Maladaptive Eating

Prevention, Management and Treatment

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Objectives

- Discuss prevention strategies for maladaptive eating.
- Use case discussions to review the evaluation of a patient with disordered eating including the differential diagnosis for weight loss.
- Discuss the multidisciplinary team approach to treatment of eating disorders
- Review management of disordered eating including determination of appropriate level of care.

Prevention Pearls

- Watch our language
- Family meals
- Risk factors
- Early intervention
- Menstrual cycle as a vital sign
- Parent involvement

Preventing Obesity and Eating Disorders in Adolescents
Neville H. Golden, Marcie Schneider, Christine Wood, COMMITTEE ON NUTRITION, COMMITTEE
ON ADOLESCENCE and SECTION ON OBESITY
Pediatrics August 2016, e20161649; DOI: https://doi.org/10.1542/peds.2016-1649

Case 1: TA

TA is an 11 year old boy who comes to your office for weight loss. His parents state he has been withholding food and liquid intake recently. He has lost 15 lbs. in the past 3 months. He denies any vomiting after eating. He recently started seeing a therapist (1 month ago) for some obsessive compulsive behaviors. His grandfather passed away 6 months ago, and he moved schools to start 6th grade 3 months ago.

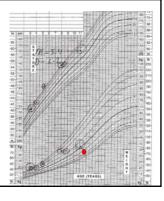
Where to start?

- Think about the DDx of weight loss
- Physical Exam
- \bullet Psychological concerns: What comorbid disorders may be ongoing?
- Height, weight, and BMI percentiles (and graphs)
- Percent of expected BMI (or % median BMI)

% Median BMI

Value	Imperial %ile	Z-score 50%ile
Weight (kg)	32.5kg 20%	-0.83 37.7 kg
Stature (cm)	153.5cm 86%	1.07 146 cm
BMI-for-age	13.8 1%	-2.47 17.4

PEBMI: 79.3%PEBW: 86.2%



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Differential Diagno	osis of Eating Disorders	
GI disorders	Inflammatory Bowel Disease Celiac disease	
Oncologic processes	Including CNS lesions	
Infectious diseases	Chronic infections such as HIV, tuberculosis, etc.	-
Endocrine disorders	Hyper/hypothyroidism	
	Diabetes mellitus Hypopituitarism	-
Other Psychiatric disorders	Addison disease OCD and Anxiety disorders	
Other Psychiatric disorders	Substance use disorder	-
Consequences of weight loss	SMA syndrome	
Adapted from Rosen and Committee on Ado 1253; DOI: https://doi.org/10.1542/peds.20	elescence. <i>Pediatrics</i> December 2010, 126 (6) 1240- 10-2821	
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Where to start. Ini	tial Labs and Studies	
vviicie to start. IIII	dar Labb aria bladies	
• CBC		
• CBC		
• CMP		
• Mag		
• Phos		
 Urinalysis 		
• Thyroid function testing (TS	SH and free T4)	
• ECG (with any CV complain	t, purging, significant weight loss, or	
electrolyte abnormalities)		
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Where to start: Do	un't forget!]
Where to start: Do	n't forget!	
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Substance use screening	on't forget!	
• Substance use screening • Suicidal thoughts		
Substance use screeningSuicidal thoughtsPsychology/counseling refe	erral	
Substance use screeningSuicidal thoughtsPsychology/counseling refe	erral	
Substance use screening	erral	
Substance use screeningSuicidal thoughtsPsychology/counseling refe	erral	

Labs:		
POC Urine Specific Gravity.	1.025	
Reference Range: 1.003-1.030 POC Urine pH.	6.0	[45-8.0]
POC Urine Protein.	NEGATIVE	[NEG]
POC Urine Glucose.	NEGATIVE	
POC Urine Ketone.	TRACE	
POC Urine Leukocytes.		[NEG]
POC Urine Nitrite.	NEGATIVE	[NEG]
POC Urine Occult Blood.		INEG]
POC Urine Bilirubin.		[NEG]
POC Urobilinogen.		[<2.0]

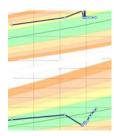
Sodium Level Blood		137 4 [138-145 mmol/L]
Potassium Level Blood		4.3 [3.4-4.7 mmol/L]
Chloride Level Blood		103 [98-107 mmol/L]
Carbon Dioxide Level Blo	od .	22 [17-26 mmol/L]
Anion Gap.		12 [9-18 mmol/L]
Glucose Level Blood Lab	Performed	95 [60-100 mg/dL]
Blood Urea Nitrogen		22 • [7-21 mg/dL]
Creatinine Level Blood		0.84 + [0.31-0.61 mg/dL]
Calcium Level Blood		9.3 [9.2-10.5 mg/dL]
Total Protein Level Blood		6.8 [6.5-8.1 g/dL]
Albumin Level Blood		47 [41-48 g/dL]
Alanine Transaminase Lev	el .	12.8 [9.0-25.0 U/L]
Aspartate Aminotransfera	se Level	22 [18-36 U/L]
Alkaline Phosphatase Lev	el	99.2 \$ [U/L]
Magnesium Level Blood		2.12 [1.60-2.60 mg/dL]
-15-2019 11:32	Phospharus Level Blood	
Phosphorus Level Blood		33 # [4.1-59 mg/dL]
-15-2019 11:32	Complete Blood Count with Automated Differential	
White Blood Cell Count B	lood	3.98 4 [4.31-11.00 10*3/uL]
RBC.		5.13 • [3.96-5.03 10*6/uL]
Hemoglobin.		14.7 • [10.7-13.4 g/dL]
Hematocrit Blood		43.1 (32.2-39.8%)
MCV.		84.0 [74.4-86.1 ft.]
MCH.		28.7 [24.9-29.2 pg]
MCHC.		34.1 [322-34.9 g/dL]
RDWCV.		13.7 [12.3-14.1 %]
RDWSD.		42.2 * [35.1-41.7 ft.]
MPV.		9.8 {9.2-11.4 ft.}
Platelet Count.		202 [140-440 10*3/uL]

Treatment is Multidisciplinary

- Mental Health Professional
 - Family-based therapy and CBT has best outcomes.
- Medical Provider (Physician, Nurse, etc.):
 Once EDO is established, address medical comorbidities of maladaptive behaviors (restriction and purging)
 Review and manage medications (e.g. SSRI).

 - Assure level of care is appropriate.
 - Support family through process.
- Registered dietician
 Assess current behaviors and nutritional knowledge
 - Includes behavioral counseling and education: Food is medicine!

Case 1: How is he doing?



- Goal weight gain per week = 0.5 to 2 lbs
- Fluid goal
- Slowly added back exercise
- Important to keep assessing for height increase!
- Why is he doing so well?

Family based therapy

TABLE 4 Principles of Family-Based Treatment of EDs and Role of the Pediatrician

- TABLE 4 Principles of Family-Based Treatment of EDs and Role of the Pediatrician Principles of treatment

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 Parents are responsible for weight restoration

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 Nousdhontaran approach

 Phase 1, parents restoring patient's weight

 Phase 2, control transferred back to the child or adolescent

 Phase 2, Sources on adolescent developmental issues and termination of treatment issueples of the role popularities model serviciness of the role popularities medical status of the adolescent

 Monitor and manage the medical status of the adolescent

 Ropower the parents in docsion managed

 Communicate with the patient, family, and therapist

Preventing Obesity and Eating Disorders in Adolescents Neville H. Golden, Marcie Schneider, Christine Wood, COMMITTEE ON NUTRITION, COMMITTEE ON ADOLESCENCE and SECTION ON OBESITY Pediatrics August 2016, e20161649; DOI: https://doi.org/10.1642/pds.2016-1649

Case 2: SB

15 year old young lady comes in for a yearly physical. She reports no complaints and has had no weight loss. You give her a SCOFF questionnaire:

Do you make yourself sick because you become uncomfortably full? Yes

Do you worry that you have lost control over how much you eat? No

Have you recently lost more than 15lbs in 3 months? No

Do you believe yourself to be fat when others say you are too thin? Yes

Would you say food dominates your life? Yes

One point should be given for every "yes" answer.

A score of ≥2 indicates a likelihood of AN or BN.

Case 2: SB

- Admits to binging and purging (by vomiting) for 3 years. Also cuts herself with a pencil sharpener. Her intention is to relieve stress and anxiety. She thinks that the binging and purging also help with her anxiety.
- SB is adopted since birth. Biological mother has h/o drug use. Currently SB has a strained relationship with her adoptive mother.
- Parents have noted her going to bathroom more after meals for long periods of time.
- She exercises 1-2 hours daily.

CBC/DIFF					
WRC COUNT	4.88			10*3A4L	4.20-10.60
HBC CUUN!		5.70	H	10*6/UL	4.00-5.20
HEMOGLOBIN		16.1	H	g/dL	12.0-16.0
HEMATOCRIT		49.7	- H	%	36.0-46.0
MCV	87.2			ft.	80.0-100.0
MCH	28.2			pg	26.0-34.0
MCHC	32.4			g/dL	31.0-37.0
RDW	14.6			%	11.4-14.9
PLATELET COUNT	331			10*3/uL	170-430
MPV	11.3			fL.	7.5-12.0
ADD NEUTROPHILE	2.25			10*0/UL	1.00-7.20
ABS LYMPHOCYTES	2.14			10*3/uL	1.50-4.50
AB\$ MONOCYTES		0.33	L.	10*3/uL	0.35-1.00
ABS EOSINOPHILS		80.0	L	10*3/UL	0.20-0.70
ABS BASOPHILS	0.06			10*3/uL	0.00-0.20
NEUTROPHIL	46.3			%	
LYMPHOCYTE	43.9			%	
MONOCYTE	6.8			% % %	
EOSINOPHIL	1.6			%	
BASOPHIL	1.2			%	
IMMATURE GRANULOCYTES	0.2			46	0.0-0.3

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At Children's of Alabama	
Pagast laboures abtained with a further material called a f	
 Repeat labs were obtained with no further metabolic alkalosis. Findings: 	
Hypoglycemia (glucose 59)Creatinine 0.91	
 Potassium, Mag, Phos, thyroid studies normal PHQ-9 was 22. SSRI was begun. 	
• Two weeks later, had SI and was admitted to inpatient psychiatry (in	
another city).	
	J
SB's progress	_
Continued to have binge/purge behaviors that alternated with	
restriction of intake associated with depression and anxiety. • Had outpatient counseling every other week in home town.	
Because of worsening behaviors (restriction and purging) and mood, we referred patient to inpatient / residential eating disorder	
treatment in Atlanta.	
 After 60 days, she was discharged to a partial hospitalization program near Nashville, TN. 	
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Case 3: AC	
 16 year old who has been vomiting 2-3 times per day since her well child check when she saw her weight of 168 lbs (overweight for BMI). 	
She has a history of anxiety and has been taking paroxetine for 1 year. • She is cared for by her grandmother because of parental substance	
use disorders. She has two younger siblings. • Patient states most of her vomiting is "involuntary" because of	
stomach pain. • Her grandmother states she complains about how her abdomen and	
thighs look. • ROS: Constipation (no BM x 2 weeks); monthly menstrual cycles	
	1

Case 3: AC's Exam

• Today's weight = 128 lbs (40 lb weight loss in 4 months)

<u>Value</u>		<u>Imperial</u>	%ile	Z-score	50%ile
 Weight (kg) 	58.3	128.5 lb	66%	0.42	54.1
 Stature (cm) 	163	64.2 in	52%	0.06	163
 BMI-for-age 	21.9		66%	0.41	20.5

PEBMI: 106.8% PEBW: 107.8%

Initial labs

- Hyponatremia
- Hypokalemia
- Hypochloremic metabolic alkalosis

ECG The state of the state of

Indicat	tions	tor	Inpa	tient	Но	spita	aliza [.]	tion

Journal of Adolescent Health 56 (2015) 121e125.

Labs 0.52 4 0.45

Refeeding syndrome

- More likely in patients with longstanding severe malnutrition
- Complication related to phosphate shifting from extracellular to intracellular in setting of low total-body phosphate
- Typically only in first 1-2 weeks of nutritional rehabilitation
- Other findings:Hypokalemia

 - Glucose intolerance
 - Gastrointestinal dysfunction
 - Cardiac arrhythmias
 Dependent edema

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Case 4: JS

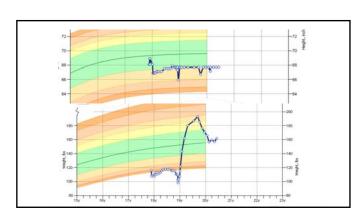
21 year old male (currently) who first presented at age 17 with 35 lb weight loss in 5 months. Medical evaluation found bradycardia and hypotension. He had no intake for 2 days prior to hospitalization.

- He had thoughts about trying to obtain a certain physique and exercising excessively while restricting his food in order to try to obtain this physique.
- RD plan: Initiated diet at 1200 kcal/day, increased to 2000 kcal/day by discharge (over 1 week).

Case 4: JS

- Continues to be followed as outpatient in eating disorder clinic (3 years)
- Psychiatric diagnoses (after 2 week inpatient admission):
 Anorexia nervosa, restricting type

 - Major depressive disorder (with h/o SI)
 Delusional disorder
- Medications included antipsychotics which led to weight gain over



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Case	५.	⊢(
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15 year old young lady with 2 year history of eating small portions with weight loss over past year in context of daily cardio exercise (running 5-6 miles per day) presents with concern for lack of menstrual cycles. She has no pain in legs or history of fractures.

- Menarche at 13 years of age. Had 2 cycles at that time, then one more cycle (5 days) 9 months ago, and none since.
- On cross country team, currently off season.
- Currently has 80% expected BMI and 73% expected body weight for age and gender.

Case 5: EC

- Treatment plan after visit 1:
 - Gave nutrition plan.
 - Exercise plan: No cardiac exercise at all. OK to do some yoga/stretching daily.
 - Cardiology referral given abnormal ECG.
 - Ordered labs and DEXA scan for amenorrhea.
 - Vitamin D and Calcium supplementation recommended.

Amenorrhea



- Increased risk of low bone mineral density and osteoporosis
- Associated with cognitive deficits seen in AN
- Goal of medical treatment for AN: Resumption of spontaneous menses!

Treatment for Amenorrhea / Low BMD

???



Weight Restoration

- Calcium and Vitamin D supplementation
 Supplemental Estrogen
 - Supplemental Estrogen
 - Oral Contraceptive PillsTransdermal estrogen
 - DHEA + OCP
 - rhIGF-1 + OCP
 - Bisphosphonates not recommended in adolescents

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Important	Notes
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- Decreased bone accrual has been seen in atypical AN (normal weight) and bulimia nervosa, not just anorexia nervosa.
- Weight restoration may not fully restore bone health, so even a HISTORY of amenorrhea or low weight may need bone evaluation.

Case 6: SS

12 year old young man with history of OCD (on SSRI) presents with restrictive eating and weight loss (26 lbs/3 months) motivated by desire to be thin and fear of weight gain.

• He is already connected with a mental health provider.

Weight %: 20% Height %: 56% BMI %: 8% BMI z-score: -1.38

Percent estimated BMI: 86% Percent estimated weight: 85%

Case 6: SS

• Initial labs

Sodum Level Stood	142	143	
Potassium Level Blood :	4.2	3.7	
Chloride Level Blood	106	100	
Cerbon Dioxide Level Blood	25	21	
Anion Gap.	11	15	
Guccoe Level Blood Lab Performed	63	73	
Blood Utea Nitrogen	. 20 🛊	32	
Creatrine Level Stood	0.67	0.72	
Calcium Level Blood	12.1	16.3	
Total Protein Level Blood	7.5	7.6	
Albumin Level Blood	# 53 F		
Alarine Transaminese Level	12.0	11.5	
Aspartals Aminot snaferase Level	16	1.4	
Alkaline Phosphetase Level	* 290.8 *	213.6	
Bilinsbin Lavel Total	0.81	0.91	
Magnesium Level Blood	2.87		
Phosphorus Level Blood	4 13		
Vitamin D 23 OH	* 17.7		
Thyroid Stimulating Hormone Level	0.72		
Thyroxine Level	5.2		
Ligase Level		17	
C. Reactive Protein Level			

Case 6: SS

- The day after ER visit for vomiting (dx: viral gastroenteritis), had an eating disorder visit with us. Nausea was improved and had not vomited in over 12 hours.
- Six days later, patient had continued to vomit, unable to keep solids down. Emesis became black.
- To ER again: Vital signs showed tachycardia.
- Abdominal xray
- Labs

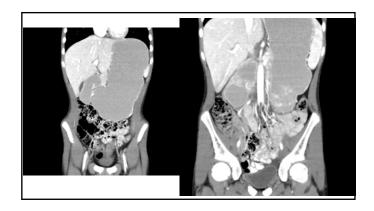
Case 6: SS Lab Trend

Potassium Level Blood :	42	3.7	a 33
Chloride Level Blood	106	103	\$ 94
Cerbon Dioxide Level Blood	25	25	1 25
Anion Gap.	11	- 15	.11
Guccoe Level Blood Lab Performed	83	75	102
Blood Utea Nitrogen	. 20	1. 12	. 21
Creatishe Level Blood	0.67	0.72	0.72
Calcium Lavel Blood	10.1	10.3	· 11.1
Total Protein Level Blood	7.5	7.6	₹ (63
Albumin Level Blood	F 53	P 9.3	9 53
Alarine Transaminese Level	12.0	11.5	113
Appartate Aminobanaferase Level	16	14	19
Alkaline Phosphetase Level	* 290.8	218.6	* 217.4
Birsbin Lavel Total	0.81	0.91	0.90
Magnesium Level Blood	2.37		2.18
Phosphorus Level Blood	♣ 13		4 87
Vitamin D 23 OH	* 12.7		
Thyroid Stmulating Hormone Level	0.72		
Thyroxine Level	5.2		
Ligate Level	and the second	17	19
C Reactive Protein Level			

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Next step?



Case	7	:	J	C

13 yo female with history of mild intellectual delay, unilateral hearing loss, anxiety, self harm (cutting), headaches presents after her PCP referred her for "being too skinny". She denies any fear of weight gain or purging behaviors.

- Social history: She lives with her maternal grandmother. Her biological mother used drugs and alcohol during pregnancy.
- Initial appointment: 148 cm (4%), 33.75 kg (1%), BMI 15.4 (4%)
- Per grandmother and uncle, pt is a "picky eater" and a "homebody"
- Refuses to eat fruits or vegetables

Case 7: JC

- Challenges to treatment
 - · Intellectual delay
 - Picky eating
 - Unclear diagnosis (ARFID or anorexia? Neither?)
 - Genetic predisposition?
 - Transportation to clinic
- Benefits from Medicaid's Alabama Care Plan (Alabama Coordinated Health Network)

Where is she now?

- Most recent appointment: 12/30/2019

 148 cm (2%), 35.65 kg (<1%), 16.3 (6%) → Increase in weight by 2 kg in 1 year

 GM states that she has increased her proportion of the foods that she will eat
- Continues to not each any fruit of vegetable
- Remains without PE during to palpitations when running.
- Goal weight of 85 pounds by Christmas, and said that she has been eating more lately than she did previously.

Case 8: JG	
 17 yo with history of major depressive disorder and history of suicide attempt by overdose presents with weight gain. She is concerned that she meets criteria for binge eating disorder. 	
Today, she feels depressed and has some passive SI.	
 BMI-for-age is 48.7 (99%), z score 2.53. 50% median BMI is 21.2. Extremely obese: BMI of 48.7 is 162% of the 95%ile BMI (30.1) 	
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Case 8: JG	
She had severe body dissatisfaction, perfectionism, scored highly for	
bulimia nervosa. PHQ-9 25 and GAD-7 17 (both very elevated). • Labs:	
CMP, Mag, Phos normal Cholesterol panel – LDL 205, HDL 40, Tg 131	
Thyroid studies normalHgb A1C = 5.5%	
Diagnosis?Treatment options?	
	1
Eating Disorders –	
Supplementary Slides	

Psychotropic Medications in Disordered Eating

- Anorexia Nervosa: No psychotropic medications have an FDA approved indication for treatment
 Olanzapine has shown improvement in weight and dysfunctional thinking in AN. (SE's: metabolic syndrome, weight gain)
- Bulimia nervosa:
 - Fluoxetine :only antidepressant approved by the FDA
 - Efficacy of other SSRI's demonstrated e.g. including sertraline
 - Mechanism decrease binge eating and improve mood
- Binge Eating Disorder: Topiramate and Lisdexamfetamine have shown improvement in studies.





DSM V Criteria

DSM V Criteria: What You Need To Know







Anorexia Nervosa

- Persistent restriction of energy intake leading to significantly low body weight (in context of what is minimally expected for age, sex, developmental trajectory, and physical health)
- Either an intense fear of gaining weight or of becoming fat, or persistent behaviour that interferes with weight gain (even though significantly low weight)
- Disturbance in the way one's body weight or shape is experienced, undue influence of body shape and weight on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight:
 Subtrace:
 - Subtypes:
 Restricting type
 Binge-eating/purging type





Bulimia

- Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting, misuse of laxatives, diuretics, or other medications, fasting, or excessive exercise.
- The binge eating and inappropriate compensatory behaviours both occur, on average, at least once a week for three months.
- Self-evaluation is unduly influenced by body shape and weight.





Avoidant/Restrictive Food Intake Disorder DSM V Criteria

- A. Eating or feeding disturbance (including but not limited to apparent lack of interest in eating or food; avoidance based on the sensory characteristics of food; or concern about aversive consequences. in eating or food, avoidance based on the sensory characteristics of food; or concern about versive consequences of eating as manifested by persistent failure to meet appropriate nutritional and/or energy needs associated with one or more of the following.

 1. Significant weight loss (or failure to gain weight or failering growth in children):

 2. Significant retirement electricant.
- B. There is no evidence that lack of available food or an associated culturally sanctioned practice is sufficient to account alone for the disorder.
- C. The eating disturbance does not occur exclusively during the course of Anorexia Nervosa or Bulimia Nervosa, and there is no evidence of a disturbance in the way of which one's body weight or shape is experienced.
- way of which of so body weight on Snape is experienced.

 The eating disturbance is not better accounted for by a concurrent medical condition or another mental disorder. When occurring in the context of another condition or disorder, the severity of the eating disturbance exceeds that routinely associated with the condition or disorder and warrants additional clinical attention.





Feeding and Eating Conditions Not Elsewhere Classified DSM V

- 1. Atypical, mixed, or below-threshold presentations:
- Atypical Anorexia Nervosa
 All of the oritoria (***)
 - All of the criteria for Anorexia Nervosa are met, except that, despite significant weight loss, the individual's weight is within or above the normal range.
- Sub threshold Bulimia Nervosa (low frequency or limited duration)
 All of the criteria for Bulimia Nervosa are met, except that the binge eating and imappropriate compensatory behaviors occur, on average, less than once a week and/or for less than for lever than for 3 months.
- Sub threshold Binge Eating Disorder (low frequency or limited duration)
 All of the criteria for Binge Eating Disorder are met, except that the binge eating occurs, on average, less than once a week and/or for fewer than for 3 months.





Feeding and Eating Conditions Not Elsewhere Classified DSM V 2. Other specific syndromes not listed in DSM-5:

Purging Disorder
 Recurrent purging behavior to influence weight or shape, such as self-induced vomiting, misuse of laxatives, diuretics, or other medications, in the absence of binge eating.

Night Eating Syndrome
 Recurrent episodes of night eating, as manifested by eating after awakening from sleep or excessive food consumption after the evening meal. There is awareness and recall of the eating. The night eating is not better accounted for by external influences such as changes in the individual's sleep/wake cycle or by local social norms. The night eating is associated with significant of eating is not better accounted for by Binge Eating Disorder, another psychiatric disorder, substance abuse or dependence, a general medical disorder, or an effect of medication.



