

## Effects of Texting and Walking on Gait Pattern and Attention to Detail in College-Aged Students

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**PURPOSE:** To examine the effects of texting while walking on gait parameters and attention to detail. **METHODS:** Twenty-four college-aged students ( $M \pm SD$ : age =  $21.2 \pm 1.6$  years, mass =  $77.2 \pm 21.4$  kg, height =  $173.9 \pm 8.4$  cm, BMI =  $23.0 \pm 8.3$  kg/m<sup>2</sup>) volunteered to participate in the study. Using a course that was based on university crosswalks and sidewalks, students were asked to walk at a self-selected pace while completing three different conditions: (1) control (CON), (2) single-sourced texting (SST), and (3) multi-sourced texting (MST). The order was randomized and counter-balanced. Signs along the course were changed following each condition to gauge attention to detail and a gait mat was used to record selected gait parameters. Data were analyzed using repeated measures ANOVA. **RESULTS:** Statistically significant difference were yielded for gait speed ( $p < .05$ ), stance time ( $p = .05$ ), and step length ( $p < .01$ ). A trend was also seen for cadence ( $p = .08$ , Table 1). Error rates for text message responses were found to be nearly double in the MST trials (17.6% error) when compared to the SST trials (8.5% error). There was no significant difference reported in step width or terminal double support time. Only 2 of the 24 subjects (8.3%) noticed changes to course. **CONCLUSION:** Overall, gait patterns and attention to detail were negatively influenced by texting while walking. Subjects spent more time in stance, took less steps that were shorter when texting.

Table 1: Mean comparison of gait variables during three texting and walking trials

Variable	Multi-source (MST)	Single-source (SST)	Control (CON)
Stance Time (s)	$0.72 \pm 0.10$	$0.71 \pm 0.06$	$0.68 \pm 0.06^*$
Step Length (cm)	$64.44 \pm 7.70$	$65.35 \pm 7.15$	$70.77 \pm 7.62^\#$
Gait speed (m/s)	$1.29 \pm 0.26^\wedge$	$1.37 \pm 0.25^\wedge$	$1.59 \pm 0.25^*$
Cadence (steps/min)	$112.59 \pm 34.15$	$105.34 \pm 7.63$	$124.87 \pm 35.97$
Step Width (cm)	$10.60 \pm 4.67$	$10.67 \pm 3.60$	$10.60 \pm 3.69$
Terminal Double Support Time (s)	$0.27 \pm 0.32$	$0.16 \pm 0.02$	$0.29 \pm 0.37$

\*CON was different from both texting conditions; #CON was different from one texting condition; ^MST and SST were different from each other