
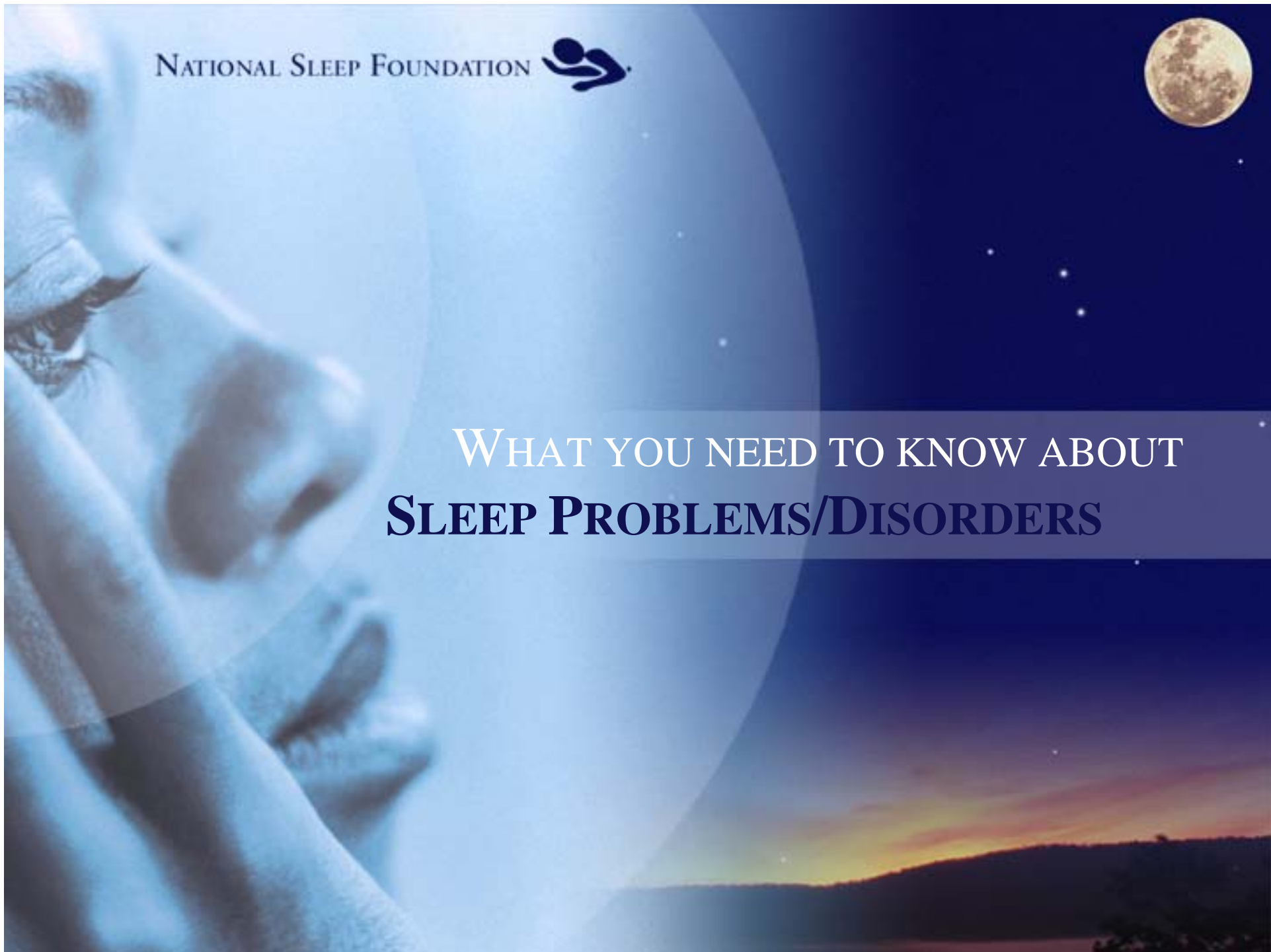


NATIONAL SLEEP FOUNDATION 



WHAT YOU NEED TO KNOW ABOUT
SLEEP PROBLEMS/DISORDERS





Drowsy Driving Trivia Questions

- Speed is a factor in what percent of all fatal crashes?
 - a) 31%
 - b) 45%
 - c) 80%

Correct answer: 31%





Drowsy Driving Trivia Questions

- Approximately how many decisions does a typical driver make every two minutes?
 - a) 40
 - b) 5
 - c) 25

Correct answer: 40 decisions





Drowsy Driving Trivia Questions

- A driver will brake how many times a year to avoid a rear-end collision?
 - a) 25,000
 - b) 50,000
 - c) 100,000

Correct answer: 50,000





Drowsy Driving Trivia Questions

- What percent of crashes are caused by alcohol impaired driving?
 - a) 21%
 - b) 41%
 - c) 61%

Correct answer: 41%






Drowsy Driving Trivia Questions

- What percent of crashes involve driver error?
 - a) 10%
 - b) 45%
 - c) 90%

Correct answer: 90%





Sleep problems and disorders affect 70 million Americans; 40 million on a chronic basis





Sleep Problems and Disorders

- There are over 80 sleep and sleep-related disorders that can affect our health, performance and quality of life
 - *Dyssomnias*: Difficulty initiating or maintaining sleep or excessive sleepiness
 - *Parasomnias*: Disorders of arousal from sleep or disorders that intrude into sleep
 - Sleep disorders associated with medical or mental disorders





What You Will Learn:

- Importance and Benefits of Sleep
- States and Stages of the Sleep Cycle
- Sleep Needs, Patterns and Characteristics for All Ages
- Sleep Deprivation and Its Consequences
- Prevalence, Symptoms and Risks Associated with Major Sleep Problems/Disorders
- Healthy Sleep Tips



Why is Sleep Important?

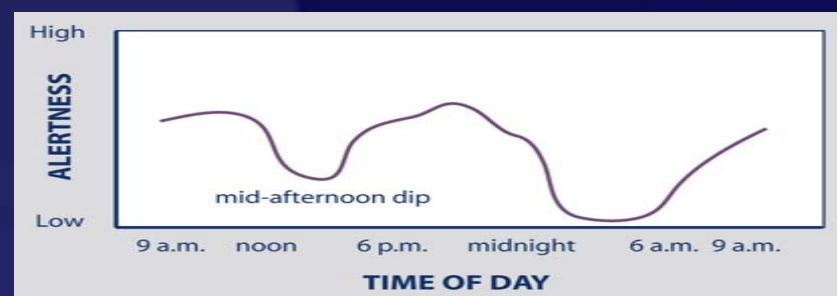
- Key to our health, performance, safety and quality of life
- As essential a component as good nutrition and exercise to optimal health
- As necessary as the water we drink, the air we breathe and the food we eat to function and live at our best.





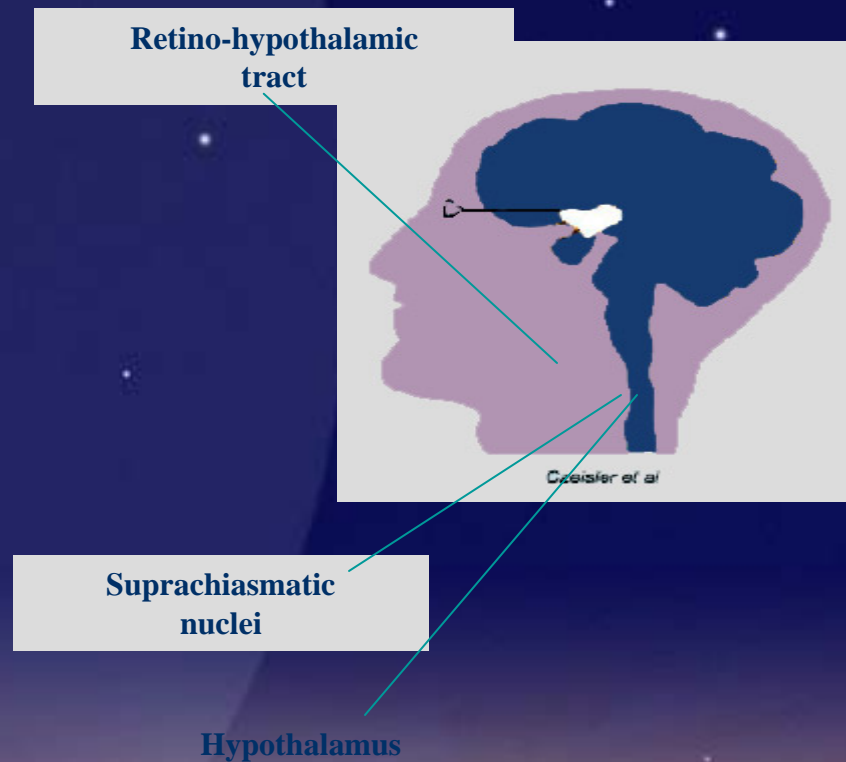
Sleep is regulated by two body systems:

- **Sleep/Wake Restorative Process**
Balances Sleep and Wakefulness
- **Circadian Biological Clock**
Regulates Timing of Sleep and Wakefulness



Circadian Biological Clock

- The internal mechanism that regulates when we feel sleepy and when we feel alert
- Resides in the brain and is affected by light and dark



Common Circadian Disruptions

Shift Work



*Working evening, night, irregular
or rotating shifts*

Jet Lag



*Traveling across time zones
disrupts sleep*

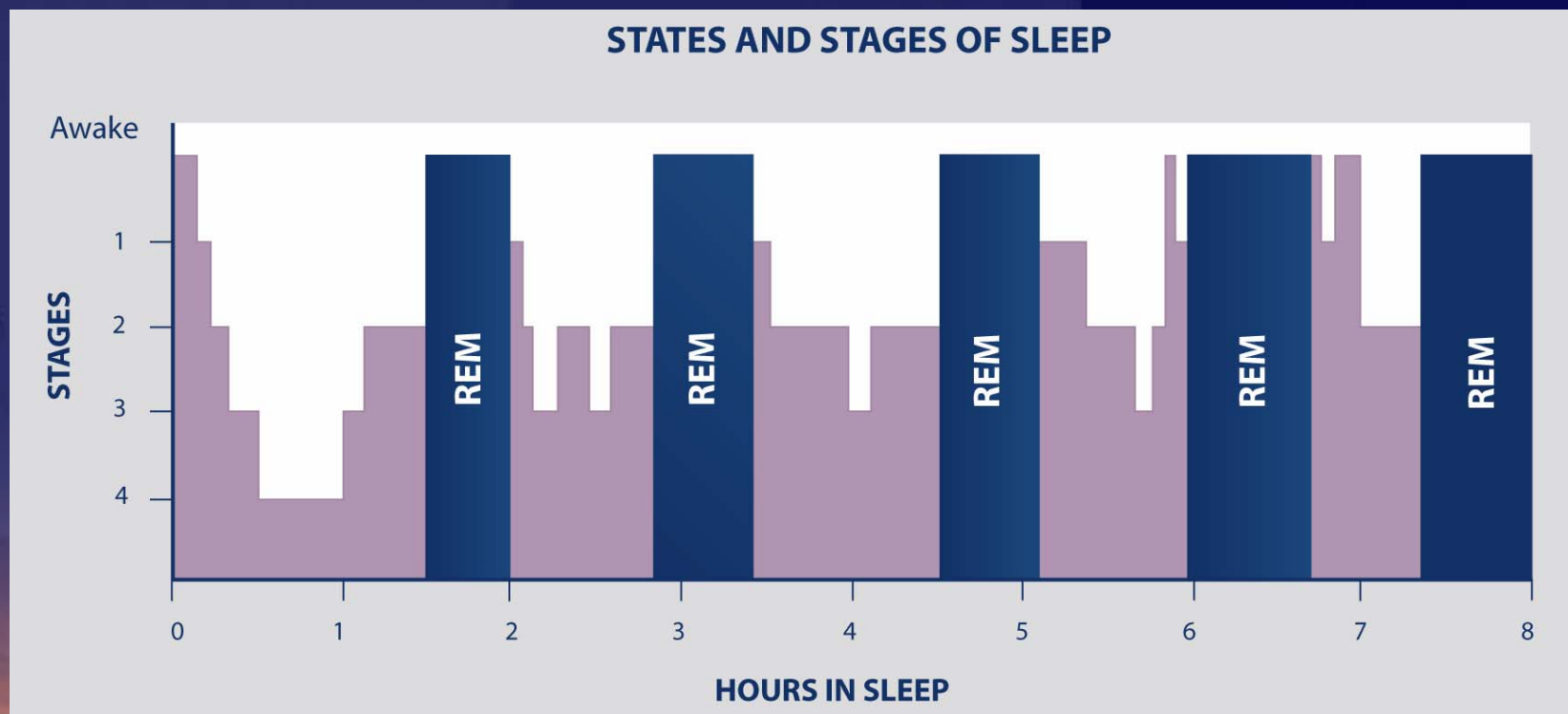




The Sleep Cycle

Alternating states and stages of sleep that occur over an 8-hour time period:

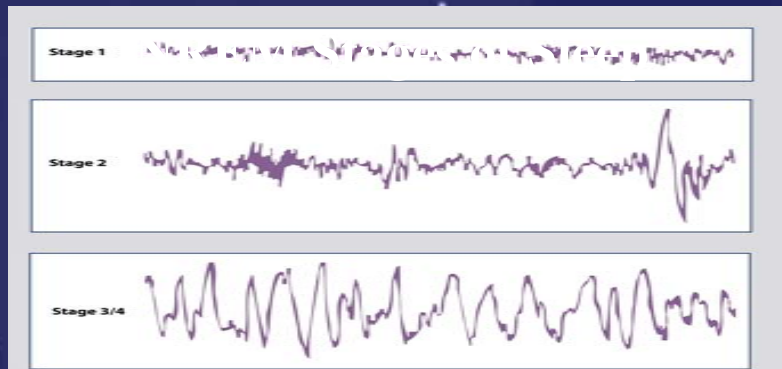
- **NREM:** Non-Rapid Eye Movement; Stages 1-4; 75% of the night
- **REM:** Rapid Eye Movement; Dreams occur; 25% of the night



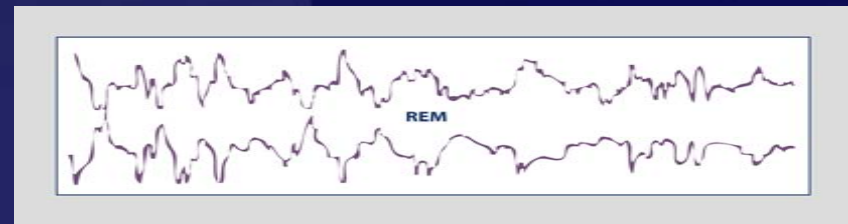


During the Sleep Cycle

- Brain waves represent different stages of sleep.



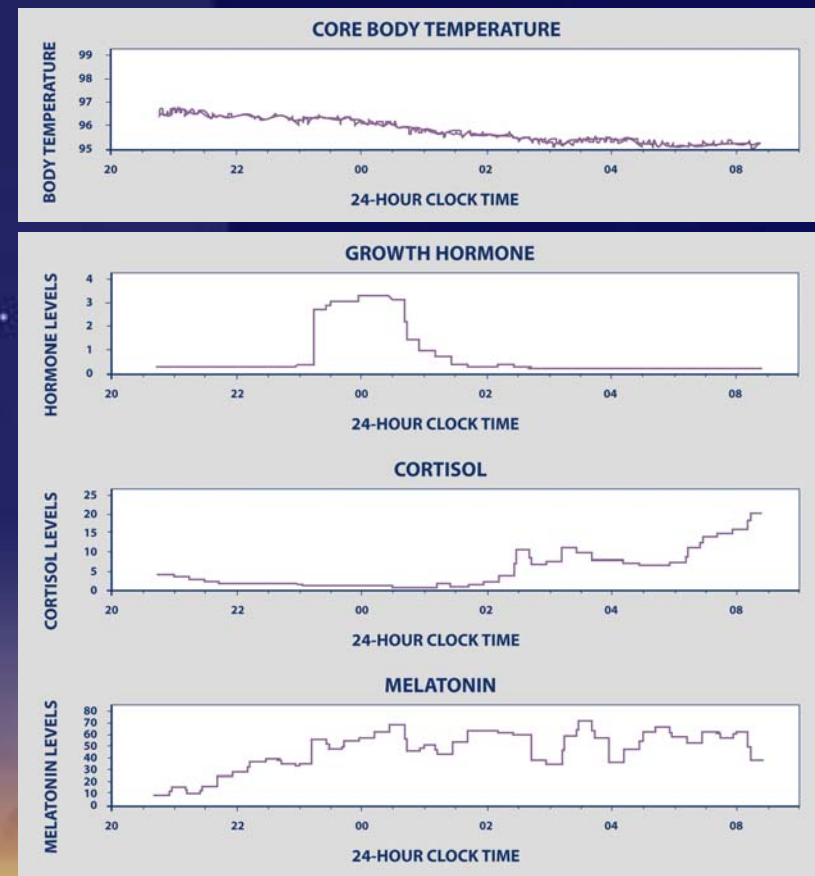
REM Sleep





During the Sleep Cycle (cont.)

- Body temperature lowers
- Hormone levels rise and fall



We need consolidated, restorative sleep for:

- Functioning in a safe, efficient and effective way.
- Cognitive, social and physical performance
- Emotional enhancement and relating well with others
- Learning and memory consolidation
- Prevention of health problems and optimal health





Sleep needs vary over the life cycle.

Newborns/Infants	0 - 2 months: 2 - 12 months:	10.5-18 hours 14-15 hours
Toddlers/Children	12 mo - 18 mo: 18 mo - 3 years: 3 - 5 years: 5 - 12 years:	13-15 hours 12-14 hours 11-13 hours 10-11 hours
Adolescents	On Average:	9.25 hours
Adults/Older Persons	On Average:	7-9 hours





Sleep patterns and characteristics change over the life cycle.

Newborns/Infants	More active in sleep; 50% REM; several periods of sleep; need naps
Toddlers	Sleep begins to resemble adult patterns
Children	Experience more deep sleep
Adolescents	Shift to later sleep-wake cycle; experience daytime sleepiness
Adults	Need regular sleep schedule to obtain sufficient, quality sleep
Older Adults	More likely to have medical problems; sleep disrupters & disorders; sleep less efficiently





Americans are not getting sufficient, quality sleep.

- 39% of Americans are NOT getting the 7-9 hours recommended for optimal health
- 74% experience **sleep problems** that affect the quality of their sleep





Excessive daytime sleepiness is a serious consequence of sleep deprivation.

Daytime sleepiness affects all aspects of our lives.

37% of American adults experience daytime sleepiness that interferes with daily activities





Health Consequences of Inadequate or Poor Sleep

- Body systems associated with major diseases such as diabetes function less effectively.
- Hormonal changes can accelerate the “paunch process” and lead to obesity.





Cognitive abilities and mood are affected by sleep deprivation.

- Memory is impaired when sleep is not consolidated
- Paying attention to and completing tasks is compromised
- Mood is impaired
- Over 1/2 of adults report that sleepiness makes it hard to concentrate, solve problems and make decisions at work



Safety is compromised.

- 100,000 sleep-related crashes per year; 1,500 fatalities and 71,000 injuries
- 51% of adults report driving drowsy; 17% dozed off at the wheel
- 27% report being sleepy at work at least 2 days/week
- 19% of adults report making errors at work; 2% injured





Crash Statistics are Conservative

- Only half of crashes are reported
- Maryland does have fatigue code and is using it at crash scenes
- There is no objective measurement (e.g., blood test)
- Self-reporting tends to be inaccurate
- Drowsiness is often linked to other factors (e.g., alcohol, drugs)
 - A drowsy driver's response will resemble that of someone under the influence of alcohol. Blood alcohol concentration .08 (Maryland's legal alcohol limit)



Other Statistics

NSF's 1999 "Sleep in America" Poll found:

- 62% reported driving drowsy in past year
- 27% actually dozed off at the wheel
- 23% knew someone who had a fall-asleep crash sometime in their life



Characteristics of Drowsy Driving Crashes

- Most happen between midnight – 6:00am and 2:00pm- 4:00pm (circadian dip)
- The driver is alone and more likely to be male
- A single vehicle drifts off the road and hits a stationary object
- Most are rear-end or head-on collisions
- There is no evidence of braking or evasive maneuvers
- Many involve serious injuries and/or fatalities



The Effects of Sleepiness and Fatigue

- Impaired reaction time, judgment and vision
- Problems with information processing and short-term memory
- Decreased performance, vigilance and motivation
- Increased moodiness and aggressive behaviors
- Increased “microsleeps” – brief (2/3 seconds) sleep episodes





Fatigue vs. Alcohol

- 18 hours sustained wakefulness produces performance impairment = .05% BAC
- 24 hours = .10% BAC (Dawson & Reid, 1997; Williamson & Feyer, 2000).
- People with mild to moderate untreated sleep apnea performed worse than those with a 0.06% BAC (Powell, 1999)
- On 4 hours sleep, 1 beer can have the impact of a six-pack (Roehrs et al., 1994)





Special At-Risk Groups Include:

- Young people
- Shift workers
- Commercial drivers
- People with undiagnosed or untreated sleep disorders
- Business travelers
- The elderly





Are You At Risk?

- Taking sedating medications
- Working more than 60 hours a week
- Working more than one job and your main job involves shift work
- Drinking even small amounts of alcohol
- Driving alone or on a long, rural, dark or boring road





Common Sleep Problems

- Chronic or short-term insomnia (more than 50% of all U.S. adults)
- Snoring (90 million Americans snore, 37 million habitually)
- Sleep Apnea (12 - 18 million Americans)
- Restless Legs Syndrome (2 - 15%)
- Narcolepsy (1 in every 2,000 Americans)





Recognizing Sleep Problems and Disorders

✓ **Check if any of the following apply to you:**

- Snore loudly
- You or others have observed that you stop breathing or gasp for breath during sleep
- Feel sleepy or doze off while watching TV, reading, driving or engaged in daily activities
- Have difficulty sleeping 3 nights a week or more (*e.g., trouble falling asleep, wake frequently during the night, wake too early and cannot get back to sleep or wake unrefreshed*)
- Feel unpleasant, tingling, creeping feelings or nervousness in your legs when trying to sleep
- Interruptions to your sleep (*e.g., nighttime heartburn, bad dreams, pain, discomfort, noise, sleep difficulties of family members, light or temperature*)





Insomnia

Inadequate or poor quality sleep:

- Difficulty falling asleep
- Frequent awakenings during the night
- Waking too early and can not go back to sleep
- Unrefreshed or non-restorative sleep





Prevalence of Insomnia

- Approximately 40% of American adults experience occasional insomnia; 10-15% on a chronic basis
- Those most at risk:
 - Women
 - Older Adults
 - Depressed Persons





Causes and Types of Insomnia

Cause	Type	Duration
Change: acute illness; jet lag, emotional stress Stress: loss of loved one or job	Acute	Transient: few nights a week Short Term: 1 – 2 weeks
Variety of physical, medical, psychiatric or environmental conditions	Chronic	> 1 month (at least 3 nights a week)
Not associated with underlying or known cause.	Primary	> 1 month
Chronic stress, hyperarousal, or behavioral conditioning may contribute.	Chronic	





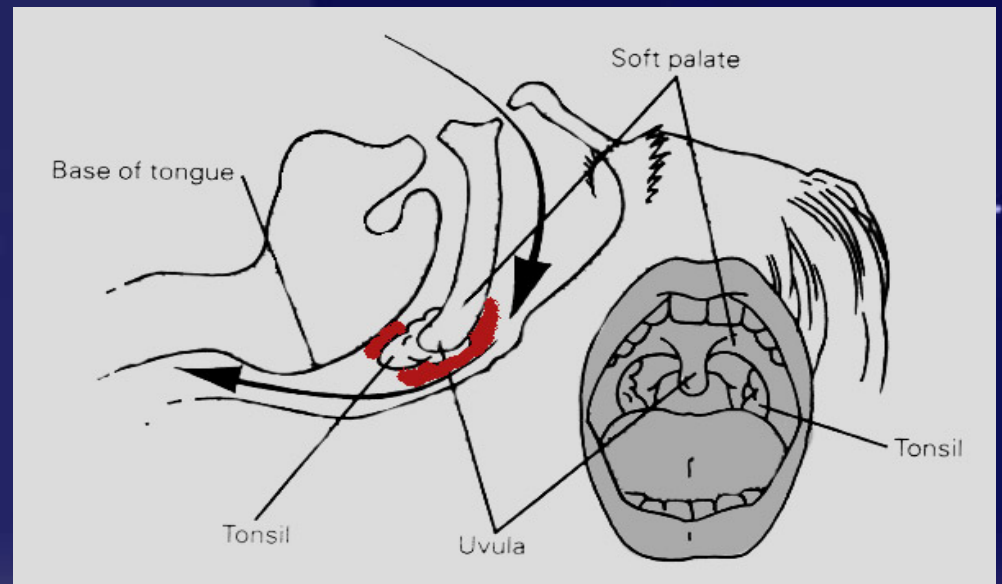
Treatment of Insomnia

- **Pharmacological Treatment**
 - Over-the-Counter (OTC's)
 - Prescription Medications
- **Behavioral Management**
 - Stimulus Response
 - Sleep Restriction
 - Cognitive Behavioral Therapy
 - Relaxation Training



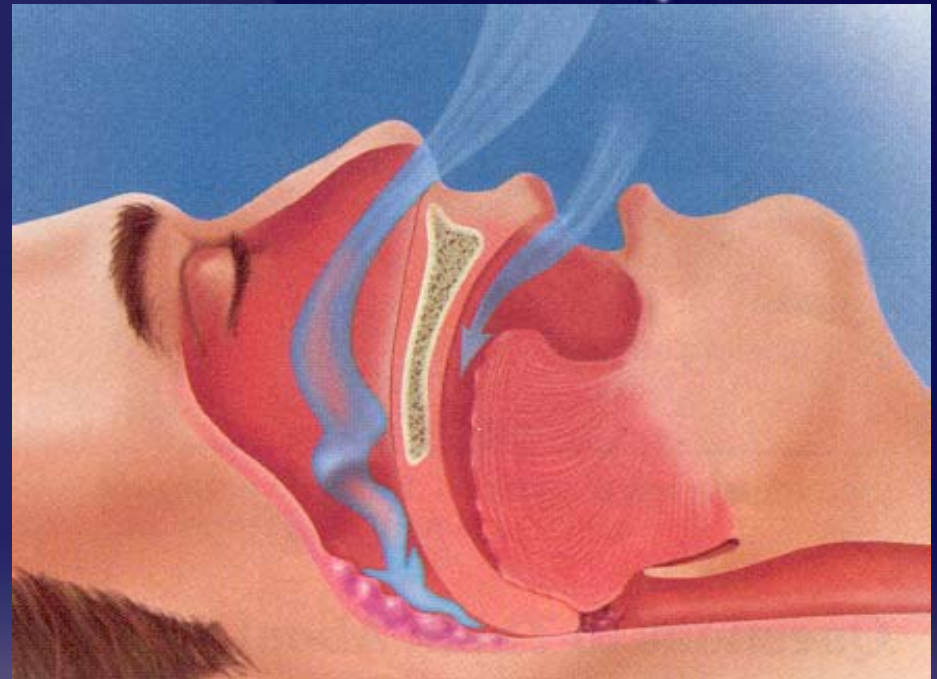
Snoring

- Partial blockage of airway causing abnormal breathing and sleep disruptions
- 90 million; 37 million experience on a regular basis
- Males, those who are overweight and with large neck size most at risk
- Loud snoring can be a symptom of sleep apnea and can be associated with high blood pressure.



Sleep Apnea

- Pauses in breathing due to obstruction in airway that causes gasps and arousals during sleep
- 18 million; mostly males, those who are overweight and/or have high blood pressure and persons with upper airway physical abnormality
- Lowers blood-oxygen levels, puts a strain on the heart and is associated with cardiovascular problems and daytime sleepiness





Treatment of Sleep Apnea

- **Behavioral Therapy**
 - Avoid alcohol, nicotine and sleep medications
 - Lose weight if overweight
- **Physical or Mechanical Treatment**
 - CPAP (Continuous Positive Airway Pressure)
 - Dental appliance
- **Surgery**



Restless Legs Syndrome

- Unpleasant, tingling, creeping feelings or nervousness in legs during inactivity and sleep with an irresistible urge to move; 80% may have involuntary jerking of limbs
- 12 million persons; can be genetic
- A neurological movement disorder leading to daytime sleepiness; can be associated with other medical conditions/problems



Narcolepsy

- Involuntary excessive daytime sleepiness; may include sudden loss of muscle tone in response to strong emotion, hallucinations and sleep paralysis
- 125-200,000 or 1/2000 persons; often diagnosed in 2nd decade of life
- Chronic neurological and disabling disorder that impairs ability to engage in daily activities; can lead to injuries if not treated



Sleep Tips to Promote Sleep and a Healthy Lifestyle

Establish a regular sleep schedule.

During the day:

- Avoid caffeine, alcohol and nicotine
- Exercise, but not too close to bedtime
- Avoid naps



Sleep Tips (cont.)

Establish a regular bedtime routine.

About an hour before going to bed:

- Engage in a relaxing, non-alerting activity
- Do not drink or eat too much
- Maintain a quiet, dark and preferably cool, but comfortable sleep environment





Seeking medical help at a sleep center



Keep a sleep diary to identify your sleep habits and patterns.





Summary

- Sleep is a basic biological need that is essential to our health, performance, safety and quality of life.
- Sleep deprivation has serious negative consequences.
- Establishing healthy sleep practices prevents sleep problems and promotes optimal sleep.
- Signs and symptoms of sleep difficulties need to be identified and discussed with a doctor.



NATIONAL SLEEP FOUNDATION



The National Sleep Foundation is an independent nonprofit organization dedicated to improving public health and safety by achieving public understanding of sleep and sleep disorders, and by supporting public education, sleep-related research and advocacy.

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