

Hands-On or Hands-Free, Using a Cell Phone While Driving Is Not Safe, Researchers Find

SANTA MONICA, CA — Ninety percent of cell phone owners report that they use the phone while driving, according to a report published in 1999. Another report from 2003 indicates that cell phone distraction results in 2,600 deaths, 330,000 injuries, and 1.5 million instances of property damage in the United States each year. Can hands-free devices reduce accidents, fatalities, or damage? No, say human factors researchers published in a special driver distraction section in *Human Factors: The Journal of the Human Factors and Ergonomics Society*.

In fact, if a hands-free device is not easy to use, a driver who uses it could be even more distracted than by simply holding the phone. Things could get worse: The next generation of communication technology — such as wireless Internet, speech recognition systems, satellite radio, and e-mail — could be far more distracting for drivers, creating even greater risk on the road.

The recent controversy regarding cellular telephones and their effect on driving safety has generated public concern regarding the danger posed by these devices. Many state legislatures have responded with various proposals to restrict cell phone use while driving. But some of the laws proposed won't improve driver safety because they don't discourage hands-free phone use.

The debate surrounding new technologies in vehicles has indicated a substantial need for a better technical basis to support public policy. This, coupled with a recent surge of research in this area, motivated the special section of *Human Factors* (Volume 46, Number 4, Winter 2004).

The eight driver distraction special section papers show that

- Cell phone conversations alone, without dialing or answering, change the way drivers see the world and make them more likely to miss traffic signs and other important information (see the special section papers by McPhee, Scialfa, Dennis, Ho, and Caird and by Atchley and Dressel).
- Using a speech recognition system to reduce distraction, such as speaking an address into a navigation system, can make the task easier, but it can still disrupt driving, particularly

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the driver's ability to control the vehicle's speed. Drivers slow down when entering information manually or by voice (see the paper by Tsimhoni, Smith, and Green).

- Information (such as telephone numbers) presented by voice competes for drivers' attention to a far greater extent than when the driver sees the same information presented on a display. Horrey and Wickens found that auditory information led to poorer speed control than was the case with visual displays of the same information.
- The effect of distractions depends on when they occur. Interruptions to driving, such as answering a cell phone, are likely to be more dangerous if they occur during maneuvers like merging to exit a freeway (refer to the paper by Monk, Boehm-Davis, and Trafton).

Overall, these results show that hands-free devices are not the solution to the problem of driver distraction. The papers also indicate new directions for enhancing driving safety.

For more information or to obtain a press copy of the Winter 2004 driver distraction special section of Human Factors, contact Lois Smith (310/394-1811, fax 310/394-2410, lois@hfes.org).

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Human Factors: The Journal of the Human Factors and Ergonomics Society, published since 1958, is a peer-reviewed research journal presenting original papers of scientific merit that contribute to the understanding and advancement of the systematic consideration of people in relation to machines, systems, and environments.

The Human Factors and Ergonomics Society is a multidisciplinary professional association of more than 4400 persons in the United States and throughout the world. Its members include psychologists, engineers, designers, and scientists, all of whom have a common interest in designing systems and equipment to be safe and effective for the people who operate and maintain them.

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2Studies Find Evidence of Serious Driver Distraction When Driving and Using Cell Phone

SANTA MONICA, June 13, 2003 — In May, the California Assembly passed legislation designed to encourage motorists to keep both hands on the wheel while driving. The bill, introduced by Assemblymen Dario Frommer (D-Glendale) and Joe Simitian (D-Palo Alto), will now go to the Senate and, if passed, will take effect in January 2005. Should the bill become law, California drivers, like those in New York, will be required to use cellular hands-free technology such as earpieces while driving—or face fines.

While hands-free technology may reduce the number of accidents, research by human factors/ergonomics (HF/E) professionals and others shows that driving and talking on the phone can lead to accidents. Driving a car is a complex task, demanding close and continuous attention. Research indicates that a distraction as brief as a couple of seconds can result in a driver losing control. And not all distractions are related to holding a phone to your ear as you drive. Believe it or not, talking on the telephone is considered a complex activity.

The issue of cell phone use in cars has come under more intense scrutiny recently. In making recommendations on June 3 based on its study of a February 2002 fatal crash near Largo, Maryland, the National Transportation Safety Board cited the driver's use of a wireless telephone as one cause of the accident. NTSB

therefore has directed the National Highway Traffic Safety Administration to “determine the magnitude and impact of driver-controlled, in-vehicle distractions, including the use of interactive wireless communication devices on highway safety.”

A number of studies have already been carried out to determine such effects on driving. In fact, in 2004, the Human Factors and Ergonomics Society will publish a special section of its research journal, *Human Factors*, devoted to driver distraction.

Below are two examples of studies concerning driver distraction:

- Drivers in a study conducted on an actual city road in real traffic reduced their attention to the right side of the car by as much as 70% while performing a task involving use of a hands-free cell phone compared with not using a phone or other distraction. They were asked by phone to solve a difficult math problem (“add 47 and 38”). These drivers spent more time looking forward and less time looking at instruments and mirrors, some completely ignoring the right mirror. The distraction of performing the additional task caused drivers to brake hard on many occasions, possibly because it took more time for them to detect a reason to brake.
- A simulator study found that hands-free cell phone users took 18% longer to react, increased their following distance by 12%, and took 17% longer to recover the speed that they had lost after braking. Although this study was based on the assumption that cell phone use while driving would result in more problems for older (65-74 years) than for younger drivers (age 18-25), the researchers found that the distractions affected both age groups equally.