Classen, S., Shechtman, O., Stephens, B., Davis, E., Lanford, D.N., & Mann, W. The impact of roadway intersection design of young and senior adults' driving performance in the recovery phase. Manuscript accepted for publication 03/03/09 by *The British Journal of Occupational Therapy.*

ABSTRACT:

Driving, an instrumental activity of daily living, requires safe person-environment interactions. We tested the effectiveness (safety) of four Federal Highway Administration (FHWA) intersection design guidelines in the recovery phase of a turn on older and younger adults. Using kinematics measures from an instrumented vehicle we examined drivers negotiating *improved* and *unimproved* intersections in Gainesville, Florida. Findings from a 2x2 repeated measures ANOVA (within-subject variable = intersection condition: *improved* vs. *unimproved*; between-subject variable = age: young vs. old) yield support for three maneuvers: *extended receiving lane*; *right turn channelization with acceleration lane*; and *left turn offset*; but not for *no acute turn angle.* One interaction effect (age x intersection) existed and age effects (favoring older drivers) appeared for three maneuvers; yet showed little practical significance, suggesting that these design guidelines benefit older and younger drivers alike. This study informs occupational therapists that enhancements in the environment impact safer driving, particularly at urban intersections. A replication of the concept of this study, i.e., testing intersection design guidelines in the UK, may generate valuable information on the plausibility of environmental design guidelines and their effects on driving performance of older and younger adults.

KEYWORDS: older drivers; environmental design; US Federal Highway Administration guidelines; instrumented vehicle; kinematics measures; repeated measures design