

Student Masters Projects and Presentations 2007



An Introduction to Motion Analysis of the Upper Extremity: Implications for Occupational Therapists

Movement disorders of the upper extremity are common following neurological injury or disease. Clinicians have traditionally relied on subjective measures of impairment and performance in order to evaluate and develop treatment plans for such individuals. Motion analysis offers objective information about the quality of an individual's movement that can be used to improve treatment plans and thus impact therapeutic outcomes. This presentation examines the effect of resistance and speed of movement on movement quality as recorded by a motion analysis system as well as presents the implications these conditions may have on a corresponding treatment plan.

Ray Churchill, a professional master's degree graduate, worked under the direction of Dr. Tim Reistetter.



On the Road to Safety: Standardizing the RT-2S Brake Reaction Time Tester

With the older adult population on the rise, it is imperative that measures are in place to test the ability of older adults to safely perform the occupation of operating a motor vehicle. The purpose of this study was to standardize the RT-2S Simple Reaction Time Tester as reliable and valid instrument for use in driving evaluations as compared to norms established by the already standardized American Automobile Association Brake Reaction Timer. A correlational research design was used. The results of this study indicated that the RT-2S is a valid and reliable tool. Thus, occupational therapists will continue to have an effective and valid method to measuring simple brake reaction time, an important factor in older adult driving evaluations.

Meredith Parnell, Stephanie Robinson, Kristin Stone, and Kristin Whitley, professional master's degree graduates, worked under the direction of Dr. Anne Dickerson.



60 going on 16: A Driver Safety Program for Older Adults Purpose

The purpose of this research study is to determine whether a community based educational intervention is an effective means for changing the awareness of driving behavior of older adults. Methods: A quasi-experimental design was used for this study. A community educational program was developed focusing on aging and how it affects driving ability. The program was presented to three local senior groups. A pretest and posttest were used to measure the effectiveness of the presentation as well as the participant's perception of driving. Data was compiled and analyzed. Results: Data analysis yielded an 11% increase in post-test scores compared with those of the pre-test. Using a paired t-test, there was a significant difference between pretest to posttest scores on the older adults' perceived importance of driving and on their reported skills and knowledge of driving. The results suggest that older adults' perceived view of driving changed significantly from participating in the program. Conclusion: Occupational therapy community educational interventions are effective for increasing older adult's perception of driving ability and importance, as well as changing safety awareness of driving behaviors.

Ashley Christopher & Amy Wentz, professional master's degree graduates, worked under the direction of Dr. Anne Dickerson.



The Effectiveness of a Computerized Motor-free Visual Perception Training Program on Normal Older Adults as Measured by the MVPT-3 Purpose

This study looked at the effect of the Computer Assisted Visual Training Program (CAVPT) on the Motor-free Visual Perceptual Test (MVPT-3) scores of normal older adults. Visual perception skills are a major requirement for driving. The MVPT-3 has been found to be highly predictive of failure on on-road driving evaluations. Methods: A single subject pretest-posttest method was used with 5 participants. Each of the participants was given a pretest evaluation using the MVPT-3. The participants completed 10 training sessions using the CAVPT to simulate a typical clinical treatment. After the final session, the participant was given the MVPT-3 again as the posttest. Results: Out of the five participants that completed the study, the two oldest participants made significant improvements. Conclusion: The results of this study support previous findings that the CAVPT can positively affect the MVPT-3 posttest scores of older adults and improve their visual perception.

Courtney Enos, a professional master's degree graduate, worked under the direction of Dr. Leonard Trujillo.



Effectiveness of Tai Chi Exercise in Addressing Fear of Falls in Seniors Purpose

Fear of falling (FOF), a prevalent concomitant psychological symptom, occurs in seniors whether or not they have experienced a fall. FOF accounts for more restricted activity days among this age group than any other single condition and substantially increases the risk of functional impairment. This correlational and descriptive quantitative pilot study investigated the relationship between Tai Chi, anxiety, depression, quality of life, fear of falling, and mobility. Methods: Residents living at a local retirement community participated two times a week for one month in a fall prevention based Tai Chi class. The effectiveness of this class was measured by comparing pre-test and post-test results of five assessments. Participants were recruited through a convenience, non-probability sampling method. Results: This research study revealed that there were no significant correlations between Tai Chi and the multiple dependent variables. However, noteworthy changes in depression and anxiety scores occurred among some of the participants. Conclusion: Although this four week pilot study resulted in no significant findings, there are implications for occupational therapy practice and future research.

Miriam Abernethy, Anne Butler, Rebecca Hewitt, and Stephanie Price, professional master's degree graduates, worked under the direction of Dr. Jane Painter.



The Evaluation of the Effectiveness of Interactive Metronome Training in Older Adults

As the population in the United States ages, the demands for occupational therapy interventions to improve the older adults' ability to maintain participation in desired activities are seen as paramount by the Baby Boomers. The Interactive Metronome is a treatment tool that claims to improve a person's neurological and motor processing, planning and sequencing, and attention abilities and is purported to meet many of these demands. A pretest-posttest experimental design was used to determine the Interactive Metronome's affect on finger dexterity. The study of twelve participants ages 55 and older from North Carolina indicate that finger dexterity improves after Interactive Metronome intervention.

Lindsay Alspaugh, Sandy Gant, Amanda Garner, professional master's degree graduates, worked under the direction of Dr. Leonard G. Trujillo.



Psychophysiological Responses of Individuals with Severe/Profound Mental Retardation to Activities in Two Environments

The purpose of this study was to collect and compare quantitative psychophysiological responses of an individual with profound MR and physical disabilities when being fed a meal by a staff member in his typical environment and in the Snoezelen room. The research study used a single-case research design involving one participant. The design consisted of ABA and ACA where A is the baseline, B is the dining room and C is the Snoezelen room. Instrumentation used in this study was the Nexus-10 which is a wireless piece of biofeedback equipment used to monitor and record multiple psychophysiological responses. The psychophysiological measures included skin temperature and electrodermal activity, specifically Galvanic skin response or GSR. Data was collected for 8 days. The participant's skin temperature increased while eating in the Snoezelen room and decreased while eating in the dining room, and the participant's GSR decreased in both the Snoezelen room and dining room, but decreased more significantly in the Snoezelen room. Results indicate that the psychophysiological responses of the participant were affected by the environment. The increase in skin temperature and decrease in GSR of the individual while in the Snoezelen room support Caswell staff members' perceptions that residents are more relaxed when in the Snoezelen room.

Tonya Bradshaw, and Erin Hughes, professional master's degree graduates, worked under the direction of: Dr. Beth Velde.



Pre-K Handwriting Without Tears Head Start Program

This study was designed to test the hypothesis that implementing the Pre-K Handwriting Without Tears Program (HWTP) will improve readiness skills for 4 year old Head Start students in learning handwriting. Matched student cohorts were identified using fine motor score from the Mullen Scale of Early Learning. One cohort underwent biweekly interventions for 3.5 months and the other cohort served as control. Music, movement, selections from the HWTP student workbook and other multi-sensory activities were utilized during each session in order to facilitate growth of pre-writing abilities in these students. Effects were determined by comparing the Readiness Checklist (Pre-K HWTP) and the Mullen scores before and after intervention. Preliminary results suggest that implementing the Pre-K HWTP did improve handwriting readiness in a 4 year old Head Start population. In particular, improvements in body awareness, coloring and drawing were noted.

Christie Zyromski, a professional master's degree graduate, worked under the direction of Dr. Carol Lust.