

# Cell Phone Use & Driving

## Background

Researchers working on the study entitled *The Risk of a Safety-critical Event Associated with Mobile Device Subtasks in Specific Driving Contexts* broke down cell phone usage into the actual tasks being performed. The results showed that not all tasks were created equal. Tasks that required visual and manual interaction with the phone (e.g., texting and dialing) were associated with increased risk, while just talking or listening were not. This led to another question about context: If what someone is doing with a phone matters more than previously thought, could *when* and *where* the task is occurring matter just as much?

To find the answer to this question, NSTSCE researchers looked again at the data on cell phone use by both commercial vehicle and light-vehicle drivers, this time to identify the conditions under which people were driving. The researchers

began by classifying the data based on the demands that the environment placed on the driver. Depending on the number of lanes, the density of traffic, and the types of maneuvers being performed, each usage of a cell phone was categorized as taking place during a time of Low, Moderate, or High demand. Researchers re-examined the data within these new contexts, and the results were, once again, more complex than originally thought.

### Naturalistic Research

One of the lessons learned from naturalistic research is that what appears simple in a lab can be complex in real-world situations. This was the case when researchers decided to dig into the data about cell phone use while driving. What appeared to be a simple story of cell phone use increasing the risk of safety-critical events (SCEs) actually required considering the context in which people used their phones.

## Driver's Intuition

Intuition might dictate that cell phone use is more dangerous when the driver is placed under higher demands from driving; for example, under heavy traffic conditions or when navigating intersections. However, the study results indicate that higher driving demands were not associated with increased risk. Under low demands (e.g., light, free-flowing traffic), only dialing was associated with an increased risk of SCEs. Under moderate demands (e.g., heavier but flowing traffic), texting and dialing were associated with increased risk of SCEs, but talking and listening on a cell phone were associated with a decreased risk of SCEs.



# NSTSCE

National Surface Transportation  
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## *NSTSCE Study: The Risk of a Safety-critical Event Associated with Mobile Device Subtasks in Specific Driving Contexts*

### Did You Know?

**All types of cell phone interaction are not created equal, and the way people use phones in real life may not be a clue to understanding the complexity of cell phone use while driving.**

There was little evidence of drivers compensating when they used their cell phones. Commercial vehicle drivers sped up slightly while changing lanes less often, and light-vehicle drivers showed fewer unintentional lane departures. While drivers may have slightly simplified their driving tasks while talking on a cell phone, these behavioral changes were not substantial. This leads to another important question: Could there be something intrinsically beneficial about talking/listening while driving under higher demand conditions?

More research needs to be done to answer this question. Other research has found that drivers tend to look forward more while talking/listening on a cell phone. If drivers are looking forward more, could that be improving their response to what's going on in front of them? Additionally, research has shown that truck drivers tend to use their phones more when they are feeling tired. It could be the case that professionals who drive for a living are instinctively using their phones to help them stave off drowsiness. In this light, this study's results make sense.

Visual/manual tasks, such as texting and dialing, take the driver's eyes off the roadway. However, talking and listening have no visual component. Under conditions of moderate or high demands, there is more information that the driver must process about the forward roadway, and spending more time looking forward could reduce the risk of SCEs. Additional research is needed before cell phone use in vehicles is fully understood, but the answers may not be as simple as previously believed.

**Final Report:** Fitch, G., Hanowski, R., & Guo, F. (2014, July 24). *The Risk of a Safety-critical Event Associated with Mobile Device Subtasks in Specific Driving Contexts*. Retrieved from <https://vtechworks.lib.vt.edu/handle/10919/49687>



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