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## **INTRODUCTION**

- 1) One purpose of the study is to evaluate the effects of hippotherapy on motor performance in individuals with disabilities. Fifty veterans will be recruited and receive traditional physical therapy and physical therapy including hippotherapy. Measures will be taken after each session and analyzed.
- 2) This study will also evaluate the impact of the Beck PRIDE Center on health and well being and quality of life.
- 3) It will document veteran completion of referrals and engagement with care across six domain areas.
- 4) It will develop a program implementation manual that can be distributed to other educational institutions.

The significance of these areas of investigation will further the model for civilian institutions to engage combat veterans with disabilities and their families on reintegration post employment.

## BODY

Hippotherapy- Eighteen of the fifty proposed subjects have participated in this study to date. Subjects are veterans referred through Arkansas State University's Beck PRIDE Center. These veterans vary in medical diagnoses including low back pain, lower extremity pain, upper extremity pain, and neck pain. After signing an informed consent document, the participants were examined by a licensed physical therapist at the Reynolds center on the ASU campus to determine if he/she could participate in the study. The qualified participants were then randomly assigned to either Treatment Group A or Treatment Group B via a coin flip. Treatment Group A is participating in both hippotherapy and traditional therapy, for one hour once a week; Treatment Group B is participating in traditional physical therapy, twice a week for one hour. Each participant will remain at that treatment schedule for 15 weeks. After 15 weeks the participant will switch treatment schedules. Therefore, in weeks 16-30, Group A will receive physical therapy twice a week and Group B receives hippotherapy. The study will last for a total of 30 weeks for each participate. Measurements were taken on all participants following each session. The results will be analyzed and compared to see if they are similar or different. This study is still in progress.

No participant has received both treatments twice a week for every week in the study to date. Participates have had a variety of reasons for missing sessions including: vacation, illness of family members or self, school or work conflicts, other appointments and a variety of other issues. All participants have been seen when available and data continue to be collected. All participants have reported some pain or lack of functional ability with sessions, therefore pain and functional scales have been used after each session and data have been recorded for analyses. At this time no participant has completed the 30 week study therefore statistical analyses and conclusions for each participant are incomplete, however analyses of the slopes in the initial treatments indicate that participants receiving hippotherapy are showing an increase in function and decrease in discomfort at a faster rate than those receiving traditional physical therapy.

### Beck PRIDE Center

As of July 31, 2012, there are 33 participants enrolled in the research project at the Beck PRIDE Center. Within the past 7 months, as each quarterly report approached, analyses were run using SPSS on the number of research participants at that given time. As a result of these descriptive analyses, the Beck PRIDE Center has been able to analyze and report specific aspects of the population. The criteria of the previous descriptive reports have included: demographics, education, deployment, medical or physical issues, current treatment/resources, and community support/outreach. Like before, these are the same six areas in which this report will highlight the research population, in addition to the Satisfaction Inventory mean scores. All of the concepts discussed below were gathered from instruments filled out by research participants. The statistics reported were gathered only from those who responded to the items of the surveys and intake forms.

- a. *Demographics.* Up until July, all of the Beck PRIDE research participants have been male. Beck PRIDE is pleased to report receiving their first female participant who served

alongside her husband in present day conflict. Nevertheless, the majority (97%) of the participants are male and belong to the Caucasian race (73%). Beck PRIDE has seen that the majority of those requesting services are those who have been discharged from the military for at least a year. This leads to assumptions that many symptoms and disabilities do not arise until post-combat. The range of ages has remained pretty consistent throughout the duration of the research project thus far. The youngest participant is 23 years of age and the oldest participant is 48 years of age (mean age=32). Beck PRIDE's mainstream research population is white, middle aged males.

- b. *Education.* Many veterans come to Beck PRIDE requesting assistance with their Veteran's Affairs claims or disability. However, the next most requested is education needs. Out of those who responded to the education items, 81% reported needing assistance with education (e.g., enrollment into college, furthering education, tutoring, mentoring, study skills). Beck PRIDE's current research population is nearly split right down the middle in regards to highest level of education. While half of the population has received their high school diploma or its equivalent, the other half of the population has completed some college.
- c. *Deployment.* In order to receive services from the Beck PRIDE Center, veterans must have fought in present day conflicts (Persian Gulf and up). Veterans seeking services who do not meet the qualifications of the program are what Beck PRIDE considers to be RROs (Resource Referrals Only). All of the current research participants meet the eligibility of the program, which means deployments have been a large part of their military career. Of those who responded to deployment items, 75% of veterans have been deployed two or less times. This is significant because it shows that it doesn't take several deployments for a soldier to display symptoms and/or disabilities that are service-connected. Of the 28 participants who responded to the Combat Service Location item, every three out of four veterans served in Iraq or Afghanistan or both.
- d. *Medical or Physical Issues.* Many of the participants' presenting medical and physical issues are due to combat-related experiences or even just to the constant exposure of a warzone environment. Of those who responded to the impairment items, 79% reported suffering from hearing loss or tinnitus, 89% suffering from mobility impairments, and 79% with sleep problems (e.g., sleep apnea, lack of sleep, or difficulty sleeping). With much research on PTSD and TBI of returning vets, it was no surprise to see that more than half of the research population reported having PTSD, TBI, or both (56%).
- e. *Current Treatment/Resources.* More than half (52%) of the research population are currently receiving treatment or medication through various VA centers. That still leaves 48% of the participants who are not receiving any current treatment upon entering the program. Beck PRIDE is presented with the opportunity to help with VA claims and set up referrals in order that the percentage of participants receiving treatment for physical, psychological, or medical issues increase.
- f. *Community Support/Outreach.* Upon the initial intake visit, participants often times seem socially withdrawn. Beck PRIDE desires to help veterans with socialization and presents opportunities to be a part of several community organizations. In these community organizations (e.g., DAV, VFW, Wounded Warrior, ASVO), participants have a chance to connect with other service members alike and begin feeling like a significant citizen after being discharged from the military. In community support groups is where veterans are able to be themselves and share their experience with others who empathize with

them. In the research population, 91% reported not belonging to any community organization and are strongly encouraged to check out some of the local groups.

Data collection will continue on the research participants, as well as follow-up data beginning to be collected. Along with demographics, a mean score of satisfaction has been determined from our current research population. The scores were obtained from the Beck PRIDE Satisfaction Inventory (BPSI). Participants were asked to rate the satisfaction they currently receive from the following eight areas of life:

- 1. Education
- 2. Career Prospects
- 3. Social Life
- 4. Family Life
- 5. Health
- 6. Physical Activity
- 7. Recreational Activity
- 8. Work Life

Listed below is the mean score figured from the research participants on a 4-item Likert scale (1 being least satisfied and 4 being most satisfied). The mean score was taken from all eight variables listed above. Beck PRIDE’s goal is to increase the mean score through the means of the services offered through the program.

<b>Research Participants N=33</b>
Mean=2.6

## KEY RESEARCH ACCOMPLISHMENTS

### Tasks Accomplished Objective 1 & 2

**SOW- Task 1:** *IRB expedited review.* Completed.

**SOW-Task 2:** *Establish data collection and data entry systems.* This task was developed pre-implementation of the research project. The measures used to track the progress of research participants are administered to them at the time of their intake. The research assistant makes a copy of all the necessary research items from the original file and creates a research file for each participant. These files are stored behind two locks in the Director's office. With each file, the intake information of each participant as well as the three survey instruments are entered into an Excel spreadsheet and then copied into a statistical package (SPSS) ensuring accuracy.

**SOW-Task 3:** *Recruit Staff.* Sandra Worlow is the Project Director, Kelly McCoy is the Project Manager, and Christine Eddinger is the Research Assistant on the project. During the Spring 2012 school semester, two master's level student interns from the Social Work and Rehabilitation Counseling programs assisted as needed on the project. There are plans to add one graduate assistant in the fall.

**SOW Task 4:** *Enrolling new cohort.* Our first participant for the research project was seen on January 12, 2012. The process of enrolling a new cohort has been continuous since then. Since the middle of January, we have averaged about five to six new participants enrolled monthly. As of July 31, 2012, the Beck PRIDE Center has successfully enrolled 33 research participants. The task of enrolling a new cohort is steady and continuous.

**SOW Task 5:** *Collect data pre/post.* The task of collecting pre and post data on each veteran is with hopes of following their improvement longitudinally. Post data has not been collected for any of our research participants because we haven't discharged any. Post data will be collected at the time in which a veteran becomes discharged when circumstances are best for the veteran or all goals have been met. Pre data on the other hand, is collected before the veteran receives any of Beck PRIDE's services at their initial intake visit.

**SOW Task 6:** *Analyze Data.* The process of analyzing data takes place frequently. When quarterly reports are submitted, data is analyzed and the demographics, services needed, etc., are identified. Through the process of analyzing the data, the Beck PRIDE Center has been able to look at what veterans need whenever they come for assistance. With that knowledge, the staff is able to see where the need is the greatest for veterans.

**SOW Task 7:** *Report Data.* Data has been reported to the Department of Defense every three months since the research project has begun. The findings of the data analyzed in the Beck PRIDE office have been reported quarterly. Beck PRIDE's research assistant on the project has



filtered what data is significant to include in each report and what is acceptable to be omitted. Anomalies and major areas of similarities, as well as grave need have been included in the previous reports. These concepts will continue to be reported in future reports.

**SOW Task 8:** *Follow existing cohort.* A system is in place to begin following the existing cohort of the project. The research assistant or a Beck PRIDE intern will call participants who have reached or need to come in for a 6-month visit. The three survey instruments administered at the intake will also be administered at each follow-up appointment at 6-months since their last visit. Participants are encouraged to check in with Beck PRIDE from time to time in addition to their 6-month follow up appointments. The follow-up process is in place and data is currently being collected.

**SOW Task 9:** *Collect discharge data.* As previously mentioned, no discharge data have been collected, analyzed, or reported. At this time, no research participants have met requirements to be discharged, met goals, or voluntarily quit the research project.

**SOW Task 10:** *Analyze discharge data.* Not applicable.

**SOW Task 11:** *Report discharge data.* Not applicable.

### **Objective 3:**

**SOW Task 1:** *Order hippo equipment.* Completed.

**SOW Task 2:** *Install equipment.* Completed.

**SOW Task 3:** *Recruit subjects.* Ongoing (18 of 50 recruited).

**SOW Task 4:** *Initiate hippo research.* Ongoing.

**SOW Task 5:** *Collect data.* Ongoing.

**SOW Task 6:** *Analysis & Report.* Early review of limited data. Some discussion was included in the “Body” of the document.

### **Objective 4:**

**SOW Task 1:** *Development of the draft manual.* On May 4, 2012, a meeting of the research group was held to discuss the design of the implementation manual. Dr. JoAnn Kirchner, a consultant on the project, also attended and worked with the research group on the development of an outline of the creation of the Beck PRIDE Center. A timeline of the creation process was developed following the meeting and distributed to the research group. A second meeting of the

research group was held on July 9, 2012, with both Mark Reeves and Mary Williams from ASU Publications and Creative Services in attendance. The design for the implementation manual was decided upon and group members were assigned tasks for compilation of the content information. A third meeting between Mark Reeves, Sandra Worlow, and Dr. Hanrahan occurred August 10, 2012. Refinement of draft one content was discussed. An early draft will be reviewed in late October by the Beck PRIDE Center National Advisory Committee. Design and content will be areas of review. The implementation will be sent out for review and modification during Year 2 of the research project.

**SOW Task 2:** *Send out for review and modification.* Not applicable.

**SOW Task 3:** *Disseminate manual.* Not applicable.

## REPORTABLE OUTCOMES

Hippotherapy: The study design and initial results of two participants receiving initial treatments one in Group A and one in Group B was presented at the **International Conference and Exhibition on Neurology & Therapeutics** May 14-16 in Las Vegas, Nevada. The title of the presentation was “The Effects of Hippotherapy on Motor Performance and Function in United States Military Veterans” (abstract attached as appendix 1). Complete data sets of participants with back pain will be presented at the Association of Schools of Allied Health Professions Conference October 24-26 in Orlando , Florida (abstract attached as appendix 2). The title of the presentation is “The Effects of Hippotherapy on Motor Performance and Function in United States Military Veterans with Low Back Pain.”

Demographic and other data for the Beck PRIDE project were reported in the “body” of the document.

## **CONCLUSION**

The project has moved along at a steady pace since its inception. There have been no issues with equipment purchases, participant recruitment, software installation or data collection to date.

Progress has been timely as per the SOW.

## REFERENCES

## **APPENDICES**

## APPENDIX 1

**Title:** The Effects of Hippotherapy on Motor Performance and Function in United States Military Veterans

Name: Roy Lee Aldridge Jr PT EdD

Arkansas State University Ar 72467

Study Design: A-B Single-Subject Repeated Measures Design

Objective: To investigate if any differences are found in motor functioning and function when adding hippotherapy to a traditional physical therapy program.

Methods: The subjects included veterans from various branches of the United States Military. Treatment A consisted of the traditional physical therapy program with the addition of hippotherapy for 15 weeks. Treatment B consisted of a traditional physical therapy program for 15 weeks. Veterans were randomly selected to receive either Treatment A or B initially

Results: The initial results of this study showed that there were differences found when adding hippotherapy as an adjunct therapy to a traditional physical therapy program.

Conclusion: The addition of hippotherapy to a traditional physical therapy program seems to improve motor functioning in an adult with functional issues.

### Biography

Roy Lee Aldridge Jr received a bachelor's degree in Physical Therapy from The University of Tennessee in 1990 and an Advanced Physical Therapy degree in 2001 from The University of Tennessee. Roy received his Specialist Degree in 2004 and his Doctoral degree in 2008 from Arkansas State University. Roy is a level II certified therapist through the American Hippotherapy Association and is a member of their Board of Directors. Roy has been published and presented in the effects of hippotherapy.

## APPENDIX 2

## ASAHP ABSTRACT FORM

*Topic Number:* **3. Research** alternative models of service delivery/care

1. **Abstract Title** (capitalize) THE EFFECTS OF HIPPO THERAPY ON MOTOR PERFORMANCE AND FUNCTION IN UNITED STATES MILITARY VETERANS WITH LOW BACK PAIN

2. **Author Name(s)** (No titles/degrees), **followed by Institution** (in Parentheses)

Roy Lee Aldridge Jr  
(Arkansas State University)

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3. Abstracts **must** contain the following sections:  
(Abstracts without these clear statements may be rejected)

- **Hypothesis/Issue to be addressed** – May be a scientific hypothesis, a clinical issue, a population to be served, an educational need etc.
- **Method** – Experimental design, clinical approach, educational model, etc.
- **Observations/Outcomes** – experimental data, clinical or educational outcome, etc.
- **Conclusion**

**Insert Abstract Below**

**\*200 Word Single-Spaced formatted in Times New Roman 12-point font.\***

**Hypothesis/Issue to be Addressed:** To investigate if any differences are found in motor functioning and function when adding hippotherapy to a traditional physical therapy program with individuals with Low Back Pain.

**Methods:** The subjects included veterans from various branches of the United States Military. Treatment A consisted of the traditional physical therapy program with the addition of hippotherapy for 15 weeks. Treatment B consisted of a traditional physical therapy program for 15 weeks. Veterans were randomly selected to receive either Treatment A or B initially. A-B Single-Subject Repeated Measures Design

**Observations/Outcomes:** The initial results of this study showed that there were differences found when adding hippotherapy as an adjunct therapy to a traditional physical therapy program.

**Conclusion:** The addition of hippotherapy to a traditional physical therapy program seems to improve motor functioning in an adult with functional issues.