



MAYO CLINIC  
HEALTH SYSTEM

# Sleep Disorders The Effect on our Lives Every Day

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# Agenda

- Sleep Stages
- Sleep Apnea
- Sleep Disorders
- DOT requirements
- Drowsy Driving
- Improving Sleep Habits

# What is Healthy Sleep?

- Sleep is vital to our physical and mental health.
- Like all animals we need sleep, food, water and oxygen to survive.
- People spend 1/3 of their lives sleeping.
  - Adults need 7-9 hours of sleep each 24 hours.
- Sleep needs varies across ages of our lives.

# Sleep Stages

- N1- Light sleep stage, when you are falling asleep.
- N2- Intermediate sleep stage, this is where you will spend most of the sleep cycle.
- N3- Deep sleep stage, body repairing stage.
- REM- Rapid Eye Movement, or dreaming sleep stage. Most brain activity, body function speeds up.
- Continue to move from one stage to another.

# NREM versus REM Sleep

<u>Physiologic Variable</u>	<u>NREM</u>	<u>REM=Dream Sleep</u>
Heart Rate	Regular	Irregular
Respiratory Rate	Regular	Irregular
Blood Pressure	Regular	Variable
Skeletal muscle tone	Preserved	Absent
Brain O <sub>2</sub> consumption	Reduced	Increased

# Sleep Apnea Prevalence

- 3-7 % of men
- 2-5 % of women
- Underdiagnosed
- Higher in people who are obese and elderly

2/08/15 American Thoracic Society

# Sleep Apnea-Obstructive & Central

## Effects on the body when this occurs:

- Autonomic Nervous system
  - Heart Rate increases
  - Blood vessels constrict
  - Glucose is released=demand for insulin increases
  - Lack of oxygen causes inflammatory affect on the blood vessels
    - Increased heart attacks, strokes, blood pressure
    - Speeds dementia
    - Heart Rhythm disturbances
    - Sudden death

# Treatment for Sleep Apnea

- Surgery or oral devices
- Inspire Sleep
- CPAP-Continuous positive airway pressure
- ASV-Adaptive Servo Ventilation
  - Adapts to the breathing needs-usually for people that develop central sleep apnea on CPAP or Bi-Pap
- Bi-Pap-different pressure for inspiration and expiration.
  - Can be set to trigger a breath



# Other Sleep Disorders

- **Circadian Rhythm Disorder**
- **Insomnia**
- **Restless Leg Syndrome**
- **REM behavior disorder**
- **Narcolepsy**
- **Idiopathic Hypersomnolence**
- **Shift work disorder**
- **Not getting enough sleep**

# Department of Transportation License Exams

- Medical providers now need to be certified to perform DOT exams.
- If the DOT medical provider suspects sleep apnea (neck circumference, crowded throat, reports symptoms of Sleep Apnea) then Sleep Consult is required.
- **If Sleep Apnea is diagnosed**
  - Driver must have documentation that he/she uses the PAP device at least 4 hours for 70% of the time.
  - DOT medical exam each year

# Sleepy Driver Video



# Sleepy Driver Video



# Drowsy Driving Facts and Stats

- Four percent – approximately eleven million drivers – admit they have had an accident or near accident because they dozed off or were too tired to drive.
- The National Highway Traffic Safety Administration conservatively estimates that 100,000 police-reported crashes are the direct result of driver fatigue each year.
- This results in an estimated 1,550 deaths, 71,000 injuries, and \$12.5 billion in monetary losses.

# Facts and Stats Continued

- According to data from Australia and European nations, drowsy driving represents 10 to 30 percent of all crashes.
- A study by researchers in Australia showed that being awake for 18 hours produced an impairment equal to a blood alcohol concentration (BAC) of .05, and .10 after 24 hours.
- Probably underestimated

# More Facts and Stats

- State reporting practices are inconsistent.
  - Law enforcement training doesn't focus on identifying drowsiness as a crash factor.
- Every state currently addresses fatigue and/or sleepiness in some way in their crash report forms.
- The codes used for the data are inconsistent.
  - Missouri and Wisconsin do not have specific codes for fatigue and/or fell asleep.

Retrieved from website: [www.drowsydriving.org](http://www.drowsydriving.org)

## Tips for Improving Sleep Habits

1. Avoid caffeine, alcohol and nicotine prior to bedtime
2. Keep a regular sleep schedule
3. Exercise early
4. Follow a relaxing bedtime routine

5. Go to bed only when you're sleepy

6. Use the bed to sleep, not work

7. Make your bedroom a comfortable place to rest



8. Avoid naps

9. Follow doctor's guidance on sleep medication

10. Change your electronic habits



For more sleep tips, visit [dcoe.mil/blog/sleeptips](http://dcoe.mil/blog/sleeptips)



# Questions & Discussion