

Archived Student Presentations - 2009

Class of 2009

The Effectiveness of Matter of Balance on Fear of Falling in Community-Dwelling Older Adults



Alicia Menster and Megan Lucas, professional master's degree students, worked under the direction of Dr. Jane Painter.

The purpose of this study is to evaluate the effectiveness of the Matter of Balance program on decreasing the fear of falling among community-dwelling older adults. The current quasi-experimental pilot study occurred over a two month period, including two weeks of pre-tests, four weeks of Matter of Balance sessions that met twice weekly for two hours each, and two weeks of post-tests. A convenience sample was used to recruit 15 participants from the local Council on Aging. As compared to the pre-test, the number of times a participant responded as worried about falling while engaging in different tasks decreased significantly at the 0.10 level (Paired Samples Test p -value = .075). Walking outside was cited as the most frequent cause for falling among our participants. The primary finding of this study was that Matter of Balance program significantly decreased a person's fear of falling as measured by the Survey of Activities and Fear of Falling in the Elderly.

Effectiveness of Interactive Metronome® Exercises: A Pilot Study of Community-Dwelling Seniors



Genie Hunter and Emily Woodrum, professional master's degree students, worked under the direction of Dr. Jane Painter.

The purpose of this study was to compare the results of pre- and post-tests in order to determine if the IM® device is an effective treatment to help improve functional balance and decrease the fear of falling in the elderly population. A quasi-experimental design was used. The independent variable was the 10-12 sessions of IM® in which subjects participated, and the dependent variables were the participant's change in functional balance and decrease in FOF. Before and after the IM® protocol, pre-tests/post-tests were given using the Time Get-Up and Go (TUG), Geriatric Depression Scale, IM® long form assessment, and the Survey of Activities and Fear of Falling in the Elderly. Fall history information was initially collected from study subjects through the use of a fall questionnaire. No significant results were found over the course of this pilot study. However, all participants showed a significant percent of change in IM® scores. Results indicate the TUG may not be the most effective means of measuring improvements made in balance through use of IM® exercises. More research is needed in the use of the IM® with the elderly population.

Entrepreneurs: The Meaning of Community Built Health Clinics in Eastern North Carolina



Courtney Webb and Karen Wurzinger, professional master's degree students, worked under the direction of Dr. Beth Velde.

There is limited research on the meaning of community built health clinics and the characteristics which make them distinct from other health care facilities. This phenomenological research study explored the meaning of community health clinics to those involved in their development and to individuals who rely on these clinics for their health care needs. Data included verbatim semi-structured interviews from ten informants involved with the Tillery People's Clinic, The Bernstein Center, and the Hobgood Clinic, researchers' field notes, photographs and published materials. Data were analyzed for categories and themes using Nvivo 8 qualitative analysis software. Analysis yielded 3 themes: "The community clinic emerges from a unique developmental context," "Many barriers exist to getting well and staying well," and "The clinic has our community at heart." The results of this study echoed themes found in the literature about the barriers to receiving quality health care for the rural poor and the increased strength of an organization when community members are involved in the development. This indicates increased opportunities for occupational therapists to help community-dwelling individuals to identify and maintain their valued occupations including habits related to health and wellness.

Handwriting Without Tears: Handwriting Readiness Pre-K Intervention



Amy Harris and Emily Garner; professional master's degree students, worked under the direction of Dr. Carol Lust.

Test the hypothesis that Pre-K children who received Handwriting Without Tears® (HWT) instruction would show greater improvement writing readiness skills, fine motor ability, and name writing compared to Pre-K children who did not. Effectiveness of Pre-K HWT program was measured using the Bruininks-Oseretsky Test of Motor Proficiency-2 (subtests 1 and 2), the Learning Accomplishment Profile-3 (pre-writing test), and the HWT Check Readiness. A method for scoring attempts to write names was adapted from the HWT Print Tool. The experimental group, consisting of 17 children from one Head Start classroom, participated in 42 ± 4 multi-sensory activity sessions designed to develop handwriting readiness. 15 children from another Head Start classroom served as controls. HWT students demonstrated broad improvements in multiple measurements, while control group students showed significant improvements only in a few areas. Where improvements were seen in both groups, the extent of improvement was consistently greater in the HWT students (e.g., 5/15 vs. 10/17 children improved BOT-2 Standard Score; control vs. experimental, $p < 0.05$ Chi Square). Implementing the Pre-K HWT curriculum would be beneficial at Head Start to improve student handwriting readiness and name writing, with additional non-specific benefits in fine motor ability.

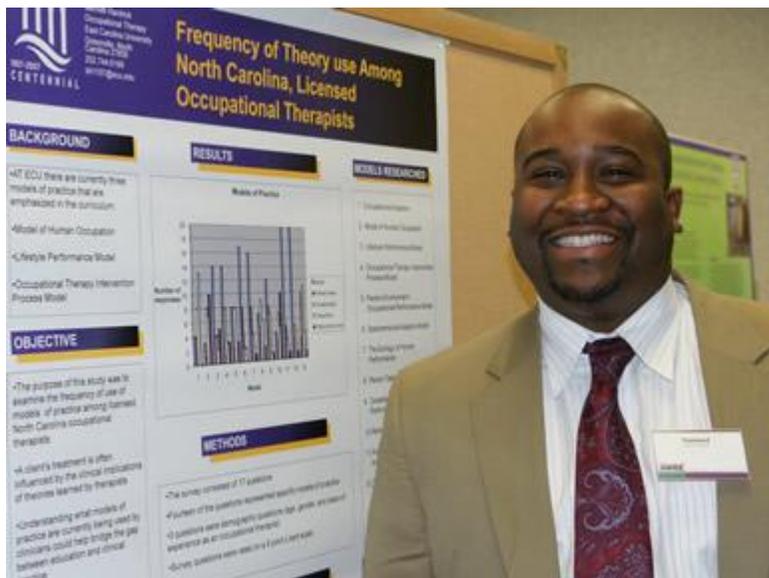
The Effect of Interactive Metronome® on Upper extremity Movement with Post-CVA Individuals



Alison Grieshop, professional master's degree student, worked under the direction of Dr. Leonard Trujillo

The purpose of this study was to determine the effects of the Interactive Metronome® (IM) on motor control in two cases of motor impairment secondary to stroke. This study included two clients at different spectrums of brain injury from minimal residual impairment to the more classical picture of a CVA with significant residual effects. Eight sessions involved a predetermined set of IM protocols, with two sessions allotted for pre and post assessments including the Jebsen Test of Hand Function, Nine-hole Peg Test, IM Long Form Assessment, and the Canadian Occupational Performance Measure. Following a one month break, participants were asked to complete the entire series again. Both participants made notable gains during the first series as measured by the IM Long Form pre and post assessment. Both commented on gains in functional return. The outcomes of the scores indicate that motor learning occurred and was retained. These positive results and reported improvements from the participants would indicate that the IM can be an effective treatment modality for individuals with differing levels of motor loss post-CVA.

The Frequency of Theory and Model of Practice Use Amongst North Carolina Licensed Occupational Therapists



Samuel Hardrick, a professional master's degree student, worked under the direction of Dr. Mike Bradley

The purpose of this study was to examine the frequency of theory use among licensed, North Carolina occupational therapists. A client's treatment is often influenced by the clinical implications of theories learned by therapists. The gap between education and clinical practice can be addressed by having insight into what models of practice are commonly being used. The design was a seventeen question survey. The survey was completed by a convenience sample of 30 North Carolina licensed occupational therapists. All survey responses except for demographic information were rated on a five point Likert scale. Data will be analyzed in order to determine which models of practice are being used by North Carolina occupational therapists. The researchers will also examine if years of experience correlates with a higher frequency of using a particular theory.

The Meaning of the Blind Center to its Members



Melissa Powell, professional master's degree student, worked under the direction of Dr. Beth Velde.

The purpose of this study was to identify the meaning of The Blind Center to its members. This center provides people who are visually impaired a unique place to interact and make items such as baskets that are sold in the gift shop. Based in the phenomenological tradition, data sources included participants, Board members, volunteers, staff and researcher generated data. Verbatim transcripts from focus group and individual interviews, photographs, field notes and literature were analyzed using NVivo 8 to identify underlying themes. The four main themes identified were, "Not to give up on life," "You enjoy being here and doing stuff," "It's more of a relationship between people" and "Who's involved with The Blind Center." The Blind Center provides a place where members are a part of a community organization that self supports its self through craft activities and fundraisers. The participants create meaning by testing skills, clarifying relationships and creating an end product—a key focus for occupational therapy (Fidler & Fidler, 1978).

The RT-2S Simple Reaction Time Tester: Test/Retest Reliability



Laurel Mann, Angela Brake and Leticia Hernandez, professional master's degree students, worked under the direction of Dr. Anne Dickerson.

The purpose of this study was to examine the test/retest reliability of the RT-2S brake reaction timer. A brake reaction timer may assist in determining a driver's ability to safely operate a motor vehicle. The establishment of a reliable and valid reaction time tester is critical for occupational therapists who evaluate drivers for safe mobility in a motor vehicle.

The design is a simple test/retest design, measuring the brake reaction of an individual one day on the ST-2S and repeating the measurements in 3-14 days later. Eight reaction trials were averaged for a mean reaction time which is compared for trials one and two. The correlation for test/retest reliability was 0.871, which is significant. Based on an ANOVA, there was a significant difference among age groups. The difference was between the over 66 age group and the 21-35 age group ($p=0.003$) and between the over 66 group and the 36-55 group ($p=0.005$). There was also a significant difference between males and females with males demonstrated greater improvement from time one to time two. The brake reaction timer is a useful tool for Occupational Therapists who evaluate driving. It is recommended that the brake reaction timer be used as part of a multi-disciplinary evaluation rather than used alone. Additional studies that included a greater sample size and a more diverse age sample would be ideal.

The Validation of the Computerized MVPT – 3rd Edition



Linda Blair Rhodes, professional master's degree students, worked under the direction of Dr. Leonard Trujillo.

The Motor Free Visual Perception Test 3rd Edition (MVPT-3) is currently a paper based assessment which examines visual perception. As technology is becoming increasingly important, many assessments are being given in electronic format. In response to this shift, a researcher from East Carolina University has created an electronic prototype of the MVPT3. This study examines whether the electronic MVPT-3 is valid and reliable as compared to the current manual version of the MVPT-3. A correlational design was used in this study. Thirty graduate students between the ages of 22-35 were recruited using a convenience sampling method to take both versions of the MVPT-3 and the results were compared. The results indicated that there was a 56% correlation using the raw scores along with a 97% correlation when comparing age-adjusted raw scores. The electronic MVPT-3 should be considered as another method of screening visual perception using a motor free approach.

Upper-Extremity Movement Smoothness Mental Practice Protocol



Cara Wiseman and Scott Cormier, professional master's degree students, worked under the direction of Dr. Tim Reistetter.

The study examined the effect of a mental practice protocol conducted with healthy adults on coordinated reaching scores of forearm and wrist movement as measured by kinematic variables. The hypotheses were: (1) that mental practice produces greater movement smoothness, quicker task completion, and more accurate acceleration values; (2) that mental practice with healthy older adults produces greater improvements in movement quality than with younger adults. A randomized repeated measures group design involving 26 healthy adults; 14 participants in the younger group (18-30 years) and 12 participants in the older group (45 and older). Participants were age matched and randomly assigned to a control or experimental group. The experimental group completed mental practice while the control group performed a mental memorization activity. Qualisys motion analysis cameras captured kinematic data while participants completed a complex reaching task requiring coordinated forearm and wrist movements. Differences were found in movement velocities between pre and post conditions among the mental practice group with older subjects showing decreases in velocity while younger participants demonstrated increases. Mental practice shows potential for improving wrist and forearm movement kinematics.



Assessing the Risk of IADL Tasks from the Perspective of Medically-at-risk Older Adults and their Caregivers

The purpose of this study was to explore what instrumental activities of daily living tasks are meaningful to older adults and the impact of chronic disease on functional performance of these tasks. Data was collected through an interview with twelve older adults and their caregivers. The participants were recently discharged from a hospital due to their chronic disease. Disorders included heart disease, stroke, COPD, dementia, or diabetes. Data analysis indicates that the most important IADL tasks for the participants are driving, managing medication, cooking, and phone use. Results suggest that caregivers see more impact on the daily tasks while participants perceive less impact on functional performance. These results will further the understanding of the impact of chronic disease on functional ability in older adults. It is

hypothesized that these findings will be used to assist in the development of a functional assessment tool for complex IADL in older adult populations.

Jennifer Gaudy, a professional master's degree student, who completed a thesis under the direction of Dr. Anne Dickerson.



Efficacy of a Deep Pressure Vest in Reducing Observed Physiological Arousal in a Person with Profound Mental Retardation during Self-care Activities

This single subject ABAB study explored whether the use of a commercially available deep pressure vest would decrease physiological arousal indicative of anxiety in a male with profound mental retardation during nail care activities. Psychophysiological responses of electrodermal activity, skin temperature, electromyography, and heart rate were used as indicators of physiological arousal and recorded using the NeXus-10. Visual and statistical analysis revealed that the use of the deep pressure vest did not reduce physiological arousal during nail care. These results are in contrast to other studies that have found that deep pressure is effective in reducing anxiety and positively impacting physiological arousal. This study does not support the use of a deep pressure vest to reduce anxiety during nail care in adults with profound mental retardation.

Rebecca LaChappelle, a professional master's degree student, who completed a thesis under the direction of Dr. Beth Velde.



Comparison of Two Relaxation Techniques to Reduce Physiological Indices of Anxiety in a Person with Mild Mental Retardation

The purpose of this study was to examine the effects of using a paced respiration technique versus an object manipulation technique on physiological measures of anxiety of a person with mild mental retardation. If one of these techniques positively impact physiological measures of anxiety, then future research can explore if these techniques can be used to reduce anxiety in daily life, thereby enhancing quality of life. The hypothesis was that paced respiration is more effective than object manipulation at reducing physiological measures of anxiety. The design was a single subject alternating treatment design with one participant. 7 sessions of each treatment were randomly applied for a total of 14 treatment sessions. The most effective treatment was determined and implemented 5 more times during the "best treatment" phase. Social validity of the techniques will be assessed using the perceptions of staff who work with the participant. Data will be plotted on line graphs and inspected for changes between and within conditions. The researchers will evaluate the magnitude of change and trend lines and evaluate the effectiveness of the techniques using statistical techniques.

Courtney Kenner, a professional master's degree student, who completed a thesis under the direction of Dr. Beth Velde.