

Sleep, Teens, & Driving

Sleep, Teen & Driving - Outline

Overview of sleep

Sleep deprivation / sleepiness

Sleepiness and driving

Adolescents

How should we respond?

Sleepiness and Driving

Prior Lake track star returning from college meet dies in car crash



Katie Drentlaw and a friend went to watch the Drake Relays.

By Chris Graves
Star Tribune Staff Writer

Katie Drentlaw drove from Prior Lake to Iowa before the sun rose Friday to take a peek at her future.

It would be as close as the 18-year-old Prior Lake High School track star would ever get.

Drentlaw — feisty, strong-spirited and full of energy — was killed when the sport-utility vehicle she was driving left Interstate Hwy. 35 near Faribault, Minn., hit a dirt embankment and rolled onto its driver's side about 12:30 a.m. Saturday.

"She apparently fell asleep," said Jodi Hedstrom, a close friend of the Drentlaw family. "She was just tired; she had had a big day. She should have stayed, but she had a mind of her own."

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Sleep Defined as:

A reversible behavioral state of perceptual disengagement from and unresponsiveness to the environment.

(Sleepy people are out of touch with their senses and can not responded to the environment.)

Overview of Sleep

Sleep is generated by the brain and for the brain.

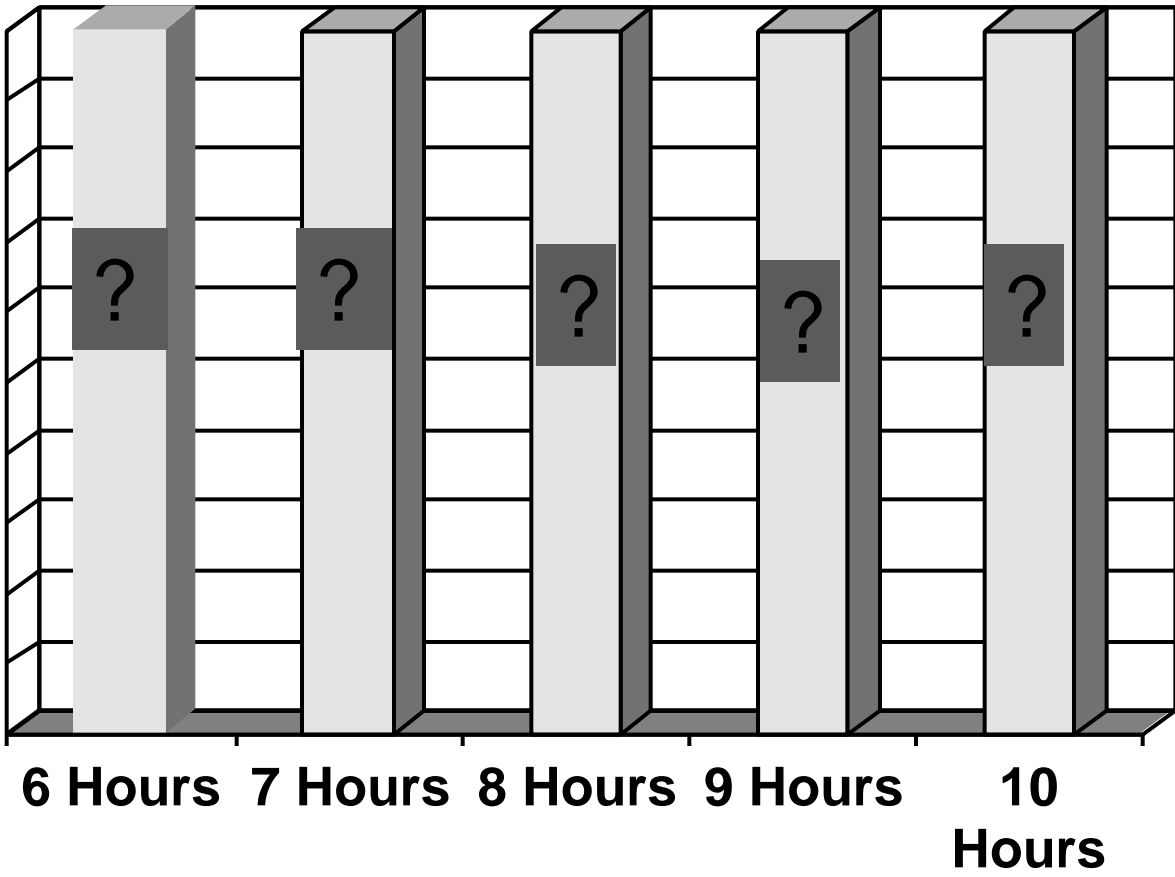
The only organ of the body known to require or benefit from sleep is the brain.

The Two Genetically Determined Qualities Of Sleep:

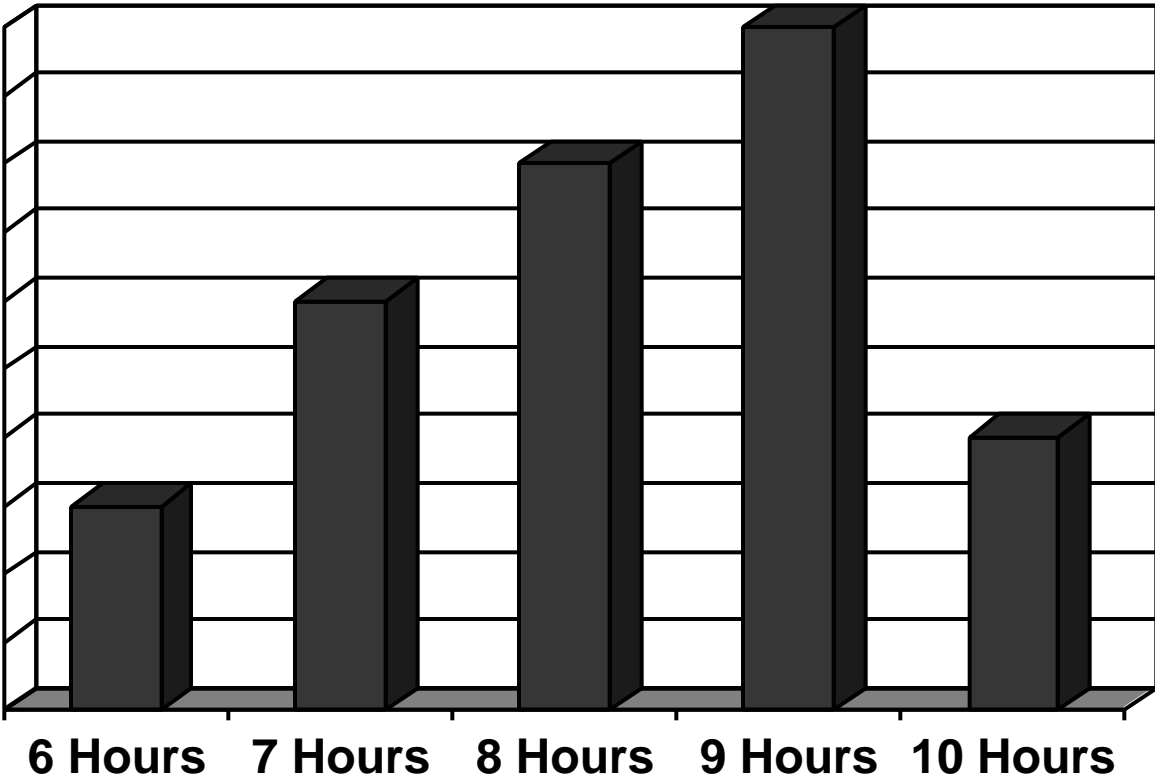
Total sleep requirement

**Timing of the sleep cycle (“owls”
vs. “larks”)**

On the Average How Much Sleep Do High School Students Need?



Students Need



Sleep Requirement

Each person needs a specific number of hours of sleep. (Range 4-10 hours)

Any reduction below this amount accumulates as a sleep debt.

(8 hours needed)-(6 hours slept) = sleep debt of 2 hours

If you need 8 hours of sleep and you only average 6 hours M-F

By the end of the weekend you will have accumulated a 10 hour sleep debt.

Determinants of Sleepiness

**Homeostatic
(size of sleep debt)**

**Circadian
(biological clock)**

**Aging (ontogeny), Drugs,
Sleep disorders**

Sleep Time and Rising Time

Part 1

The typical 17 year old needs 9 hours of sleep each night to avoid going into sleep debt.

The typical 17 year old goes to sleep at 11 PM on a school night and rises at 6:30 AM the next morning.

This means a 1.5 hour sleep debt accumulates each school night.

Sleep Time and Rising Time

Part 2

In a typical school week 7.5 hours of sleep debt will be accumulated by the typical 17 year old.

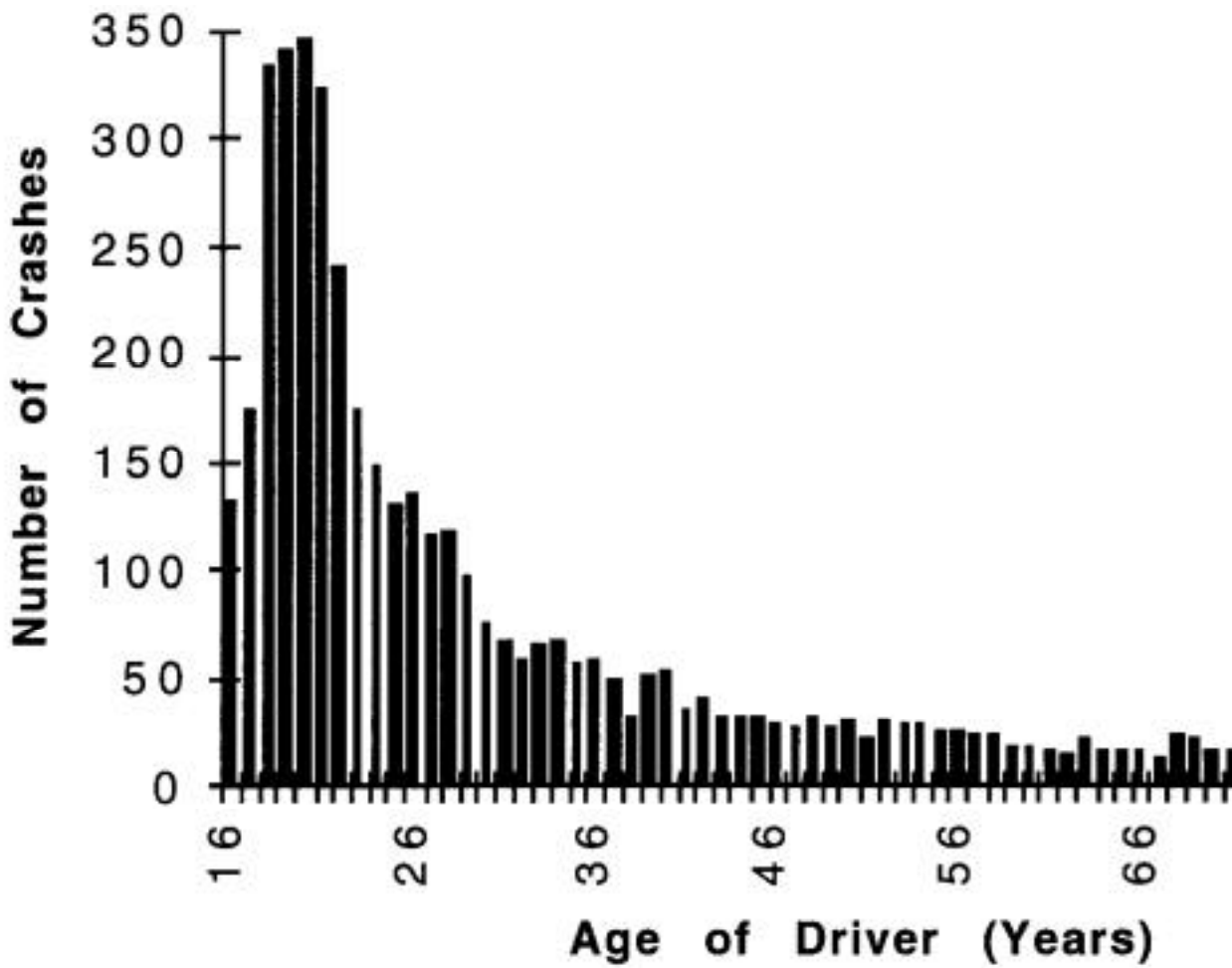
The 17 year olds do get their needed 9 hours of sleep on the weekend, but they don't pay down their sleep debt.

When the sleep debt is large enough, sleep cannot be resisted.

Circadian Rhythms

The human biologic clock has two “sleepy” periods:

- 1. Between midnight and 6 am**
- 2. Early to mid afternoon**



Fall-asleep crashes by age

Fall-asleep crashes by time of day

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Factors That Can Decrease Your Awareness Of Sleepiness:

High motivation

Competing needs

(thirst, hunger, discomforts)

Environment

Individual differences

Factors Contributing to Sleepiness in Teenagers and Young Adults

Biological / Physiological

Social Behaviors

Extracurricular activities

Out-of school employment

Factors that Reveal Physiological Sleepiness:

Heavy meal

Warm room

Comfortable bed

Boring lecture

Low dose alcohol

Biological Factors

The need for sleep increases at mid-puberty even without any change in a youngster's nighttime sleep length.

Adolescence is characterized by a strong preference for late bedtimes and late rise times.

Sleepiness

Causes:

Decreased Alertness

Slowed Reaction Times

Attentional Deficits

Increase Irritability

Sleepiness Impairs Performance

In the classroom

In the workplace

Behind the wheel

Drowsy Drivers

There is no such thing as a safe drowsy driver.

The young man who received the "America's Safest Teen Driver" award in 1990 later fell asleep behind the wheel and had a fatal crash.

Countermeasures

The commonly used ploys to stay awake (opening the windows, turning up the radio) have been shown scientifically NOT to work.

Caffeine for some and sleep for all are the only effective countermeasures.

How Should We Respond?

Pull Over And Stop!

Get More Sleep!

