



Root Causes:

Social Pressure, Brain Development, and the Attitudes They Breed

To find out what and who influences teenagers behind the wheel, The Allstate Foundation followed two paths. First, we conducted a series of focus groups and commissioned a national survey of teen attitudes toward driving. Then we consulted the most up-to-date scientific data on brain development and adolescent psychology. Our approach – examining the attitudes and motivations that influence teen driving – marks a departure from traditional avenues that typically focus on technical driving skills, highway and vehicle safety, or state and federal legislation. What we learned is troubling in some respects, heartening in others. First, the good news:

They Get It

By and large, teenagers recognize that driving can be dangerous. In fact, in our survey, teens themselves identified vehicle crashes as the number-one cause of death among their peers. And though that's welcome news, it's important to keep in mind that in actual driving situations, teens often behave as though they don't fully appreciate those dangers. Seventy-four percent of teens said that driving unsafely poses serious risks, and the teens who participated in our own focus groups told us point blank that programs that go beyond what's offered in standard driver's education classes would be worthwhile and would make a difference with their peers.

Beyond the perception of risk, we found a surprisingly high number of teens who



have seen risk become reality. Nearly half of the teens surveyed had been involved in car accidents, and 25 percent had been in at least one accident when they were driving. The teens we met in person said programs that connect to their direct personal experience would be highly effective in changing attitudes and behavior.

When contemplating these statistics, it is important to remember that there are approximately 12.5 million teen drivers in America.⁶ So, when a “mere” 6 percent of teens admit to “often” or “very often” running a red light, that means 750,000 teens could be running red lights – endangering themselves and countless others.

Some Common Teen Attitudes We Identified

“IT’S THEM, NOT ME”

The disturbing aspect of our survey findings related to the skewed perspectives and biases teens sometimes exhibited when comparing peers’ driving behavior to their own.

- When asked why they felt “immune,” 61 percent said it’s because they consider themselves good drivers
- 43 percent classified their own driving as “somewhat” or “very defensive”
- 62 percent called their peers “somewhat” or “very aggressive” drivers

“A lot of other drivers don’t know what they’re doing.”
— Male teen

Clearly, there is a disconnect between how teens rate themselves individually versus how they rate their peer group. As we delved deeper into the survey results, we found that, based on their responses, teens tend to be aggressive, risk-taking drivers.

“I’M A GOOD DRIVER, NOT A SAFE DRIVER”

Our research revealed a strong difference between boys and girls on the question of which gender drives more safely. And unlike most adults, who probably view “good” driving and “safe” driving as one and the same, we found that some teen drivers, both boys and girls, see them as different. For many teens, a “good driver” is a skilled one, and the driving skills teens appreciate aren’t necessarily conducive to safety.

- 83 percent “strongly agree” or “somewhat agree” that people can be skilled drivers but not safe drivers
- 46 percent of boys said they are “better” drivers than girls, but only 22 percent said they are “safer” drivers than girls
- 28 percent of boys and 55 percent of girls agree that girls are safer drivers than boys

“MOST ACCIDENTS ARE THE RESULT OF DRUNK DRIVING”

Alcohol is a factor in less than 25 percent of deadly teen crashes. And yet:

- 51 percent of the teens surveyed believed that *most* accidents involving teens result from driving drunk
- 21 percent of teens surveyed have ridden in a car driven by a peer who had been drinking
- 60 percent report no involvement with SADD (Students Against Destructive Decisions) but support what they teach

ROOT CAUSES

Teen driving under the influence remains a serious issue, but it shouldn't divert our attention from other, more frequent causes of teen traffic fatalities – such as driver error, which accounts for 75 percent of teen deaths on the road.

“I FOLLOW THE FUNDAMENTAL RULES, BUT I ALSO BREAK SOME RULES AND GET DISTRACTED”

The majority of teens consider themselves good drivers, and indeed most of them say they follow fundamental safety rules “very often,” “often,” or “sometimes.” According to our survey:

- 96 percent say they wear a seatbelt
- 96 percent say they signal when changing lanes
- 90 percent say they come to a complete stop at stop signs

A closer look, however, indicates that a majority of teen drivers struggle with distractions and admit to engaging in potentially risky behaviors “very often,” “often,” or “sometimes.”

- 65 percent say they take their eyes off the road to look at something outside
- 64 percent say they speed up to go through a yellow light
- 56 percent say they make and answer phone calls
- 57 percent say they feel “extremely” or “very” distracted by weather; 47 percent by fatigue

“This girl was driving. I didn't know her. She'd just switch lanes back and forth – she didn't even look.”
— Male teen

“SPEEDING IS NORMAL”

With speed a reported factor in a third of all teen crashes, the survey provides valuable insight into the prevalence and perception of speeding, uncovering a hardcore group of aggressive drivers for whom speeding is simply a part of driving – and some who speed for “fun.”

- 55 percent of all teens surveyed said they sometimes exceed the speed limit by more than 10 miles per hour
- 69 percent of teens who speed say they do so because they want to keep up with traffic
- 26 percent of self-identified “aggressive” drivers reported speeding by more than 20 miles per hour over the limit
- 17 percent say speeding is fun
- 40 percent said they would speed in the coming year
- 37 percent said they would ride with one or more friends who speed in the coming year

“I got friends who drive safely. But other friends, they're speeding all the time, racing on the streets.”
— Male teen

Compare these last two figures with the smaller percentages who said they would smoke a cigarette or smoke marijuana in the coming year (11 and 7 percent, respectively). Alongside these more well-known teen health hazards, the magnitude of the teen driving problem becomes clear.



Other Insights on Teen Driving Attitudes and Behavior

WHY TEEN DRIVERS TAKE RISKS

- 61 percent say they take risks because they feel they “are good drivers who understand how cars work”
- 35 percent say they speed because it’s “safe as long as I watch out for cops and stay in control of the vehicle”
- 27 percent say they take risks because they aren’t “thinking about consequences at the moment”

These survey responses get at the heart of the challenge of changing how teens drive: a strong sense of invincibility. And, while teens may display a full understanding of the potential consequences in calm or hypothetical situations, they are much less likely to do so when they’re behind the wheel, especially with another teen in the car. In the next section we’ll further discuss these psychological and physiological factors behind real-time decisionmaking and peer pressure.

A WINDOW OF OPPORTUNITY

Based on survey responses, teens seem to be most receptive to safe-driving messages during the period when they are learning to drive. Among survey respondents, unsafe driving was considered a serious issue by:

- 81 percent who have learner’s permits
- 70 percent who do not yet have any license
- 73 percent of those with a full driver’s license

“They think, ‘I’m young, God wouldn’t do that to me.’”
— Male teen



FRIENDS ARE A BIG INFLUENCE

It's common knowledge that teens are influenced by their friends, and we know that the presence of peers plays a significant role in teen crashes. We have quantified the specific influence of friends on the way teens feel about driving.

- 44 percent said they “often” or “very often” drive with friends in the car (the circumstances under which many crashes take place)
- 47 percent said they sometimes get distracted by other people in the car
- 44 percent told us that they drive more safely *without* friends in the car

“I’m scared of the other cars. I feel really freaked out.”
— Male teen

Trying to connect with people (possibly their friends) outside the car can have a big impact, too.

- 31 percent identified instant or text messaging while driving as “extremely” or “very” distracting
- 32 percent said the same for talking on a cell phone while driving

Our survey also revealed a need to empower teen passengers – to tap into what appears to be a willingness on the part of some teens to speak up despite feelings of futility or alienation.

- 67 percent of teens have felt unsafe when someone else was driving
- 45 percent said they “definitely” would speak up if someone they didn’t know very well was driving in a way that made them scared or uncomfortable
- When asked why they might *not* speak up, over 50 percent of all teens said the “driver wouldn’t listen to me anyway,” and “it’s hard to be the only person who disagrees”

“It’s very hard to speak up. It ticks the driver off.”
— Female teen

PARENTS AND FRIENDS: POWERFUL INFLUENCES ON TEEN DRIVERS

Whether they fear losing driving privileges, or because they genuinely count on parents for guidance – or a combination of the two – teens say their parents exercise the strongest influence on their driving behavior. But we note that friends, too, have considerable influence over how teens drive.

- 89 percent of teens say their parents are influential in encouraging safer driving
- 47 percent say their friends are a big influence
- 61 percent named injury to friends as the thing they fear most about an accident; only 33 percent worried about hurting themselves

TEENS RARELY RESPONSIBLE FOR DRIVING-RELATED COSTS

There may be a relationship as well between driving behavior and the teen’s financial responsibility for the vehicle he or she drives. Future research, we hope, will shed more light on this relationship. But if, as most teens report, it’s the parents who buy the teen’s car and maintain the insurance, then parents are likely to have a strong influence on the teen’s driving behavior.

- More than half of teens say parents played a large role in helping them obtain a car
- One in three teens (32 percent) received their car as a gift
- Over 60 percent of teens say parents pay all or most of their car insurance premiums

NOT ALL TEEN DRIVERS ARE ALIKE

Teenagers *do* have a lot in common with each other: their time is spent on similar activities, they encounter the same milestones (such as driving and graduation), they all desire independence and fun, and they may even have similar values. And yet driving attitudes appear to vary by background and gender. Any program or approach that treats all teenagers the same may be neglecting the needs of many teen drivers.

Gender

Whether it’s because their parents might trust them more, or just worry about them more, based on their responses, teen females are more likely than teen boys to be driving newer (and probably safer) cars. They also seem to harbor more cautious attitudes about driving.

- Twice as many females as males are driving newer cars (2004 or later model)
- More females than males drive with parents or guardians (41 percent vs. 28 percent)
- More females than males worry about getting into an accident (73 percent vs. 54 percent)
- More females than males, if riding with someone they didn’t know well, “definitely” would say something if they were frightened or made uncomfortable by how that person was driving (52 percent vs. 39 percent)
- More females than males admitted to driving distractions

“Most guys are show-offs behind the wheel. They’re too competitive.”
— Female teen

ROOT CAUSES

Meanwhile, other attitudes in which teen males predominated reinforce the long-standing perception of them as risk-takers. Males see themselves as the more aggressive drivers, and more likely to be influenced by peers.

- More males than females said speeding is something they do because it's "fun" (25 percent vs. 6 percent).
- Twice as many males as females labeled themselves "aggressive" drivers.
- More males than females let peer pressure interfere with speaking up in an unsafe driving situation; 53 percent said "it's hard to be the only one who disagrees."
- More males than females named their friends as a big influence on their driving.

"Girls have to be perfect. No one really expects anything from us."
— Male teen

And perhaps most interesting, far more males than females said they were comfortable taking risks because they're "good drivers and understand how cars work." Significantly more girls said they would avoid driving risks in the first place. Nonetheless, according to a recent study by the National Institute of Child Health, females are slightly more likely to speed and tailgate when they have a male passenger.⁷

Ethnicity

Caucasian teens, to a greater extent than their Hispanic or African-American peers, reported that they would or might drink, speed, or ride with a speeding driver in the coming year:

- 42 percent said they'd speed more than 10 miles an hour over the limit
- 43 percent said they "definitely" or "probably" would ride with one or more friends who would be speeding
- 21 percent would drink "more than a sip or two" of alcohol

Hispanic teens report higher risk-taking and more aggressive driving than teens of other ethnic backgrounds:

- One in three Hispanic teens new to driving reported having received a traffic ticket
- More Hispanics than other ethnic groups said it's acceptable not to wear a seat belt, and Hispanics had the fewest respondents who said they wear one "often" or "very often"
- More than the teens of any other ethnic group, Hispanic teens view their peers as "very aggressive" drivers

Meanwhile, African-American teens reported more conservative attitudes toward driving:

- Accountability is important: African-American teens were the least likely to believe a hypothetical crash "would likely be someone else's fault"
- Very few African-American teens said they would shrink from confronting an unsafe driver even if, at the time, they were "excited and having fun" or "scared"

In addition to these attitudes, very few African-American teens said they frequently drive at night – a time when teen crash risk is particularly high.

ROOT CAUSES

The research results, taken all together, show both the surface and the depth of the problem. No single program could address it all. On the one hand, teens seem to understand the serious consequences of unsafe driving, and exhibit a rational understanding of traffic laws and the importance of following them. And for rules-of-the-road instruction, most teens have ready access to a wealth of programs. And yet, they often engage in risky behavior behind the wheel, spurred on by peer pressure, a newfound sense of freedom, and pure emotion – and by the attitudes that these factors may breed. Today, no driving program addresses that component of the problem, at least not in a way that speaks directly to all teens. Building such programs is a challenge for The Allstate Foundation, and for any organization that seeks to reduce the toll of teen traffic deaths.

Physical and Developmental Barriers to Safe Teen Driving

Our survey on teen attitudes and driving behavior is supported by recent research in adolescent psychology and developmental neuroscience. Two leading researchers in these areas, Laurence Steinberg and Jay Giedd, have shown that while teenagers possess a solid and rational understanding of risk, a host of attitudinal factors that can lead to unsafe driving come into play in actual driving situations.

These studies shed more light on why conventional safe-driving programs have been unsuccessful in reducing teen driving fatalities and injuries – and why an attitudinal approach holds the most promise for doing so.

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RESEARCHERS HAVE ONLY RECENTLY BEEN ABLE TO LINK WHAT WE KNOW ABOUT CHANGES IN behavior during adolescence – an important time for physical, intellectual, emotional, and social development – to what we are learning about changes in brain physiology during this period. Doctors, teachers, and especially parents have always known that adolescence is a period of heightened sensation-seeking, poor decision-making, and vulnerability to a wide range of emotional and behavior problems. Now, new insights gained from studying the ways in which the brain changes over the course of development, the field known as “developmental neuroscience,” are helping us understand why.

Different timetables for intellectual and social development

One of the most important lessons we have learned about maturation during adolescence is that different aspects of development (e.g., intellectual, emotional and social) proceed along different timetables and at different rates.

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By the age of 15 or 16, for example, most teenagers’ logical reasoning abilities are the same as adults’. Their emotional and social development at this age, however, is still relatively immature. That’s why an adolescent who is “book-smart” and who appears to have good reasoning abilities may actually demonstrate surprisingly poor judgment and decision-making in the real world, where a combination and variety of intellectual and psychosocial factors are at work. Immaturity in any of them can compromise a young person’s judgment.

Teen risk-taking—not an issue of poor values

The growing recognition that judgment is the product of both cognitive *and* psychosocial factors is beginning to help psychologists better understand why findings from risk perception studies done in university labs haven’t matched what we know about risk-taking in the real world.

In numerous university lab studies, for example, individuals have been given questionnaires and asked to evaluate the risk associated with various activities, such as driving after drinking alcohol. These studies found only a few relatively minor differences in reasoning ability and risk perception between teenagers and adults. On paper, teens acted just like adults. As a result, it was believed that adolescents took more risks in the real world than adults do because their values or priorities were different from those of adults. Psychologists once believed, in other words, not that teens perceived risk differently than adults, but that they simply choose to accept certain risks because the potential rewards (e.g., impressing one’s friends) seemed to outweigh the potential costs (e.g., getting a speeding ticket).

Results change when peers and emotions come into play

In traditional laboratory studies like these, psychologists have intentionally minimized the potential influence of emotional and social factors by keeping research subjects calm, testing them when they are alone, and querying them about hypothetical situations. In the real world, however – and especially the real world of adolescents – decisions are often made under time pressure, in a group situation, or when emotions are running high, conditions under which adolescents may not perform as well as adults.

We studied judgment and risk-taking differently: We worked with three age groups – adolescents, young adults (college undergraduates) and adults in their late 20s and 30s. We designed a battery of computer-driven tasks, or games, to measure things like risk-taking, planning ahead, impulse control, and the way in which individuals balance risks and rewards when making decisions. But instead of looking at behavior only when the individuals were alone, we asked participants to bring along two friends, then we randomly assigned them to play the games alone or with their friends looking over their shoulder and giving advice.

“We found that evaluations of risk between adults and teens are nearly identical. But with friends alongside, risk-taking increased significantly among adolescents and college students.”

One of these tasks is a video game in which a moving car is on the screen, and a yellow traffic light appears, at which point participants must decide whether to keep driving or apply the brakes. Participants were told that, shortly after the yellow light appeared, a wall would pop up and the car would crash if it was not stopped in time. They were also told that the longer they drove, the more points they would earn, but that if the car crashed into the wall, they would lose all the points they had accumulated. Each participant played the game several times, with the amount of time between the appearance of the yellow light and the wall varying each time. We measured risk-taking by looking at how long participants kept the car in motion and how often they stopped and then restarted the car to try to drive a little farther.

The results were fascinating. When playing the game alone, levels of risk-taking were similar across the three age groups. So, like other researchers working in a lab, we found that the risk behavior of adults and teens is nearly identical. But with friends alongside, risk-taking increased significantly among adolescents and college students (average ages 14 and 19, respectively), but not among adults (average age 37). In other words, the presence of peers increased risk-taking in the two younger groups but had no influence on the older group.

This finding has several important implications.

- When assessing adolescent judgment and risk-taking, the social context has a marked impact on the outcome. Had we observed our participants only when they were alone, we would have concluded that risk-taking did not vary with age. What we found instead was that age-related differences in risk-taking behavior depend on the context in which the behavior is measured – in this instance, on the presence of peers.

- In the presence of peers, even college students – young adults in their late teens and early 20s – exhibit behavior similar to that of adolescents. This is consistent with new findings from studies of brain maturation, which suggest that regions of the brain that control relatively more sophisticated thought processes – like those that are in play when we are trying to balance risk and reward – are still maturing through late adolescence and into early adulthood, perhaps as late as age 25. (The biology of the brain is further discussed later in this section.)
- In order to understand and address adolescent risk-taking, the role of the peer group must be considered. For reasons that are not yet clear, the presence of peers may actually sharpen an adolescent’s natural appetite for risk-taking. Most of the dangerous things adolescents do are done in groups, whereas adults often take risks by themselves. **One need only consider the following fact: nearly all juvenile crime is committed in groups, whereas most adult crime is committed by individuals acting alone.** And we already know that a significant number of teen driving fatalities involve one or more teen passengers.

In view of our study’s findings, graduated driver licensing laws that restrict the number of passengers for new drivers make a good deal of sense.

As mentioned earlier, our findings also find support in new research on brain maturation, which will be described in more detail later in this section. In brief, neuroscience tells us that the brain’s frontal lobes – which enable an individual to plan ahead, control impulses, and weigh risks and benefits – are still maturing into the early 20s. At the same time, the brain systems that control arousal, emotional experiences, and social information

“The chief implication of this work is that strategies that rely on appealing to adolescents’ logic or providing them with facts are unlikely to significantly reduce risk-taking in adolescents”

processing become much more receptive at the onset of puberty, with the result that many teens are more apt to take risks and seek out novelty and sensation. Operating simultaneously, these two aspects of brain maturation – the not yet fully formed capacity for impulse control and risk-assessment, and the heightened desire for sensation, risk, and peer approval – considerably increase the likelihood of teen traffic crashes.

The chief implication of this work is that strategies that rely on appealing to adolescents’ logic or providing them with facts are unlikely to significantly reduce their risk-taking, since teenagers apparently are not deficient in either logical reasoning or risk perception. It is not surprising, then, that efforts designed to diminish adolescents’ risk-taking by educating or appealing logically to them have been largely unsuccessful. Rather, it currently appears that the risk-reduction strategies that hold the most promise entail preventing adolescents from obtaining harmful substances (e.g., by enforcing laws prohibiting the sale of cigarettes or alcohol to minors) or from placing themselves in potentially dangerous situations (e.g., graduated driver licensing laws that include passenger restrictions). Programs that engage teen peers in dialogue, and which seek to neutralize the effects of attitude and social context on teen driving, may also hold some potential.

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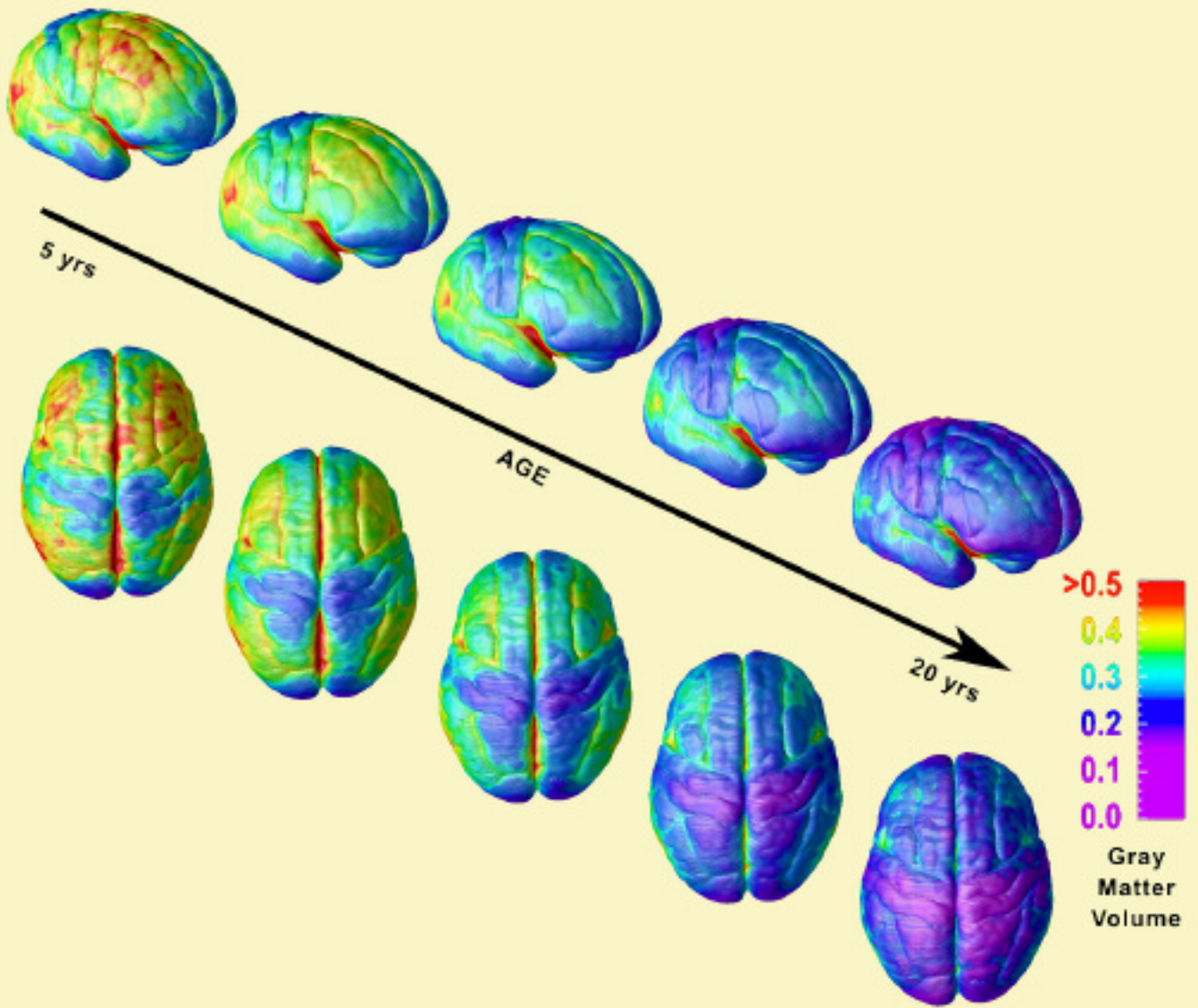
FEW WOULD BE SURPRISED TO HEAR THAT THE BRAINS OF CHILDREN, TEENS, AND ADULTS ARE different, but actually pinpointing these differences in a scientific way has been elusive. The brain is wrapped in a tough leathery membrane, surrounded by a protective moat of fluid, and completely encased in bone. Designed to shield the brain from falls or predators' attacks, this armor has also shielded it from scientific study. Throughout most of the history of neuroscience, information about the brain was gained chiefly from trauma injuries resulting from accidents or war.

Fortunately, this is no longer the case. Advances in imaging technologies, such as magnetic resonance imaging (MRI), now enable researchers to safely observe the structure and function of the living, growing brain. Analyzing brain scans from hundreds of boys and girls as they grow from childhood through adolescence into adulthood has revealed three main findings.

- **The brain is remarkably “plastic,” or changeable, able to modify its structure in response to different environmental challenges.** Adolescence is a particularly dynamic time for the brain, creating enormous opportunity for learning, creativity, and energy, but also for trial and error, missteps, and perhaps risky behavior. Understanding the neuroscience of teen brain development may help to guide optimal driving instruction and safety guidelines.
- **The process of brain maturation occurs over a longer period of time than previously thought.** Particularly late to mature is an area in the front part of the brain – part of the neural circuitry involved in impulse control, judgment, and decision-making – that continues to develop well into the 20s. This area is also involved in "multi-tasking" or doing more than one thing at a time. Multi-tasking is one of the abilities that continues to improve most throughout the teen years. This is why it is important to limit the number of "other" tasks, such as adjusting the volume on a CD player or talking on a cell phone, that a young driver must attend to.
- **Brain development varies greatly from person to person.** Some teens are better at inhibiting impulses, have better judgment, and are better drivers than some adults. Therefore, the findings of this research are valid only for comparing averages between groups of teens and groups of adults.

In summary, advances in brain imaging technologies have indicated that there is enormous plasticity and variation in teen brain development and that areas crucial to driving safety – judgment, impulse control, multi-tasking – are not yet fully developed in many teens. As shown in Dr. Steinberg's accompanying study, this is complicated by the social contexts affecting teen driving. An important challenge will be to use these technologies to better understand individual teen drivers. The more we can learn about what sort of education and interventions are best suited to each driver, the more effective we can be in decreasing the incidence of vehicle crashes among teenage drivers.

ROOT CAUSES





In spite of the wealth of teen safe-driving programs, teen fatalities have remained at about the same level, more than 5,000 a year, for the past 10 years.