

Harding University High School Lesson Plan

Teacher: Prior

Subject: Health

ATOD: Day 5

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|---|---|--|
| <p>ESSENTIAL STANDARD/OBJECTIVE: 9.ATOD.2.1 Identify ways to avoid riding in a car or engaging in other risky behaviors with someone who is under the influence of alcohol and drugs. 9.ATOD.2.2 Use strategies for avoiding binge drinking. BENCHMARK: 9.ATOD.2.1 Identify 3 risky teen behaviors and put into practice 3 refusal skills associated with alcohol and drugs. 9.ATOD.2.2 Recommend three healthy alternatives to avoid binge drinking.</p> | | |
| <p>WARM UP: So video PSA about binge drinking. Follow up with Q&A and class discussion.</p> | | |
| <p>ESSENTIAL QUESTIONS: How will you avoid riding in a car or other risky behaviors with someone under the influence of alcohol and drugs? How will you avoid binge drinking?</p> | | |
| <p>21ST CENTURY SKILL(S): Children must also take an active role in accessing and appropriately using information which affects their health.</p> | <p>GLOBAL CONNECTIONS: View PSAs from other countries about teen risky behaviors.</p> | <p>REAL-WORLD CONNECTIONS: Analyzing how the teenage brain develops, reasons, and matures and how it relates to their decisions.</p> |
| <p>MATERIALS NEEDED: Paper, art supplies, articles, computer, projector</p> | <p>TECHNOLOGY: PowerPoint, video clips</p> | <p>LITERACY INCORPORATED: Article review, story writing</p> |
| <p>Introduction of New Material: Go over power point and guided notes with class</p> | | |
| <p>Modeling:</p> <ul style="list-style-type: none"> • Power point • Video | | |
| <p>Guided Practice: Teaching Steps:</p> <ul style="list-style-type: none"> • Key Terms • Binge Drinking • Teenage Brain Development • Refusal Skills | | |
| <p>Independent Practice:</p> <ol style="list-style-type: none"> 1. Research Groups 2. PSA Poster 3. Story Writing | | |
| <p>How will student learning be assessed? Assessment Criteria: Student work demonstrates accurate information about: The how the teenage brain develops as well as how it effects their ability to make decisions and their tendencies engage in risky behaviors including alcohol and drugs. Student work demonstrates proficiency by showing the ability to: Learn information about teenage brain development and apply it to preventing teens from engaging in risky behaviors such as binge drinking and drugs.</p> | | |
| <p>Differentiation: This lesson touches on a variety of learning styles with the use of power point presentations, individual work, group work, guided notes and class discussions.</p> | | |

Summary/Closure/Homework:

1. Today we learned how teenage brain development effects our decisions. If we engage in risky behaviors as a teen it can effect our brains well into later in life.
2. Have students read, sign, and have their parents read and sign the “contract for life.”
3. Using the information you learned in class today, create a story about teenage drinking and drug use.
 - Your story should include the following items:
 - How the teenage brain develops
 - How their brain development effects their decisions (3 risk behaviors)
 - How to implement refusal skills (3 minimum)

Reflection:

Results of Reflection:

Amy Prior

Alcohol, Tobacco, & Other Drugs

Lesson 5

Warm Up

- **ESSENTIAL STANDARD/OBJECTIVE:**
 - 9.ATOD.2.1 Identify ways to avoid riding in a car or engaging in other risky behaviors with someone who is under the influence of alcohol and drugs.
 - 9.ATOD.2.2 Use strategies for avoiding binge drinking.
- **BENCHMARK:**
 - 9.ATOD.2.1 Identify 3 risky teen behaviors and put into practice 3 refusal skills associated with alcohol and drugs.
 - 9.ATOD.2.2 Recommend three healthy alternatives to avoid binge drinking.
- **ESSENTIAL QUESTION:**
 - How will you avoid riding in a car or other risky behaviors with someone under the influence of alcohol and drugs?
 - How will you avoid binge drinking?

Warm Up Continued

- Assignment-
- Watch the following video about binge drinking. Be able to answer the question- “You wouldn’t start the night like this, so why end it this way?”
- http://www.youtube.com/watch?v=mo_49X7B53o

Key Terms

- **Influence**- The capacity to have an effect on the character, development, or behavior of someone or something, or the effect itself.
- **Refusal Skills**- a set of skills designed to help teens avoid participating in high-risk behaviors.
- **Binge Drinking**- the modern epithet for drinking alcoholic beverages with the primary intention of becoming intoxicated by heavy consumption of alcohol over a short period of time.
- **Alternative**- offering or expressing a choice.
- **Consumption**- the act of consuming, as by use, decay, or destruction.

Binge Drinking

- **What is binge drinking?**
According to the National Institute on Alcohol Abuse & Alcoholism, *binge drinking is defined as a pattern of alcohol consumption that brings the blood alcohol concentration (BAC) level to 0.08% or more.*
- This pattern of drinking usually corresponds to 5 or more drinks on a single occasion for men or 4 or more drinks on a single occasion for women, generally within about 2 hours.
- Most people who binge drink are not alcohol dependent.

Binge Drinking Continued

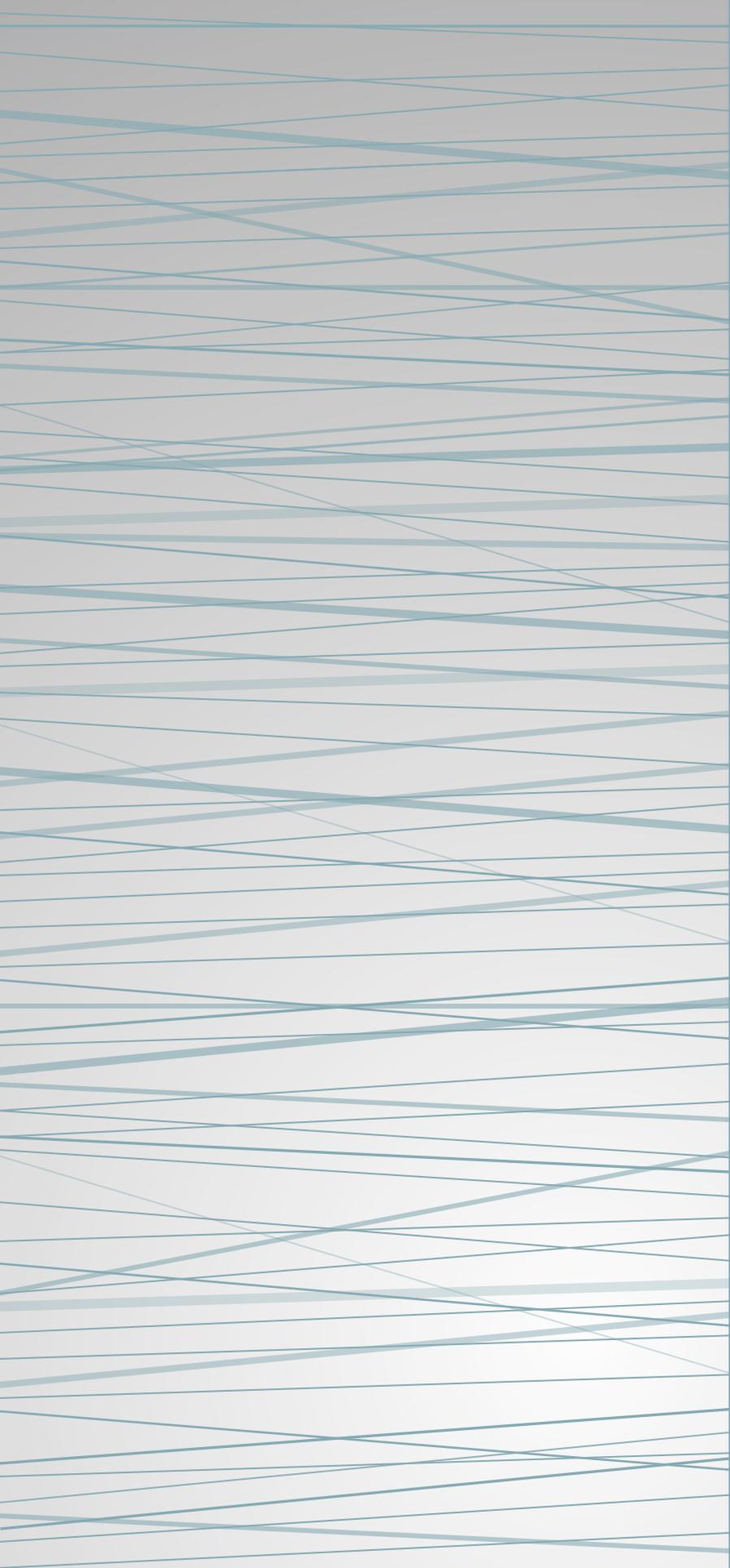
- According to national surveys
- Approximately 92% of U.S. adults who drink excessively report binge drinking in the past 30 days.
- Although college students commonly binge drink, 70% of binge drinking episodes involve adults age 26 years and older.
- The prevalence of binge drinking among men is higher than the prevalence among women.
- Binge drinkers are 14 times more likely to report alcohol-impaired driving than non-binge drinkers.
- About 90% of the alcohol consumed by youth under the age of 21 in the United States is in the form of binge drinks.
- About 75% of the alcohol consumed by adults in the United States is in the form of binge drinks.
- The proportion of current drinkers that binge is highest in the 18- to 20-year-old group (51%).

Dangers of Binge Drinking

- Binge drinking is associated with many health problems, including—
 - Unintentional injuries (e.g., car crashes, falls, burns, drowning).
 - Intentional injuries (e.g., firearm injuries, sexual assault, domestic violence).
 - Alcohol poisoning.
 - Sexually transmitted diseases.
 - Unintended pregnancy.
 - Children born with Fetal Alcohol Spectrum Disorders.
 - High blood pressure, stroke, and other cardiovascular diseases.
 - Liver disease.
 - Neurological damage.
 - Sexual dysfunction.
 - Poor control of diabetes.

Interventions...

- Evidence-based interventions to prevent binge drinking and related harms include-
 - Increasing alcoholic beverage costs and excise taxes.
 - Limiting the number of retail alcohol outlets that sell alcoholic beverages in a given area.
 - Consistent enforcement of laws against underage drinking and alcohol-impaired driving.
 - Screening and counseling for alcohol misuse.



Why Teens Behave The Way They Do

Brain Development

Adolescent Brain & Behavior

- From early adolescence through their mid-20s, a teen's brain develops somewhat unevenly, from back to front.
- This may help explain their endearingly quirky behavior but also makes them prone to risk-taking.
- The parts of the adolescent brain which develop first are those which control physical coordination, emotion and motivation.
- However, the part of the brain which controls reasoning and impulses - known as the Prefrontal Cortex - is near the front of the brain and, therefore, develops last. This part of the brain does not fully mature until the age of 25.

Noticeable effects on adolescent behavior

- difficulty holding back or controlling emotions,
- a preference for physical activity,
- a preference for high excitement and low effort activities (video games, sex, drugs, rock 'n' roll),
- poor planning and judgment (rarely thinking of negative consequences),
- more risky, impulsive behaviors, including experimenting with drugs and alcohol.

Link between brain & behavior

- Hormones can shift a teens emotions into overdrive, leading to unpredictable - and sometimes risky - actions.
- Developing brains may be more prone to damage. This means that experimentation with drugs and alcohol can have lasting, harmful effects on a teens health.
- Research shows that alcohol abuse during the teenage years negatively impacts the memory center of the brain (the hippocampus).
- The use of drugs and alcohol may also disrupt the development of the adolescent brain in unhealthy ways, making it harder for teens to cope with social situations and the normal pressures of life.
- The brain's reward circuits (the dopamine system) get thrown out of whack when under the influence. This causes a teen to feel in a funk when not using drugs or alcohol - and going back for more only makes things worse.
- Not only will participation in constructive activities - such as athletics or the arts - help teens form positive lifestyle habits, it will help their forebrain develop as well.

Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

These parts are shouting, but...

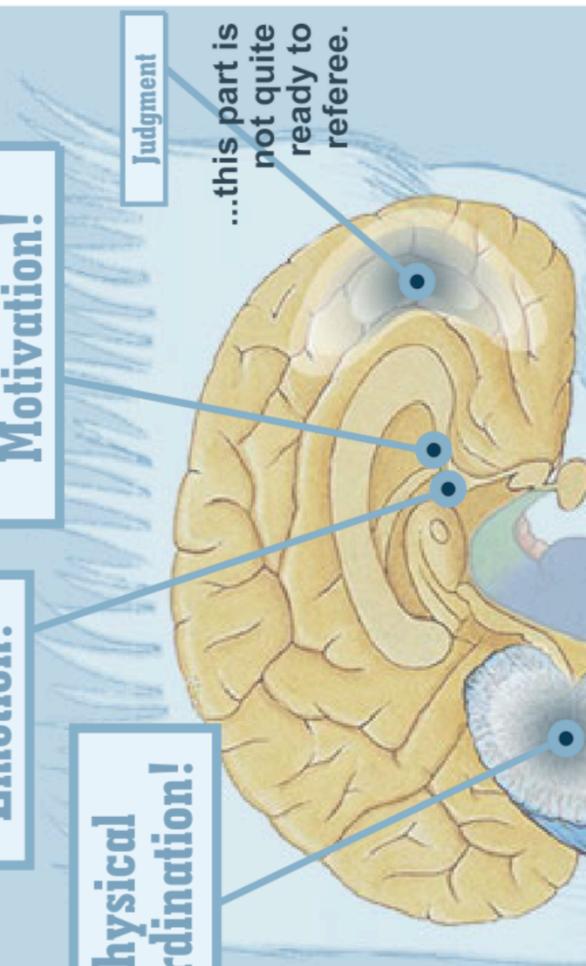
Emotion!

Motivation!

**Physical
Coordination!**

Judgment

...this part is
not quite
ready to
referee.



You may have noticed some of these effects:

- Difficulty holding back or controlling emotions
- A preference for physical activity
- A preference for high-excitement and low-effort activities (video games, sex, drugs, rock 'n' roll)
- Poor planning and judgment; rarely thinking of negative consequences
- More risky, impulsive behaviors, including experimenting with drugs and alcohol

Brains Development

Back to Front

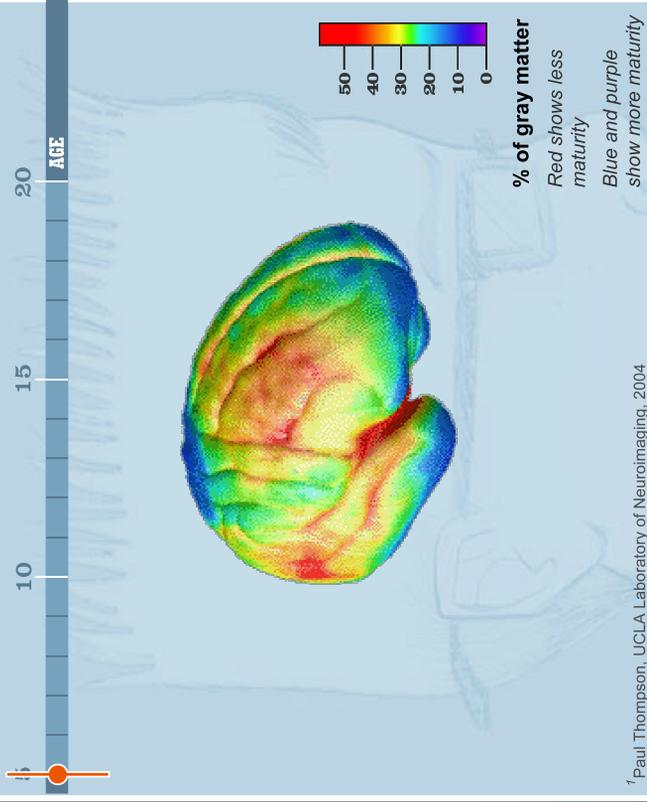
Brain Maturity Age 5-10

Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Slide marker to see MRI images showing brain maturation from ages 5 to 20.¹



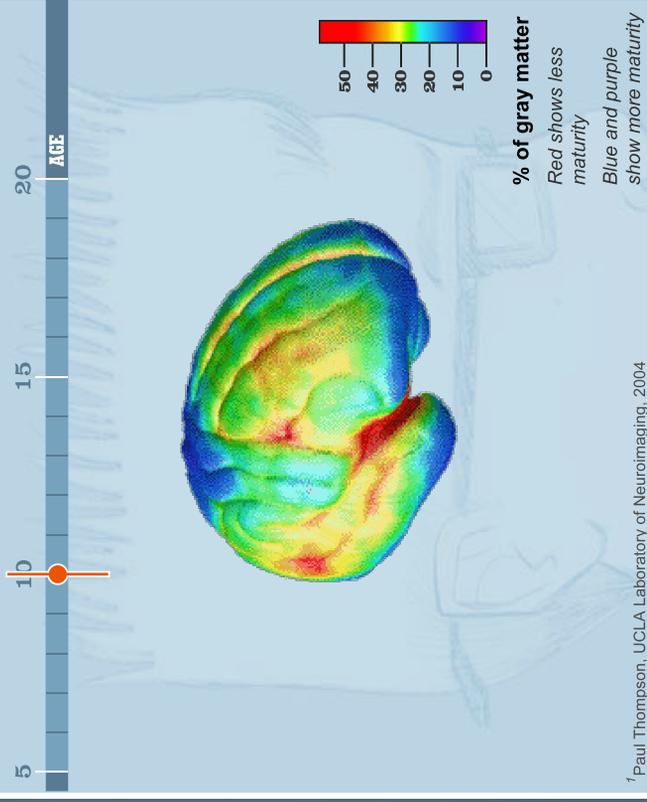
¹Paul Thompson, UCLA Laboratory of Neuroimaging, 2004

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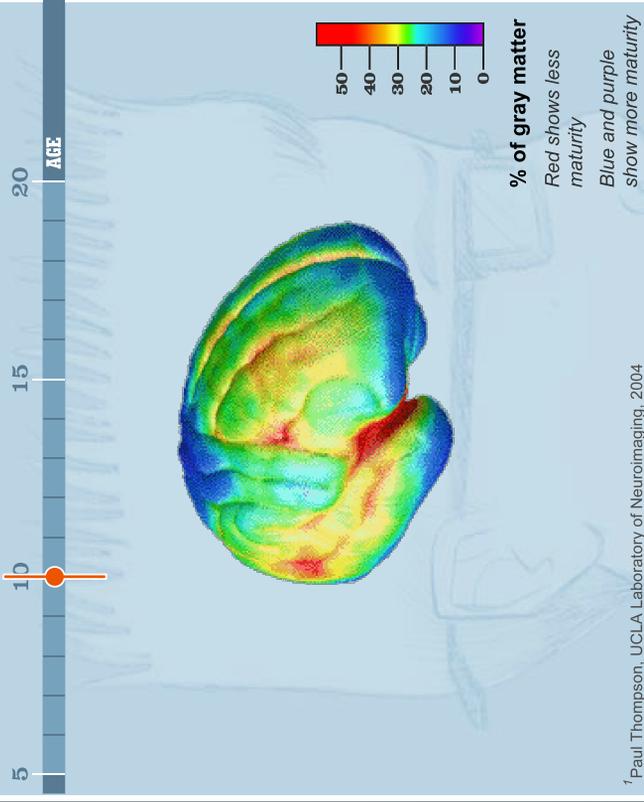
Brain Maturity Age 10-15

Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Slide marker to see MRI images showing brain maturation from ages 5 to 20.¹

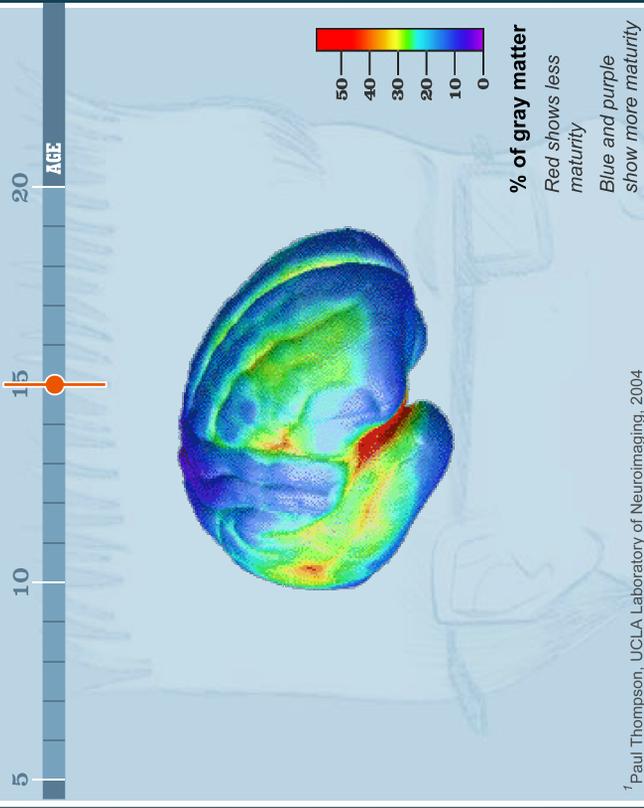


Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Slide marker to see MRI images showing brain maturation from ages 5 to 20.¹



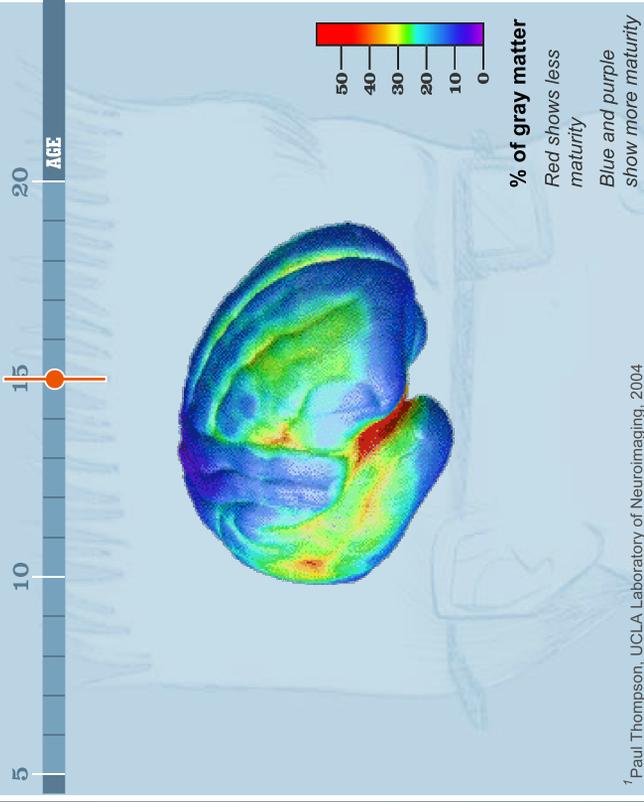
Brain Maturity Age 15-20

Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Slide marker to see MRI images showing brain maturation from ages 5 to 20.¹

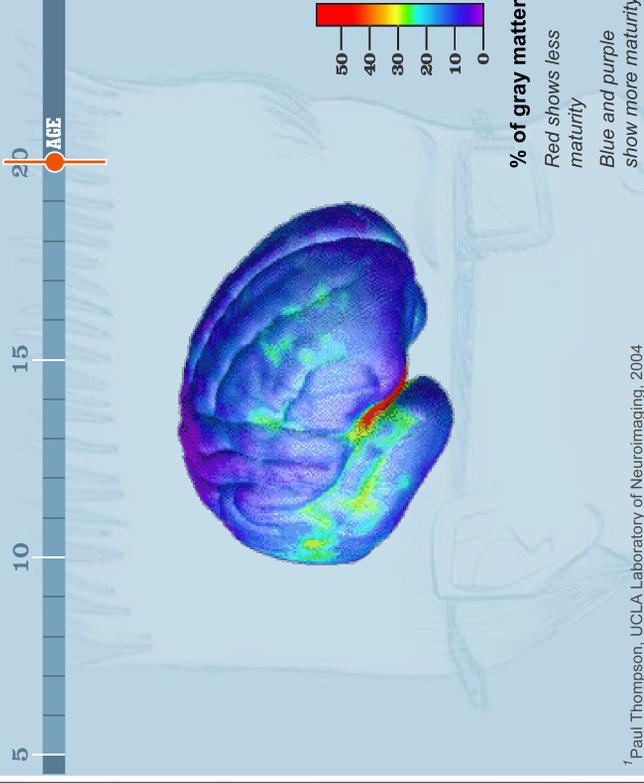


Brains develop back to front. So what? (Here's what.)

And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Slide marker to see MRI images showing brain maturation from ages 5 to 20.¹



And how do we know that? (Brain imaging technology.)

Developing brains may be more prone to damage.

Memory

The memory center of the brain (the hippocampus) in teens who have already abused alcohol is 10% smaller than normal, and they have lower memory scores.¹

Pleasure

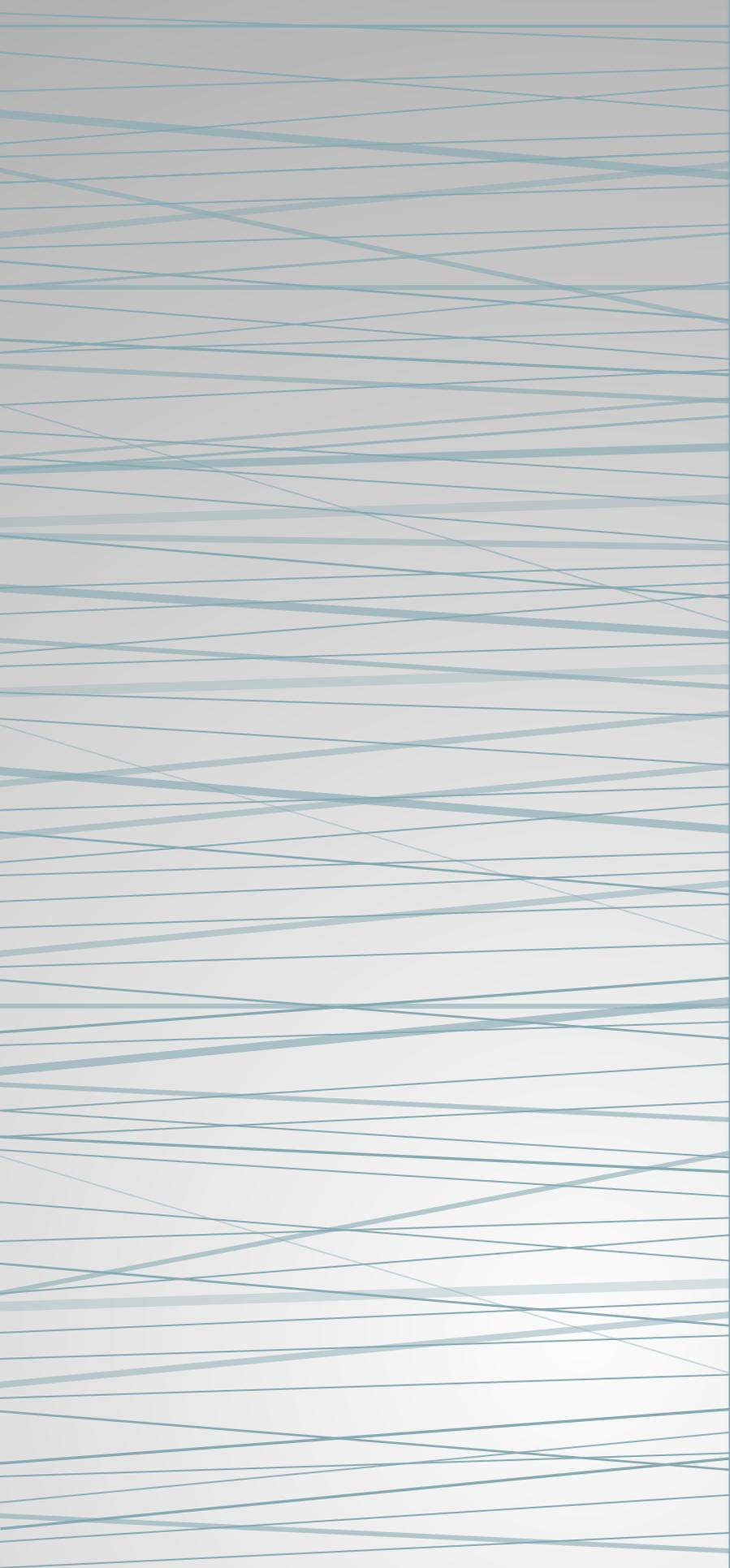
Under the influence, the brain's reward circuits (the dopamine system) get thrown out of whack. This causes a teen to feel in a funk when not under the influence -- and going back for more only makes things worse.

Coping and life-skills

While teens are undergoing a massive growth spurt, using drugs and alcohol may disrupt their brain development in unhealthy ways, making it harder for them to cope with social situations and the normal pressures of life.

¹ Nagel, Schweinsburg, Phan & Tabert, "Imaging psychologic dysfunction of individual hippocampal subregions in humans and genetically modified mice," 2005.

The Brain vs Risky Behavior



Refusal Skills

Circle Activity...

Refusal Skills

- Teens face many situations where others are encouraging them to do something risky, illegal, or unhealthy. How can teens develop the ability to stand up for themselves?
- Unfortunately, many teens wind up “going along” not because they want to, but simply because they don’t know how to respond in these situations. They are afraid of losing a friend, looking uncool, or being left out of the crowd.
- By learning a range of possible responses, teens are more likely to be able to come up with one that fits the situation when the time arises.

Top Ten Refusal Skills for Teens

- 1 **Make a joke.** Sometimes humor is the best way to respond to a situation, as it can lighten a serious mood. It can also divert attention away from you and onto something else.
- 2 **Give a reason why it's a bad idea.** Maybe you can't smoke because you want to be able to run the mile for the track team. Maybe you don't want to drink because you know someone who is an alcoholic and you can see how drinking has messed up their life. Backing up your refusal with evidence gives it more power.
- 3 **Make an excuse why you can't.** Maybe you have something else to do that will interfere. Or you have to be somewhere at a specific time. Or your mom will kill you. Whatever. But say it and stick to it.
- 4 **Just say no, plainly and firmly.** In some situations, just saying no without a lot of arguing and explaining is the best response. Just make sure you're "no" is a strong and determined one.
- 5 **Suggest an alternative activity.** Lots of kids wind up doing stuff they shouldn't because they lack other options. They're bored. By thinking of something better to do, you're offering everyone an "out." You just might be surprised who might take you up on it.

Top Ten Continued

- ① **Ignore the suggestion.** Pretend you didn't hear it, and change the topic to something else. Act like you don't think the idea was even worth discussing.
- ② **Repeat yourself if necessary.** Sometimes it takes more than once, on more than one occasion. Just because someone asks more than once, that doesn't mean you have to cave.
- ③ **Leave the situation.** If you don't like where things are headed, you can take off. It might seem risky, but with you leading the way, other kids who really don't want to do it either just may follow you.
- ④ **Thanks, but no thanks.** You can be polite, but you still aren't interested. It just isn't something you're into.
- ⑤ **The power of numbers.** Make a pact with your friends to stick to your guns. Often, knowing that your friends will back you up can help you feel more comfortable being assertive. Sometimes "we" feels stronger than "I".

Group Assignment

- Create a poster about your assigned topic. Your poster should encourage students/people to avoid the risky behavior assigned.
- Topics-
 - Blue Group-Designated Driver(facts, information, suggestions, etc)
 - Red Group-Binge Drinking(what it is, problems it causes, how to avoid, etc)
 - Orange Group-Drugged Driving(stats, what happens if caught, etc)
 - Green Group-Underage Drinking(rates, problems associated with, etc)
 - Purple Group-Billboard for Prevention

Homework

- Using the information you learned in class today, create a story about teenage drinking and drug use.
- Your story should include the following items:
 - How the teenage brain develops
 - How their brain development affects their decisions (3 risk behaviors)
 - How to implement refusal skills (3 minimum)

CONTRACT FOR LIFE

A Foundation for Trust and Caring

This Contract is designed to facilitate communication between young people and their parents about potentially destructive decisions related to alcohol, drugs, peer pressure, and behavior. The issues facing young people today are often too difficult for them to address alone. SADD believes that effective parent-child communication is critically important in helping young adults to make healthy decisions.

YOUNG PERSON

I recognize that there are many potentially destructive decisions I face every day and commit to you that I will do everything in my power to avoid making decisions that will jeopardize my health, my safety and overall well-being, or your trust in me. I understand the dangers associated with the use of alcohol and drugs and the destructive behaviors often associated with impairment.

By signing below, I pledge my best effort to remain free from alcohol and drugs; I agree that I will never drive under the influence; I agree that I will never ride with an impaired driver; and I agree that I will always wear a seat belt.

Finally, I agree to call you if I am ever in a situation that threatens my safety and to communicate with you regularly about issues of importance to both of us.

YOUNG PERSON

PARENT (or Caring Adult)

I am committed to you and to your health and safety. By signing below, I pledge to do everything in my power to understand and communicate with you about the many difficult and potentially destructive decisions you face.

Further, I agree to provide for you safe, sober transportation home if you are ever in a situation that threatens your safety and to defer discussions about that situation until a time when we can both have a discussion in a calm and caring manner.

I also pledge to you that I will not drive under the influence of alcohol or drugs, I will always seek safe, sober transportation home, and I will always wear a seat belt.

PARENT/CARING ADULT



Students Against Destructive Decisions

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SADD, Inc. | 255 Main Street | Marlborough, MA 01752
877-SADD-INC TOLL-FREE | 508-481-3568 | 508-481-5759 FAX
www.sadd.org

CONTRATO PARA LA VIDA

Una Base para Confianza y Afecto

Este contrato está diseñado para facilitar la comunicación entre los jóvenes y sus padres sobre las decisiones con potencial destructivo con relación al alcohol, las drogas, la presión de otros jóvenes y su comportamiento. Hoy los jóvenes se encuentran con problemas que son muy difíciles para confrontarlos solos. SADD cree que la comunicación efectiva entre padres y jóvenes es sumamente importante para ayudar a los adolescentes hacer decisiones sanas.

EL JOVEN

Yo reconozco que cada día me enfrento a muchas decisiones con potencial destructivo y le prometo a usted que haré todo en mi poder para evitar las decisiones que podrían poner en peligro mi salud, seguridad y bienestar, o su confianza en mi. Yo comprendo los peligros relacionados con el uso del alcohol y las drogas, y las conductas destructivas asociadas con los efectos del alcohol y las drogas en el cuerpo.

Al firmar abajo yo prometo mis mejores esfuerzos para permanecer libre del alcohol y de las drogas. Yo prometo que yo nunca conduciré bajo la influencia, yo prometo que nunca me montaré con una persona manejando bajo la influencia y yo prometo que siempre usaré el cinturón de seguridad.

Finalmente, yo prometo llamarle a usted si estoy en una situación que amenaza mi seguridad y también prometo comunicarme frecuentemente con usted sobre asuntos de importancia a nosotros dos.

EL JOVEN

EL PADRE (o Adulto Encargado)

Yo estoy dedicado a ti y a tu salud y seguridad. Al firmar abajo, yo me comprometo a hacer todo lo que está en mi poder para comprenderte y comunicarme contigo sobre la multitud de decisiones difíciles con potencial destructivo que tu confrontas.

Además, yo prometo facilitarte transportación sobria a casa si te encuentras en una situación que amenace tu seguridad. También yo prometo posponer discusiones sobre esta situación hasta un tiempo cuando podamos tener una discusión en una forma calmada y con afecto.

También yo hago la promesa de no manejar bajo la influencia de alcohol o de drogas. Siempre buscaré transportación sobria a casa y siempre usaré el cinturón de seguridad.

EL PADRE/ADULTO ENCARGADO

Los Estudiantes Contra Las Decisiones Destructivas

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Drugged Driving

What Is Drugged Driving?

“Have one [drink] for the road” was once a commonly used phrase in American culture. It has only been within the past 25 years that as a Nation, we have begun to recognize the dangers associated with drunk driving. And through a multipronged and concerted effort involving many stakeholders—including educators, media, legislators, law enforcement, and community organizations such as Mothers Against Drunk Driving—the Nation has seen a decline in the numbers of people killed or injured as a result of drunk driving. But it is now time that we recognize and address the similar dangers that can occur with drugged driving.

The principal concern regarding drugged driving is that driving under the influence of any drug that acts on the brain could impair one’s motor skills, reaction time, and judgment. Drugged driving is a public health concern because it puts not only the driver at risk but also passengers and others who share the road.

However, despite the knowledge about a drug’s potentially lethal effects on driving performance and other concerns that have been acknowledged by some public health officials, policy officials, and constituent groups, drugged driving laws have lagged

behind alcohol-related driving legislation, in part because of limitations in the current technology for determining drug levels and resulting impairment. For alcohol, detection of its blood concentration (BAC) is relatively simple, and concentrations greater than 0.08 percent have been shown to impair driving performance; thus, 0.08 percent is the legal limit in this country. But for illicit drugs, there is no agreed-upon limit for which impairment has been reliably demonstrated. Furthermore, determining current drug levels can be difficult, since some drugs linger in the body for a period of days or weeks after initial ingestion.

Some States (Arizona, Delaware, Georgia, Indiana, Illinois, Iowa, Michigan, Minnesota, Nevada, North Carolina, Ohio, Pennsylvania, Rhode Island, South Dakota, Utah, Virginia, and Wisconsin) have passed “per se” laws, in which it is illegal to operate a motor vehicle if there is *any* detectable level of a prohibited drug, or its metabolites, in the driver’s blood. Other State laws define “drugged driving” as driving when a drug “renders the driver incapable of driving safely” or “causes the driver to be impaired.”

In addition, 44 States and the District of Columbia have implemented Drug Evaluation and Classification Programs, designed to train police officers as Drug Recognition Experts. Officers learn to detect characteristics in a person’s behavior and appearance that may be associated with drug

intoxication. If the officer suspects drug intoxication, a blood or urine sample is submitted to a laboratory for confirmation.

How Many People Take Drugs and Drive?

According to the National Highway Traffic Safety Administration's (NHTSA) 2007 National Roadside Survey, more than 16 percent of weekend, nighttime drivers tested positive for illegal, prescription, or over-the-counter medications. More than 11 percent tested positive for illicit drugs.¹ Another NHTSA study found that in 2009, among fatally injured drivers, 18 percent tested positive for at least one drug (e.g., illicit, prescription, or over-the-counter), an increase from 13 percent in 2005.² Together, these indicators are a sign that continued substance abuse education, prevention, and law enforcement efforts are critical to public health and safety.

According to the 2009 National Survey on Drug Use and Health (NSDUH), an estimated 10.5 million people aged 12 or older reported driving under the influence of illicit drugs during the year prior to being surveyed.³ This corresponds to 4.2 percent of the population aged 12 or older, similar to the rate in 2008 (4 percent) and not significantly different from the rate in 2002 (4.7 percent). In 2009, the rate was highest among young adults aged 18 to 25 (12.8 percent). In addition, NSDUH reported the following:

- In 2009, an estimated 12 percent of persons aged 12 or older (30.2 million persons) drove under the influence of alcohol at least once in the past year. This percentage has dropped since 2002, when it was 14.2 percent.
- Driving under the influence of an illicit drug or alcohol was associated with age. In 2009, an estimated 6.3 percent of youth aged 16 or 17 drove under the influence. This percentage steadily increased with age to reach a peak of 24.8 percent among young adults aged 21 to 25. Beyond the age of 25, these rates showed a general decline with increasing age.
- Also in 2009, among persons aged 12 or older, males were more likely than females (16.9 percent versus 9.2 percent, respectively) to drive under the influence of an illicit drug or alcohol in the past year.

In recent years, more attention has been given to drugs other than alcohol that have increasingly been recognized as hazards to road traffic safety. Some of this research has been done in other countries or in specific regions within the United States, and the prevalence rates for different drugs used vary accordingly. Overall, marijuana is the most prevalent illegal drug detected in impaired drivers, fatally injured drivers, and motor vehicle crash victims. Other drugs also implicated include benzodiazepines, cocaine, opiates, and amphetamines.⁴

A number of studies have examined illicit drug use in drivers involved in motor vehicle crashes, reckless driving, or fatal accidents. For example—

- One study found that about 34 percent of motor vehicle crash victims admitted to a Maryland trauma center tested positive for “drugs only;” about 16 percent tested positive for “alcohol only.” Approximately 9.9 percent (or 1 in 10) tested positive for alcohol and drugs, and within this group, 50 percent were younger than age 18.⁵ Although it is interesting that more people in this study tested positive for “drugs only” compared with “alcohol only,” it should be noted that this represents one geographic location, so findings cannot be generalized. In fact, the majority of studies among similar populations have found higher prevalence rates of alcohol use compared with drug use.⁶
- Studies conducted in several localities have found that approximately 4 to 14 percent of drivers who sustained injury or died in traffic accidents tested positive for delta-9-tetrahydrocannabinol (THC), the active ingredient in marijuana.⁷
- In a large study of almost 3,400 fatally injured drivers from three Australian states (Victoria, New South Wales, and Western Australia) between 1990 and 1999, drugs other than alcohol were present in 26.7 percent of the cases.⁸

These included cannabis (13.5 percent), opioids (4.9 percent), stimulants (4.1 percent), benzodiazepines (4.1 percent), and other psychotropic drugs (2.7 percent). Almost 10 percent of the cases involved both alcohol and other drugs.

Teens and Drugged Driving

According to the Centers for Disease Control and Prevention, vehicle accidents are the leading cause of death among young people aged 16 to 19.⁹ It is generally accepted that because teens are the least experienced drivers as a group, they have a higher risk of being involved in an accident compared with more experienced drivers. When this lack of experience is combined with the use of marijuana or other substances that impact cognitive and motor abilities, the results can be tragic.

Results from NIDA’s Monitoring the Future survey indicate that in 2007, more than 12 percent of high school seniors admitted to driving under the influence of marijuana in the 2 weeks prior to the survey.¹⁰

The 2007 State of Maryland Adolescent Survey indicates that 11.1 percent of the State’s licensed adolescent drivers reported driving under the influence of marijuana on three or more occasions, and 10 percent reported driving while using a drug other than marijuana (not including alcohol).¹¹

Why Is Drugged Driving Hazardous?

Drugs acting on the brain can alter perception, cognition, attention, balance, coordination, reaction time, and other faculties required for safe driving. The effects of specific drugs of abuse differ depending on their mechanisms of action, the amount consumed, the history of the user, and other factors.

Marijuana

THC affects areas of the brain that control the body's movements, balance, coordination, memory, and judgment, as well as sensations. Because these effects are multifaceted, more research is required to understand marijuana's impact on the ability of drivers to react to complex and unpredictable situations. However, we do know that—

- A meta-analysis of approximately 60 experimental studies—including laboratory, driving simulator, and on-road experiments—found that behavioral and cognitive skills related to driving performance were impaired in a dose-dependent fashion with increasing THC blood levels.¹²
- Evidence from both real and simulated driving studies indicates that marijuana can negatively affect a driver's attentiveness, perception of time and speed, and ability to draw on information obtained from past experiences.

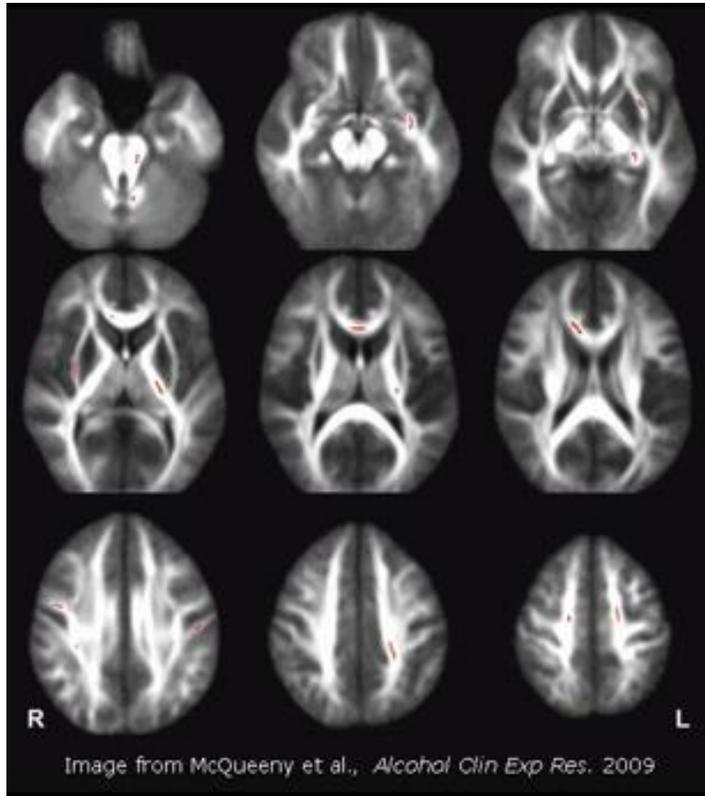
- A study of over 3,000 fatally injured drivers in Australia showed that when marijuana was present in the blood of the driver, he or she was much more likely to be at fault for the accident. Additionally, the higher the THC concentration, the more likely the driver was to be culpable.¹³
- Research shows that impairment increases significantly when marijuana use is combined with alcohol.¹⁴ Studies have found that many drivers who test positive for alcohol also test positive for THC, making it clear that drinking and drugged driving are often linked behaviors.

Other Drugs

Prescription drugs: Many medications (e.g., benzodiazepines and opiate analgesics) act on systems in the brain that could impair driving ability. In fact, many prescription drugs come with warnings against the operation of machinery—including motor vehicles—for a specified period of time after use. When prescription drugs are taken without medical supervision (i.e., when abused), impaired driving and other harmful reactions can also result. In short, drugged driving is a dangerous activity that puts us all at risk.

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This figure from Dr. Tapert's paper shows a series of MRI scans of a human brain. The scans are like slices through a brain from bottom (top left) to top (bottom right), moving across the rows from left to right. The red dots mark specific places in the brain's white matter where Dr. Tapert's team saw differences between teens who binge drink and those who don't.

Sara Bellum

July 08, 2009

I'm sure you've heard that abusing [alcohol](#) hurts your health. But how many years of drinking do you think it takes to visibly affect your brain? Ten years? Twenty?

Turns out that it doesn't take that long at all—in fact, scientists can already see changes in the brains of *teenagers* who drink.

Blocking the Signals

In a [new research study](#), Professor Susan Tapert of the University of California at San Diego used an imaging machine called an MRI to scan the brains of teens who [binge drink](#)—defined as drinking 4 or 5 (or more) drinks in a couple of hours. Dr. Tapert found that the "white matter" in their brains—the part that transmits signals, like a TV cable or a computer USB cord—was abnormal compared with the white matter of teens who *don't* binge drink. Transmitting signals is a big part of what the brain does, so affecting the white matter in this way could also affect a person's thinking, learning, and memory.

The really scary part is that these teens weren't alcoholics, and they didn't drink every day. All they did (to be considered "binge drinkers") was drink at least four (for women) or five (for men) drinks in one sitting, at least one time during the previous three months.

How could it be possible for just a few sessions of heavy drinking to affect the white matter of the brain? Well, science has shown that alcohol can poison brain cells and alter the brain's white matter in adult alcoholics. Dr. Tapert thinks that teenagers' brains are even more susceptible this way. She says, "because the brain is still developing during adolescence, there has been concern that it may be more vulnerable to high doses of alcohol."

Cause or Effect?

Many questions still remain, including how long it takes before these changes occur, and how much they affect the brain's different functions. To figure this out, scientists would have to look at the binge drinkers' brains before *and* after they started drinking. That way, they can tell if the differences might have already been there before the teens started drinking. It's possible that having abnormal white matter in the brain somehow increases the chance of being a binge drinker. In order to answer that question, Dr. Tapert says they need to do longer studies that follow teens' brain growth over time.

The bottom line? If you're a teen, drinking to the point of getting drunk could damage the white matter of your brain—even if you do it only once in a while.

Find out more through the following resources:

- [SAMHSA Fact Sheet on Binge Drinking](#)
 - [NIH Fact Sheet on Underage Drinking \(PDF, 305 KB\)](#)
 - USCD News Release: [Binge Drinking May Hamper Information Relay System in Teen Brain](#)
 - Dr. Tapert's Study: [Altered White Matter Integrity in Adolescent Binge Drinkers](#)
 - NIAAA's [Rethinking Drinking](#) Web page
-

What would you like us to write about on the Drugs & Health Blog? Tell us in a comment below.

Like what you see? Follow us on Twitter ([@NIDAnews](#)) and Facebook ([@NIDANIH](#)), or search [#NIDAteens](#) for updates.

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THE SURGEON GENERAL'S CALL TO ACTION

TO PREVENT AND REDUCE UNDERAGE DRINKING

What It Means to **YOU**

*A Guide to Action
for Families*



ABOUT THIS SURGEON GENERAL'S CALL TO ACTION

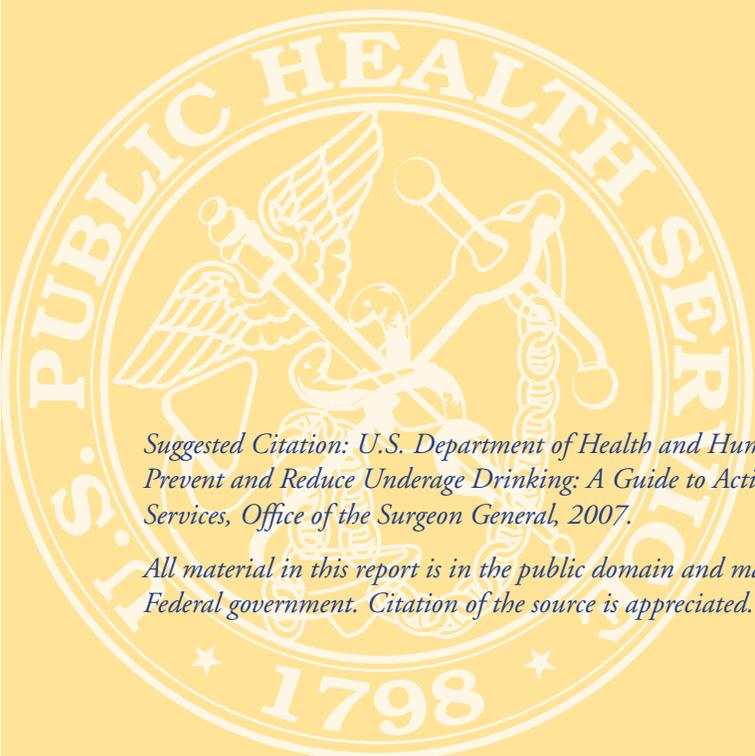
The Surgeon General is the Nation's top doctor and public health officer. The President of the United States appoints the Surgeon General to help protect and promote the health of the Nation.

The Surgeon General lets people across the country know the latest news on how to get healthy and stay healthy. He explains how to avoid illness and injury.

When a health topic needs special attention, the Surgeon General issues a national call to action to everyone in America. The *Surgeon General's Call to Action To Prevent and Reduce Underage Drinking* explains why underage alcohol use is a major public health and safety issue. It asks everyone to take action.

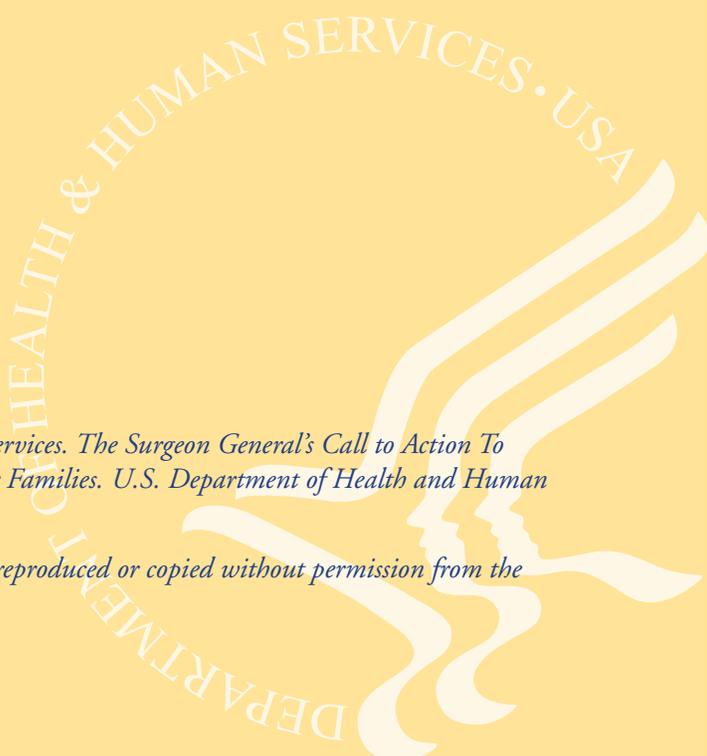
About This Guide to Action for Families

When it comes to tackling public health problems, knowledge is power. When people have the facts and the right tools, they can take action. This guide gives you the knowledge and tools you need to take action against underage drinking. It tells you about underage alcohol use and the damage it can do. And, it suggests ways you can end underage drinking in your home, family, community, and across the country.



Suggested Citation: U.S. Department of Health and Human Services. The Surgeon General's Call to Action To Prevent and Reduce Underage Drinking: A Guide to Action for Families. U.S. Department of Health and Human Services, Office of the Surgeon General, 2007.

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TODAY, NEARLY 10.8 MILLION YOUTH, AGES 12-20, ARE UNDERAGE DRINKERS

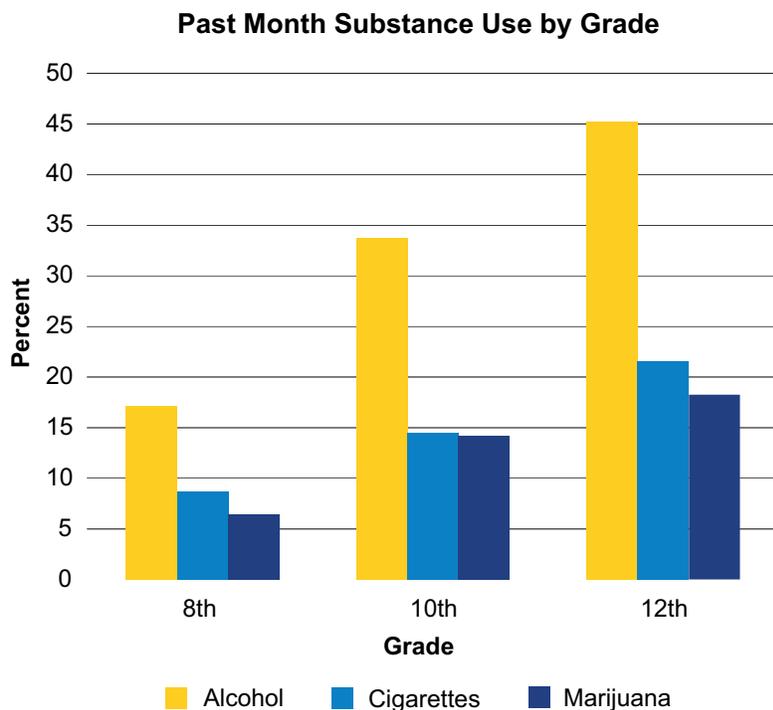
Drinking alcohol can harm the growing body and brain. That's why it's important for young people to grow up alcohol-free. And it takes everyone to help young people choose not to drink alcohol. It takes you.

What Is Underage Drinking?

When anyone under age 21 drinks alcohol, we call it underage drinking. And underage drinking is against the law, except in special cases, such as when it is part of a religious ceremony. Underage drinking is also dangerous. It can harm the mind and body of a growing teen in ways many people don't realize.

Yet, children and teens still drink, even though it can harm them. Underage drinking is a serious problem, with roots deep in our culture. It is time to change that picture. It's time to take action. It's time to stop looking the other way. It's time to tell children and teens that underage drinking is not okay. It will take a lot of work over time to change how people think about underage drinking. It's a long-term project for parents, schools, local groups, community leaders, and other concerned adults. And it's a project that should start when children are young and continue through the teen years.

◆ In any month, more youth are drinking than are smoking cigarettes or using marijuana.

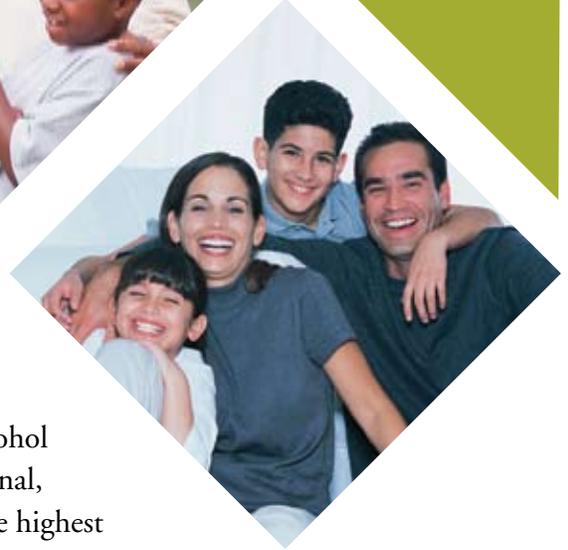


**More teens
drink alcohol
than smoke
or use drugs.**

—Johnston, et al. 2006 *Monitoring the Future National Survey Results on Drug Use*.

THE FACTS

- ◆ As they grow older, the chance that young people will use alcohol grows. Approximately 10% of 12-year-olds say they have used alcohol at least once. By age 13 that number doubles. And by age 15, approximately 50% have had at least one drink.
- ◆ Alcohol dependence is a term doctors use when people have trouble controlling their drinking, and when their consumption of, or preoccupation with, alcohol occurs to the extent that it interferes with normal personal, family, social, or work life. Alcohol dependence rates are highest among young people between ages 18 and 20. And they're not even old enough to drink legally.



Did You Know?

- ◆ The greatest influence on young people's decisions to begin drinking is the world they live in, which includes their families, friends, schools, the larger community, and society as a whole.
- ◆ Alcohol use by young people often is made possible by adults. After all, teens can't legally get alcohol on their own.

FAST FACT

Most young people who start drinking before age 21 do so when they are about 13-14 years old. That's why it's important to start talking early and keep talking about underage drinking. And that's why ALL adults working with young people should send the same message that underage drinking is not okay.

WHAT IS “A DRINK,” ANYWAY?

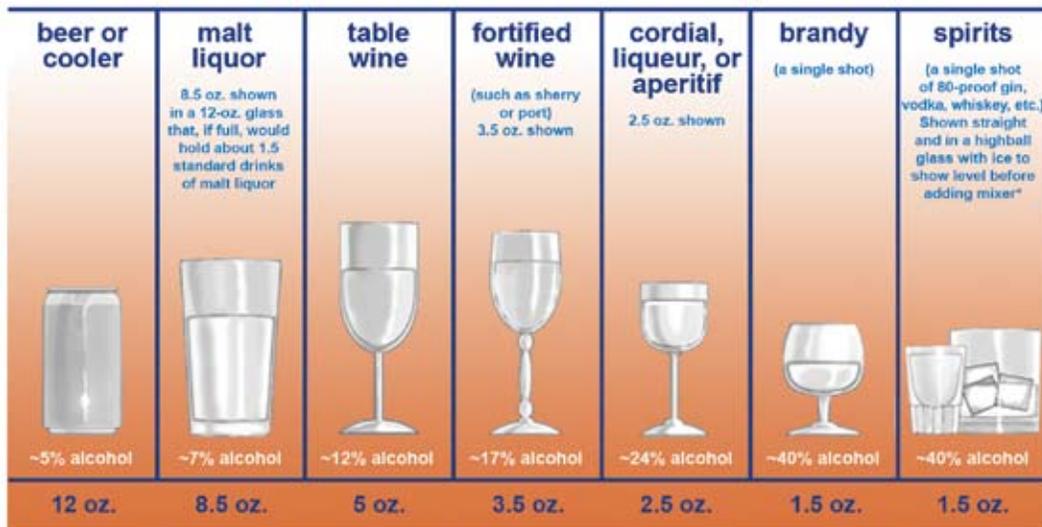


A drink can come in many forms. It can be a shot of hard liquor or a mixed drink containing vodka, rum, tequila, gin, scotch, etc. It can also be wine, a wine cooler, beer, or malt liquor.

A standard drink is any drink that contains about 14 grams of pure alcohol (about 0.6 fluid ounces or 1.2 tablespoons). This is the amount of alcohol usually found in—

- ◆ One 12-ounce beer
- ◆ One 4- to 5-ounce glass of wine
- ◆ One 1.5-ounce shot of 80 proof liquor

What’s a Standard Drink?



*Note: It can be difficult to estimate the number of standard drinks served in a single mixed drink made with hard liquor. Depending on factors, such as type of spirits and the recipe, one mixed drink can contain from one to three or more standard drinks.

But not all drinks are standard drinks. In fact, different drinks often have different amounts of alcohol. Mixed drinks may contain more than one shot of liquor, and different beers or wines may not have the same amount of alcohol in them, even when the drinks are the same size. For example, some beers and beer products, like “ice” beers, and malt liquors, and some wines, have more alcohol than others.

Remember, the legal drinking age is 21 and underage drinking can be a threat to health and development.

WHY IS UNDERAGE DRINKING A PROBLEM?

So many young people drink.

Many more young people use alcohol than tobacco or illegal drugs. By age 18, more than 70% of teens have had at least one drink.

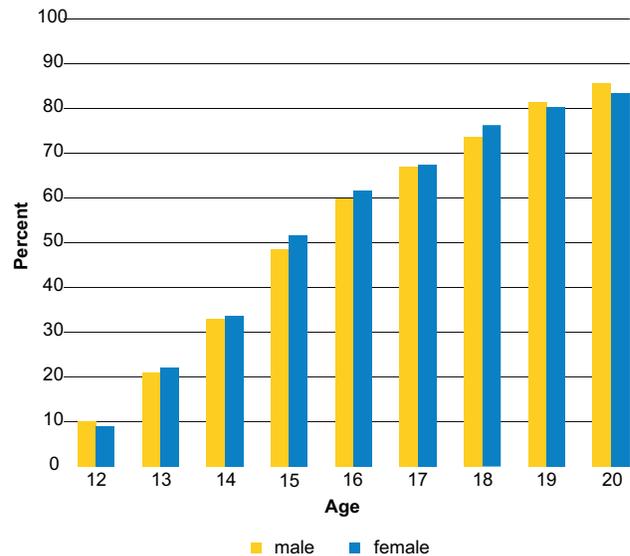
When young people drink, they drink a lot at one time. Teens drink less often than adults. But when teens do drink, they drink more than adults. On average, young people have about 5 drinks on a single occasion. This is called binge drinking, a very dangerous way of drinking that can lead to serious problems and even death.

Early drinking can cause later alcohol problems. Of adults who started drinking before age 15, around 40% say they have the signs of alcohol dependence. That rate is four times higher than for adults who didn't drink until they were age 21.

FAST FACT

Rates of death and injury nearly triple between the early teen years and early adult life. Dangerous activities like underage drinking play a large role. That's why ending teen alcohol use can help save lives.

Percent of Youth Who Have Used Alcohol by Age and Gender



—SAMHSA, 2005 National Survey on Drug Use & Health (NSDUH)

Alcohol may have a special appeal for young people. The teen years are a time of adventure, challenges, and taking risks. Alcohol is often one of the risks young people take. But most people don't know how alcohol affects a teen's body and behavior. They don't realize that alcohol can affect young people in different ways from adults. And they don't realize that underage drinkers can also harm people other than themselves.

THE RESULTS OF UNDERAGE DRINKING CAN BE GRAVE

Many people don't know that underage alcohol use—

- ◆ **Is a major cause of death from injuries among young people.** Each year, approximately 5,000 people under the age of 21 die as a result of underage drinking; this includes about 1,900 deaths from motor vehicle crashes, 1,600 as a result of homicides, 300 from suicide, as well as hundreds from other injuries such as falls, burns, and drownings.
- ◆ **Increases the risk of carrying out, or being a victim of, a physical or sexual assault.**
- ◆ **Can affect the body in many ways.** The effects of alcohol range from hangovers to death from alcohol poisoning.
- ◆ **Can lead to other problems.** These may include bad grades in school, run-ins with the law, and drug use.
- ◆ **Affects how well a young person judges risk and makes sound decisions.** For example, after drinking, a teen may see nothing wrong with driving a car or riding with a driver who has been drinking.
- ◆ **Plays a role in risky sexual activity.** This can increase the chance of teen pregnancy and sexually transmitted diseases (STDs), including HIV, the virus that causes AIDS.
- ◆ **Can harm the growing brain, especially when teens drink a lot.** Today we know that the brain continues to develop from birth through the teen years into the mid-20s.





The Teen Years Are a Time of Many Changes

- ◆ Boys physically become young men and girls become young women.
- ◆ Young people move from elementary to middle to high school. Responsibilities increase. For example, teens learn to drive, may get a job, and have more chores and more homework.
- ◆ Teens spend less time with their parents. They spend more time alone or with friends. They also like to stay up later and sleep in.
- ◆ Teens search for who they really are and who they want to be. They worry about friendships and social groups. And they have growing romantic and sexual interests.
- ◆ The desire for adventure, excitement, and action increases. That's why many young people want to take more chances, try new things, and be more independent.

These changes are important steps on the road to adult life. However, these changes also increase the chance that some young people may turn to alcohol.

Did You Know?

The different “worlds” teens live in can have a big effect on their drinking. Some young people are more involved with family than others. Others turn to their friends first. Still others turn to social groups like sports teams and clubs, faith-based groups, or groups of like-minded youth. The Internet, media, music, and videos are also an important part of the world of most teens. All of these affect a young person's choices about using alcohol.

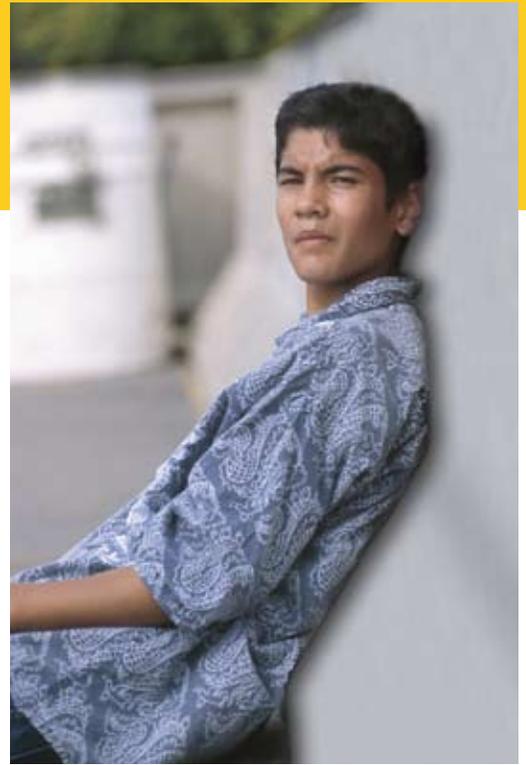
FAST FACT

Factors in an adolescent's environment affect both the appeal of alcohol and its availability. Among these factors are the social systems within which teens function and with which they interact. Examples of these social systems are parents, friends, family, schools, and the community. The media and the larger social culture, including how alcohol is marketed and portrayed, also contribute to alcohol's appeal to young people.

Why Teens May Choose to Drink

Many things affect a young person's decisions about drinking—

- ◆ The different “worlds” in which teens live, including family, friends, school, and community
- ◆ A greater desire to take risks
- ◆ Less connection to parents and more independence
- ◆ More time spent with friends and by themselves
- ◆ Increased stress
- ◆ Greater attention to what teens see and hear about alcohol



Did You Know?

Teens with behavior or family problems are at higher risk for alcohol use. And if anyone in the family has a drinking problem, it can affect the entire family. It also may affect a teen's choices about drinking.

FAST FACT

Youth with histories of behavior problems (for example, delinquent activity, impulsive actions, and difficulty controlling responses) are more likely to use alcohol than are other young people. The same is true for youth who have an unusually strong desire for new experiences and sensations, and for those with histories of family conflict and stress, and/or alcohol problems.

UNDERAGE DRINKING IS EVERYONE'S PROBLEM

Underage drinking can affect anyone, including people who don't drink.

- ◆ Underage alcohol use can lead to dangerous behavior, property damage, and violence.
- ◆ The results can be injury and even death for the drinker, and for other people nearby.
- ◆ About 45% of people who die in car crashes involving a drinking driver under age 21 are people other than the driver.

The effects of underage drinking can be felt by everyone. That makes underage alcohol use everyone's problem.

FAST FACT

Most 6-year-olds know that alcohol is only for adults. Between ages 9 and 13, youth begin to think that alcohol use is okay. That's why it's never too early to start talking with young people about the dangers of underage drinking.

Teens say that they rely on adults in their lives more than anyone else to help them make tough decisions and to provide good advice.

ENDING UNDERAGE DRINKING IS EVERYONE'S JOB

There is a role for everyone.

- ◆ Everyone can work together to create a community where young people can grow up and feel good about themselves without drinking.
- ◆ Everyone in the community should deliver the message that underage drinking is not okay. The message should be the same whether youth hear it in school, at home, in places of worship, on the sports field, in youth programs, or in other places where young people gather.
- ◆ It is important for families to pay attention to what's happening with their teens.
- ◆ Young people can learn about the dangers of alcohol use. They can change how they and others think about drinking.



It's time to change how we all think, talk, and act when it comes to underage drinking. We need to stop accepting it and to start discouraging it. It's time to help young people understand that it is not okay for them to drink alcohol. The discussion needs to start long before youth start thinking about drinking.

WHAT FAMILIES CAN DO ABOUT UNDERAGE ALCOHOL USE

While many teens drink alcohol, underage alcohol use is not inevitable. Families are not helpless to prevent it. Focus your efforts on the factors that protect teens from alcohol use. At the same time, you can work to reduce the factors that increase the chance that they will drink.

Support your teens and give them space to grow.

- ◆ Be involved in your teens' lives. Be loving and caring.
- ◆ Encourage your teens' growing independence, but set appropriate limits.
- ◆ Make it easy for your teens to share information about their lives.
- ◆ Know where your teens are, what they're doing, who they're with, and who their friends are.
- ◆ Find ways for your teens to be involved in family life, such as doing chores or caring for a younger brother or sister.
- ◆ Set clear rules, including rules about alcohol use. Enforce the rules you set.

Talk with your teens about alcohol use.

- ◆ When you talk with your teens about drinking, listen to them and respect what they say.
- ◆ Make clear your expectation that your teens will not drink.
- ◆ Teach your children about the dangers of underage drinking.
- ◆ Discuss laws about underage drinking, including the age 21 law.

Help your teens make good decisions about alcohol.

- ◆ Help your teens know how to resist alcohol.
- ◆ Help them find ways to have fun without alcohol.
- ◆ Do not give alcohol to your teens. Tell them that any alcohol in your home is off limits to them and to their friends.
- ◆ Don't let your teens attend parties where alcohol is served. Make sure alcohol isn't available at teen parties in your own home.
- ◆ Set clear rules about not drinking and enforce them consistently.
- ◆ Help your teens avoid dangerous situations such as riding in a car driven by someone who has been drinking.
- ◆ Help your teens get professional help if you're worried about their involvement with alcohol.

Be aware of factors that may increase the risk of teen alcohol use.

- ◆ Significant social transitions such as graduating to middle or high school, or getting a driver's license
- ◆ A history of conduct problems
- ◆ Depression and other serious emotional problems
- ◆ A family history of alcoholism
- ◆ Contact with peers involved in deviant activities



Be a positive adult role model.

- ◆ If you drink yourself, drink responsibly. That means not drinking too much or too often.
- ◆ Stay away from alcohol in high-risk situations. For example, don't drive or go boating when you've been drinking.
- ◆ Get help if you think you have an alcohol-related problem.

Work with others.

No matter how close you and your teens are, it may not be enough to prevent them from drinking. It's hard for families to do this alone. It's important to reach out to schools, communities, and government. You can help protect teens from underage alcohol use by working to see to it that—

- ◆ Schools and the community support and reward young people's decisions not to drink.
- ◆ Rules about underage drinking are in place at home, at school, and in your community. Penalties for breaking the rules are well known. Rules are enforced the same way for everyone.
- ◆ All laws about underage alcohol use are well known and enforced.
- ◆ Parties and social events at home and elsewhere don't permit underage drinking.

ADVANCING THE CALL TO ACTION

The *Surgeon General's Call to Action To Prevent and Reduce Underage Drinking* was written to improve public knowledge about underage drinking. It encourages action by people and groups nationwide. Each person in America has a role to play to help prevent and reduce underage alcohol use. This *Call to Action* helps adults across the country rethink underage drinking as we know it today. It provides the tools to get the word out in discussions around the dinner table, in school or campus-based programs, and in communities. It can also inform local, Tribal, State, and national programs and policies.

By learning more about how underage drinking affects a teen's growing body and brain, family and other adults in the community can better help protect youth from the dangers of underage drinking. Family and caring adults in the community can help teens choose not to drink. Finally, communities can help create a safer environment for young people by working together with parents and with schools, health care professionals, local organizations, and policymakers to prevent and reduce underage drinking.

This *Call To Action* is exactly that. It calls on every adult in the country to join with the Surgeon General in a national effort to address underage drinking early and often.

Underage alcohol use is everyone's problem—and its *solutions are everyone's responsibility*.

References for "A Guide to Action for Families"

The data, facts, and suggestions presented here come primarily from the Surgeon General's Call to Action To Prevent and Reduce Underage Drinking, cited on the inside front cover. Other sources of some data presented in this document include:

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Acknowledgements

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FOR MORE INFORMATION

Underage drinking is a public health and safety problem that results in serious personal, social, and economic consequences for adolescents, their families, communities, and the Nation as a whole. Your involvement can make a difference.

Many free sources of information are available to help you take action to prevent and reduce underage drinking. Some of the materials can help better educate youth and their families, your colleagues, and your community about the dangers of underage drinking and how to help stop it before it starts.

- ◆ To read the entire *Surgeon General's Call to Action To Prevent and Reduce Underage Drinking*, be sure to log on to the Surgeon General's Web site at www.surgeongeneral.gov.
- ◆ For more information about ways you can help to prevent and reduce underage drinking in your community, please check out www.stopalcoholabuse.gov, a comprehensive portal of Federal resources for information on underage drinking and ideas for combating the problem.
- ◆ Another excellent source of information is the Web site of the National Institute on Alcohol Abuse and Alcoholism at <http://www.niaaa.nih.gov>.
- ◆ General information about underage drinking, its effects on adolescents, families and communities, and what you can do to help stop underage drinking is available through the National Clearinghouse on Alcohol and Drug Information (NCADI), on the Internet at <http://ncadi.samhsa.gov/> or by calling (800) 729-6686.

The words and images in this Guide to Action were designed to reach a broad audience. Copies of this booklet and the *Surgeon General's Call to Action To Prevent and Reduce Underage Drinking* can be downloaded from both of the Web sites noted. To order copies by mail, please contact the National Clearinghouse on Alcohol and Drug Information (NCADI) <http://ncadi.samhsa.gov/> or by calling (800) 729-6686.

