and sex steroids	LH, FSH, estradiol: ↓ (women) Testosterone: ↓ (men)
Electrocardiogram (EKG)	Bradycardia and other arrhythmias, prolonged QTc, increased QT dispersion
Dual Energy X-ray Absorptiometry (DEXA)	↓ bone mineral density

Adapted from AED, 2016<sup>2</sup>.



so. The parents must be aware of this type of behavior for the adolescent to receive the necessary treatment. Finally, the pediatrician must give the parents space to address the same issues, taking care to keep confidential the sensitive information that corresponds and is not related to the ED.

### 3. Timely and effective referral to specialized treatment

The pediatrician must determine whether the patient is fit for outpatient (specialized) treatment or whether she/he needs hospitalization or psychiatric hospitalization due to her/his level of physical or psychosocial risk (see Table 4), and refer her/him to either.

The referral can be challenging, especially when not only the young person but also her/his parents show resistance to the diagnosis or treatment. A proper referral will usually : require parents (and ideally the adolescent, although it may not be feasible) to recognize the existence of ED, understand its risks, and the relevance of not delaying treatment, aspects that should be addressed by the pediatrician with a tone of seriousness and concern commensurate with the risks involved. Likewise, the professional has to try to understand if

there are other reasons behind the resistance and tackle them. For example, if guilt is what is holding parents back, clearing it up and making them essential agents in their child's recovery can be very helpful. If parents attribute the adolescent's behaviors to vanity or caprice, it will be important to let them know that she/he is sick; the same applies if they are waiting for their child to want to be treated. When there is a strong avoidance, it may be convenient not to insist on "naming" the illness (that is, not naming it by its diagnosis: e.g., AN), to not increase the patient's and/or parent's fears. Motivational work can be complemented by the motivational interviewing strategies described by Miller and Rollnick (32). It is very important to bear in mind : the most decisive factor in entering treatment

will be the parents' motivation and not that of the adolescent, due to the normal dependence that young people have on them at this stage of life.

Those cases with mild nutritional, medical and psychological compromise could eventually be managed by the pediatrician with the support of nutrition and mental health, bearing in mind that they should be referred without delay to specialized treatment if they do not evolve satisfactorily.

## Conclusions

The treatment of adolescents with ED should be comprehensive and preferably carried out by specialized multidisciplinary teams or those with a high degree of training in the issue. However, general pediatricians have a fundamental role to play in prevention, early detection, and timely referral to specialized management. They can contribute to ED prevention by implementing a series of evidence-based recommendations during the care of adolescents. They must carry out an early detection of ED both in adolescent health supervision visits and during the care of those young people at risk. In case of ED suspicion, they will have to carry out a more in-depth evaluation, aimed at confirming the diagnosis, detecting the associated medical complications, establishing if there are conditions that determine the need for hospitalization or emergency interventions, and motivating the patient and especially her/his parents to start treatment. In order to do this, they must have knowledge and skills for the care of adolescents and others for the proper management of ED. Finally, they must refer the patient in a timely and effective manner to specialized outpatient treatment or hospitalization/psychiatric hospitalization if his/her level of physical or psychosocial risk justifies it. General pediatricians may eventually choose to manage, with the support of nutrition and mental health, those cases with mild nutritional, medical, and psychologi-

**Table 4. Indications supporting hospitalization in adolescents with eating disorders**

One or more of the following justify hospitalization:

1.  $\leq 75\%$  median body mass index for age and sex
2. Dehydration
3. Electrolyte disturbance (hypokalemia, hyponatremia, hypophosphatemia)
4. EKG abnormalities (e.g., prolonged QTc, severe bradycardia)
5. Physiological instability
  - Severe bradycardia (heart rate  $< 50$  beats/minute at daytime;  $< 45$  beats/minute at night)
  - Hypotension ( $< 90/45$  mm Hg)
  - Hypothermia (body temperature  $< 35.6$  °C)
  - Orthostatic increase in pulse ( $>20$  beats/minute) or decrease in blood pressure ( $>20$  mm Hg systolic or  $>10$  mm Hg diastolic)
6. Arrested growth and development
7. Acute food refusal
8. Uncontrollable bingeing and purging
9. Acute medical complications of malnutrition (e.g., syncope, seizures, cardiac failure, pancreatitis)
10. Comorbid psychiatric or medical condition that prohibits or limits appropriate outpatient treatment (e.g., severe depression, suicidal ideation, obsessive compulsive disorder, type 1 diabetes mellitus)
11. Failure of outpatient treatment

Golden et al., 2015<sup>30</sup>.

cal compromise, referring without delay those patients who do not evolve satisfactorily.

**Note regarding terminology:** Throughout this article, the term “pediatrician” is used to refer to all those physicians who are involved in the clinical care of children and adolescents. and under the term “father(s)”,

mother(s) and other adults who play parental roles are included.

## Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

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