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# Increased Reaction and Movement Times when Text Messaging during Simulated Driving

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# Increased Reaction and Movement Times when Text Messaging during Simulated Driving

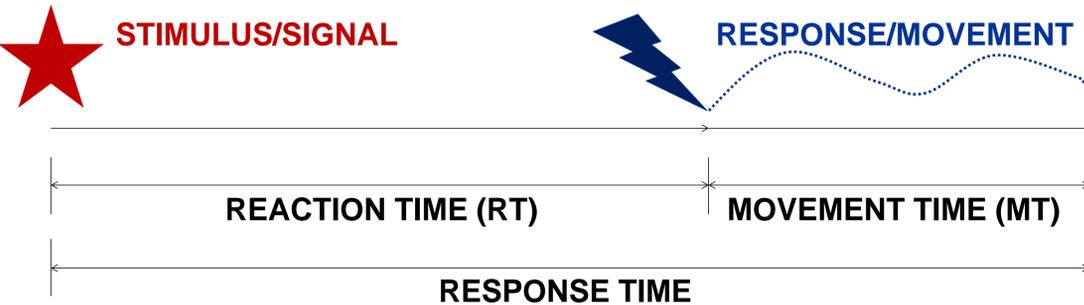


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## Introduction



RT, MT and/or Response Time have been previously tested using a driving simulator [1,2,3].

## Methods

- **'No-Texting Condition'**: Participant pressed and held their foot on the right side ('gas pedal') of the foot switch mat.
- When the **red stimulus** illuminated, the participant lifted their foot and pressed their foot onto the left side of the foot switch mat ('brake pedal') (Figure 1).
- Releasing the 'gas pedal' was recorded as the simple RT, and the initial pressing of the 'brake pedal' was recorded as the MT.

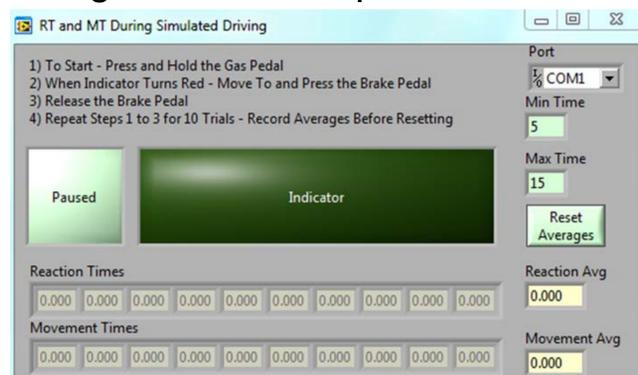


Figure 1: 'No Texting Condition' LabVIEW program interface.

- **'Texting Condition'**: same protocol as the control condition; however, the participant typed a 'text message' that appeared while pressing the 'gas pedal' (Figure 2).



Figure 2: 'Texting Condition' LabVIEW program interface.

## Results

- RT and MT during the texting condition ( $0.47s \pm 0.10s$  and  $0.28s \pm 0.16s$ ) took longer than the no-texting condition ( $0.34s \pm 0.05s$  and  $0.22s \pm 0.11s$ ) (Figure 3).
- Longer response times were recorded during the texting condition ( $0.75s \pm 0.19s$ ) than the no-texting condition ( $0.56s \pm 0.12s$ ) (Figure 3).

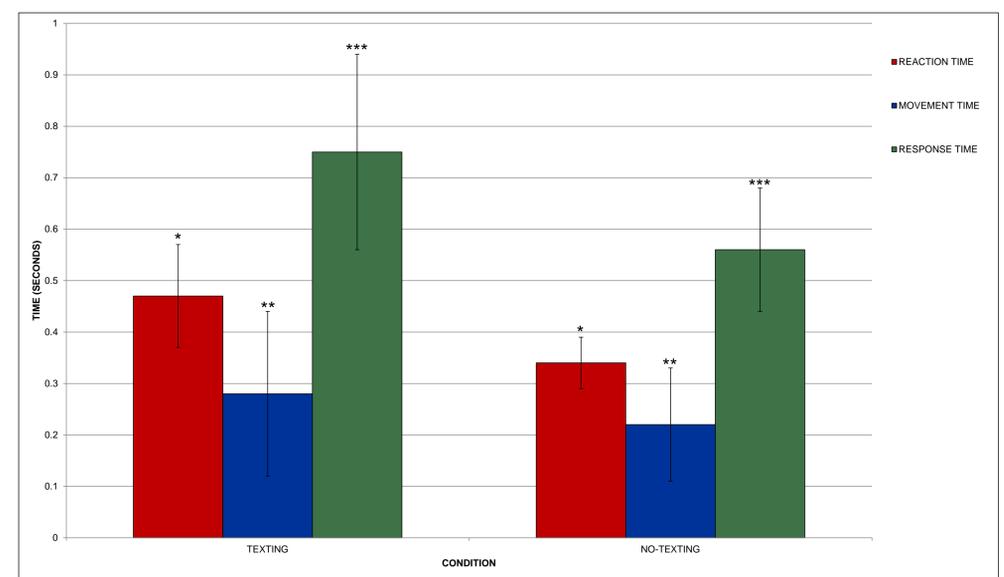


Figure 3: Overall response time, reaction time (RT) and movement time (MT) during the texting and no-texting conditions (\*p=.000, \*\*p=.001, and \*\*\*p=.000, respectively).

## Discussion & Conclusion

The increased dual-task demands required to divide one's attention to complete the texting task while simultaneously awaiting the stimulus indicator light, resulted in a significant increase in overall RT, MT, and response time, thus providing further evidence against text messaging while driving.

## Acknowledgements

Mr. Don Clarke for creating the LabVIEW Program.

## References

1. Consiglio et al. (2003). Effect of cellular telephone conversations and other potential interference on reaction time in a braking response. *Accident Analysis and Prevention*, 35, 495-500.
2. Drews et al. (2009). Text messaging during simulated driving. *Human Factors*, 51(5), 762-770.
3. Long et al. (2012). Mathematical model of predict drivers' reaction speeds. *Journal of Applied Biomechanics*, 28(1), 48-56.