Name: _____ Date: _____

Why New Drivers Crash

Reading level 14 · 1755 words

In many driving-school cars there is a second brake pedal on the passenger side. The instructor uses it to slow the car when the learner cannot. It is a small admission that learning happens on real roads, and the statistics say why. In the United States, teenagers drive less than every age group except the oldest, yet their crash numbers are out of proportion. So researchers count crashes per mile driven, not per driver. By that measure, drivers 16 to 19 have a fatal crash rate about three times that of drivers 20 and older. Their rate of police-reported crashes of every severity is more than four times as high (IIHS, figures for 2022).

Start with the physics, because the road is strict about it. A moving car carries kinetic energy equal to half its mass times its speed squared, so doubling the speed quadruples the energy. Energy, not speed, is what a car's structure has to manage, and IIHS gives a concrete case. Raising impact speed from 40 to 60 miles an hour is a 50% increase, but the energy to be managed rises 125%. Crumple zones stretch a crash over more time, because a gentler change in speed is easier to survive. The same square law shows up in people. An AAA Foundation analysis of US pedestrian crashes from the 1990s found the average risk of severe injury was 10% at 16 miles an hour, 50% at 31 and 90% at 46.

Stopping distance has two parts that grow at different rates. Reaction distance is speed multiplied by the driver's perception-reaction time, so it rises in step with speed. Braking distance comes from the same energy balance, and it equals speed squared divided by twice the friction coefficient times gravity, so it rises with the square. A common baseline, used in a table that Virginia's courts take notice of, assumes 1.5 seconds and a coefficient near 0.7. That puts a car at 60 miles an hour, which is 88 feet per second, at about 300 feet from first sight to full stop. Roughly 130 feet of that is reaction and 170 is braking. The UK Highway Code's 73 meters, about 240 feet, is lower mainly because its thinking distance works out to about two thirds of a second. On wet or frozen asphalt the coefficient may be 0.25 or lower, which lengthens the braking part nearly threefold.

Notice what the formulas leave out, which is seeing, because perception-reaction time is not a constant. Experts once used 0.75 seconds, but newer practice counts perception as well. Averages near one second are common, and two seconds is sometimes used for an elderly driver or a neophyte, which is a beginner. The 1.5-second baseline is meant to cover the vast majority of drivers. At 88 feet per second, each extra half second of delay adds 44 feet before the brakes touch. Researchers at Children's Hospital of Philadelphia note that new drivers often notice a hazard later than experienced drivers do. A glance away works the same way,

since NHTSA says reading a text takes the eyes off the road for about 5 seconds, which at 55 miles an hour is the length of a football field.

In 2011, researchers at that hospital and the insurer State Farm studied more than 800 crashes involving young drivers, taken from a nationally representative federal database. They found that 75% involved a critical error by the young driver, often one of the last links in a chain of events leading up to the crash. Among crashes with such an error, three errors stood out: not scanning enough to detect hazards (21%), going too fast for conditions (21%) and being distracted (20%). Weather, vehicle failure, aggressive driving and drowsiness were not primary factors in most of the crashes. The lead author, Allison Curry, said in the hospital's release that the study "helps dispel the myth that most teen crashes are due to aggressive driving or thrill-seeking." Scanning, the study adds, is a higher-level skill that experienced drivers develop over time.

Is the problem age or experience? The honest answer is both, and nobody has pulled them fully apart, since IIHS, a research group supported by auto insurers, says each has strong effects on crash risk. Risk is especially high in the first months of licensure, and CDC data show that the crash rate for each mile driven is about 1.5 times as high for 16-year-olds as for 18- and 19-year-olds. IIHS adds that young drivers tend to overestimate their abilities and underestimate the dangers. A newly licensed 16-year-old is young and new at once, and a policy that fixes only one of those will leave the other in place, which is the logic behind the rules in the next sections.

Two multipliers are especially well measured. A 2012 AAA Foundation analysis covered crashes from 2007 to 2010. For a 16- or 17-year-old driver, the risk of death for each mile driven rose 44% with one passenger under 21, doubled with two, and quadrupled with three or more. With a passenger aged 35 or older, it fell 62%. The rise in police-reported crashes followed a similar pattern, but it was not statistically significant. The second multiplier is darkness. CDC reports that the fatal crash rate at night for drivers 16 to 19 is about three times that of drivers 30 to 59 for each mile driven, and IIHS counts 35% of the 2024 fatalities among young drivers between 9 p.m. and 3 a.m.

Licensing began as permission, not proof of skill. In 1888 Carl Benz was granted permission by a district office in Baden to run test drives with his motor car. Britain's Motor Car Act made licenses compulsory from 1 January 1904, with a minimum age of 17 and no test. The government's own history says they were meant purely as a way to identify vehicles and drivers. A driving test became compulsory there only in 1935. In the United States, Massachusetts and Missouri passed the first state license laws in 1903, but began driver examinations only in 1920 and 1952. Rhode Island paired its law with an exam in 1908, and South Dakota started licensing in 1954 and exams in 1959. IIHS dates graduated licensing, the idea of phasing in new drivers, to New Zealand in 1987.

Graduated licensing splits the license into three stages: a supervised learner period, then an intermediate license, granted after a road test, with limits on night driving and teen passengers. Last come full privileges. Florida adopted the system first in the United States, in 1996, and every state now has some version, though the versions differ widely. Permit ages, for example, run from 14 to 16 in IIHS's state table for November 2026. Evaluations in US states, Canadian provinces and Australia found that it reduces crashes substantially. US crash deaths among all teenagers aged 13 to 19, riders and walkers as well as drivers, fell by half between 1996 and 2024, from 5,819 to 2,899. That timing alone does not prove cause is this essay's caution, not IIHS's: cars changed in those years too, and comparisons between states with strong and weak laws carry more weight.

The most familiar remedy has the weakest record. IIHS reports that formal evaluations of US high school driver education show little or no reduction in crashes for each licensed driver, a different yardstick from crashes per mile. That does not make the class optional where a state requires it. One study of hazard-perception training found a 24% lower crash rate among males 16 to 18, though no significant effect overall. Skid-control and other advanced training seem to raise crash risk, especially among young males. IIHS offers a possible explanation: trained drivers may become overconfident and take unnecessary risks. What seems to help is more modest. Supervised practice in varied conditions matters, and research suggests that its quality counts for even more than its amount. IIHS recommends at least 70 supervised hours, while states ask for anything from none at all to 70 hours or more, depending on where a learner lives.

Cars now help the driver see. Front crash prevention uses cameras, radar or lidar, short for light detection and ranging, to notice when a vehicle ahead is too close, and it may then brake on its own. IIHS found that warning plus automatic braking cut rear-end crashes in half. Warning alone cut them by 27%, and blind spot detection cut lane-change crashes by 14%. But sensors may not work well in low light or bad weather, lane systems can struggle on poorly marked or snowy roads, and pedestrian systems can struggle in the dark. NHTSA stresses the difference between kinds: a forward collision warning only warns, while automatic emergency braking acts.

Partial automation, which holds a lane and a following distance at once, is a different matter. IIHS says, in a page updated in September 2026, that a Level 2 system can never replace the driver. It adds that we do not know whether these systems improve safety, and that regular users often feel a false sense of security. Even if every interstate mile were driven by automation that never crashed, the most it would save is 17% of crash deaths, since most crashes happen on other kinds of roads. Driverless robotaxis are services, not cars anyone can buy, and they look better so far. An IIHS study found that one company's vehicles had a 68% lower rate of police-reportable crashes than human drivers in the same cities, using the company's own mileage data.

So what is the right age to license a driver? The evidence points both ways. New Jersey is the only state that waits until 17, and older studies found that its 16- and 17-year-olds crash far less than those in neighboring states. Across states, raising the age from 16 to 17 is linked to a 13% lower fatal crash rate among 15- to 17-year-olds. Yet all states allow exceptions so novices can drive for set purposes during restricted hours. Many young people already wait: the share of 16-year-olds with a license fell from 46% to 25% between 1983 and 2014, though that study does not explain the drop. Older studies conflicted on whether limits only push crashes to the year after the limits end. IIHS says the most recent work finds that graduated licensing does not raise crash rates for older teens. That question is still open, and the second brake pedal in a driving-school car is a reminder of why it matters.

Questions

1. By how much does crash energy rise when impact speed goes from 40 to 60 mph, according to IIHS?

A. 25 percent
B. 50 percent
C. 125 percent

2. Why do researchers compare crashes per mile driven rather than per driver?

A. Teenagers drive fewer miles than most groups, so raw counts would mislead
B. Miles are easier to measure than drivers
C. Teenagers never drive on highways

3. In this essay, what does neophyte mean?

A. An examiner
B. A beginner
C. A passenger

4. What did the Children's Hospital of Philadelphia study find about teen crashes?

A. Aggressive driving caused most of them
B. Vehicle failures caused most of them
C. Three errors made up nearly half of serious crashes: not scanning, speed for conditions and distraction

5. Why does the essay say the fall in teen crash deaths after 1996 does not prove graduated licensing caused it?

A. Other changes, such as safer cars, happened in the same years
B. The numbers were counted wrongly
C. Graduated licensing began after 2000

6. What does IIHS say about whether partial driving automation improves safety?

A. It cuts crashes in half

B. It does not know whether it improves safety

C. It is known to make crashes worse

Words to know

neophyte: a beginner
lidar: laser distance sensing
overconfident: too sure
coefficient: friction number
graduated: given in steps

Answer key: Why New Drivers Crash

1. C. 125 percent
2. A. Teenagers drive fewer miles than most groups, so raw counts would mislead
3. B. A beginner
4. C. Three errors made up nearly half of serious crashes: not scanning, speed for conditions and distraction
5. A. Other changes, such as safer cars, happened in the same years
6. B. It does not know whether it improves safety