

Cooper, J. M., Drews, F. A., Godfrey, C. N., Strayer, D. L., Yazdani, H. (2009). Text Messaging During Simulated Driving. *Human Factors*, Vol. 51, No. 5, pp. 762-770.

Does text messaging negatively affect driving performance and accident rates? What impact does text messaging have on driving performance as opposed to talking on the phone while driving?

The research aims to estimate the impact of text messaging while driving with accident rates. It also seeks to establish the impact of performance and safety while talking on the phone.

The method used: forty participants were tested utilizing a single task (driving) and a dual task (driving and text messaging) in a PatrolSim high-fidelity driving simulator. This simulator was based on the dynamics of a Crown Victoria with an automatic transmission. The fixed based simulator consisted of three scenes; front view and two side views and included rear and side view mirrors. The driving evaluation was conducted on a 32- mile multilane rural and urban beltway. These roads had on and off ramps, over passes, and two-and three- lane traffic traveling in both directions. A steady traveling vehicle was set to travel in the right lane, breaking periodically during the scenario; also there were twenty-two distracted vehicles set to travel 5-10% faster in the left lane than the vehicle in the right lane. Measures of driving performances such as distance from other vehicles and brake and steering inputs were saved for future analysis.

The participants studied: forty young adults averaging 21 years of age, there were 20 men and 20 women that were considered experienced in text messaging. Participants were friends who have known each other for more than one year and received course credit for participation. All of them recorded had corrected to normal vision and a valid driver's license. The average driving experience of the participants ranged from 3-7 years.

The reliability and validity of the measures and procedures: the experiment was done in a single session after participants answered several questions regarding the frequency of text messaging

while driving. They were measured by brake onset time, following distance, lane maintenance and collisions. Operating on a freeway road, participants did two driving scenarios using their own cell phones to send and receive text (texting was done via T9). While driving, participants were instructed to drive safe and follow all traffic rules. Every participant was tested in a baseline driving condition, texting condition and text messaging while driving condition. The task was for each participant to follow the pace car in the right lane as it suddenly braked and continue to decelerate until the participant depressed the brake pedal, if participant failed to depress the brake he/she would collide with the pace car. Each scenario provided 42 opportunities to measure the response to a lead vehicle braking. The dual task participants wrote text messages while driving by holding the cell phone upright at the height of the steering wheel. The outcome of brake onset time in both conditions had a significant effect. Participants were slower in responding when texting and driving compared to the single task, driving only condition. Post hoc tests showed faster reaction times for driving only compared with entering, receiving and reading texts. No significant difference was found between entering and reading of text messages. Following distance also revealed a significant difference between a single task condition and the dual task condition. Participants who were texting while driving increased their following distance, exhibited greater following distance variability and displayed smaller minimum following distance than drivers in the single task condition. Drivers' texting showed more periodic lane changing, drifting from left to right, lane position reversals and a gross lateral displacement compared to single task conditions, suggesting that text messaging impairs both forward and lateral vehicle control. This study shows 86% of the accidents occurred in the dual task condition (texting while driving). Only one accident occurred in the single task condition. This exposed a six fold increase of accidents when participants text message while driving, a

significant difference compared to single task conditions. The analysis of driving performance disclosed that participants in the dual-task condition responded more slowly to the onset of breaking lights and revealed that impairments in forward and lateral control compared with a driving only condition. Participants who texted while driving were involved in more crashes than drivers who did not text while driving. Overall, statistically findings have demonstrated that text messaging while driving is more risky than other distracted activities that drivers engage in. The research calls for a need for epidemiological data to validate the reported findings and further identify the risk associated with texting while driving. After careful review of this article, I think it is safe to say that texting while driving is high risk and has a negative impact on driving.