

David Strayer, PhD — Cognitive Neuroscientist

A FOCUS ON DISTRACTIONS

Years ago, while working in the aviation industry on research about preventing plane crashes, David Strayer, PhD, had a breakthrough: He noticed the same distractions pilots were dealing with in the air were affecting drivers on the road.

His curiosity was piqued.

For the past 12 years, Strayer has been researching, testing and drawing significant conclusions about the effects of distracted driving and how distractions are interpreted and processed within the brain.

"It turns out a lot of the technology that has been created to promote convenience can actually have an adverse effect and overload brain mechanisms, resulting in distractions," Strayer says. "As a human factors psychologist, I observe what I see in the real world, link it to theory, develop hypotheses and then test them in the lab."

What he has found has helped save lives.

TESTING THE BRAIN

How can you tell if someone is paying attention? Psychologists have the tools to measure levels of distraction and at what point these distractions can create driving hazards.

To analyze human brain activity and determine how attention is allocated, Strayer and his team at the University of Utah use advanced technology, like electrodes and electroencephalography (EEG) skull caps, to measure electrical impulses and eye movements that indicate distraction. They also employ behavior techniques to study how attention is allocated or the degree to which someone is distracted.

For example, Strayer and his team use a detection response task device, or a "DRT," to record driver reaction time in response to red and green lights. EEG skull caps chart brain activity so they can determine a subject's mental workload while he or she is driving.

"We've found that if you talk on a cellphone while driving, the odds of getting in a crash are four times higher than if you're not talking on the phone," Strayer says. "That's basically the same odds as if you are legally drunk. It doesn't matter if it's hands-free or not — cognitively, you're just as distracted."

SAFER ROADS

Strayer is transferring his research from the lab to public policy. In 2013, alongside the American Automobile Association, he presented his research findings to several key players in the transportation industry, including the National Highway Traffic Safety Administration, National Safety Council and National Transportation Safety Board. He has also testified in front of Congress twice.

Today, in his home state of Utah, texting while driving is a felony, no different from driving under the influence of alcohol. The state has some of the strictest distracted driving laws in the nation, and that's largely due to Strayer's research findings.

In Utah's driver education classes, new drivers are required to watch Strayer's 30-minute video about the dangers of texting while driving; research that has been proven in his lab.

"It's rewarding to see that the research we've done has had such an impact on something that we all do every day," says Strayer. "That hopefully makes us all safer."



"Psychology plays a huge role in terms of trying to understand how drivers are interacting with technology."

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