

Eating Disorders: Cases and Conundrums

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Disclosures

- I have no relevant financial disclosures.

Objectives

1. Describe presentations of eating disorders and conditions that may mimic eating disorders in college students.
2. Outline initial strategies for evaluation and management of college students with eating disorders.

EATING DISORDERS ON THE COLLEGE CAMPUS

A NATIONAL SURVEY OF PROGRAMS AND RESOURCES

FEBRUARY 2013



National Eating Disorders Association

A survey of eating disorders and body image-related programs and services on college and university campuses, conducted by the National Eating Disorders Association.

Structure

- Definitions
- Illustrative cases
- Tips, myths, advice
- Audience polling
 - Text code to 1-747-444-3548

DEFINITIONS

DSM-5

- Revision to old definitions and addition of new diagnoses
- Goal to be more specific if possible, reduce diagnosis of ED-NOS

DSM-5: Anorexia Nervosa

- Restrictive food intake leading to significant low body weight (in context)
- Intense fear of gaining weight or becoming fat or persistent behavior that interferes with weight gain, even though at a significantly low weight.
- Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight

Removed in DSM-5: Amenorrhea, weight <85%MBW

DSM-5: Atypical Anorexia

- All criteria for AN, but despite this, weight remains in normal range

DSM-5: Bulimia Nervosa

- Recurrent episodes of *binge eating*
 - “out of control”, within 2 hour period, more than average person would eat in similar time
 - Followed by
- Recurrent inappropriate compensatory behaviors to prevent weight gain
 - Vomiting, laxatives, diuretics, enemas, fasting, excessive exercise
- At least **1x/week** for 3 months
- Self-evaluation is unduly influenced by body shape and weight.

DSM-5 Binge Eating Disorder

- Recurrent episodes of bingeing
 - Eating significantly more food in a short period of time (2h max) than most people would eat under similar circumstances
 - At least 1x/week x 3 months
 - Marked by feelings of lack of control
 - Significant distress over pattern
 - 3 or more of the following
 - Eating much more rapidly than normal
 - Eating until feeling uncomfortably full
 - Eating large amounts of food when not feeling hungry
 - Eating alone because of feeling embarrassed by how much one is eating
 - Feeling disgusted with oneself, depressed or very guilty afterward

CASE 1

“I want to lose weight.”

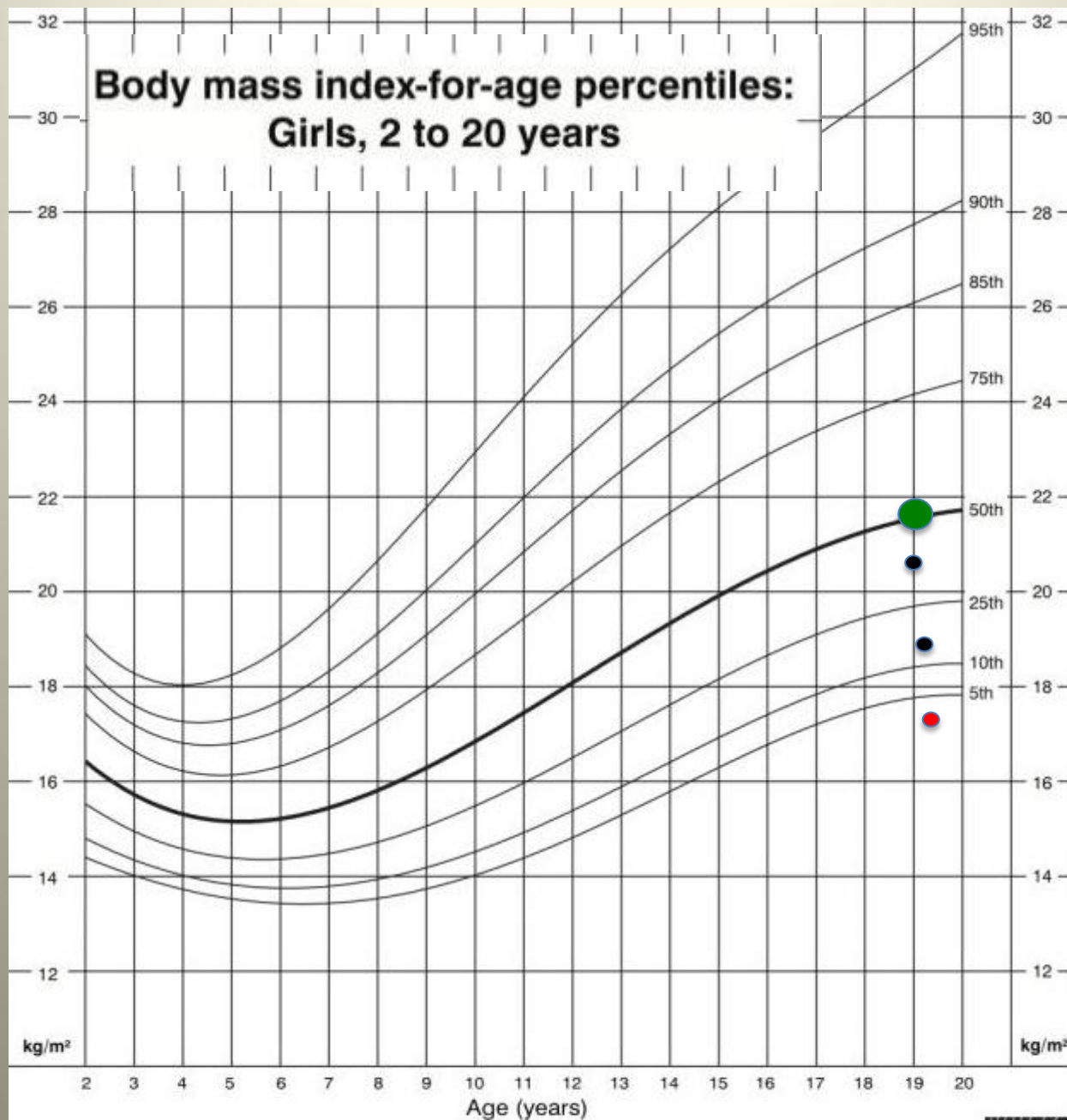
- Amy is a 19 year old sophomore. Today she has 2 visits, one with the Student Health dietician and the other with the medical provider. The reason for her visit is that she would like help losing weight.
- Brief review of Amy's prior history and visits to Student Health
 - Generally healthy, no medications
 - Last BMI between 50-75%ile for age

“I want to lose weight.”

- Today, Amy says that 3 months ago she started using a fitness app on her phone and she has only lost 15 pounds. She would really like advice on how to lose the last 10 pounds that she feels she needs to be “bikini ready” for beach week.
 - Diet history: 1000-1250kcal per day
 - Exercise history: 1 hour per day
- Other methods of weight loss
 - No diet pills, but has induced vomiting or taken laxatives after meals when she “slipped” and had dessert.

“I want to lose weight.”

- Additional medical information
 - LMP: 3 months ago, “but my periods are always weird.”
 - BMI 18.8 (Height 5’8” Weight 120lb)
 - Goal of 10 additional pounds → BMI 17.3



$$18.8/21.6=0.87$$

$$17.3/21.6=0.80$$

Published May 30, 2000.

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).



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Based on this brief history, what diagnosis are you most concerned about?

- A. Anorexia Nervosa
- B. Atypical anorexia nervosa
- C. Bulimia Nervosa
- D. Binge-Eating Disorder
- E. Purging Disorder



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Myth #1

- If a patient is purging they have bulimia.

A word about purging

- Purging is not an infrequent “compensatory” behavior
 - Purging can take many forms
 - Exercise (probably most common)
 - Vomiting
 - Laxatives
 - Diuretics
- A diagnosis of bulimia involves *both* bingeing and purging
- Vomiting in patients who restrict calories can be very dangerous
 - Less likely to replete electrolytes
 - Electrolyte abnormalities can exacerbate medical complications of patients with anorexia

Tip #1

- In dieting patients, ask about purging.
 - “Many students who are trying to lose weight often use other methods to help control their weight. Have you ever...”
 - Keep a poker face and ask about frequency.

Dieting... The slippery slope.

- Not all students who diet develop an eating disorder , but most students with an eating disorder started by dieting.
- Thoughts about body weight/shape start early
 - 42% of 1st-3rd grade girls want to be thinner
 - 81% of 10 year olds are afraid of being fat
- Dieting statistics
 - YRBS 2011 46% of 9-12th graders trying to lose weight
 - Up to 90% of college students have been on diets
 - Early dieting and extreme weight control behaviors predictive of later eating disorders

Beware the Diet!

Tip #2

- Fitness and calorie tracking apps can be useful, but college health provider beware.

Amy has been without a menstrual period for 3 months.

- At what %MBW, on average, do females resume menses after weight gain?
 - A. 88%
 - B. 91%
 - C. 96%
 - D. 100%
 - E. 103%



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Resumption of Menses in Anorexia Nervosa

Neville H. Golden, MD; Marc S. Jacobson, MD; Janet Schebendach, MA, RD;
Mary V. Solanto, PhD; Stanley M. Hertz, MD; I. Ronald Shenker, MD

Table 1. Anthropometric and Hormone Values at Baseline and 1-Year Follow-up*

Value	Resumption of Menses (n=47)	Amenorrhea (n=22)	P
Weight, kg			
Baseline	44.4±5.5	41.2±7.4	.05
Follow-up	50.4±5.2†	47.5±6.5†	.22
% Standard body weight			
Baseline	80.3±7.7	76.9±12.6	.46
Follow-up	90.5±8.5†	87.8±12.3†	.46
Body mass index, kg/m ²			
Baseline	16.9±1.6	16.2±2.5	.26
Follow-up	19.2±1.8†	18.7±2.5†	.45
% Body fat			
Baseline	17.2±3.8	15.2±3.8	<.05
Follow-up	20.6±3.6†	19.5±5.1†	.43
Luteinizing hormone, IU/L			
Baseline	4.7±3.9	≤2.0	<.001
Follow-up	6.7±4.7‡	4.2±3.6‡	<.01
Follicle-stimulating hormone, IU/L			
Baseline	7.3±5.9	4.2±3.2	<.05
Follow-up	7.8±3.2	8.5±4.0†	.40
Estradiol, pmol/L (pg/mL)			
Baseline	112.7±75.3 (30.7±20.5)	86.3±42.6 (23.5±11.6)	.19
Follow-up	204.8±106.8 (55.8±29.1)†	87.7±43.7 (23.9±11.9)	

*Values are given as mean ± SD.

†Comparison between baseline and follow-up (paired t test), $P < .001$.

‡Comparison between baseline and follow-up (paired t test), $P < .05$.

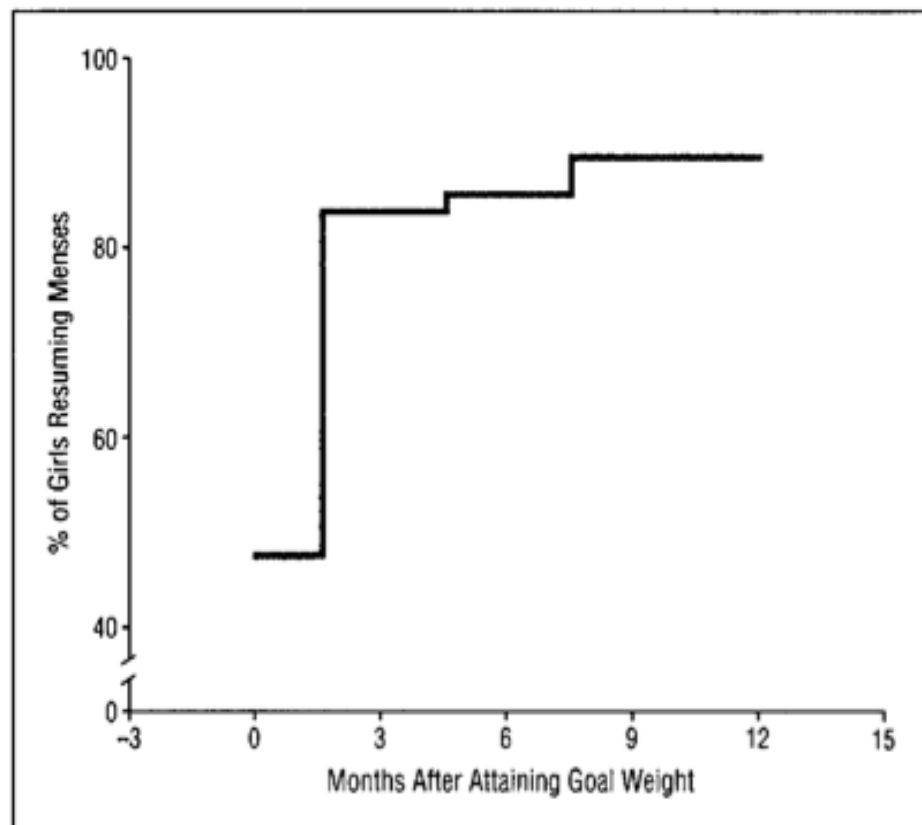


Figure 2. Time necessary for resumption of menses after achieving goal weight (90% of standard body weight). Study population included 59 adolescent girls treated for anorexia nervosa who were followed up for at least 2 years.

Menstrual irregularities in ED

- Mechanism typically through disease effects on hypothalamus and resultant functional hypothalamic amenorrhea

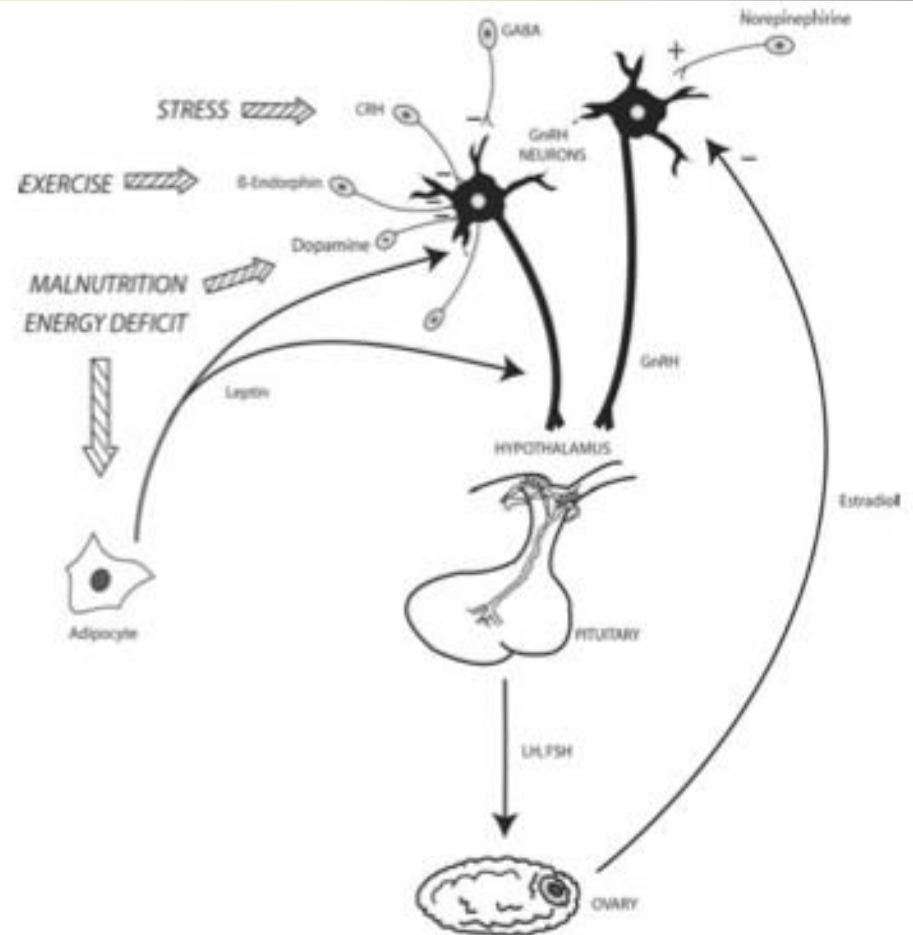


FIGURE 1. Regulation of pulsatile GnRH secretion by leptin and neurotransmitters.

Tip #3

- In females with history of menstrual irregularity or secondary amenorrhea, ask about weight loss and purging.

CASE 2

“I think I have a UTI.”

- April is a 21 year old senior who comes to Student Health for a possible UTI.
- Past History
 - Type I DM, on 4-shot insulin regimen
 - Last recorded BMI → 25%ile

“I think I have a UTI”

- History
 - Urinary frequency, dysuria
 - Feeling a bit tired, but getting ready for finals
 - Blood sugars “great”; 100-140 at all checks
- Physical/Labs
 - Vitals notable for HR 102 BMI <5%ile
 - Urine dip: +nitrites +LE +glucose +ketones

You give an antibiotic.

What is your next step?

- A. Encourage hydration, glucosuria likely from infection, follow-up in 1 week to repeat UA
- B. Ask about adherence to insulin regimen and follow-up in 1 week to repeat weight and UA
- C. Ask about nutritional intake, check HgA1c, follow-up in 1 week to repeat weight and UA
- D. Encourage hydration, refer to dietician to ensure proper carbohydrate counting and insulin dosage



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Tip #4

- Try to look at BMI (and trend) at every visit.

Tip #5

- Certain chronic medical conditions may put patients at increased risk of developing an eating disorder.

Purposeful insulin omission aka “diabulimia”

- Up to 40% of women age 18-40 with DM1 admit to purposefully skipping insulin doses to try to lose weight
 - Calories primarily lost through glucosuria
 - Red flags: forgetting glucometer, new battery before appointment, too perfect glucose
- Consider HgA1c in patients with DM1 whose story does not quite add up.

Eating Disorders and Disordered Eating in Type 1 Diabetes: Prevalence, Screening, and Treatment Options

Margo E. Hanlan · Julie Griffith · Niral Patel · Sarah S. Jaser

Table 1 Prevalence rates, mortality rates and age of onset for anorexia nervosa, bulimia nervosa, any eating disorder, and disordered eating behaviors

	Anorexia nervosa		Any eating disorder		Disordered eating behaviors	
	Males	Females	Males	Females	Males	Females
Prevalence in general population	0.3 %	0.9 %	1.5 % ^a	3.8 % ^a	–	–
Prevalence in type 1 diabetes population	–	–	–	10 %	15.9 %	37.9 %
Median age of onset (yrs)	18.0 (16.0–22.0)		21.0 (17.0–32.0)		20.0 (16.0–27.0)	
Mortality rate ^b	5.1		–		3.3	

^a Population: adolescents

^b Weighted mortality rate (deaths/1000 person-years) [15]

Diet-related chronic health conditions

- Diabetes, celiac disease, IBD, IBS, cystic fibrosis all have dietary restrictions and modifications that are typically lifelong
- Because of the extreme emphasis on diet, this may increase risk of ED development
- Consider screening these patients with diet-related chronic health conditions for eating disorders

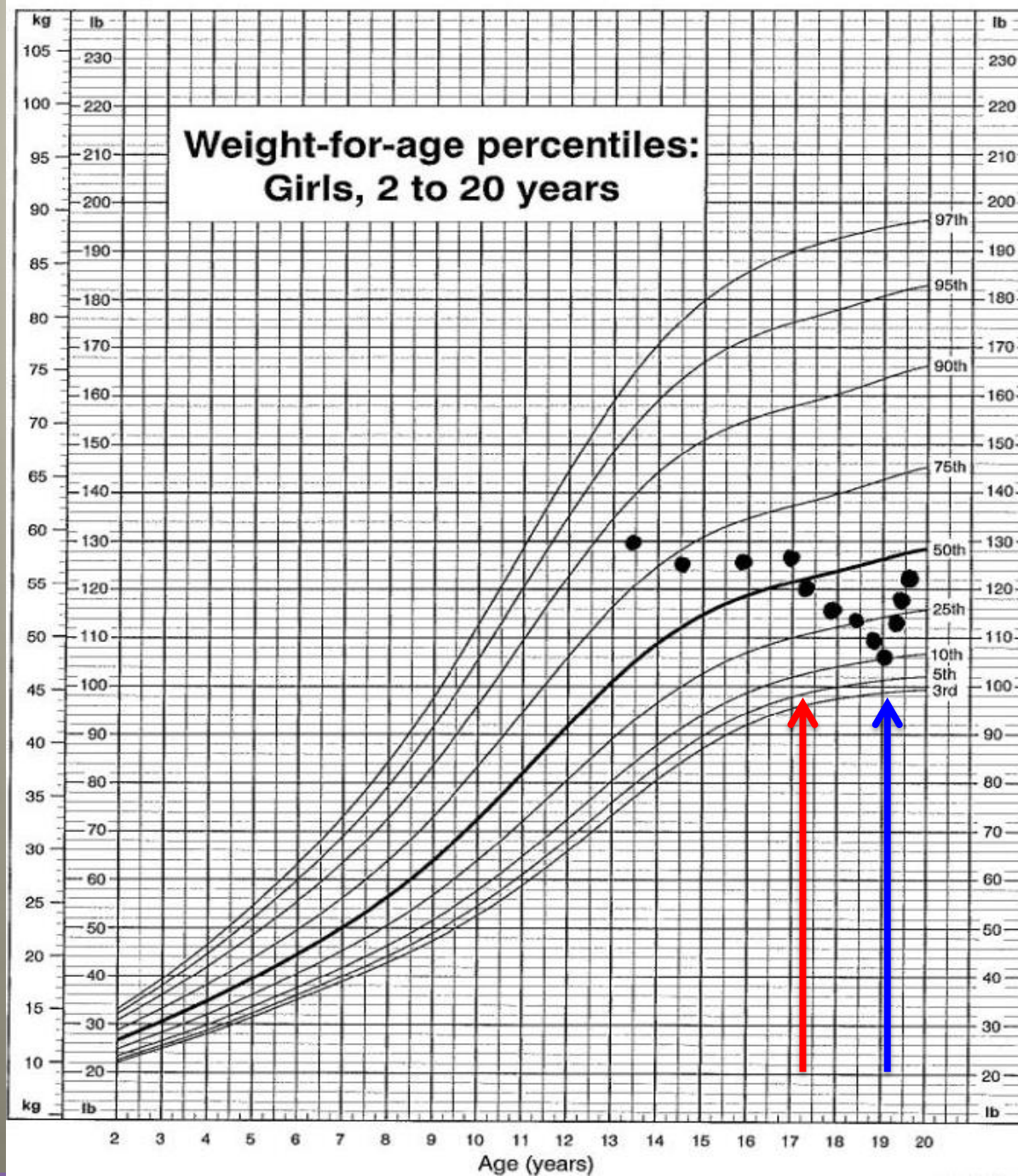
Celiac Disease

- Presentation can mimic eating disorder
 - Weight loss
 - Abdominal pain
 - Irregular menses
- Consider sending celiac panel in patients with weight loss and other symptoms
 - Prevalence approximately 1% in general population

Table 2. Gastrointestinal and Extraintestinal Celiac Disease

Gastrointestinal Presentation	Extraintestinal Presentation
Diarrhea	Constitutional
Anorexia	Fatigue
Vomiting	Hematologic
Failure to thrive or weight loss	Iron deficiency anemia
Abdominal pain, bloating	Dermatologic
Constipation	Dermatitis herpetiformis
	Oral
	Dental enamel hypoplasia
	Aphthous ulcers
	Musculoskeletal
	Arthritis
	Arthralgia
	Osteopenia or osteoporosis
	Fractures
	Liver
	Mildly elevated AST, ALT levels
	Endocrinologic
	Short stature
	Delayed puberty
	Unexplained infertility (in women)
	Miscarriage
	Neurologic
	Cerebellar ataxia
	Recurring headaches
	Peripheral neuropathy
	Seizures
	Psychiatric disorders
	Anxiety, panic attacks, depression

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase.



Celiac diagnosis

ED diagnosis

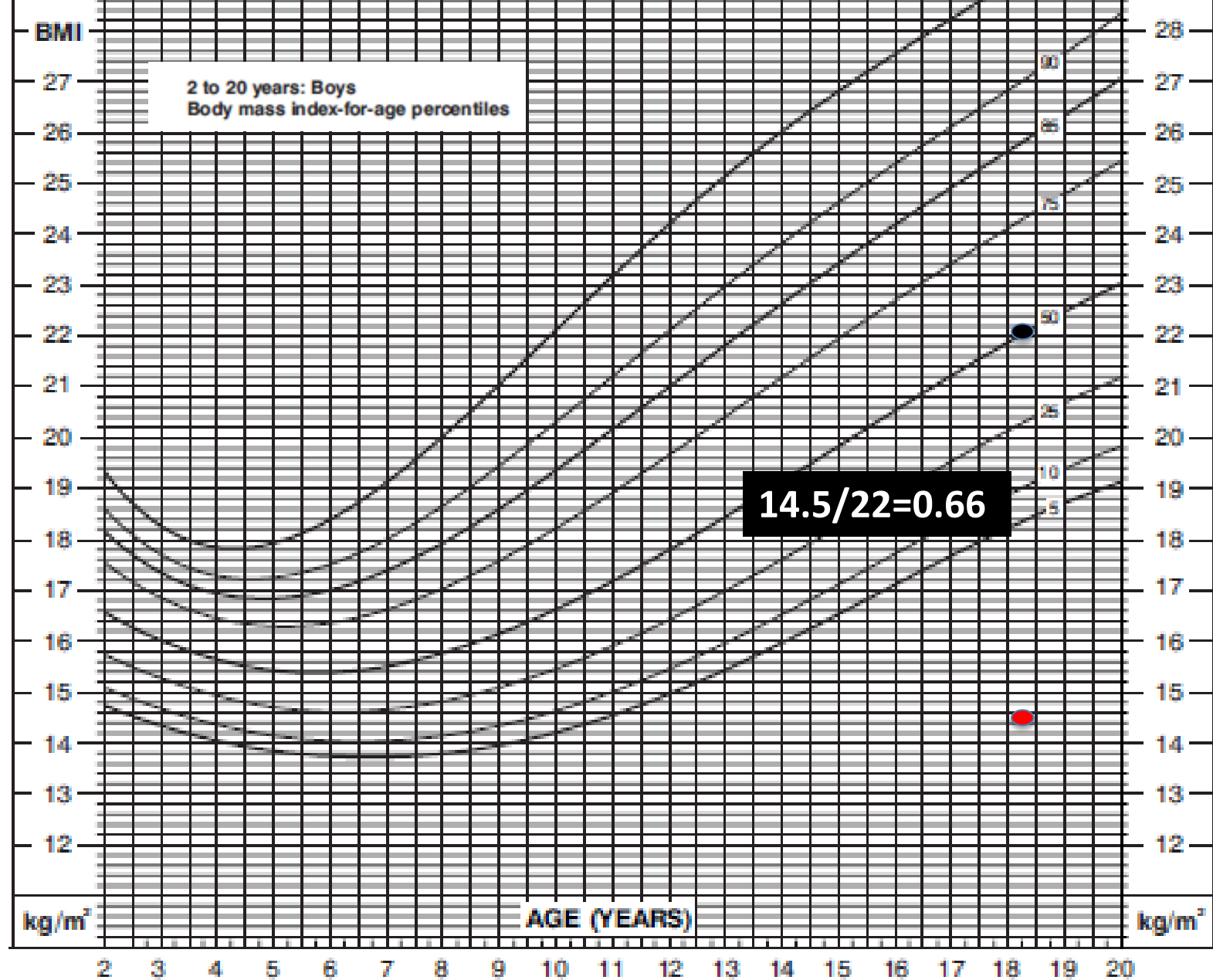
CASE 3

“My roommate thinks I have an eating disorder. I think he’s crazy.”

- Kyle is an 18 year old freshman who comes to Student Health for “personal concerns.”
- He says that his roommate has been concerned about his weight loss. He thinks he has lost 40 pounds.
- Started exercising 18 months ago for muscle “tone”, but now is in the gym for up to 3 hours per day.
- Staunch animal rights activist and follows a strict vegan diet.
- Estimates that he may consume 1000kcal per day at most, but he tries not to count calories.
- Likes the feeling of an “empty stomach” and eats only food that he cooks.

“My roommate thinks I have an eating disorder. I think he’s crazy.”

- Physical Exam
 - Vitals: BMI 14.5 (66% MBW for age)
 - HR 40 BP 95/45
 - Looks very thin
 - +lanugo over back
 - Fingers and toes cool to touch



Published May 30, 2000 (modified 10/16/00).

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



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What is your next step?

- A. Refer to community eating disorder program to start as soon as possible.
- B. Express serious concern and plan to admit to the hospital.
- C. Discuss ways to increase food intake, decrease exercise, refer to dietician and see back in 1 week.
- D. Recommend cognitive behavioral therapy, start an SSRI and see back in 3 days.



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Tip #5

- Know indications for immediate higher level of care.

Recommendations for hospital admission

	SAHM (2003)	AAP (2003)	APA (2006)	ADA (2006)
Weight	≤ 75% MBW	≤ 75% MBW <10% body fat	<85% healthy weight Acute weight ↓ and food refusal	≤ 75% MBW
HR	<50 day <45 night	<50 day <45 night	Near 40 >110	<45
BP	<80/50	Systolic <90	<80/50	Hypotension
Orthostatic changes	>20 HR >10 SBP	>20 HR >10 SBP	>20 HR >20 SBP	+orthostasis
Temperature	<96°F	<96°F	<97°F	<96.8°F
Electrolytes	Low K, PO ₄ , Na	K<3.2 Cl <88	Low K, PO ₄ , Mg	abnormal
Other considerations	Failure of outpatient	Failure of outpatient	Poor motivation to recover	Failure of outpatient/persistent ↓ in weight and intake

Recommendations for hospital admission

	SAHM (2003)	AAP (2003)	APA (2006)	ADA (2006)
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BP	<80/50	Systolic <90	<80/50	Hypotension
Orthostatic changes	>20 HR >10 SBP	>20 HR >10 SBP	>20 HR >20 SBP	+orthostasis
Temperature	<96°F	<96°F	<97°F	<96.8°F
Electrolytes	Low K, PO ₄ , Na	K<3.2 Cl <88	Low K, PO ₄ , Mg	abnormal
Other considerations	Failure of outpatient	Failure of outpatient	Poor motivation to recover	Failure of outpatient/persistent ↓ in weight and intake

Tip #6

- Beware the elimination diet and investigate motivation.

The Inter-Relationships between Vegetarianism and Eating Disorders among Females

Anna M. Bardone-Cone, PhD; Ellen E. Fitzsimmons-Craft, MA; Megan B. Harney, MA; Christine R. Maldonado, PhD; Melissa A. Lawson, MD; Roma Smith, LPN; D. Paul Robinson, MD

Table 2. Proportions of females with and without a history of an eating disorder endorsing vegetarian experiences and weight-related motivations for vegetarianism

Vegetarian variable	No eating disorder history (n=67)	Eating disorder history (n=93)	χ^2	P value
	← n (% ^a) →			
Ever vegetarian	8 (11.9)	48 (51.6)	χ^2 (1, n=160)=26.94	<0.001
Current vegetarian	4 (6.0)	22 (23.7)	χ^2 (1, n=160)=8.95	0.003
Primary reason for becoming vegetarian was weight-related	0 (0)	19 (42.2)	χ^2 (1, n=53)=5.27	0.022 (Fisher's exact test, $P=0.040$) ^b

^aThe percentages represent the percentage endorsing "yes" to having ever been vegetarian (broadly defined, involving cutting out some or all meat from one's diet) and "yes" to currently being vegetarian, as well as the percentages who reported that they became vegetarian primarily for weight-related reasons.

^bWhen one or more cells had an expected count <5, Fisher's exact test is reported in addition to χ^2 statistics.

Bardone-Cone AM, et al. The inter-relationships between vegetarianism and eating disorders among females. J Acad Nutr Diet. 2012 Aug;112(8):1247-52.

CASE 4

“My roommate thinks I have a problem. He doesn’t get it.”

- Jeremy is an 20 year old sophomore who comes to Student Health for “personal concerns.”
- He says that his roommate has been concerned about his eating and exercising and that if he didn’t come for evaluation his roommate was going to tell the RA.
- Started cutting out processed foods when he read on a blog that it was a good way to “get ripped.”
- Exercising daily, up to 2 hours at a time.
- Estimates that he may consume 1250-1500kcal per day at most, but he tries not to count calories.
- He feels like his efforts have been somewhat successful, though he “still needs to lose the love-handles because they just make me look fat.”

“My roommate thinks I have a problem. He doesn’t get it.”

- Physical Exam
 - Vitals: BMI 19.2 (88% MBW for age)
 - HR 58 BP 105/75
 - Looks thin
 - Exam is otherwise normal

What is your next step?

- A. Refer to community eating disorder program to start as soon as possible.
- B. Express serious concern and plan to admit to hospital.
- C. Discuss ways to increase food intake, decrease exercise, refer to dietician.
- D. Recommend cognitive behavioral therapy, start an SSRI.



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Myth #2

- Anorexia is found only in females.

Eating disorders in males

- Increasing awareness of eating disorders in males
- Estimates of 10% of new eating disorder cases are in males
 - Up to 25% of adolescent and adult males restrict intake in attempts to lose weight
 - Up to 45% of adolescent and adult males modify their diet in attempts to gain muscle

Chao, Y. M., et al. Ethnic differences in weight control practices among U.S. adolescents from 1995 to 2005. (2008). *International Journal of Eating Disorders*, 41, 124–133.

McCreary, D. R., et al. A review of body image influences on men's fitness goals and supplement use. (2007). *American Journal of Men's Health*, 1, 307–316.

Motivators may be different in males

- Desire for muscularity
- Weight and shape of increasing importance with older age
- Sexual minority males tend to have greater desire for toned/defined muscles than heterosexual males

Tip #7

- Don't forget to look at BMI trends of male patients.

CASE 5

“I don’t know why I am here.”

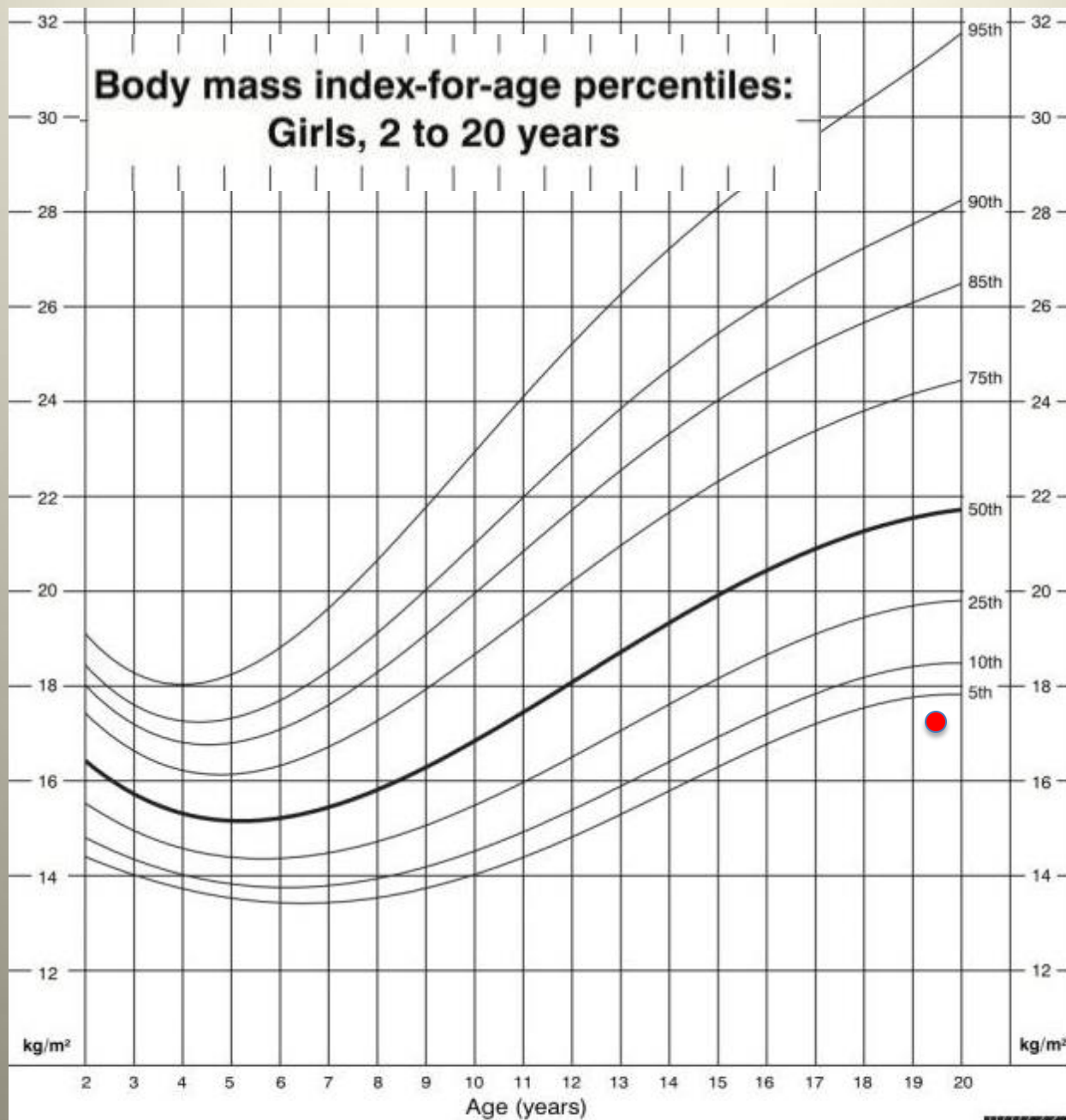
- Veronica is a 19 year old sophomore who comes to student health for “I don’t know.”
 - Agreed to an appointment because her on-campus therapist (anxiety) said she was concerned about her weight
 - Says that she has “always” been small and everyone in her family is small
 - “I feel fine” and “I eat all of the time.”

“I don’t know why I am here.”

- Dietary recall significant for multiple meals, with some being very low calorie.
- On dance team and practices 3x/week for 2-3 hours. Runs with girls from team on other days.
- Denies any purging behaviors.
- LMP was 4-5 weeks ago.

“I don’t know why I am here.”

- Physical Exam
 - BMI 17.2
 - HR 55 BP 102/65
 - Small but well-muscled
- Labs
 - Urine hcg negative



Published May 30, 2000.

SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).



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What do you tell Veronica?

- A. Your weight is well below what is normal. I think you have an eating disorder. I would like for you to start talking to your therapist about this.
- B. I think you would benefit from seeing a dietitian and I would like for you to try to gain 1-2 pounds before I see you in 1 week.
- C. You need to stop exercising so much and eat more calories. Here is the website for an online support community for eating disorders in case you have trouble eating more calories.
- D. I agree, that you seem to be a small build and right now your health seems good. Why don't you come back in 1 month and we can recheck your weight.



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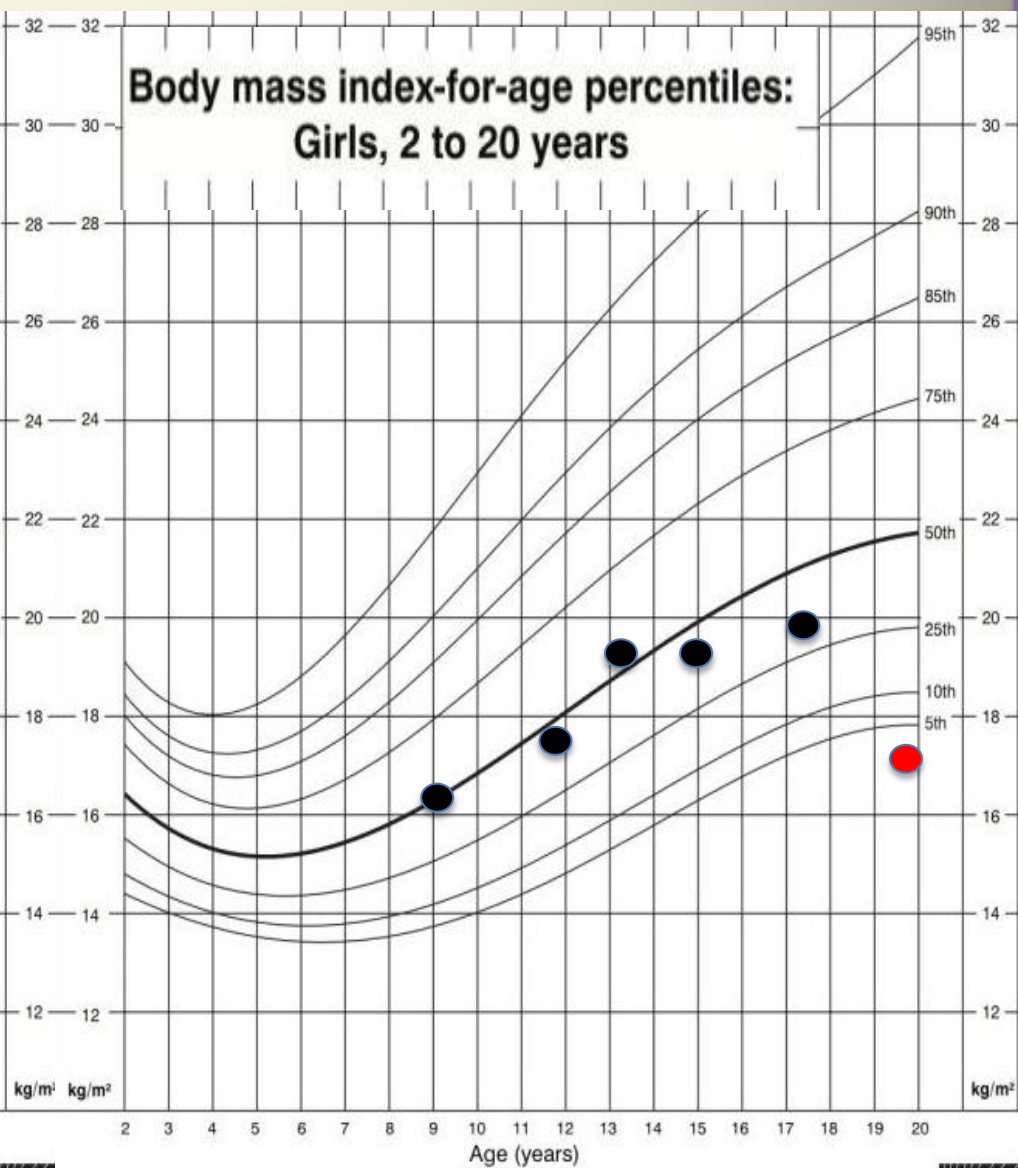
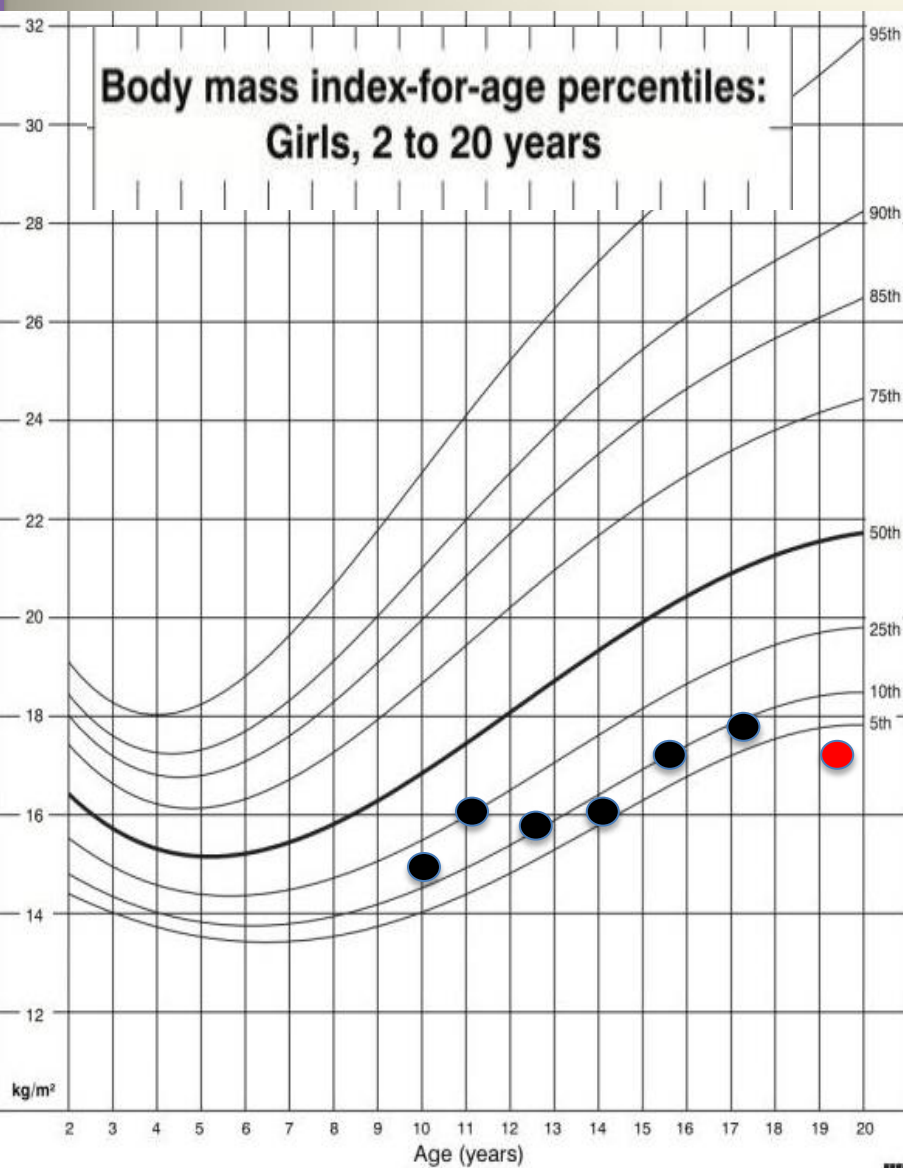


Tip #8

- In medically stable patients, time can be a diagnostic tool.

Tip #9

- Old growth charts can be extremely helpful in determining appropriate next steps.
 - “Small boned”
 - “Always small”
 - “This is big for me”



1 week later

- Veronica returns to student health and meets first with the health provider and then with the dietitian.
- Notes from health provider visit
 - Her weight is down 1.5 pounds
 - She says that she is eating “more” and “really tried” to gain weight.
 - She says that she “wouldn’t mind” gaining 5 pounds.
 - Physical Exam and vitals normal
- Notes from dietitian
 - Added salad with no dressing
 - Fearful about adding foods that contained fat

Tip #10

- Evaluation and treatment of eating disorders is best done with a team.
 - Medical, nutrition, mental health, family, friends

What do you recommend to Veronica?

- A. Let's start a medical work-up of weight loss. I would like for you to continue to see your therapist and dietician.
- B. I am concerned about your weight loss and it sounds like it might be tough for you to find foods to incorporate into your diet. I would like to give you some local resources for eating disorder support.
- C. Is it ok for me to talk to your therapist? I am concerned about your weight loss and would like to see if your therapist, dietician and myself could work together to improve your health.
- D. I would like to see you back in 1 week to recheck your weight. I would like to draw some labs as well. You should incorporate the suggestions from the dietician.



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Tip #11

- Know your local resources and how to access them.

Controversy abounds

- How low is too low?
- Can schools mandate treatment?
- When to involve parents?

Resources

- National Eating Disorders Association (NEDA)
 - www.nationaleatingdisorders.org
- Academy of Eating Disorders
 - www.aedweb.org/source/EDProfessional
- STRIPED – Eating disorder prevention curriculum/tools
 - www.hsph.harvard.edu/striped

Examples of patient support online

- www.something-fishy.org
- <http://www.eatingdisorderhope.com/recovery/support-groups/online>

Summary

- College health professionals are in a unique position to identify and treat students with eating disorders.
 - Take advantage of every opportunity!
- There are medical conditions that can mimic eating disorders, but some medical conditions may predispose to disordered eating patterns.
 - Ask the probing questions!
- Familiarize yourself with resources and assemble a team.
 - It takes a village!

Contact

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