

Austin RD, Stanton BJ, Torres D, Schaeffer BH. REACTION TIME IN INDIVIDUALS WITH MILD DEMENTIA VS. HEALTHY INDIVIDUALS. Hardin-Simmons University Department of Physical Therapy, Abilene, TX.

PURPOSE: (1) To compare the lower and upper extremity Movement-Reaction Times of those who score within the mild to moderate dementia scores on the Mini-Mental State Exam to those who score within the normal range. Subjects: 60+ year-old generally healthy senior citizens were evaluated by three Physical Therapy students from various senior centers, skilled nursing facilities, an Alzheimer's support group, and clinics in Abilene, TX. **Methods:** Subjects signed a consent form and answered a questionnaire including demographic information such as age and gender, and clinical details such as past traumatic brain injury/stroke history. Manual Muscle Testing was performed on the dominant upper extremity and right lower extremity, and those who passed the inclusion criteria proceeded to answer The Mini-Mental State Examination to identify scores related to mild/moderate dementia. Those who scored 10-26 were placed in the dementia group and those who scored 27-30 were placed in the control group, according to the literature. After completing the Mini-Mental State Exam, upper extremity reaction time was tested through the iPad application "Reaction Speed" composed of 5 trials and requiring tapping on the screen upon seeing a change in color from red to green. Lower extremity reaction time was collected through a Multi-Choice Reaction Timer by recording 5 trials requiring pressing on a pedal with the right foot upon seeing a green light. The times of the 5 successive trials for both lower and upper extremities were recorded with the mean times used for data analysis. An independent samples t-test was used to compare the two groups. **Results:** Mean \pm sd Movement-Reaction Time for the control group, n=18 (M=4, F=14), measured .382s (\pm .085) for the upper extremity and .536s (\pm .090) for the lower extremity whereas the test group, n=17 (M=7, F=10), measured .605s (\pm .293) for the lower extremity and .804s (\pm .364). Independent-samples t-tests comparing the mean scores of the test and control groups found a significant difference between the means of the two groups for both upper and lower extremity reaction time ($t(33) = -3.085, p < .05$ AND $t(33) = -3.040, p < .05$, respectively). **Conclusion:** The control group was 38% faster than the test group for upper extremity Movement-Reaction Times and 33% faster for the lower extremity. Therefore, the control group that scored between a 27-30 on the Mini-Mental State Exam were significantly faster than those in the test group who scored a 10-26. **Clinical Relevance:** A lower score on the Mini-Mental State Exam was found to correspond with a significantly lower Movement Reaction Time. Further research evaluating the relationship between cognitive decline and reaction time is needed to provide a foundation of normative evidence upon which medical professionals can draw from when evaluating and determining the safety of elderly drivers. Such information may also be valuable in assessing other functional tasks which require speed of processing for safety such as responding after touching hot water or a hot stove, avoiding obstacles while walking in the community, and preventing falls.