



## **SunCloud Health Continuing Education Series**

Transdiagnostic, integrated care for people with complex co-occurring disorders.

# **Starved for Sleep**

## The Overlooked Role of Sleep in Eating Disorders

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Colleen Kestel, MBA, RDN, LDN



# STARVED FOR SLEEP

## The Overlooked Role of Sleep in Eating Disorders

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# LEARNING OBJECTIVES



## Objective 1

Review sleep disturbances across eating disorder diagnoses and the impact of malnutrition on sleep architecture.

## Objective 2

Understand the bidirectional relationship between sleep disruption and eating disorder behaviors.

## Objective 3

Identify screening and interdisciplinary interventions to address sleep disturbances in ED treatment.

# Sleep & Nutrition Self-Assessment

Reflect on your own patterns before we discuss the science.



**1** You slept 4–5 hours. Midday crash hits.  
You:

A. Drink caffeine

B. Skip or delay eating

C. Push through without a break

D. Eat a balanced meal and reset

**2** You feel "wired but tired" at night.  
You:

A. Scroll or stay stimulated

B. Have caffeine late to get through tasks

C. Try to force sleep

D. Wind down and reduce stimulation

**3** You're exhausted but not hungry. You:

A. Skip the meal

B. Have caffeine instead

C. Wait until you feel hungry

D. Eat anyway to stabilize energy

**4** You didn't sleep well and feel irritable.  
You:

A. Make quick decisions

B. Crave high sugar/high carb foods

C. Feel less patient

D. All of the above

**5** You rely on caffeine to function daily.  
You notice:

A. It helps short-term

B. Sleep is getting worse

C. Anxiety is higher

D. All of the above

# WHY THIS MATTERS

*A sleep deprived brain is less cognitively flexible*

## **Sleep disturbance may worsen:**

restriction

binge eating

emotional dysregulation

compulsive movement

treatment resistance

## **Poor sleep predicts:**

worse mood

higher relapse risk

impaired cognitive flexibility

reduced distress tolerance

Sleep symptoms are often under

- assessed in ED treatment



# FEEDING AND EATING DISORDERS

A persistent disturbance of eating or eating -related behavior that results in the altered consumption or absorption of food and that significantly impairs physical health or psychosocial functioning.

**Anorexia Nervosa**

**Binge Eating Disorder**

**Avoidant Restrictive Food Intake Disorder**

**Bulimia Nervosa**

**Other Specified Feeding or Eating Disorder**



**Night Eating Syndrome**



# Causes of Eating Disorders

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**Biological Factors**



**Psychological Factors**



**Sociocultural Factors**



**Family & Environmental Factors**



**Individual Factors**

# EATING DISORDERS STATS



of the population  
will have an eating  
disorder in their  
lifetime.



**10,200**

deaths each year in the  
U.S. are due to eating  
disorders.

Eating disorders have the  
highest mortality rate of any  
mental illness.

**EATING DISORDERS  
AFFECT PEOPLE OF ALL  
RACES, ETHNICITIES,  
GENDERS & BACKGROUNDS**



Disparities exist in diagnosis,  
treatment access, and outcomes.

# SLEEP DISORDERS

A persistent disturbance in sleep quality, timing, duration, or behavior that results in impaired daytime functioning and significantly impacts physical health, emotional regulation, cognitive performance, or psychosocial functioning.

**Insomnia**

**Sleep -related breathing disorders**

**Central disorders of hypersomnolence**

**Circadian rhythm sleep -wake disorders**

**Parasomnias**

**Sleep -related movement disorders**



# Sleep Disorders

## CAUSES OF SLEEP DISORDERS INCLUDE:



- Neurochemical imbalances in the brain.
- Sleep pathways interfering with wake.



Genetic factors.



A medication side effect.



Substance use before bedtime (alcohol, nicotine, caffeine, etc.).



Working the night shift or irregular hours.



A symptom of a medical condition (e.g., heart disease, asthma, pain, or a nerve condition).



A symptom of a mental health condition such as depression, anxiety, or trauma.

# Sleep Statistics

The Centers for Disease Control and Prevention (CDC) in the United States has declared insufficient sleep a “public health problem.”<sup>1</sup>

## 1 in 3 Americans Don't Sleep Enough



According to the CDC, **more than a third** of American adults are not getting enough sleep on a regular basis.<sup>1</sup>



## 1 in 4 Americans Develop Insomnia Each Year

## Our Sleep is Getting Worse



According to recent evidence, **the proportion of people getting less than the recommended hours of sleep is rising** and is associated with lifestyle factors related to a modern 24/7 society, such as psychosocial stress, unbalanced diet, lack of physical activity and excessive electronic media use, among others.<sup>3</sup>

## High Schoolers Get Too Little Sleep

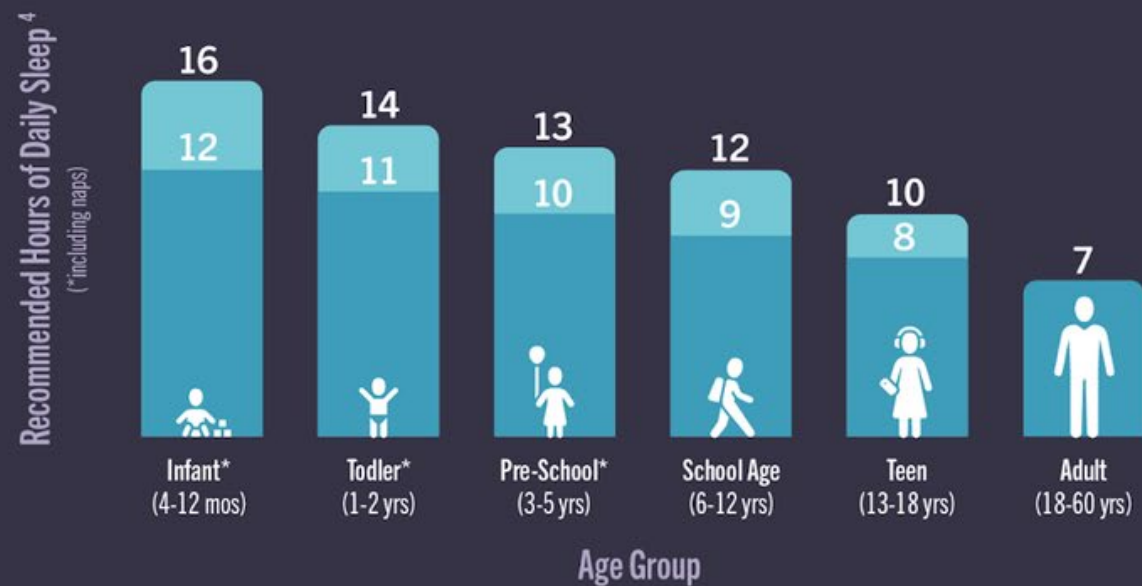
According to the National Sleep Foundation, **more than 87 percent of high school students in the United States get far less than the recommended hours of sleep**, and the amount of sleep they get is decreasing, posing a serious threat to their health and academic success.



## Insomnia is a Worldwide Problem

According to the National Institute of Health, studies across the globe show anywhere from **10% to 30% of the population struggles with insomnia**, defined as the consistent difficulty falling asleep and the inability to return to sleep after going to bed.<sup>2</sup>

## How Much Sleep Do I Need?



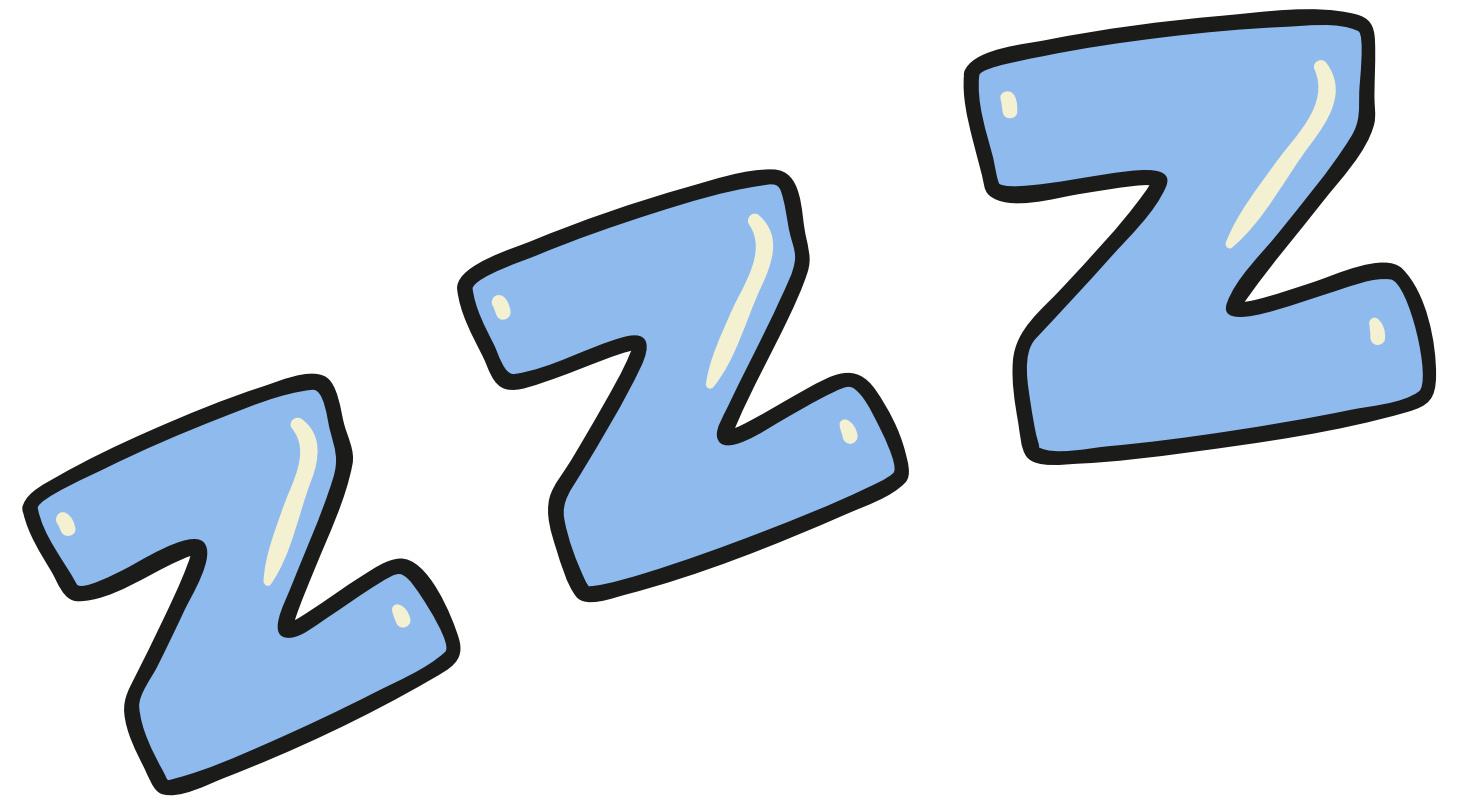
### References

<sup>1</sup> Hafner M, Stepanek M, Taylor J, Troxel WM, van Stolk C. Why Sleep Matters - The Economic Costs of Insufficient Sleep: A Cross-Country Comparative Analysis. *Rand Health Q.* 2017;6(4):11. Published 2017 Jan 1.

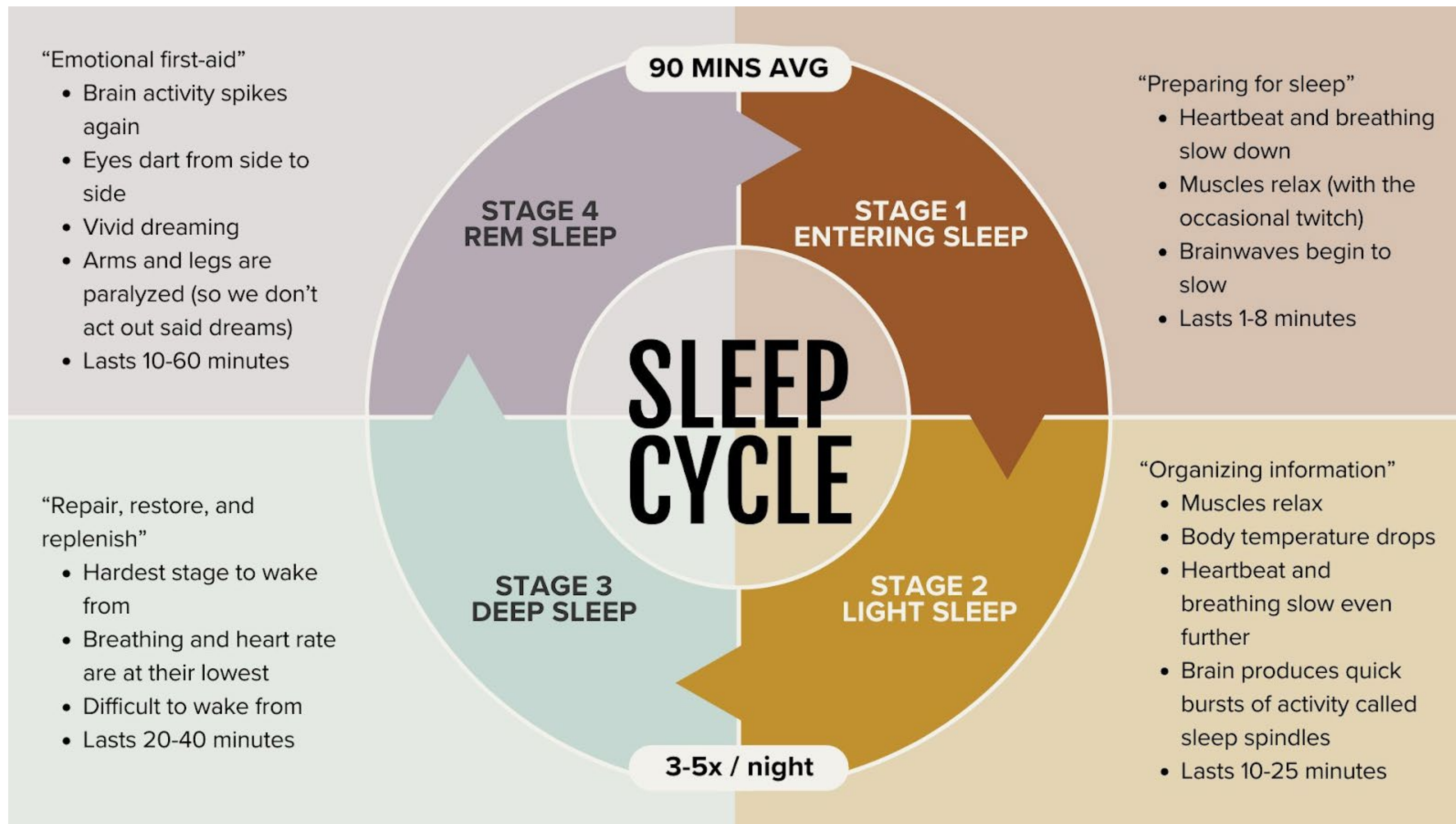
<sup>2</sup> Bhaskar, S., Hemavathy, D., & Prasad, S. (2016). Prevalence of chronic insomnia in adult patients and its correlation with medical comorbidities. *Journal of family medicine and primary care*, 5(4), 780-784.

<sup>3</sup> Roenneberg Till. Chronobiology: The human sleep project. *Nature*. 2013;498(7455):427-428.

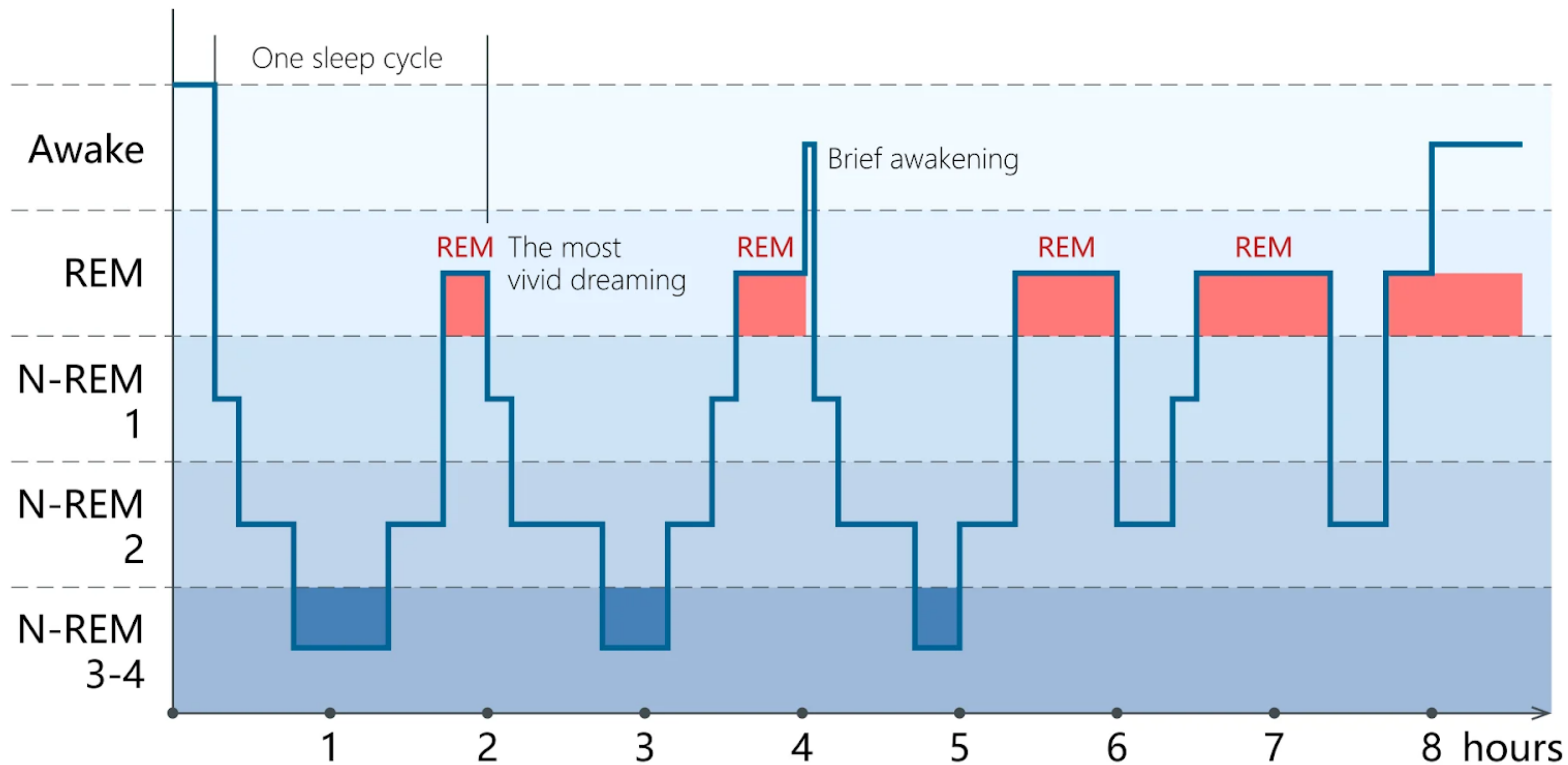
<sup>4</sup> <https://www.cdc.gov/sleep/features/getting-enough-sleep.html>



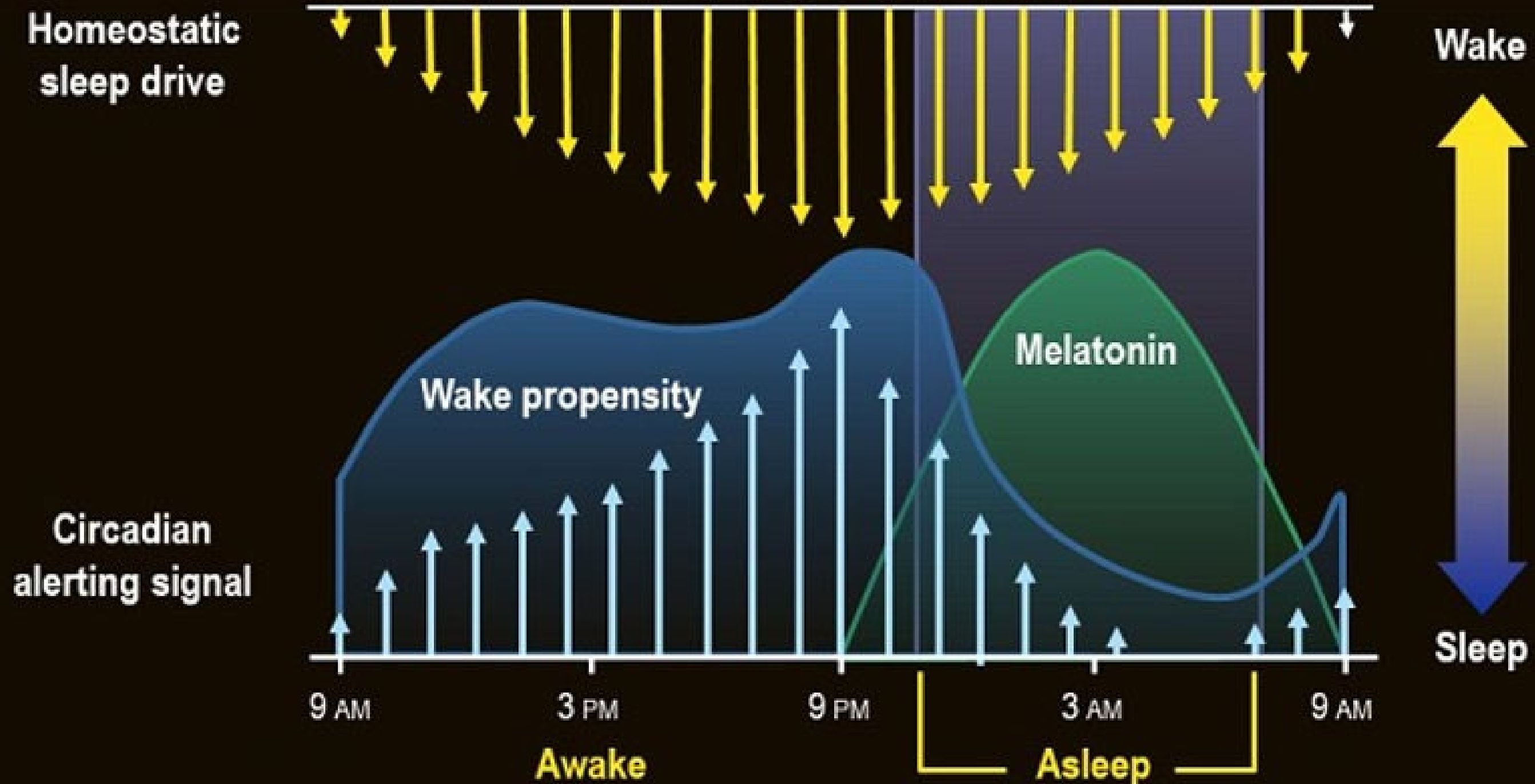
# NORMAL SLEEP ARCHITECTURE



# SLEEP CYCLES

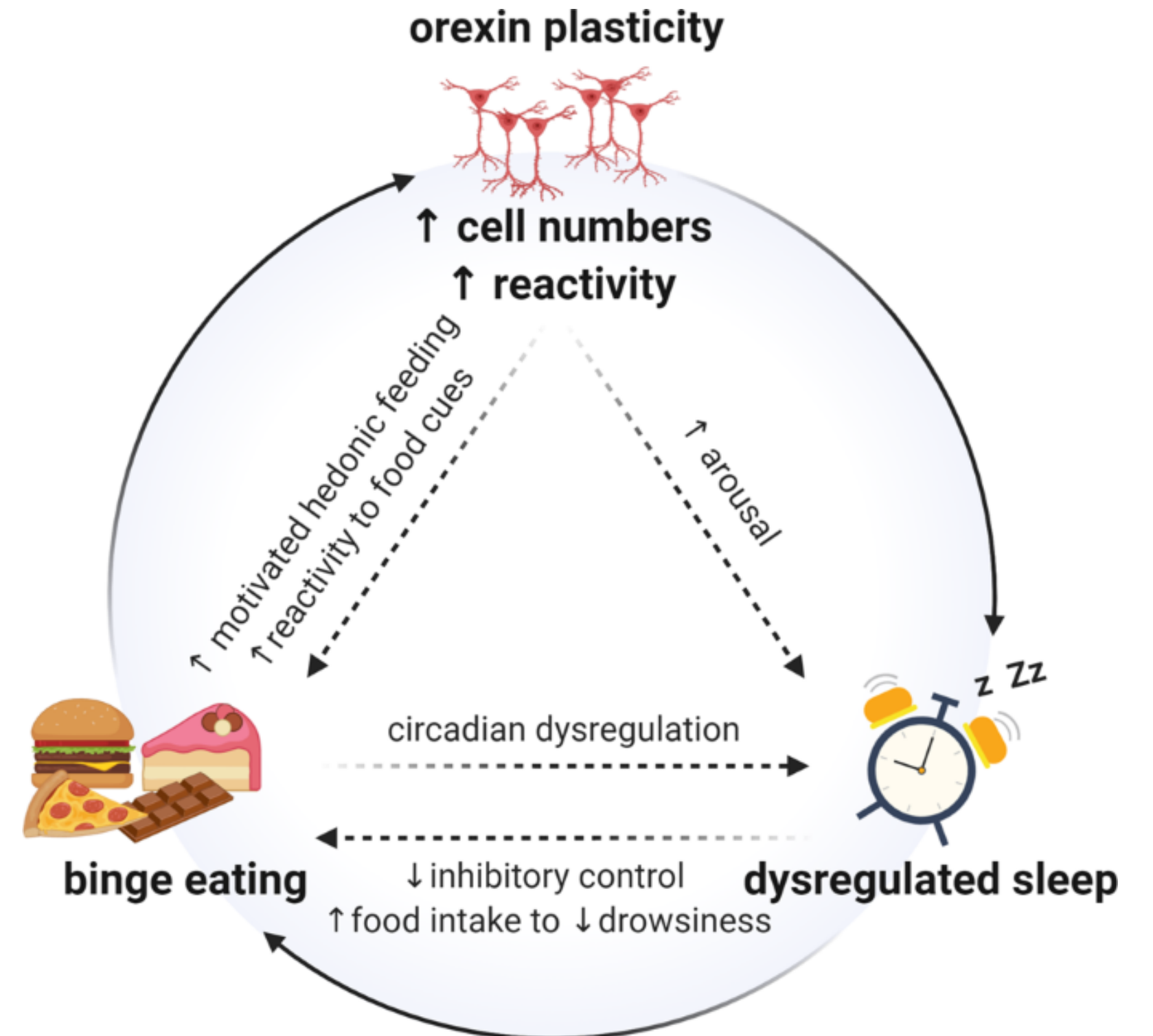
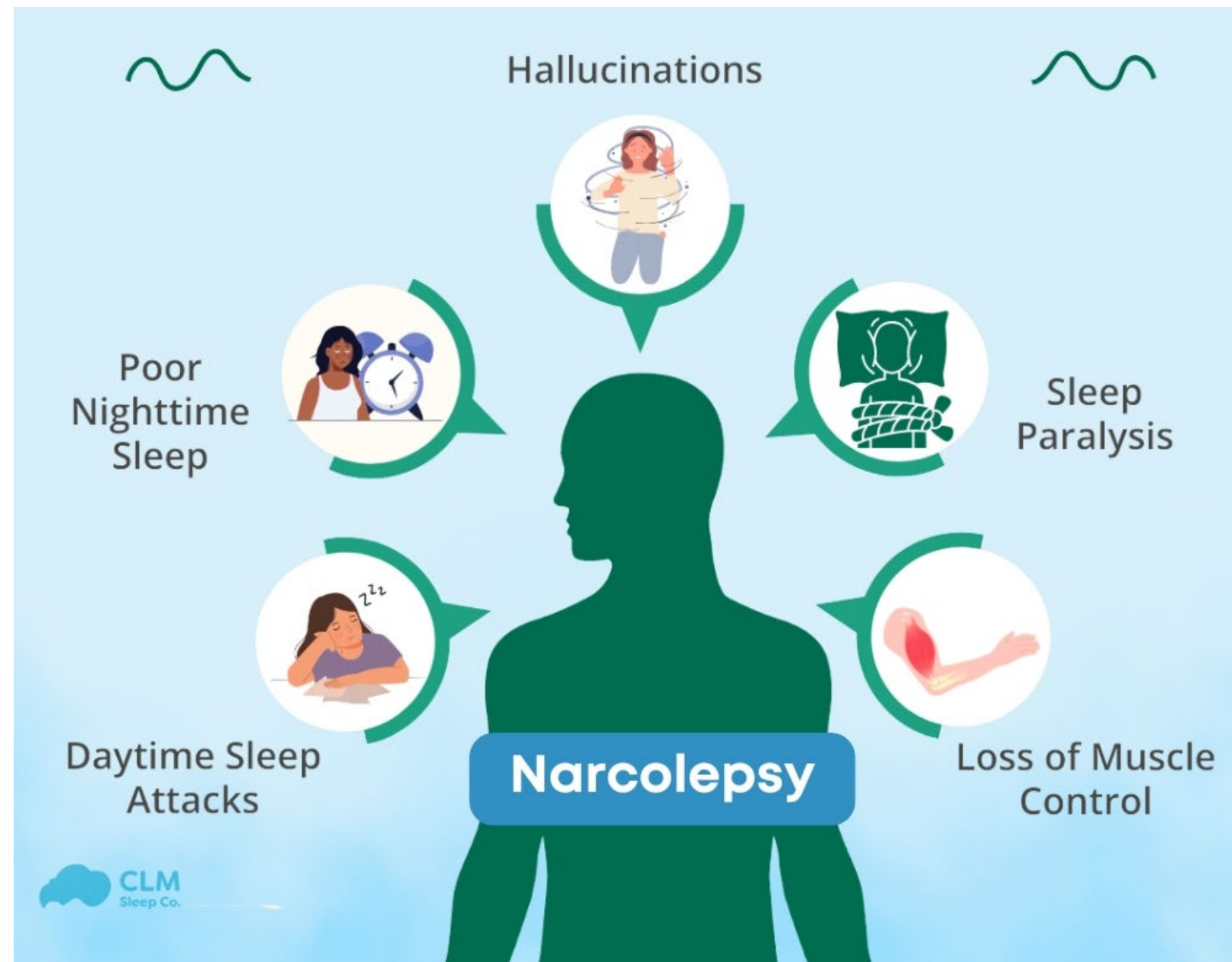


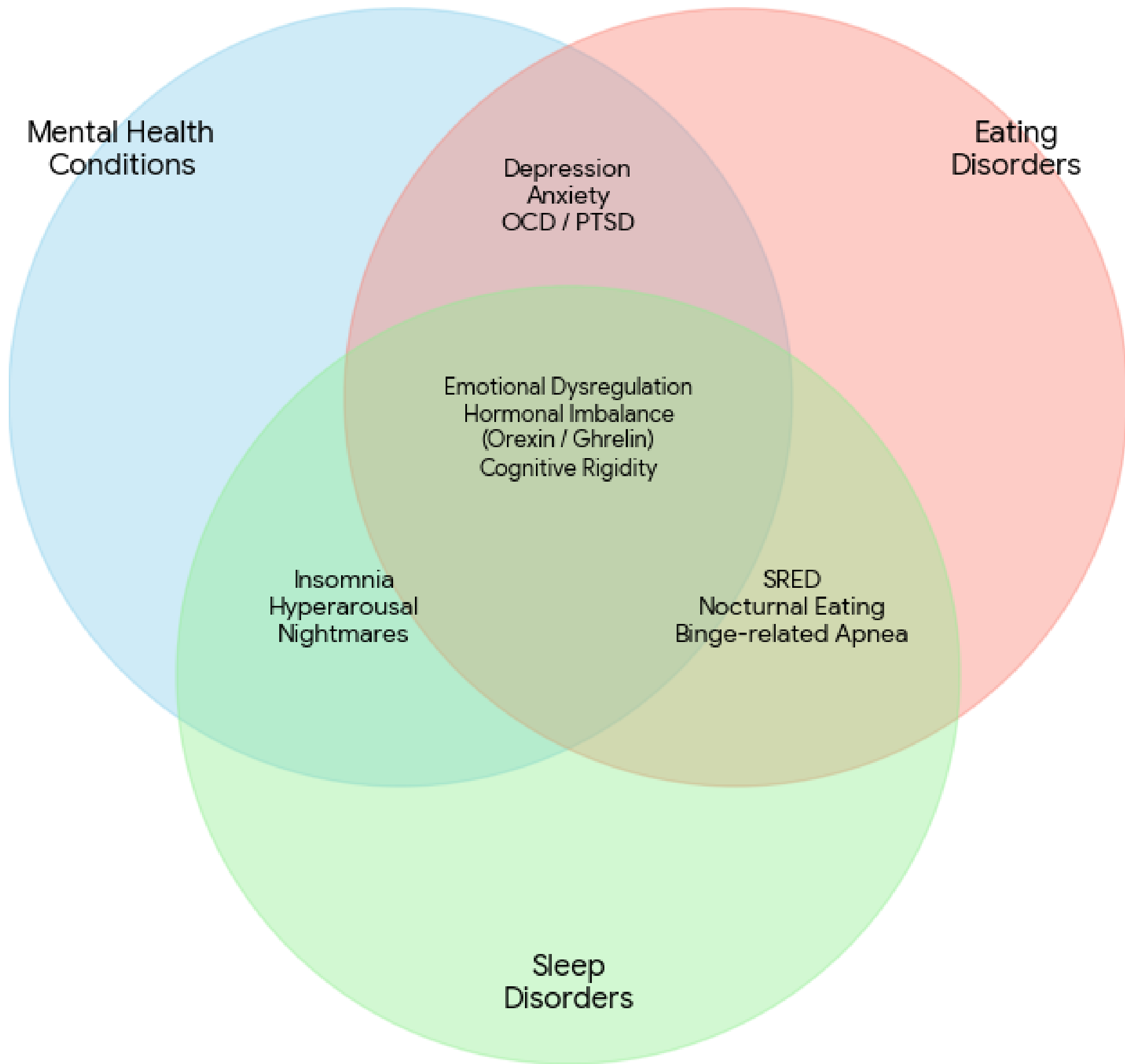
# Sleep/Wake Regulation



# NARCOLEPSY

The majority of patients with narcolepsy experience a number of symptoms of eating disorders, with an irresistible craving for food and binge eating as the most prominent features.





# Medical Concerns: Eating Disorders & Sleep Disorders

## EATING DISORDERS



- Malnutrition
- Electrolyte imbalances (e.g., low potassium, sodium)
- Dehydration
- Gastrointestinal issues (e.g., constipation, bloating, delayed gastric emptying)
- Hormonal imbalances (e.g., amenorrhea, low estrogen/testosterone)
- Decreased bone density (osteopenia/osteoporosis)
- Bradycardia (slow heart rate)
- Hair loss, dry skin, brittle nails
- Risk of refeeding syndrome

## BOTH



- Fatigue and low energy
- Mood changes (irritability, anxiety, depression)
- Difficulty concentrating
- Decreased quality of life
- Disrupted hormones and metabolism
- Impaired immune function
- Increased risk of chronic health conditions
- Impact on relationships, school/work, and daily functioning

## SLEEP DISORDERS

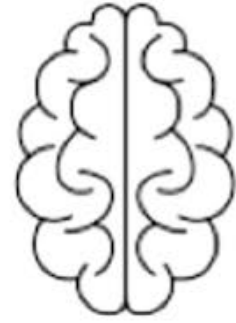


- Daytime fatigue
- Impaired concentration and memory
- Mood disturbances (e.g., anxiety, depression)
- Weakened immune function
- Increased risk of cardiovascular disease (hypertension, etc.)
- Metabolic dysregulation (e.g., insulin resistance, weight changes)
- Headaches
- Increased risk of accidents and injuries



These conditions often co-occur and can worsen each other. Early recognition and integrated treatment are essential.

# Sleep Related Eating Disorder vs Night Eating Syndrome



**SRED**



**NES**

Complete or partial amnesia for the event  
Incomplete arousal from sleep

**Clinical features**

Full record of the eating behavior  
Complete arousal from sleep

Absence of daytime craving  
Intake of bizarre foods  
Morning anorexia

**Associated findings**

Evening craving for unhealthy foods  
Evening hyperphagia  
Morning anorexia

NREM parasomnia  
Pathologies leading to sleep fragmentation

**Overlap with**

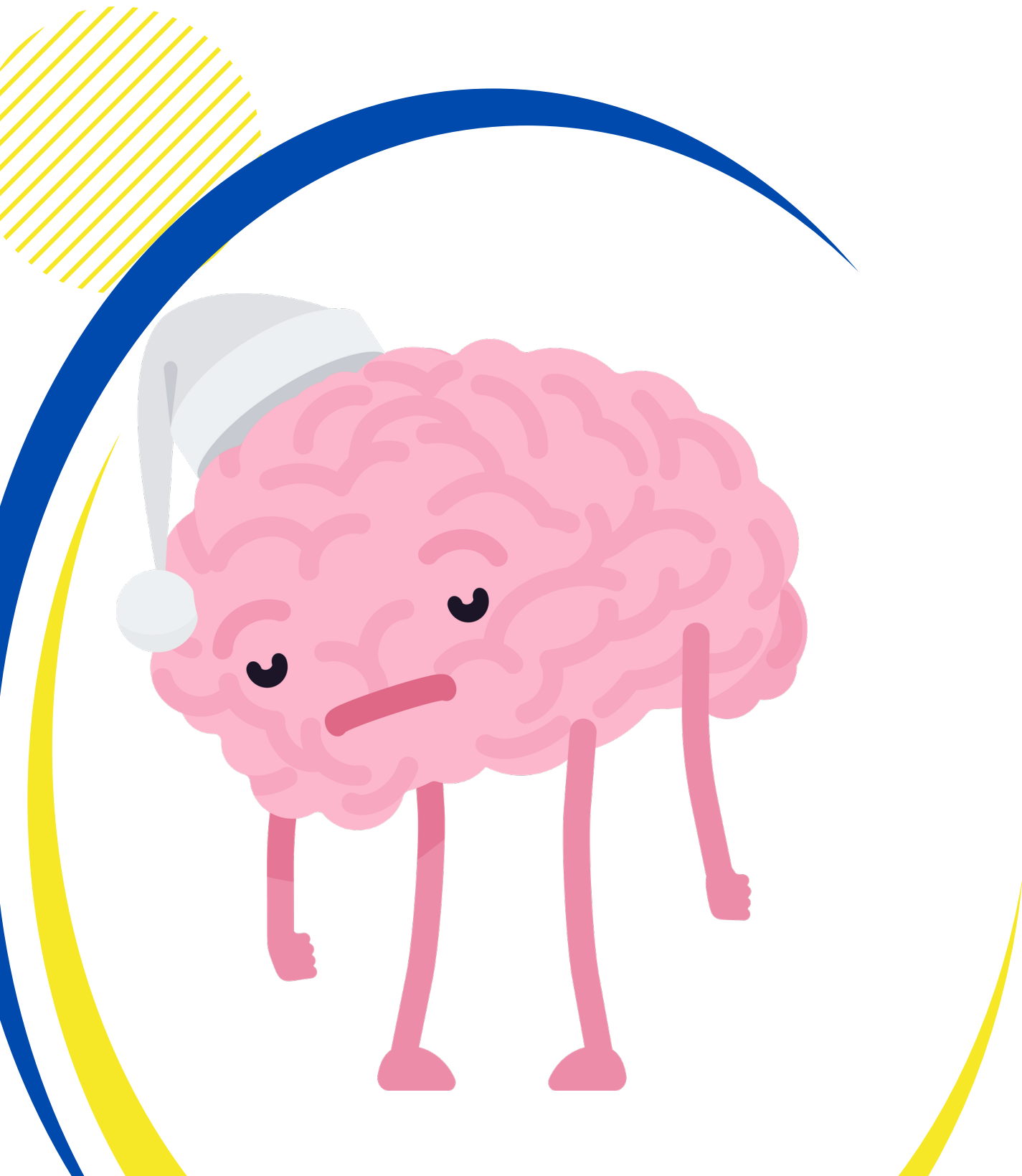
RLS  
PLM  
OSA

Clonazepam  
Bupropion  
Topiramate

**Management**

Antidepressant (sertraline, paroxetine, venlafaxine and escitalopram)  
Melatonin supplementation  
Agomelatine  
Topiramate  
Cognitive-behavioral therapy (CBT)  
Phototherapy  
Muscle relaxation

# HOW SLEEP DEPRIVATION AND MALNUTRITION IMPACT THE BRAIN



- Appetite dysregulation
- Executive functioning
- Poor impulse control
- Mood instability
- Impaired decision making
- Increased reward seeking behavior
- Reduced motivation
- Increased cravings
- Elevated cortisol

# SLEEP + HUNGER HORMONES

Hormone / System	Impact
Ghrelin ↑	Increases hunger, cravings, and food preoccupation
Leptin ↓	Reduces fullness/satiety signaling
Cortisol ↑	Elevates stress response and emotional eating vulnerability
Orexin / Hypocretin	Influences arousal, wakefulness, and food-seeking behavior
Dopamine sensitivity changes	Increases reward-seeking and impulsive eating behaviors



# SCREENING FOR SLEEP DISTURBANCES IN EATING DISORDERS

- Sleep history
- Dietary recall
- Clinical interview
- ISI
- EDE- Q
- Stop -bang
- ESS



**'STOP BANG' Questionnaire** For a Medicare subsidised sleep study a patient must score 4 or more.

Do you **S**nore loudly?  Yes  No

Do you often feel **I**ired?  Yes  No

Has anyone **O**bserved you stop breathing or choking/gasping during your sleep?

Do you have or are you being treated for high blood **P**ressure?  Yes  No

Is your **B**ody mass index more than 35 kg/m<sup>2</sup>?  Yes  No

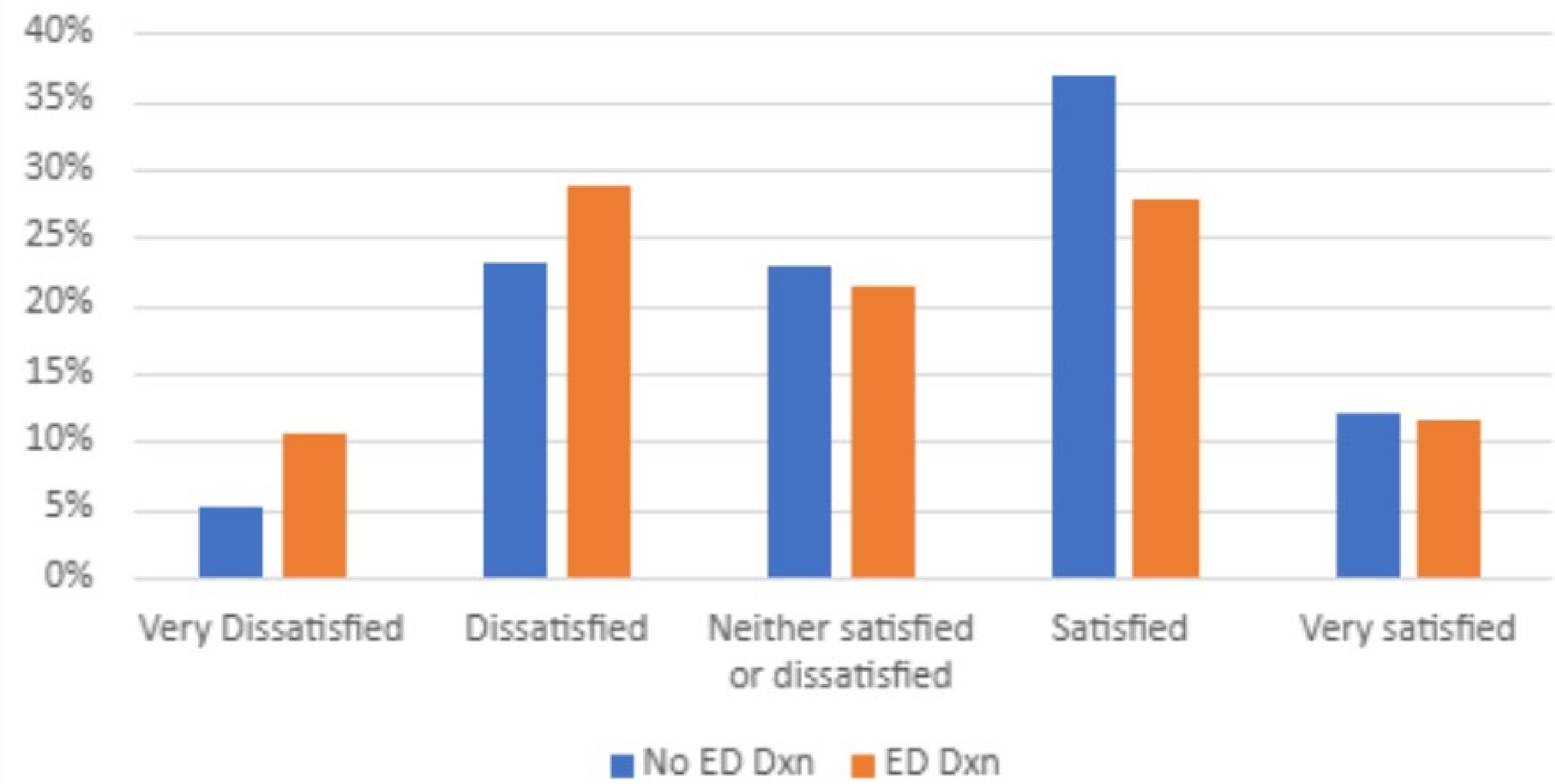
Are you **A**ged older than 50?  Yes  No

Is your **N**eck size: For male 17 inches / 43cm or larger?  
For female 16 inches / 41cm or larger? (measured around adams apple)  Yes  No

Is your **G**ender male?  Yes  No

**TOTAL 'YES' ANSWERS:**

### Q16. How satisfied are you with your sleep?



# CAFFEINE

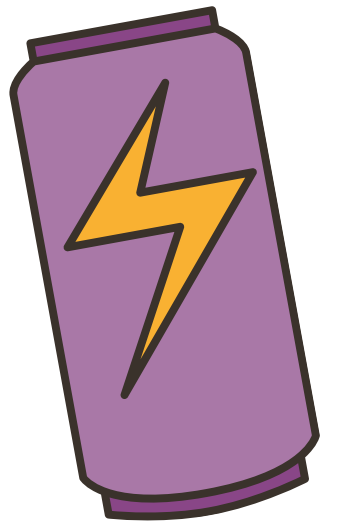
The U.S. FDA suggests that up to 400 mg/day is generally considered safe for healthy adults.

About 80 –90% of U.S. adults consume caffeine daily.

Average adult intake in the U.S. is approximately 135 –200 mg/day.



80 –120 mg



150–300 mg



34 - 54 mg

Many patients describe caffeine as helping them “function” despite significant energy deficits.

Restriction and caffeine often create a self -perpetuating cycle:

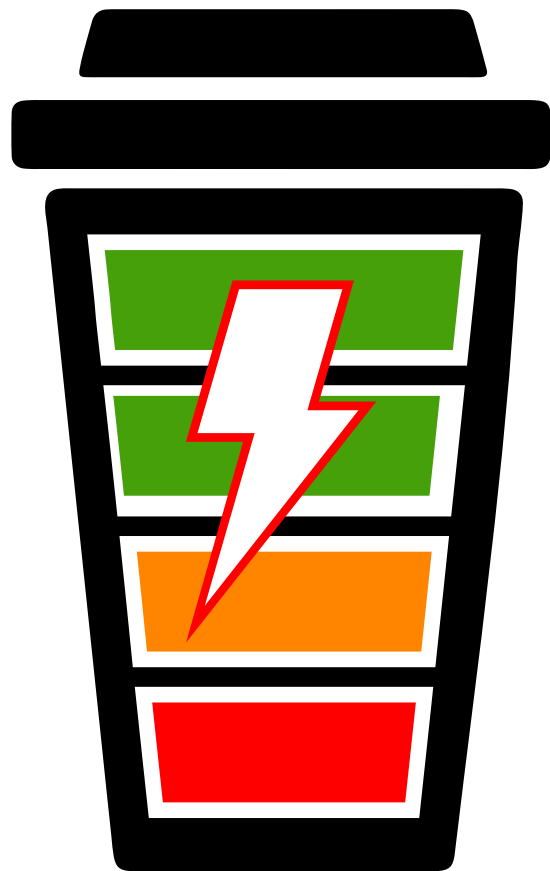
Inadequate intake → fatigue

Fatigue → increased caffeine

Increased caffeine → poorer sleep/appetite suppression

Poor sleep and intake → worsening exhaustion

## The Vicious Cycle



# Caffeine Vicious Cycle

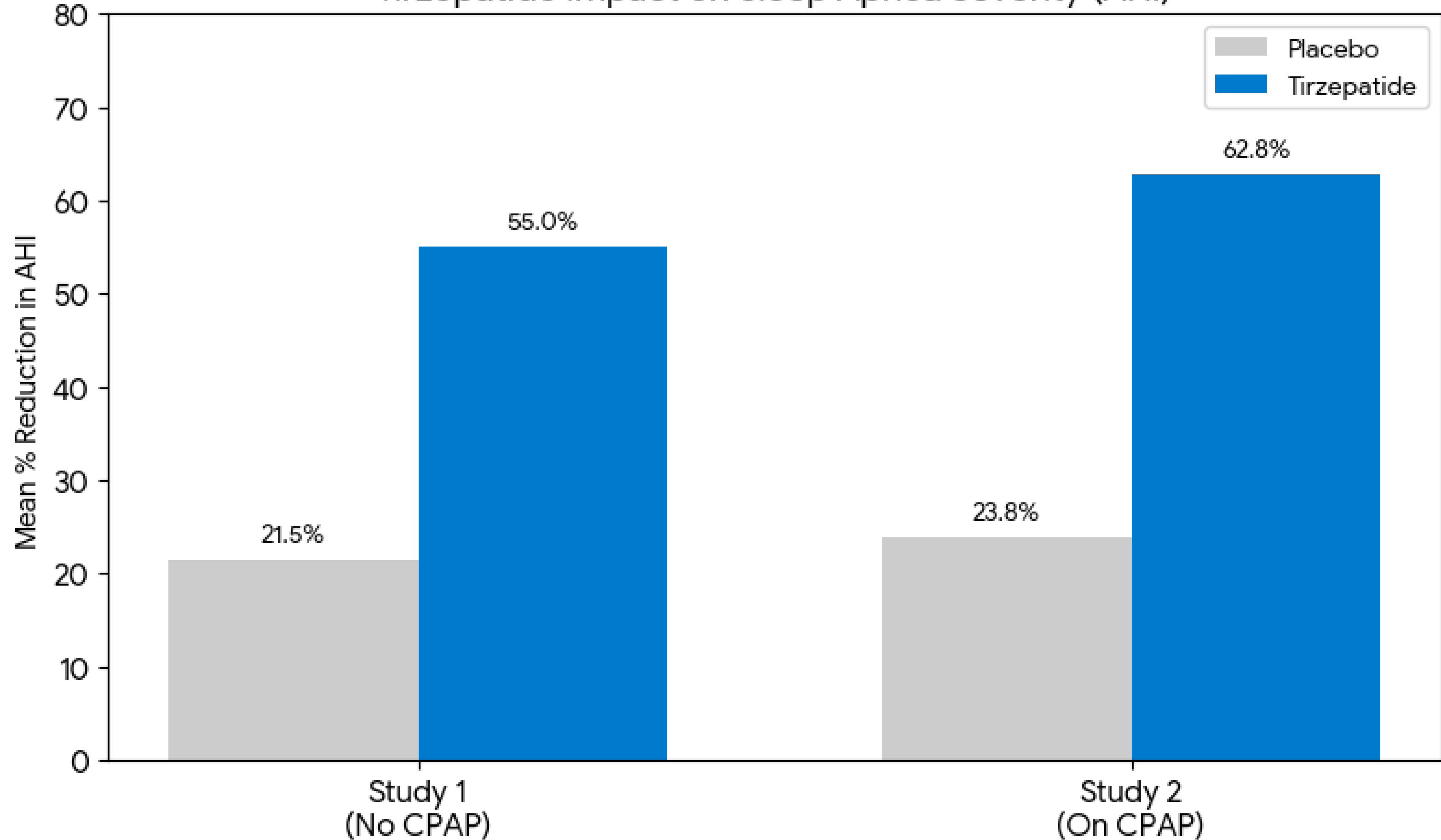


[www.darksecretsofcaffeine.com](http://www.darksecretsofcaffeine.com)



# The Illustrious GLP - 1s

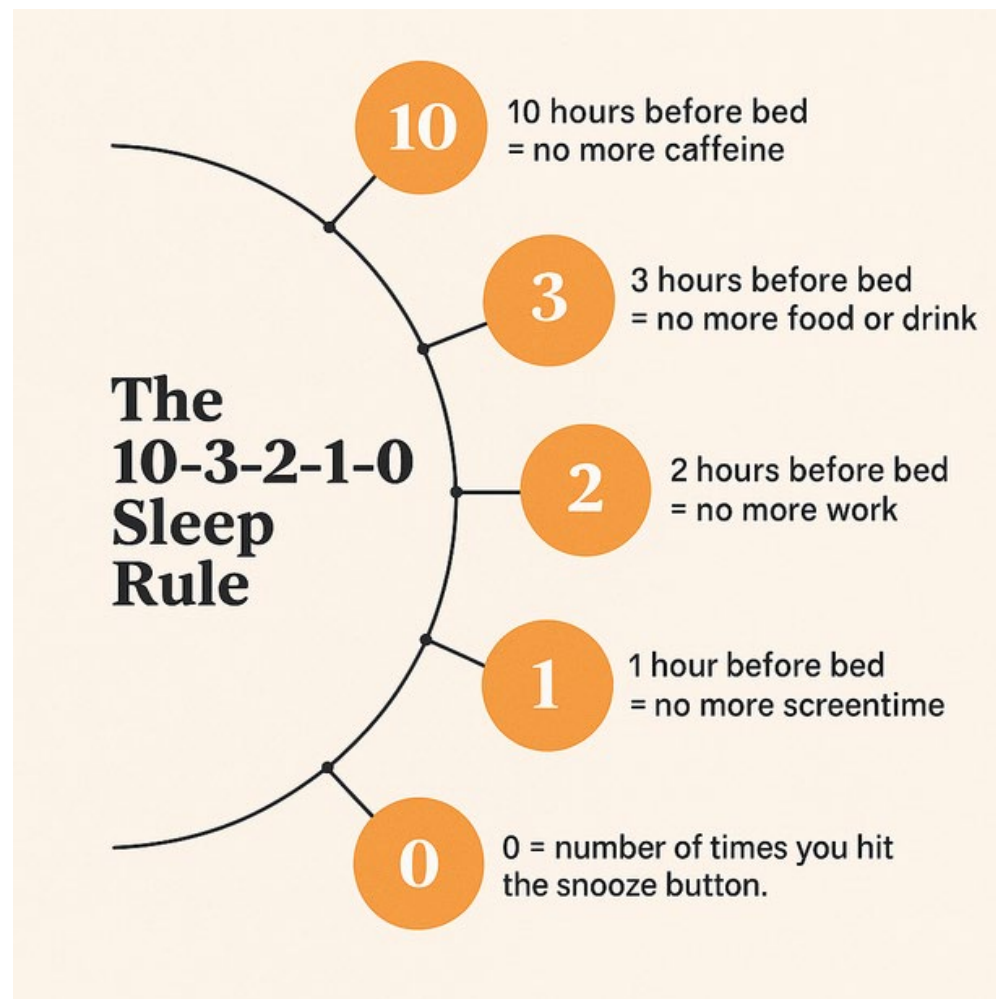
## Tirzepatide Impact on Sleep Apnea Severity (AHI)



# INTERDISCIPLINARY INTERVENTIONS

## Behavioral Interventions

- CBT -I Coach App
- Sleep hygiene tailored to ED populations
- Dr Lullaby
- BBTI Training Modules



## Nutritional Interventions

- Harm reduction
- Increased normalized meal bx
- Meal plan compliance
- Appropriate exercise
- Caffeine limitations

## Team Collaboration

- Therapists
- Dietitians
- Medical providers
- Sleep specialists



## Presentation

24 - year - old female with anorexia nervosa (restricting type)

BMI: 17.2, in PHP level of care

Reports sleeping ~4 –5 hours/night

Early morning awakening (3 –4 AM)

Daytime fatigue but “wired” at night

High caffeine intake (3 –4 coffees/day)

Increased rigidity and meal plan resistance

## Interventions

Structured meals every 3 –4 hours

Add evening snack

Reduced caffeine after 1 PM

CBT -I informed strategies

Wind -down routine

Reduce nighttime rumination

## Outcome

Sleep increased to ~6.5 –7 hours/night

ISI decreased to mild range

Improved meal plan compliance

Reduced anxiety and rigidity

**THANK YOU**



## Supporting Your Practice

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