



# Drowsy Driving

*Awareness and Prevention*

# OUR THANKS!

***This educational program was funded by the National Highway Traffic Safety Administration with a grant from the New York Governor's Traffic Safety Committee***

# N.Y.A.P.T.

- ▶ *The New York Association for Pupil Transportation has produced this educational program as part of a Highway Safety Grant provided through the Governor's Traffic Safety Committee with NHTSA funding. (2017)*
- ▶ *NYAPT wishes to thank the Pupil Transportation Safety Institute (PTSI) for its collaboration in the design and development of this educational offering.*



# Today's Training Will Address...

- ▶ Scope of the problem - data
- ▶ Risk factors of drowsy driving
- ▶ Warning Signs
- ▶ Causes of fatigue
- ▶ What Doesn't work to prevent drowsiness
- ▶ Sleep Disorders
- ▶ Drowsy Driving Legislation

# Scope of the Problem

- ▶ 6% of all crashes and 21% of all fatal crashes involved a fatigued driver
- ▶ 6,000 lives lost annually
- ▶ 30% of all drivers in the US have dozed off behind the wheel



\* 2014 National Safety Council and AAA statistics

# Effect on Driving

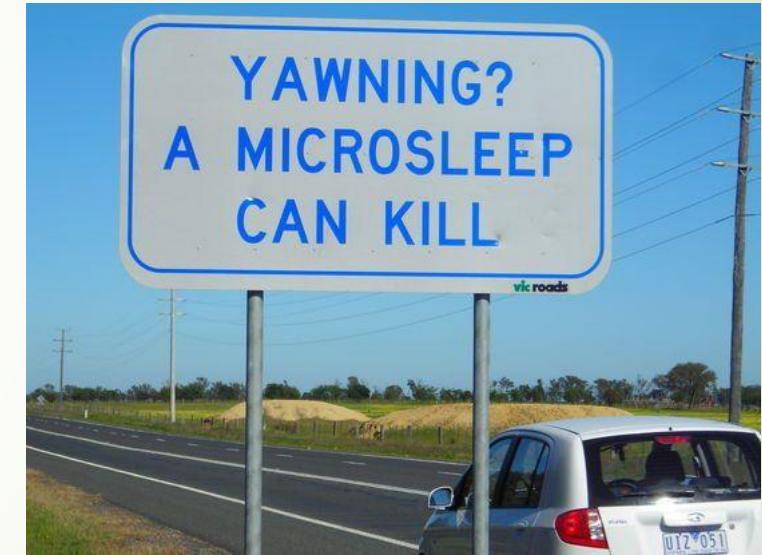
## Fatigue = Reduced Safety Performance



- ▶ Driving after only 4-5 hours of sleep = similar crash risk as driving legally drunk at .08 BAC
- ▶ Drowsy driving is similar to drunk driving
- ▶ Driving after sleeping only 5-6 hours a night nearly doubles your risk of having a crash

# A Micro-sleep Can Kill You In Seconds...

- ▶ In a 3 second micro-sleep, traveling 45 mph, your vehicle travels 198 feet – 65 yards
- ▶ 4 average school bus lengths
- ▶ More than half a football field





[natgeotv.com](http://natgeotv.com)

# Risk Factors for Driving Drowsy



- ▶ Sleeping less than 7 hours in past 24 hours
- ▶ Untreated sleep disorder
- ▶ Obstructed sleep apnea or insomnia
- ▶ Defy circadian rhythm
  - ▶ Shift work
  - ▶ Night driving
- ▶ Driving long distances without breaks
- ▶ Medication
- ▶ Alcohol or illegal drug use

# Warning Signs



- ▶ Yawning or blinking frequently
- ▶ Difficulty keeping your eyes open (2-3 second micro-sleeps)
- ▶ Difficulty remembering the past few miles driven
- ▶ Missing your exit
- ▶ Missed road signs
- ▶ Drifting from your lane
- ▶ Hitting a rumble strip on the side of the road
- ▶ No memory of having driven last section of road

# Primary Cause of Drowsiness...

- ▶ Fatigue
  - ▶ Sleep deprivation
  - ▶ Poor quality sleep
  - ▶ Circadian rhythm (time of day)

**Let's look at each of these in detail...**

# Sleep Deprivation

- ▶ **Lack of sleep**
  - ▶ 7-9 hours of sleep daily required
  - ▶ 47% of US workforce is sleep deprived
  - ▶ Large part of population has untreated sleep disorders
- ▶ **Time awake**
  - ▶ 16 hours of being awake – your performance degrades significantly

# Poor Quality of Sleep



- ▶ Insomnia
- ▶ Restless or sick spouse in your bed
- ▶ Noisy environment
- ▶ Lights
- ▶ High temperatures
- ▶ Humidity
- ▶ Uncomfortable or new sleep environment

# No Substitute for Rest

- ▶ Get enough sleep
  - ▶ 7-8 hours consecutive hours
- ▶ Establish a bedtime and make it routine
  - ▶ Let people know what time you regularly go to bed and why it is important
  - ▶ Your body will establish an internal clock for your regular bedtime
- ▶ Between runs – take a break/nap if possible



# Driver Fatigue

- ▶ When we are tired we make mistakes
- ▶ Reduces ability to focus
- ▶ Slows physical/mental skills
  - ▶ Response time
  - ▶ Concentration
  - ▶ Awareness
  - ▶ Attitude



# Circadian Rhythm

## Circadian Rhythm

- ▶ Sleep/wake cycle corresponds to time of day
- ▶ Everyone follows this natural cycle
- ▶ Circadian lows between 10pm and 7am
- ▶ Also experience a biological clock dip between 2pm and 3pm
- ▶ Being awake during these times is challenged by our body's natural response to circadian lows

# Post Lunch Slump

- ▶ Beware the post lunch slump
- ▶ After eating (assumed to be noon)
- ▶ Carbohydrate overload can cause dip from approximately 1pm to 3pm
- ▶ Be aware of your body and sleep needs
- ▶ Schedule routine power nap before afternoon routes



# Sleep Apnea

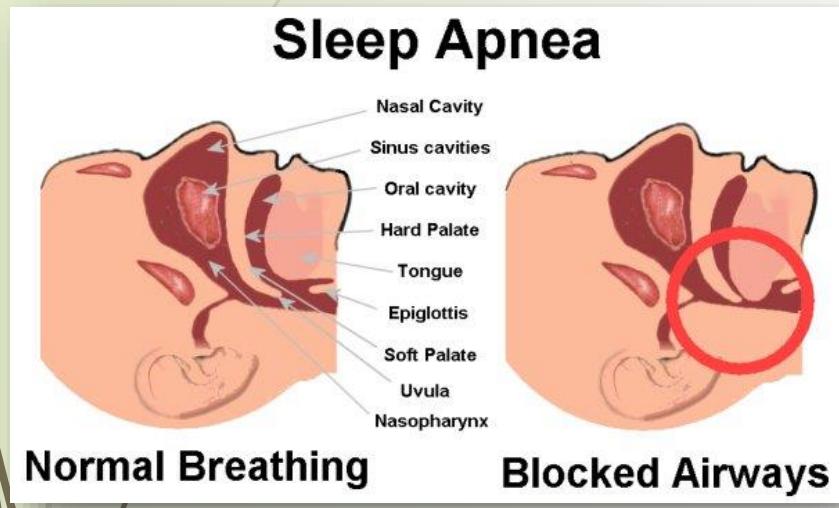


- ▶ Disruption of breathing while asleep
- ▶ 90% of people who have sleep apnea don't know they have it!
- ▶ If left untreated, this common disorder can be life-threatening.

# Sleep Apnea Symptoms

- ▶ **Frequent silences during sleep** due to breaks in breathing (apnea)
- ▶ **Choking or gasping during sleep** to get air into the lungs
- ▶ **Loud snoring**
- ▶ **Sudden awakenings** to restart breathing or waking up in a sweat
- ▶ **Daytime sleepiness** and feeling unrefreshed by a night's sleep, including falling asleep at inappropriate times

# What Happens?



- ▶ When you stop breathing during sleep due to sleep apnea, the balance of oxygen and carbon dioxide in the blood is upset.
- ▶ The brain signals you to wake up so the muscles of the tongue and throat can increase the size of the airway.
- ▶ These waking episodes are necessary to restart breathing (and to save your life).
- ▶ You may not remember, but these episodes disrupt your sleep and cause daytime exhaustion.

# Two Types of Sleep Apnea

## ► Obstructive Sleep Apnea (OSA)

► OSA is the most common type of sleep apnea. It is caused by a breathing obstruction, which stops the air flow in the nose and mouth.

## ► Central Sleep Apnea (CSA)

► Central sleep apnea (CSA), less common than OSA, is a central nervous system disorder that occurs when the brain signal telling the body to breathe is delayed. CSA can be caused by disease or injury involving the brainstem, such as a stroke, a brain tumor, a viral brain infection, or a chronic respiratory disease. People with CSA seldom snore.

# Effects of Sleep Apnea



- ▶ Sleep apnea has serious health consequences and can even be life-threatening.
- ▶ The main effects of sleep apnea are:
  - ▶ sleep deprivation
  - ▶ oxygen deprivation

# Sleep Deprivation

- ▶ Frequent waking causes fitful sleep and prohibits therapeutic rest.
- ▶ Apnea episodes have side effects like excessive sweating and a frequent need to urinate which disrupt sleep.
- ▶ Awake feeling like you have not slept or have difficulty staying awake during the day.
- ▶ Some trickle-down effects include a compromised immune system, poor mental and emotional health, and irritability.

# Oxygen Deprivation



- ▶ When you stop breathing, your brain does not get enough oxygen.
- ▶ Serious problems can result from the oxygen deprivation of sleep apnea, including heart disease, high blood pressure, sexual dysfunction, and learning/memory problems.

# Depression and Sleep Apnea

- ▶ Approximately 1 in 5 people who suffer from depression also suffer from sleep apnea
- ▶ People with sleep apnea are 5 times more likely to become depressed.
- ▶ Sleep Apnea may worsen existing depression.
- ▶ While it is not clear whether the apnea causes the depression or vice-versa, studies show that by treating sleep apnea symptoms, depression may be alleviated in some people.

# Self-help Treatment for Mild Sleep Apnea

- ▶ **Lose weight:** Overweight individuals who lose even 10% of their weight can reduce sleep apnea and improve sleep quality.
- ▶ **Stop using alcohol, tobacco, and sedatives:** avoid anything that relaxes the muscles of the throat and encourages snoring.
- ▶ **Sleep on your side:** Special pillows or remedies that encourage side-sleeping might help people who only experience sleep apnea when they sleep on their back.
- ▶ **Elevate the head of your bed 4 to 6 inches:** This can alleviate snoring and make breathing easier.
- ▶ **Maintain regular sleep hours:** create a routine and stick to it.
- ▶ **Use a nasal dilator, nasal congestion strips, or saline nasal spray:** these will help to open nasal passages.

# Chronic Fatigue Syndrome (CFS)



Chronic Fatigue Syndrome (CFS) is a condition of prolonged and severe tiredness or weariness (fatigue) that is not relieved by rest and is not caused directly by other conditions. To be diagnosed with this condition, your tiredness must be severe enough to decrease your ability to participate in ordinary activities by 50%.

# CFS Diagnosis

- ▶ Fatigue or tiredness, never experienced to this extent before (new onset), lasting at least 6 months and not relieved by bed rest
- ▶ Fatigue severe enough to restrict activity (serious fatigue develops with less than one-half of the exertion compared to before the illness)
- ▶ There are no specific tests to confirm the diagnosis of CFS, though a variety of tests are usually done to exclude other possible causes of the symptoms.

# CFS Symptoms

- ▶ Fatigue lasting more than 24 hours after normal exertion
- ▶ Feeling unrefreshed after adequate sleep
- ▶ Forgetfulness or other similar symptoms including difficulty concentrating, confusion, or irritability
- ▶ Headaches, different from previous headaches in quality, severity, or pattern
- ▶ Joint pain, often moving from joint to joint
- ▶ Lymph node tenderness in the neck or armpit
- ▶ Mild fever (101 degrees F or less)
- ▶ Muscle aches
- ▶ Unexplained muscle weakness
- ▶ Sore throat

# Medications

- ▶ Become a label reader!
- ▶ Any medication that identifies a side effect of drowsiness – heed the warning!
- ▶ Modify dosage schedule so drowsiness happens at night when you are not going to be driving a school bus
- ▶ Ask your physician is there is an alternative medication that does not cause drowsiness
- ▶ Beware over the counter medications as well – read the label carefully



# When You Experience Warning Signs



- ▶ Stop driving immediately
- ▶ Pull over in a safe place
- ▶ Walk around the vehicle and take in fresh air
- ▶ Nap for 10-20 minutes if possible
- ▶ If warning signs persist - Notify your dispatch

# What You Can Do to Prevent Drowsy Driving...

- ▶ Get at least 8 hours sleep daily
- ▶ Avoid driving during the times you are normally sleeping
- ▶ Avoid medications whose side-effect is drowsiness
- ▶ Keep temperatures in driver's compartment cool
- ▶ During long trips take a break every 2 hours (or sooner if warning signs are present)

# Awareness is Key



- ▶ Awareness of the risks and your body's reaction to sleep deprivation is key
- ▶ Our society spins at a faster pace than ever before
- ▶ Sleep deprivation becomes a way of life
- ▶ But for a school bus driver, there is so much more riding on your good nights sleep

# Make it Routine...

- ▶ Create good sleep routines and follow them
- ▶ When you are fatigued – choose not to drive
- ▶ If you experience the warning signs while driving your bus – pull over and notify dispatch
  - ▶ No matter what you think the consequences will be – they will be less than if you cause a crash and kill a child
- ▶ Driving when you are sleepy or tired is risking your life and the lives of your students

# Thank you!



You Snooze You Lose  
Don't Drive Drowsy