

# 08

Chapter

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## Chapter 8

Eating and Sleep-Wake Disorders

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## Chapter

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## Outline

- Major types of eating disorders
- Causes of eating disorders
- Treatment of eating disorders
- Obesity
- Sleep-Wake Disorders: The Major Dyssomnias
- Treatment of Sleep Disorders

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## Focus Questions

- *What are the features of anorexia nervosa, bulimia nervosa, and binge eating disorder?*
- *What factors contribute to the development of eating disorders?*
- *What are some treatments for eating disorders?*
- *What are causes and treatment for obesity?*
- *What are the features and treatment for sleep-wake disorders?*

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## Eating Disorders: An Overview

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- Major types of DSM-5 eating disorders
  - Bulimia Nervosa and Anorexia Nervosa
  - Severe disruptions in eating behavior
    - Weight and shape have disproportionate influence on self-concept
    - Extreme fear and apprehension about gaining weight
    - Strong sociocultural origins – driven by Western emphasis on thinness

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## Eating Disorders: An Overview, Part 2

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- Additional DSM-5 eating disorder: Binge eating disorder
  - Involves disordered eating behavior (binges)
  - May involve fewer cognitive distortions about weight and shape

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## Eating Disorders: An Overview, Part 3

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- Obesity – considered a symptom of some eating disorders but not a disorder in and of itself
  - Rates are increasing
  - 70% of U.S. adults overweight, 35% are obese
  - Presents serious health risks (e.g., cardiovascular strain, increased risk of early death)
  - Determined by BMI

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# BMI Chart

**TABLE 8.1** Body Mass Index (BMI) Table

		Weight in Pounds													
		120	130	140	150	160	170	180	190	200	210	220	230	240	250
Height in Feet and Inches	4'6"	29	31	34	36	39	41	43	46	48	51	53	56	58	60
	4'8"	27	29	31	34	36	38	40	43	45	47	49	52	54	56
	4'10"	25	27	29	31	34	36	38	40	42	44	46	48	50	52
	5'0"	23	25	27	29	31	33	35	37	39	41	43	45	47	49
	5'2"	22	24	26	27	29	31	33	35	37	38	40	42	44	46
	5'4"	21	22	24	26	28	29	31	33	34	36	38	40	41	43
	5'6"	19	21	23	24	26	27	29	31	32	34	36	37	39	40
	5'8"	18	20	21	23	24	26	27	29	30	32	34	35	37	38
	5'10"	17	19	20	22	23	24	26	27	29	30	32	33	35	36
	6'0"	16	18	19	20	22	23	24	26	27	28	30	31	33	34
	6'2"	15	17	18	19	21	22	23	24	26	27	28	30	31	32
	6'4"	15	16	17	18	20	21	22	23	24	26	27	28	29	30
	6'6"	14	15	16	17	19	20	21	22	23	24	25	27	28	29
	6'8"	13	14	15	17	18	19	20	21	22	23	24	25	26	28



Underweight



Healthy weight



Overweight



Obese

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## Bulimia Nervosa: Overview

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- Binge eating – hallmark of bulimia nervosa and binge eating disorder
  - Eating excess amounts of food in a discrete period of time
  - Eating is perceived as uncontrollable
  - May be associated with guilt, shame, or regret
  - May hide behavior from family members
  - Foods consumed are often high in sugar, fat, or carbohydrates

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## Bulimia Nervosa: Defining Features

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- Compensatory behaviors – designed to “make up for” binge eating
  - Most common: Purging
    - Most common purging method: Self-induced vomiting
    - May also include use of diuretics or laxatives
  - Excessive exercise
  - Fasting or food restriction

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# Diagnostic Criteria for Bulimia Nervosa

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- Recurrent episodes of binge eating
- Recurrent inappropriate compensatory behavior in order to prevent weight gain
- The binge eating and inappropriate compensatory behaviors both occur on average at least once a week for 3 months
- Self-evaluation is unduly influenced by body shape and weight
- Disturbance does not occur exclusively during anorexia

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## Bulimia Nervosa: Associated Features

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- Associated medical features
  - Most are within 10% of normal body weight
  - Purging methods can result in severe medical problems
    - Erosion of dental enamel, electrolyte imbalance
    - Kidney failure, cardiac arrhythmia, seizures, intestinal problems, permanent colon damage

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# Bulimia Nervosa: Associated Features, Part 2

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- Associated psychological features
  - Most are overly concerned with body shape
  - Fear of gaining weight
  - Most have comorbid psychological disorders
    - 20% meet criteria for a mood disorder
    - 50 to 70% have met criteria for a mood disorder at some point
    - 80% have met criteria for an anxiety disorder at some point
    - Nearly two in five people abuse substances

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## Anorexia Nervosa: Overview

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- Extreme weight loss – hallmark of anorexia
  - Restriction of calorie intake below energy requirements (Sometimes defined as 15% below expected weight)
  - Intense fear of weight gain
  - Often begins with dieting
  - Subtypes:
    - Restricting: Diet to limit calorie intake
    - Binge-eating-purging: Purge to limit calorie intake

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# Diagnostic Criteria for Anorexia Nervosa

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- Restriction of energy intake relative to requirements, leading to significantly low body weight
- Intense fear of gaining weight or becoming fat
- Disturbance in the way in which one's body weight or shape is experienced

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## Anorexia Nervosa: Defining Features

### Chapter

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- Most show marked disturbance in body image
- Most have comorbid psychological disorders
  - 70% are depressed at some point
  - Higher than average rates of substance abuse and OCD
- Starving body borrows energy from internal organs, leading to organ damage including cardiac damage > can cause heart attack

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# Anorexia Nervosa

- Medical consequences
  - Amenorrhea (loss of periods in women)
  - Dry skin
  - Brittle hair and nails
  - Sensitivity to cold temps
  - Lanugo
  - Cardiovascular problems
  - Electrolyte imbalance
- Most deadly mental disorder due to organ damage

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## Binge Eating Disorder: Overview

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- New disorder in DSM-5
- Binge eating without associated compensatory behaviors
- Associated with distress and/or functional impairment (e.g., health risk, feelings of guilt)
- Excessive concern with weight or shape may or may not be present

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## Binge-Eating Disorder: Associated Features

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- Approximately 20% of individuals in weight-control programs suffer from BED
- Approximately half of candidates for bariatric surgery suffer from BED
- Better response to treatment than other eating disorders
- Tend to be older than sufferers of anorexia and bulimia
- Higher rates of psychopathology than non-bingeing obese individuals

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## Diagnostic Criteria for Binge-Eating Disorder

### Chapter

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- Recurrent episodes of binge eating
- Binge-eating episodes are associated with three or more of the following:
  - Eating much more than normal
  - Eating until feeling uncomfortably full
  - Eating large amounts when not hungry
  - Eating alone because embarrassed how much one is eating
  - Feeling disgusted/guilty after eating
- Marked distress regarding binge eating
- Binge eating not associated with bulimia

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## Bulimia and Anorexia: Facts and Statistics

### Chapter

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- Bulimia
  - Majority are female – 90%+
  - Some binge eating symptoms are relatively common in men
  - Incidence among males is increasing, 0.8\* bulimia, 2.9% BED
  - 6 to 7% of college women suffer from bulimia at some point
  - Onset typically in adolescence
  - Tends to be chronic if left untreated

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## Chapter

# Bulimia and Anorexia: Facts and Statistics (continued)

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- Anorexia
  - Majority are female and white
  - From middle- to upper-middle-class families
  - Usually develops around early adolescence
  - More chronic and resistant than bulimia
- Lifetime prevalence approximately 1%
- Cross-cultural factors
  - Develop in non-Western women after moving to Western countries

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# Causes of Eating Disorders

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- Social dimensions
  - Cultural factors
  - Dietary restraint
  - Family influences
- Biological dimensions
- Psychological and behavioral dimensions

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## Causes of Eating Disorders: Social Factors

### Chapter

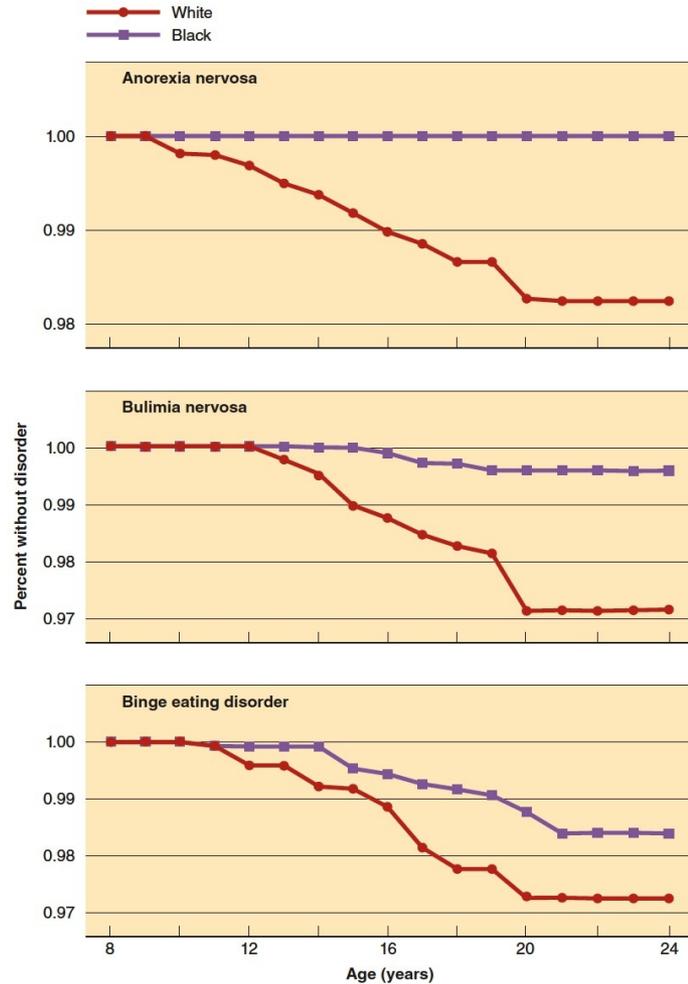
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- Media and cultural considerations
  - Media portrayals: thinness linked to success, happiness
  - Cultural emphasis on dieting
  - Standards of ideal body size
    - Frequently changing and difficult to achieve
  - Using dietary supplements can lead to other serious problems such as binge drinking or other drug addictions

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## Chapter

# Causes of Eating Disorders-Graphed



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## Chapter

# Causes of Eating Disorders: Social Factors, Part 2

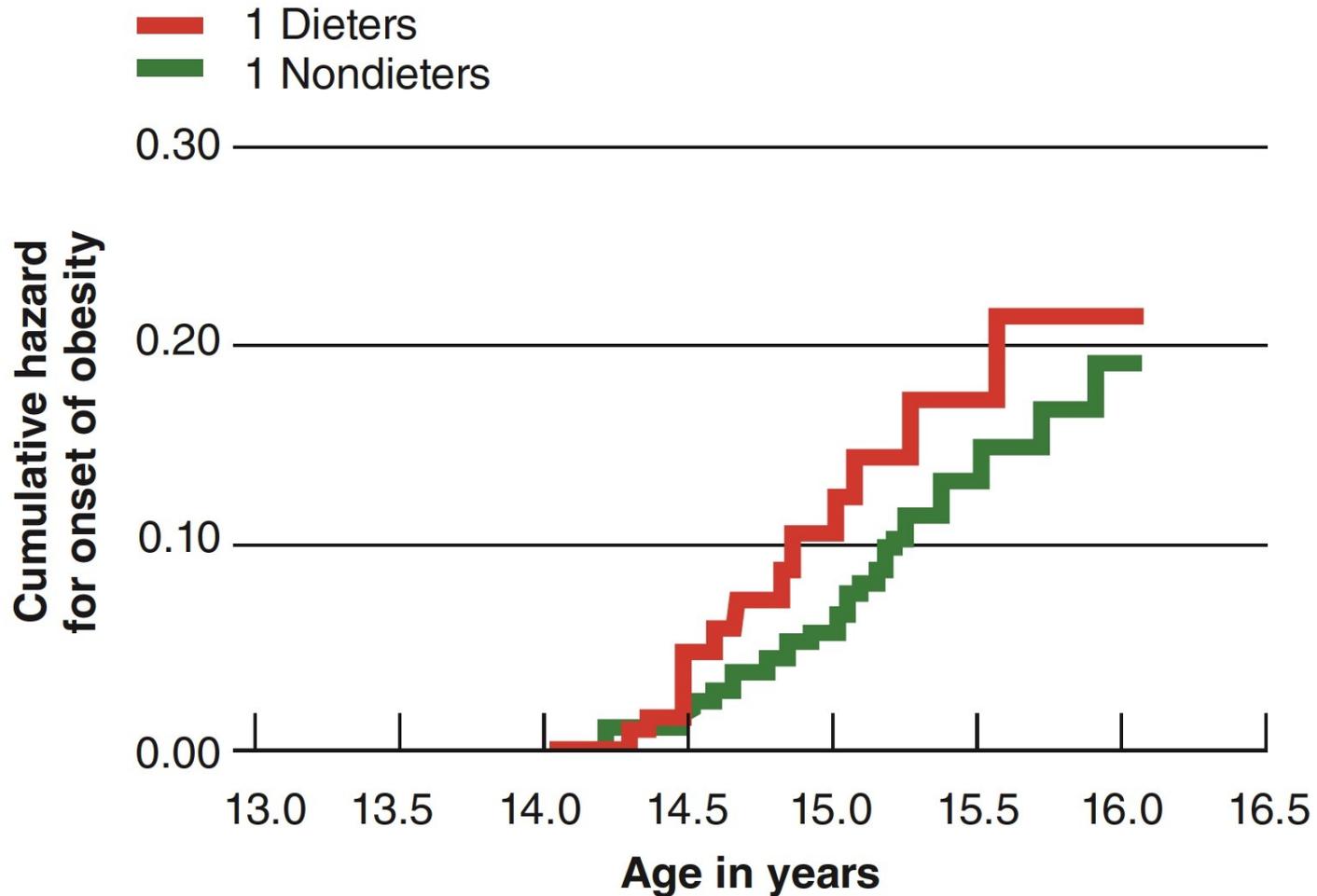
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- Dieting and dietary restraint
  - Adolescent dieting leads to an 8 times greater risk of developing an eating disorder
  - Adolescents tend to internalize the standards of friendship groups (e.g., a teenager is more likely to diet if her friends also diet)
  - May paradoxically cause weight gain
    - Produces stress and withdrawal symptoms that increase cravings for food

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## Chapter

### Causes of Eating Disorders: Dieters versus Non-Dieters



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## Causes of Eating Disorders: Social Factors, Part 3

### Chapter

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- Dieting and dietary restraint
  - During periods of restricted food intake, people become preoccupied with food and eating
    - Classic study conducted during WWII: Volunteers placed on strict diets started thinking, writing, and reading more about food

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## Causes of Eating Disorders: Family Influences

### Chapter

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- Parents with distorted perception of food and eating may restrict children's intake too (e.g., put chubby toddlers on unnecessary diets)
- Families of individuals with anorexia are often:
  - High achieving
  - Concerned with external appearances
  - Overly motivated to maintain harmony > leads to poor communication and denial of problems
- Disordered eating also strains family relationships
  - Causes parental guilt and frustration and is associated with poorer outcomes

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## Chapter

# Causes of Eating Disorders: Biological Factors

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- Some genetic component
  - Relatives of people with eating disorders are 4 to 5 times more likely to develop an eating disorder
- Not clear what is inherited
  - May be nonspecific traits like emotional instability or impulsivity
- Low levels of serotonergic activity often found in eating disorders
- Hormones may influence eating behavior

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# Causes of Eating Disorders: Psychological Dimensions

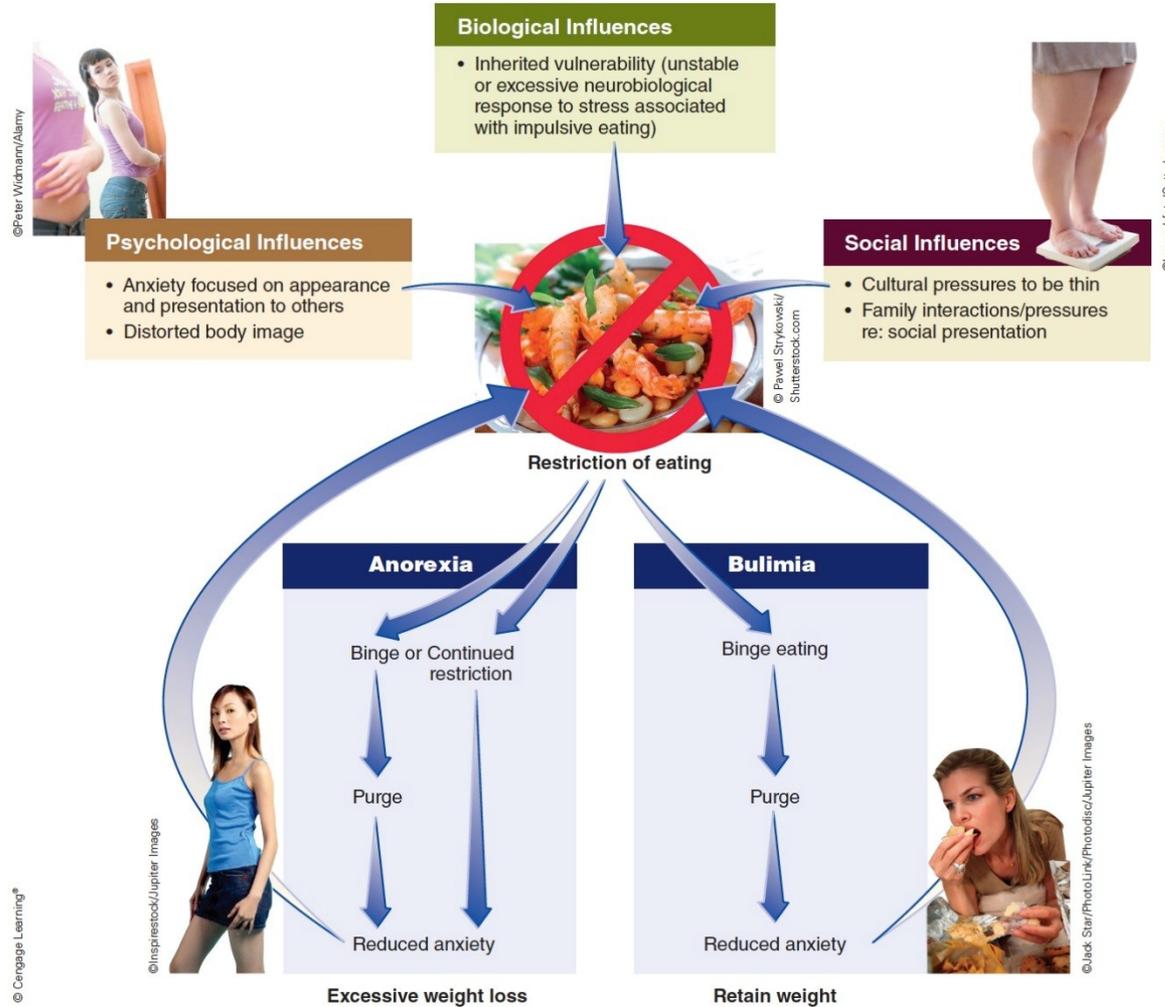
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- Low sense of personal control and self-confidence
- Perfectionistic attitudes
- Distorted body image
- Preoccupation with food
- Mood intolerance

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## Causes of Eating Disorders: An Integrative Model



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## Chapter

# Treatments for Eating Disorders

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- Drugs – primarily antidepressants
  - Generally ineffective for anorexia nervosa
  - SSRIs good for bulimia
- Psychological treatments – usually cognitive behavioral therapy
  - Emphasis on core pathological mechanism: Distorted body image

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## Medical and Psychological Treatment of Bulimia Nervosa

### Chapter

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- Cognitive-behavioral therapy (CBT-E)
  - Treatment of choice
- Medical and drug treatments
  - Antidepressants
    - Can help reduce bingeing and purging behavior

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## Chapter

# Medical and Psychological Treatment of Binge Eating Disorder

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- Previously used medications for obesity are now not recommended
- Psychological treatment
  - CBT—effective
  - Interpersonal psychotherapy—equally effective as CBT
  - Self-help techniques—effective
  - IPT was effective for both rapid and nonrapid responders

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## Psychological Treatment of Anorexia Nervosa

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- General goals and strategies
  - Weight restoration
    - First and easiest goal to achieve
  - Psychoeducation
  - Behavioral and cognitive interventions
    - Target food, weight, body image, thought, and emotion
  - Treatment often involves the family
  - FBT has the most support from clinical trials for treating adolescents with anorexia

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## Chapter

# Preventing Eating Disorders

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- Often focuses on promoting body acceptance in adolescent girls
- Identify specific targets
  - Early weight concerns
- Screening for at-risk groups (e.g. Sororities)
- Provide education
  - Normal weight limits
  - Effects of calorie restriction

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## Obesity: Background and Overview

### Chapter

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- Considered BMI of 30+
- Not DSM disorder, but may be a consequence
- Statistics
  - In 2008, 33.8% of adults in the United States were obese; 37.5% in 2010
  - Mortality rates
    - Close to those associated with smoking
  - Increasing more rapidly in children/teens
  - Obesity also growing rapidly in developing countries

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## Chapter

# Weight and Race/Ethnicity

**TABLE 8.3**

Percentage of U.S. Adolescents Ages 12–19 Who Are Overweight or Obese by Race/Ethnicity

	Hispanic Adolescents	Black Adolescents	Non- Hispanic White Adolescents
BMI for age $\geq 95^{\text{th}}$ percentile	19.8%	24.8%	14.7%
BMI for age $\geq 85^{\text{th}}$ percentile	41.9%	45.1%	27.6%

Adapted from Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2012). Prevalence of obesity and trends in body mass index among US children and adolescents, 1999–2010. *Journal of American Medical Association*, 307, 483–490.

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## Chapter

# Obesity and Disordered Eating Patterns

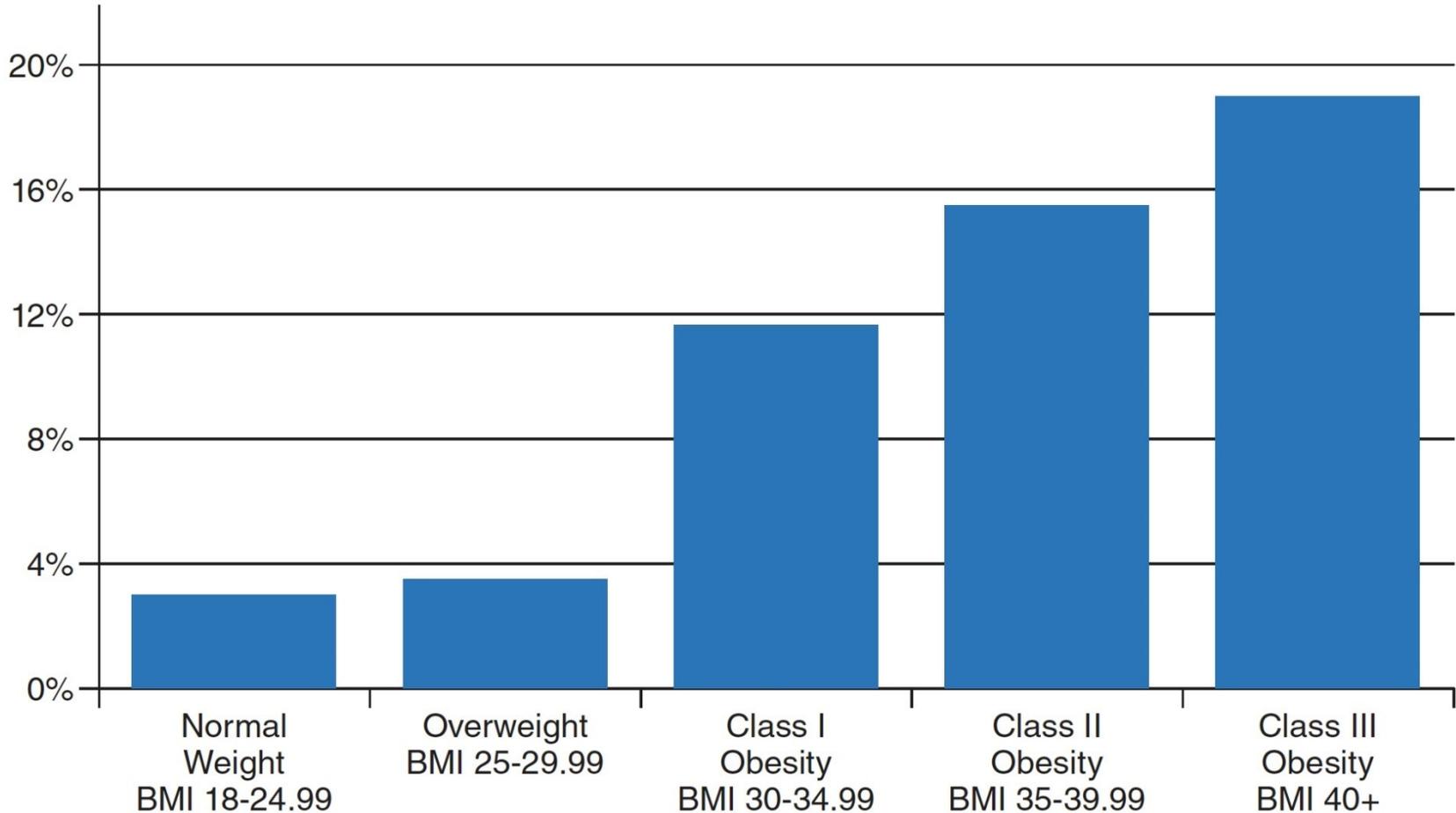
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- Obesity and night eating syndrome
  - Occurs in 7 to 19% of treatment seekers
  - Occurs in 55% of individuals seeking bariatric surgery
  - Consume 1/3+ of daily calories after dinner
  - Get up during the night to eat
  - Patients are wide awake and do not binge eat
  - Often not hungry, skip breakfast the next morning

# 08

## Obesity and Night Eating Syndrome

### Chapter



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## Chapter

# Obesity and Disordered Eating Patterns, Part 2

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- Causes
  - Obesity is related to technological advancement
    - Promotes inactive, sedentary lifestyle
  - Genetics account for about 30% of obesity cases
  - Psychosocial factors contribute as well
    - More likely to be obese if people in close social circles are also obese

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## Chapter

# Obesity Treatment

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- Efficacy
  - Moderate success with adults
  - Greater success with children and adolescents
  - Recent study suggests that the combination of restricted calorie intake, increased physical activity, and behavior therapy tends to lead to more weight loss than any of these components on their own
- Treatment progression – from least to most intrusive options

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## Chapter

# Steps of Obesity Treatment

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- First step
  - Self-directed weight loss programs
- Second step
  - Commercial self-help programs
- Third step
  - Behavior modification programs
- Last step
  - Bariatric surgery

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## Chapter

# Introduction to Sleep-Wake Disorders: The Importance of Sleep

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- Just a few hours' sleep deprivation decreases immune functioning
- Sleep deprivation affects all aspects of daily functioning – energy, mood, memory, concentration, attention
- Sleep loss may bring on feelings of depression in non-depressed individuals
  - Paradoxically, can have antidepressant effects in depressed individuals

# 08

## Sleep-Wake Disorders: An Overview

### Chapter

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- Polysomnographic (PSG) evaluation of sleep:
  - Electroencephalograph (EEG) – brain waves
  - Electrooculograph (EOG) – eye movements
  - Electromyography (EMG) – muscle movements
  - Detailed history, assessment of sleep hygiene and sleep efficiency
- Actigraph
  - Portable wearable device sensitive to movement – can detect different stages of wakefulness/sleep

# 08

## Chapter

# Sleep Disorders: An Overview, Continued

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- Two major types of sleep disorders
  - Dyssomnias
    - Difficulties in amount, quality, or timing of sleep
  - Parasomnias
    - Abnormal behavioral and physiological events during sleep

# 08

## Chapter

# The Dyssomnias: Overview and Defining Features of Insomnia

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- Insomnia disorder
  - One of the most common sleep disorders
  - Microsleeps
  - Problems initiating/maintaining sleep (e.g., trouble falling asleep, waking during night, waking too early in the morning)
  - 15% of adults report daytime sleepiness
  - Only diagnosed as a sleep disorder if it is not better explained by a different condition (e.g., generalized anxiety disorder)

# 08

## Diagnostic Criteria for Insomnia Disorder

### Chapter

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- Dissatisfaction with sleep quantity or quality
- Sleep disturbance causes significant distress
- Sleep difficulty occurs 3 nights per week or more for at least 2 months
- Difficulty occurs even when there is possibility for sleep
- No other physiological, medical, or mental disorders better explain symptoms

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## Chapter

# The Dyssomnias: Insomnia

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- Facts and statistics
  - Often associated with medical and/or psychological conditions
    - Anxiety, depression, substance use
  - Affects females twice as often as males
- Associated features
  - Unrealistic expectations about sleep
  - Believe lack of sleep will be more disruptive than it usually is

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## Causes of Insomnia Disorder

### Chapter

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- Pain, physical discomfort
- Delayed temperature rhythm (body temperature doesn't drop until later, leading to delayed drowsiness)
- Light, noise, temperature influence ability to sleep
- Other sleep disorders cause secondary insomnia
  - Apnea
  - Periodic limb movement disorder
- Stress and anxiety

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## Other Causes of Insomnia Disorder

### Chapter

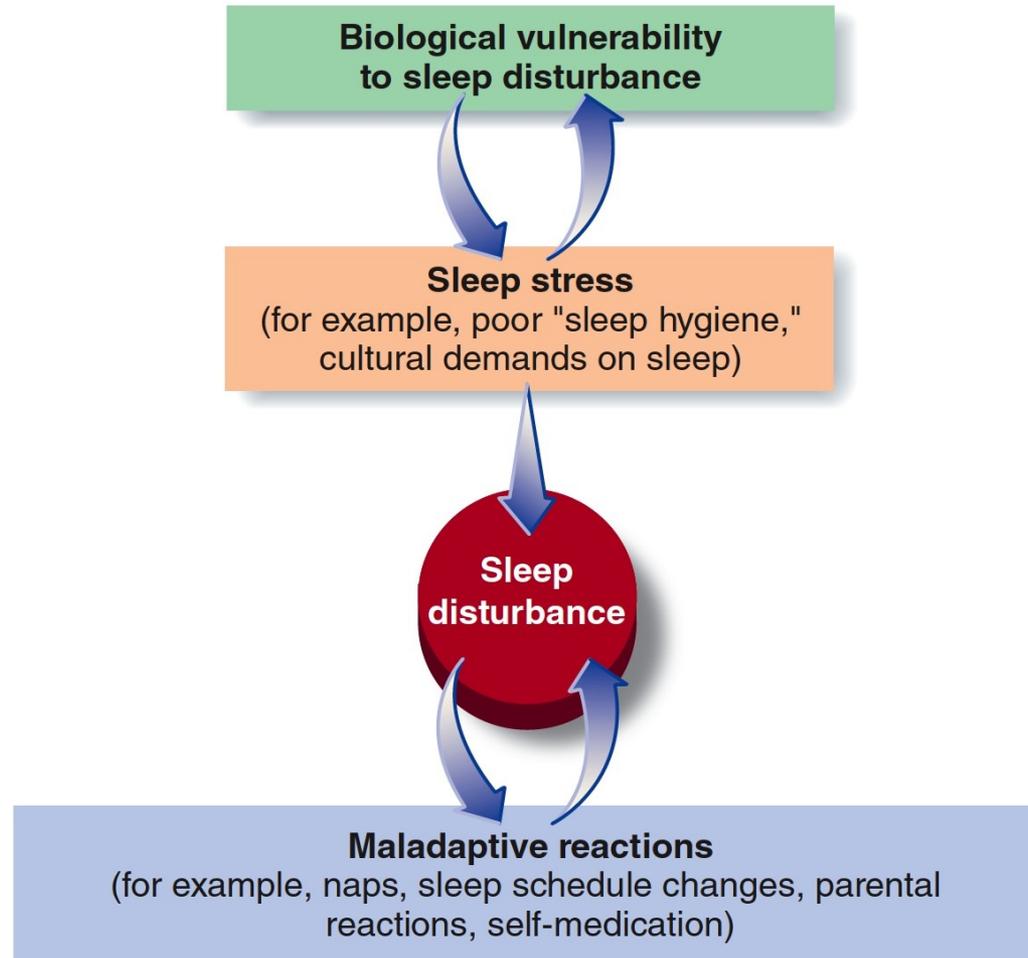
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- Parental effects on children's sleep
  - Parents' negative beliefs about sleep linked to more infant waking during the night
  - Some kids learn to fall asleep only with a parent present

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## Chapter

# An Integrative Model of Sleep Disturbance



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## Chapter

# Overview of Hypersomnolence Disorder

- Hypersomnolence Disorder
  - Sleeping too much or excessive sleep
    - May manifest as long nights of sleep or frequent napping
  - Experience excessive sleepiness as a problem

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## Chapter

# Defining Features of Hypersomnolence Disorder

- Causes are not well understood due to limited research
- Often associated with other medical and/or psychological conditions
- Only diagnosed if other conditions don't adequately explain hypersomnia, which should be the primary complaint
- Associated features
  - Complain of sleepiness throughout the day
  - Able to sleep through the night

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## Chapter

# The Dyssomnias: Overview of Narcolepsy

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- Narcolepsy
  - Principal symptom: Recurrent intense need for sleep, lapses into sleep, or napping
  - Also accompanied by at least one:
    - Cataplexy
    - Hypocretin deficiency
    - Going into REM sleep abnormally fast (<15 min), as evidenced by polysomnographic measures

# 08

## Chapter

# The Dyssomnias: Defining Features of Narcolepsy

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- Facts and statistics – rare condition
  - Affects about .03% to .16% of the population
  - Equally distributed between males and females
  - Onset during adolescence
  - Typically improves over time

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## Chapter

# The Dyssomnias: Overview of Breathing-Related Sleep Disorders

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- Include three different disorders previously classified as parts of the same disorder:
  - Obstructive sleep apnea hypopnea
    - Airflow stops, but respiratory system works
  - Central sleep apnea (CSA)
    - Respiratory systems stops for brief periods
  - Sleep-related hypoventilation: Decreased breathing during sleep not better explained by another sleep disorder

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## Facts Associated With Breathing-Related Sleep Disorders

### Chapter

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- Obstructive sleep apnea occurs in 10 to 20% of population
- More common in males
- Associated with obesity and increasing age

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## Chapter

# Features Associated With Breathing-Related Sleep Disorders

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- Persons are usually minimally aware of apnea problem
- Often snore, sweat during sleep, wake frequently
- May have morning headaches
- May experience episodes of falling asleep during the day (due to poor sleep quality at night)

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## Chapter

# What are Circadian Rhythm Sleep-Wake Disorders?

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- Disturbed sleep (e.g., either insomnia or excessive sleepiness) leading to distress and/or functional impairment (e.g. significantly decreased productivity at work)
- Specifically due to brain's inability to synchronize day and night

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## Chapter

# Circadian Rhythm Sleep-Wake Disorder

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- Affects suprachiasmatic nucleus, which stimulates melatonin and regulates sense of night and day
- Examples
  - Shift work type – job leads to irregular hours
  - Familial type – associated with family history of dysregulated rhythms
  - Delayed or advanced sleep phase type – person’s biological clock is naturally “set” earlier or later than a normal bedtime

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## Chapter

# Circadian Rhythm and Biological Clock

Although light is the main setter of the human biological clock, researchers believe melatonin influences the time-keeping center, too. Darkness stimulates production of the hormone melatonin. Production is abruptly suppressed in bright light.

Suprachiasmatic nucleus

Light signals from retina are conveyed by nerve fibers directly to suprachiasmatic nucleus.

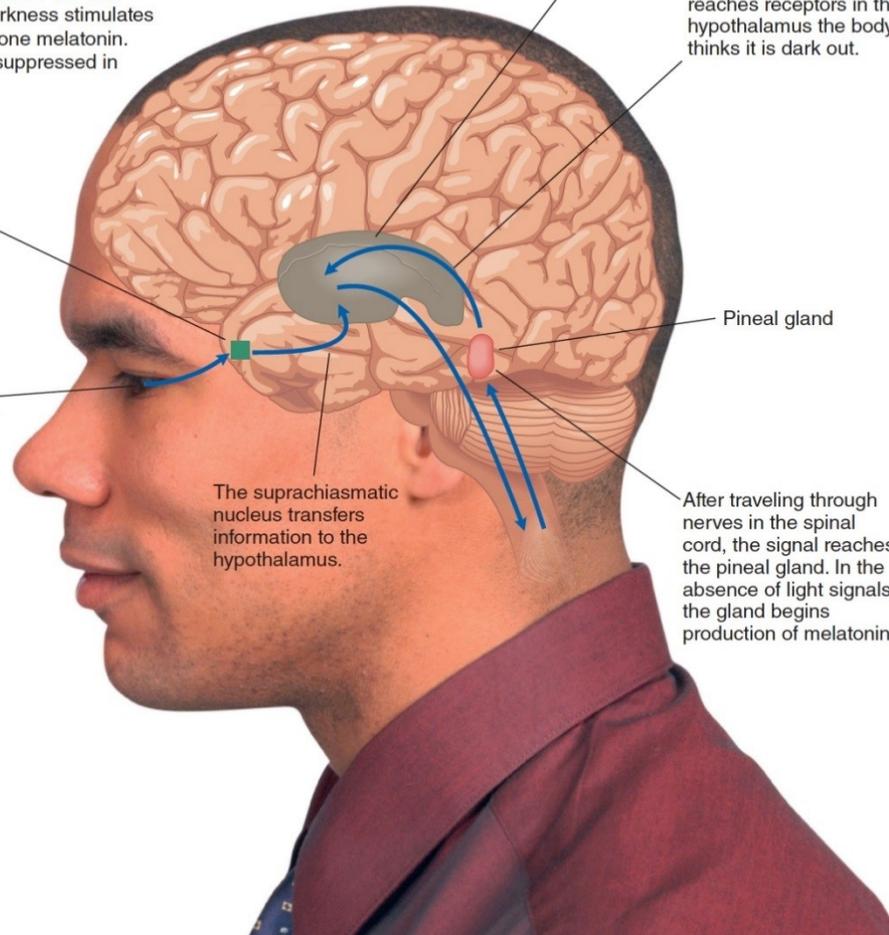
The suprachiasmatic nucleus transfers information to the hypothalamus.

Hypothalamus

When melatonin reaches receptors in the hypothalamus the body thinks it is dark out.

Pineal gland

After traveling through nerves in the spinal cord, the signal reaches the pineal gland. In the absence of light signals, the gland begins production of melatonin.



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## Treatments for Sleep Disorders

### Chapter

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- Insomnia
  - Benzodiazepines and over-the-counter sleep medications
  - Prolonged use
    - Can cause rebound insomnia, dependence
  - Best as short-term solution
- Hypersomnia and narcolepsy
  - Stimulants (i.e., Ritalin)
  - Cataplexy usually treated with antidepressants

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## Treatments for Sleep Disorders, Part 2

### Chapter

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- Breathing-related sleep disorders
  - May include medications, weight loss, or mechanical devices
- Circadian rhythm sleep-wake disorders
  - Phase delays
    - Moving bedtime later (best approach)
  - Phase advances
    - Moving bedtime earlier (more difficult)
  - Use of very bright light
    - Trick the brain's biological clock

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## Treatments for Sleep Disorders, Part 3

### Chapter

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- Cognitive behavioral therapy for insomnia (CBT-I)
  - Psychoeducation about sleep
  - Changing beliefs about sleep
  - Extensive monitoring using sleep diary
  - Practicing better sleep-related habits
  - Changing assumptions that they can't function well on little sleep

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## Psychological Treatments for Sleep Disorders

### Chapter

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- Relaxation and stress reduction
  - Reduces stress and assists with sleep
  - Modify unrealistic expectations about sleep
- Stimulus control procedures
  - Improved sleep hygiene – bedroom is a place for sleep
  - For children – setting a regular bedtime routine

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# Preventing Sleep Disorders

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- Best approach: Practice healthy “sleep hygiene” (behaviors that lead to adequate quality and quantity of sleep)
- Also helpful to educate parents about good sleep habits for children

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## The Parasomnias: Nature and General Overview

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- Nature of parasomnias
  - The problem is not with sleep itself
  - Problem is abnormal events during sleep, or shortly after waking
- Two classes of parasomnias
  - Those that occur during REM (i.e., dream) sleep
  - Those that occur during non-REM (i.e., non-dream) sleep

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# The Parasomnias: Non-REM Sleep Arousal Disorders

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- New DSM-5 Diagnosis
- Recurrent episodes of either/or:
  - Sleep terrors
    - Recurrent episodes of panic-like symptoms during non-REM sleep
  - Sleepwalking
- Individual has no memory of the episodes

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# More about Sleep Terrors

- Facts and associated features
  - More common in children (~6%) than adults
  - Child cannot be easily awakened during the episode
  - Child has little memory of it the next day

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# More about Sleep Walking

- Sleep walking disorder – somnambulism
  - Occurs during non-REM sleep
  - Usually during first few hours of deep sleep
  - Person must leave the bed
- Facts and associated features
  - More common in children than adults
  - Problem usually resolves on its own without treatment
  - Seems to run in families
  - May be accompanied by nocturnal eating

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# Summary of Eating and Sleep Disorders

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- All sleep-wake disorders share
  - Interference with normal process of sleep
  - Interference results in problems during waking
  - Heavily influenced by psychological and behavioral factors
- Incidence of eating and sleep disorders is increasing
- More effective treatments for eating and sleep-wake disorders are needed