

Sleep, Teens, and Driving

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I. - Introduction

The National Institute of Health has identified adolescents and young adults as a population at high risk for problem sleepiness. This high risk is based on the troubling and serious consequences of injury and death due to lapses in attention and delayed response at critical moments, such as while driving.

Drowsiness has been identified as the principle cause in at least 60,000 to 100,000 police-reported traffic crashes each year. Killing more than 1,500 Americans and injuring another 40,000 to 71,000 people. Young drivers, age 25 or under, are involved in more than one-half of fall-asleep traffic crashes each year

Sleep is a basic drive of nature. Sufficient sleep helps us think more clearly, complete complex tasks more efficiently and consistently. This enables us to enjoy everyday life more fully. Insufficient sleep, on the other hand can be harmful, even life-threatening. The sleep deprived brain seeks to satisfy its need for sleep. Decreased levels of sleep cause decreased levels of alertness or concentration, and, in many cases, sudden sleep. Sleepiness is believed to significantly increase the chance of falling asleep at the wheel. A North Carolina state study found that drivers age 25 or younger cause more than one-half of fall-asleep crashes.

The Sleep, Teens and Driving Module is designed to expand adolescent knowledge and awareness of the dangers of driving while drowsy.

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I. - Goals

The goal of this module is to have a positive impact on the reduction of teenage sleep deprived driving crashes. This is achieved by teens making safe decisions based on increased knowledge and awareness.

II. - Instructional Objectives

At the conclusion of this module the students will be able to:

- 1a.** recognize that adolescent biological clocks are different than child or adult biological clocks.
- 1b.** recognize that adolescents need more sleep than children or adults.
- 2a.** recognize that most people underestimate the impact of sleep deprivation on performance.
- 2b.** describe the relationship between sleep deprivation and driving performance.
- 3.** understand that the brain is the only organ that requires or benefits from sleep and it will fall asleep when it needs to.
- 4.** understand the concept of sleep debt and how it can be paid off.
- 5.** understand that sleep is mandatory.
- 6.** calculate the amount of sleep they need.
- 7.** plan a schedule to get the proper amount of sleep.
- 8.** identify signs of sleep deprivation.
- 9.** identify the risks associated with sleep deprived driving.
- 10.** develop plans for reducing the negative impact that sleep deprived driving will have on themselves and their peers.

(The objective numbers match with the quiz questions.)

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IV. - The Module

Overview

This module provides resources for driver education teachers to use in discussing the subject of sleep deprivation. The module will take about one class period (45-60 minutes).

To present the module materials, for the best student outcomes, we recommend the following procedure.

First, present the quiz but do not correct it.

Second, view the video [To Sleep?, To Drive?](#).

Third, use the visuals to help students understand the impact of a lack of sleep and it's affect on driving. The visuals address the key points about sleep and driving performance. Both the visuals and the video can be the trigger for class or small group discussion.

Fourth, the students retake the quiz scoring it this time.

Video Synopsis:

The video is an overview of a driving study done at the Minnesota Highway Safety Center at St. Cloud State University. It begins with a news story by WCCO-TV Minneapolis. The second part follows the driving of two college students as they demonstrate, over a two day period, rested and sleepy driving. Following each driving demonstration there is a critique of the driving performance of each driver. Finally, the video tells the sad story of a sleepy teenage driver as told by her mother. This is a true story of a Prior Lake High School student.

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The Quiz:

In the attachments are four forms of the quiz. These are the same questions with a word changed to change the answer from true to false. During 2000 this quiz was presented to 637 senior high students around Minnesota. The original quiz had all false statements. Nineteen students out of the 637 (3%) answered all ten questions correctly.

Quiz Keys					Results of quiz surveys	
Question	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>Ranking</u>	<u>Percent of error</u>
1	F	F	F	F	5	37%
2	F	T	F	T	1	19%
3	F	F	F	F	2	23%
4	T	F	T	F	4	28%
5	T	T	F	T	9	57%
6	F	F	F	F	8	46%
7	T	T	T	F	10	65%
8	T	T	T	T	6	40%
9	F	T	T	T	7	46%
10	T	F	T	T	3	25%

We would like to thank the schools that participated in that survey.

Albrook HS, Crookston HS, Duluth Denfield HS, Duluth East HS, Fosston HS, Hills Beaver Creek HS, Lake Park/Audubon HS, Marshall HS, Minneota HS, Oklee HS, Princeton HS, Springfield HS, Training Wheels Inc. Driving Schools

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IV. - References

Much of the information to develop this module came from articles and research studies listed below.

“Why Do People have Drowsy Driving Crashes” AAA
Foundation for Traffic Safety

“Adolescent Sleep Needs and Patterns” National Sleep
Foundation

“NHTSA and NCSDR Program Report to Combat Drowsy
Driving” A report to the House and Senate Appropriations
Committees. National Highway Traffic Safety
Administration (NHTSA), National Center on Sleep
Disorders Research (NCSDR)

The Federal Highway Administration (FHA)

Other sources of information: (Some suggested by the NSF.)

AAA Foundation for Traffic Safety
1440 New York Avenue NW
Suite 201
Washington, DC 20005-6001
www.aafts.org

American Academy of Child & Adolescent
Psychiatry
3615 Wisconsin Ave. NW
Washington, DC 20016-3007
www.aacap.org

American Academy of Pediatrics
141 Northwest Point Boulevard
Elk Grove Village, IL 60007-1098
www.aap.org/family/sleep.htm

American Academy of Sleep Medicine
6301 Bandel Road Suite 101
Rochester, MN 55901
www.aasm.org

American Association of School
Administrators
1801 N. Moore Street
Arlington, VA 22209
www.aasa.org
s.dhhs.gov/hsp/cyphome.htm

American Driver and Traffic Safety Education
Association
Indiana University of Pennsylvania
Highway Safety Center R & P Building
629 Fisher Ave.
Indiana, PA 15705-1092
www.adtsea.iup.edu

American School Health Association
7263 State Route 43 P.O. Box 708
Kent, OH 44240-0013
www.ashaweb.org/

Board on Children Youth
and Families National Academy of Sciences
Institute of Medicine
2101 Constitution Avenue HA 156
Washington, DC 20418
www.national-academies.org/cbsse/bocyf

Center for Applied Research and Educational
Improvement,
College of Education & Human Development
265-2 Peik Hall
159 Pillsbury Drive SE
University of Minnesota
Minneapolis, MN 55455-0208
<http://carei.coled.umn.edu>

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Department of Adolescent and School Health
(DASH) National Center for Chronic Disease
Prevention and Health Promotion Centers for
Disease Control and Prevention
1600 Clifton Road NE
Atlanta, GA 30333
www.cdc.gov/nccdphp/dash

Insurance Institute for Highway Safety
1005 N. Glebe Road Suite 800
Arlington, VA 22201
www.iihs.org
www.hwysafety.org

Minnesota Medical Association
Suite 300 Broadway Place East
3433 Broadway Street NE
Minneapolis, MN 55413
www.mnmed.org

Minnesota Regional Sleep Disorders Center
Hennepin County Medical Center
701 Park Avenue
Minneapolis, MN 55415

National Association of School Nurses, Inc.
P.O. Box 1300
Scarborough, ME 04070
www.nasn.org

National Center on Sleep Disorders Research
National Heart
Lung
and Blood Institute National Institutes of
Health
9000 Rockville Pike
Building 31
Bethesda, MD 20892
www.nhlbi.nih.gov/about/ncsdr/index.htm

National Center for Injury Prevention and
Control
4770 Buford Highway NE
Atlanta
GA 30341-3724
www.cdc.gov/ncipc

National Education Association
1201 16th Street NW
Suite 521
Washington, DC 20036
www.nea.org

National Highway Traffic Safety
Administration
400 Seventh Street SW
Washington, DC 20590
www.nhtsa.dot.gov

National Parent Teacher Association
330 N. Wabash Avenue
Chicago, IL 60611
www.pta.org

National School Boards Foundation, Inc.
1680 Duke Street
Alexandria, VA 22314
www.nsbfb.org

National Sleep Foundation
1522 K Street
NW Suite 500
Washington, DC 20005
www.sleepfoundation.org

Parents Against Tired Truckers
P.O. Box 209
Lisbon Falls, ME 04252-0209
www.patt.org

Society for Adolescent Medicine
1916 NW Copper Oaks Cr
Blue Springs, MO 64015
www.adolescenthealth.org

Students Against Destructive Decisions
101 Depot Road
Chatham, MA 02688

U.S. Department of Health and Human
Services Division of Children and Youth
Policy
200 Independence Avenue SW
Washington, DC 20201
<http://aspe.os.dhhs.gov/hsp/cyphome.htm>

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VI. - Credits

This material is copyrighted ©2001 by the Minnesota Highway Safety Center. Copies may be made as needed by Minnesota schools and out state schools that have purchased a master copy from the Minnesota Highway Safety Center.

After the initial free distribution to Minnesota schools the video is available from the Minnesota Highway Safety Center.

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Name _____ Form A

- (t) (f) 1. Teens generally get by with less sleep than adults or kids.
- (t) (f) 2. Sleeping only 5 1/2 hours will not affect my driving the next day
- (t) (f) 3. I can be alert any time I want.
- (t) (f) 4. Generally 5 days of sleep debt can not be erased in one night.
- (t) (f) 5. I can not always stay awake when I am driving.
- (t) (f) 6. Teens generally need only 7 hours of sleep each night.
- (t) (f) 7. It is not possible for me to sleep too much.
- (t) (f) 8. I am not getting enough sleep if an alarm wakes me.
- (t) (f) 9. Sleepy driving is much less dangerous than alcohol impaired driving.
- (t) (f) 10. I need to plan ahead to avoid sleepy driving.

Name _____ Form B

- (t) (f) 1. Teens generally get by with less sleep than adults or kids.
- (t) (f) 2. Sleeping only 5 1/2 hours will affect my driving the next day.
- (t) (f) 3. I can be alert any time I want.
- (t) (f) 4. Generally 5 days of sleep debt can be erased in one night.
- (t) (f) 5. I can not always stay awake when I am driving.
- (t) (f) 6. Teens generally need only 7 hours of sleep each night.
- (t) (f) 7. It is not possible for me to sleep too much.
- (t) (f) 8. I am not getting enough sleep if an alarm wakes me.

Name _____ Form C

- (t) (f) 1. Teens generally get by with less sleep than adults or kids.
- (t) (f) 2. Sleeping only 5 1/2 hours will not affect my driving the next day
- (t) (f) 3. I can be alert any time I want.
- (t) (f) 4. Generally 5 days of sleep debt can not be erased in one night.
- (t) (f) 5. I can stay awake when I am driving.
- (t) (f) 6. Teens generally need only 7 hours of sleep each night.
- (t) (f) 7. It is not possible for me to sleep too much.
- (t) (f) 8. I am not getting enough sleep if an alarm wakes me.
- (t) (f) 9. Sleepy driving is as dangerous as alcohol impaired driving.
- (t) (f) 10. I need to plan ahead to avoid sleepy driving.

Name _____ Form D

- (t) (f) 1. Teens generally get by with less sleep than adults or kids.
- (t) (f) 2. Sleeping only 5 1/2 hours will affect my driving the next day.
- (t) (f) 3. I can be alert any time I want.
- (t) (f) 4. Generally 5 days of sleep debt can be erased in one night.
- (t) (f) 5. I can not always stay awake when I am driving.
- (t) (f) 6. Teens generally need only 7 hours of sleep each night.
- (t) (f) 7. It is possible for me to sleep too much.
- (t) (f) 8. I am not getting enough sleep if an alarm wakes me.