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**EFFECTS OF THERAPEUTIC HORSEBACK RIDING ON SELF-ESTEEM  
AND PHYSICAL SELF-EFFICACY OF VETERANS WITH DISABILITIES**

A Thesis in

Counselor Education

by

Erin H. Norbeck

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The thesis of Erin H. Norbeck was reviewed and approved\* by the following:

James T. Herbert  
Professor-in-charge, Rehabilitation Services  
Thesis Advisor

Brandon B. Hunt  
Professor, Counselor Education

Spencer G. Niles  
Professor of Counselor Education  
Department Head, Counselor Education, Counseling Psychology,  
and Rehabilitation Services

\*Signatures are on file in the Graduate School

## ABSTRACT

Therapeutic horseback riding (THR) is an adaptive sport that has received a great deal of attention recently for people with disabilities and, most recently, for military veterans with disabilities. Working collaboratively with equine partners and a therapeutic team, there have been anecdotal comments in the literature attesting to the therapeutic impact of this intervention for veterans. This exploratory study examined the impact of THR on five veterans who completed a North American Riding for the Handicapped (NARHA) *Horses for Heroes* program. It was hypothesized that post-test scores on physical self-efficacy and self-esteem would increase from pre-test upon completion of an 11-week THR program. Results supported the research hypotheses. Implications for future research and practice are examined.

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## CHAPTER 1

### INTRODUCTION

Many researchers are beginning to study and appreciate complementary and alternative therapies (Iribarren, Prolo, Neagos, & Chiappelli, 2005), finding them to be a viable supplement to traditional therapies (Lechner, Kakebeeke, Hegemann, & Baumberger, 2007). Adaptive sports programs, one such type of alternative therapy, are becoming increasingly popular among people with disabilities, both as therapeutic tools and as recreation. Involvement in adaptive sports and therapeutic recreation has been shown to increase overall quality of life (Zabriske, Lundberg, & Groff, 2005) as well as to improve confidence and self-efficacy (Bandura, 1989a). Adaptive sports allow people with disabilities to take on the role of an athlete, which heightens feelings of self-worth and improves overall feelings of satisfaction (Zabriske et al., 2005). As the need for participation in a physically active lifestyle becomes more and more urgent in the United States due to obesity rates and cardiovascular health issues (Centers for Disease Control and Prevention, 2008), it is evident that more recreational activities need to be developed for people with disabilities as well. Therapeutic horseback riding (THR) is one form of adaptive sport used as an alternative therapy.

#### *Background of Therapeutic Horseback Riding*

According to Lessick, Shinaver, Post, Rivera, and Lemon (2004), THR enlists the use of an equine partner to provide therapeutic gains and recreation to individuals with disabilities. There are numerous proposed clinical benefits to THR, as it is used to achieve physical, psychosocial, and educational goals. Physical benefits include:

improved balance, strength, coordination, and reaction times; decreased spasticity; increased range of motion in joints; and improved motor skills and visual-spatial perception. Psychosocial benefits include: improved self-confidence, self-esteem, emotional control, interpersonal skills, and a shift in locus of control and a sense of normality. Educational benefits include learning safe behaviors for handling horses, horse care, and riding skills (Lessick et al., 2004). Furthermore, due to the broad context in which THR can be beneficial, it can be used in the rehabilitation process of a myriad of disabilities, including: traumatic brain injury, autism, mental retardation, emotional or behavioral problems, spinal cord injury, cerebral palsy, learning disabilities, multiple sclerosis, cardiovascular problems, cognitive disabilities, substance abuse, spina bifida, amputations, and audio or visual impairments (Lessick et al., 2004).

During a THR session, horse and rider work together as a team with the collaboration of trained instructors, staff, and therapists. The movement experienced while mounted provides riders with a very liberating sensation (Lessick et al., 2004). The rhythmic stride of the horse simulates human movement, requiring riders to constantly make adjustments to stay balanced and in control of their horse. These constant readjustments of riders' bodies stimulate a multitude of neuromuscular functions (MacKinnon et al., 1995).

People who participate in THR experience benefits both directly after each session and over an elapsed period of time. Bizub, Joy, and Davidson (2003) found that riders were able to indicate the gains they had experienced up to 6 months after sessions had ended. Some individuals, due to an increase in positive self-concept, participated in



activities that they previously avoided. Others were compelled to set their goals toward independent living. According to Farias-Tomaszewski, Rae, and Keller (2001), investment in rehabilitation and feelings of empowerment increase due to THR. They also suggest that treatment be community-based so as to foster feelings of belonging and normalcy.

## CHAPTER 2

### LITERATURE REVIEW

#### *Physical Self-Efficacy*

According to *Bandura's Social Cognitive Theory*, self-efficacy is a situation-specific belief in one's own capabilities to manage and cope with a given task (Bandura, 1977). Therefore, perceived self-efficacy can greatly influence choice of activities or tasks. Situations are viewed as threatening when they appear to exceed one's perceived abilities. Low perceived self-efficacy causes difficult tasks to be viewed as intimidating, however, high perceived self-efficacy causes these same tasks to be viewed as challenging, rather than threatening. Efficacy expectations also play a role in determining the amount of perseverance and effort expended when presented with challenging situations. Those who cope with the situation and succeed will reinforce their sense of self-efficacy, while those who choose to abandon the situation will remain fearful (Bandura, 1977). These self-efficacy beliefs develop through four means of experiencing an event: direct mastery, observing success achieved by a person viewed as similar to oneself, social persuasion, and judgments of somatic information (Bandura, 1989b). This concept can be directly related to the principles of THR. Direct mastery of tasks is achieved by students in THR, such as mastering the walk before attempting the trot. Students interact with one another, and get to witness each other's success as well as offer social support for one another. Lastly, riders can observe and feel the physical changes in their bodies, for example, increased motor control and muscle tone.

Ryckman, Robbins, Thornton, and Cantrell (1982) recognized the need to examine individual components that influence self-efficacy which subsequently resulted in the development of the *Physical Self-Efficacy Scale* (PSE). Physical self-efficacy is defined as one's perceived ability to perform a physical task and confidence in one's physical self-presentation (Farias-Tomaszewski et al., 2001; Ryckman et al., 1982). Farias-Tomaszewski et al. (2001) demonstrated that physical self-efficacy improved in a sample of adults with disabilities following a 12-week THR program. The researchers also reported that pre-test measures of physical self-efficacy were related to the length of time participants were in a THR program (40% of the sample had previous experience with THR). They concluded that THR provided a means through which people with disabilities can experience repeated success through controlled challenges (Farias-Tomaszewski et al., 2001). This finding supports Bandura's Social Cognitive Theory, which posits that self-efficacy beliefs are developed through direct mastery experiences (Bandura, 1977).

### *Self-Esteem*

According to Ryckman et al. (1982), physical self-efficacy is correlated with greater self-esteem. Self-esteem may be defined as a positive or negative attitude toward oneself (Rosenberg, 1965) and the extent to which an individual has a sense of self-worth or self-value (Blascovich & Tomaka, 1991). According to Blascovich and Tomaka (1991), self-esteem is considered a component of the self-concept, which Rosenberg (1965) defines as an individual's cognitions and behaviors in reference to oneself. Furthermore, self-esteem can be divided into global self-esteem and specific self-esteem

(Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Global self-esteem is linked to psychological well-being, whereas specific self-esteem is more related to behavior (Rosenberg et al., 1995). To relate these concepts to equine therapy, Lechner et al. (2007) found that hippotherapy had a positive effect on psychological well-being, suggesting that global self-esteem may also be positively affected. Although hippotherapy differs from THR in that the focus is more on physiotherapy goals rather than learning a new skill (Britton, 1991), one could speculate that a similar process may be present in the context of THR.

Gecas and Schwalbe (1983) offer another perspective on self-esteem. They suggest that self-esteem is based on efficacious action and, therefore, members of stigmatized groups should have lower self-esteem than members of majority groups. For an example relevant to the current study, people with disabilities may have lower self-esteem than people without disabilities due to functional limitations and environmental barriers. Self-esteem is decreased due to the lack of environmental control and perceived efficacious action (Gecas&Schwalbe, 1983). Furthermore, Gecas and Schwalbe (1983) conclude:

By focusing upon efficacious action as a source of self-esteem, we can see how social-structural conditions can shape possibilities for individuals to act efficaciously and to experience this in a way that enhances feelings of self-esteem. (p. 86)

This statement suggests that self-esteem can be influenced by self-efficacy beliefs, which form through direct mastery experiences (Bandura, 1977). Thus, an example of a direct mastery experience could be THR.

### *Military Veterans and Therapeutic Horseback Riding*

Although THR has become very popular among the general public, no research was found on the efficacy of therapeutic riding programs used to rehabilitate military veterans. The actual practice of veterans participating in equine-related therapy is in its infancy. The North American Riding for the Handicapped Association, Inc. (NARHA) established a nationwide program, *Horses for Heroes*, in 2007, which has 33 centers throughout 23 states (Alaska, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Maine, Maryland, Massachusetts, Minnesota, Michigan, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Texas, Vermont, Washington, and Wyoming) that offer a THR program specifically for veterans. The NARHA works directly with the Department of Veteran Affairs (VA) and its subdivisions (Voluntary Services, the Blind Rehabilitation Services, and Recreation Therapy Services) to provide services to injured veterans. According to the Department of Veterans Affairs (2008), 48% of veterans were on active duty and 52% were in the Army Reserves or National Guard. The largest age group in the military is represented by 20- to 29-year olds, comprising 52% of those enlisted. Of those who filed service-related disability claims, 69% received compensation. The necessity for additional treatment options for veterans increases every day, with approximately 10,000 people injured or traumatized while

serving in Iraq and Afghanistan (O'Meara, 2006). In addition, most living veterans have served during wars.

Spornier et al. (2009) found that veterans with disabilities who participated in the National Veterans Wheelchair Games and the Winter Sports Clinic reported an improvement in their quality of life. Furthermore, these researchers recommend that veterans participate in similar activities due to the psychosocial benefits. Carlin-Levy and Jones (2006) studied the psychosocial benefits of scuba diving for adults with acquired physical disabilities. They found that participating in the activity led to improved self-concept. Kinney and Coyle (1992) suggest that therapeutic recreation can benefit people with physical disabilities, based on their finding that self-esteem influences life satisfaction. Although Carlin-Levy and Jones (2006) and Kinney and Coyle (1992) did not study samples of veterans, it seems plausible that the psychosocial benefits gained from a therapeutic recreation program, such as THR, would generalize to a sample of veterans with acquired disabilities. In addition, this hypothesis is further supported based on the findings and recommendations of Spornier et al. (2009).

### *Objective and Hypotheses*

Many therapeutic riding centers are becoming interested in working with veterans, but again, there is a severe lack of empirical research on program effectiveness. Therefore, the objective of this research was to study the effects of therapeutic riding on samples of military veterans with disabilities. Due to the many physical and psychosocial benefits of therapeutic horseback riding cited in previous research within the adult population (Bizub et al., 2003; Farias-Tomaszewski et al., 2001; Lechner et al., 2007;

Lessick et al., 2004; MacKinnon et al., 1995; Zabriskie et al., 2005), it was hypothesized that those benefits would generalize to a sample of veterans. Specifically, this research study identified the following research hypotheses:

- I. Participants' post-test scores of physical self-efficacy will be statistically higher than their pre-test scores after participating in a therapeutic horseback riding program.
- II. Participants' post-test scores of global self-esteem will be statistically higher than their pre-test scores after participating in a therapeutic horseback riding program.

## CHAPTER 3

### METHOD

#### *Participants*

Participants in this study were 5 military veterans who had been diagnosed with a physical or psychiatric disability and were enrolled in the NARHA Horses for Heroes Program. Individuals ranged in age from 23 to 60 years old, with a mean age of 40.2 years. Of the 5 participants, 4 were male and 1 was female. Likewise, 4 were Caucasian and 1 was Native American. Participants reported the following disabilities (several reported multiple disabilities): general cognitive deficits, traumatic brain injury, post-traumatic stress disorder, back injury, post-concussion syndrome, borderline personality disorder, dysthymic disorder, and multiple sclerosis. The mean length of time with a disability was 8.8 years. Participants reported serving in: Vietnam, Operation Iraqi Freedom, and the Global War on Terrorism, with a mean of 1.73 years spent at war. Three participants had previously taken therapeutic riding lessons for a mean total of 19 sessions. Prior to acquiring their disabilities, participants reported a mean activity score of 8.6 on a scale of 0 to 10, with 0 indicating not at all active and 10 indicating extremely active. After acquiring their disabilities, participants reported a mean activity score of 3.0.

#### *Instruments*

*The Physical Self-Efficacy Scale* (PSE) is a 22-item self-report questionnaire which measures perceptions of physical skill level and confidence (Farias-Tomaszewski et al., 2001; Ryckman, Robbins, Thornton, & Cantrell, 1982). It consists of two subscales: *Perceived Physical Ability* (PPA), which includes 10 items with a possible



range of scores from 10 to 60, and *Physical Self-Presentation Confidence* (PSPC), which includes 12 items with a possible range of scores from 12 to 72. The total range for the PSE is 22-132. The PSE is rated on a 6-point Likert scale, with higher scores indicating greater physical self-efficacy (Ryckman et al., 1982). In terms of reliability estimates, Ryckman et al. (1982) reported satisfactory test-retest reliability ( $r = .80$ ) and internal consistency estimates ( $\alpha = .82$ ). The PSE was found to have good convergent validity, as it was moderately correlated with the *Tennessee Physical Self-Concept* subscale ( $r = .58$ ,  $p < .001$ ). Concurrent validity was also examined, as those who scored high on the PSE also had high levels of self-esteem. Satisfactory discriminant validity was also established with the parent self-consciousness measure (Ryckman et al., 1982). (See Appendix A for PSE questionnaire).

*The Rosenberg Self-Esteem Scale* (RSE) is a 10-item self-report measure of global self-esteem related to perceived self-worth and self-acceptance (Rosenberg, 1965). Items are rated using a 4-point scale with responses ranging from strongly agree to strongly disagree (Rosenberg, Schooler, & Schoenbach, 1989). The possible range of scores is 0 to 30, with higher scores indicating greater global self-esteem (Rosenberg, 1965; Rosenberg et al., 1989). Rosenberg (1965) reported a test-retest correlation of .88. In addition, the RSE has been shown to have satisfactory construct validity with measures of depression and anxiety (Rosenberg, 1965). (See Appendix B for RSE questionnaire).

#### *Demographic Questionnaire.*

The demographic questionnaire was used to collect information on participants' gender, age, ethnicity, type of disability, length of time with a disability, war experience,

experience with THR, and involvement in other therapies. (See Appendix C for demographic questionnaire).

### *Procedure*

Participants were recruited from THR centers offering the NARHA *Horses for Heroes* program. Unfortunately, there were very limited numbers of veterans enrolled in THR at the time of data collection, with most centers working with only one or two veterans. It was also learned that the majority of programs have an open enrollment system that allows riders to attend as they please. Therefore, there are few programs that have established beginning and ending dates. Due to these circumstances, only one centered, located in Colorado, agreed to take part in the study. Participants had already signed up for the THR program. Riders received weekly group lessons for a duration of 11 weeks. All of the riding instructors and volunteer staff were certified by NARHA. On average, there are 4 to 5 volunteers present to assist riders each day.

This study used a one group pre-test/post-test design, and involved forwarding individual research packets to the program coordinator who, in turn, distributed them to potential participants. With each research packet, an implied informed consent form (see Appendix D) and two research instruments were included. The program coordinator explained the study to potential participants, ensuring that they understood that participation is voluntary. Informed consent forms were then distributed to those who were interested.

On the first day of the program, participants were given the PSE, the RSE, and the demographic questionnaire to obtain baseline scores. Each packet was numbered and

the program coordinator maintained a confidential list of the packet number each participant received. The THR lessons, taught by a Master's-level psychotherapist specializing in traumatic brain injury and post-traumatic stress disorder, included a variety of mounted activities used as part of the therapeutic process to address each individual's goals. Mounted activities included exercises to improve: flexibility, range of motion, respiration and circulation, patience, self-confidence, emotion control, self-discipline, and sense of normality. Upon completion of the 11-week program, participants took a post-test which consisted of the previously taken inventories. Each participant received the same packet number as they had for the pre-test.

The program coordinator returned the completed questionnaires in a postage -paid envelope to the researcher. Mean, range, minimum, maximum, and standard deviation scores were calculated for each questionnaire. A paired t-test was then used to analyze pre- and post-test scores of self-esteem and physical self-efficacy. Statistical significance was set at the .05 level.

## CHAPTER 4

### RESULTS

Correlations between the Physical Self-Efficacy Scale (Ryckman et al., 1982) and the Rosenberg Self-Esteem Scale (Rosenberg, 1965) were not statistically significant, suggesting that each measure was assessing an independent construct. Mean, range, minimum, maximum, and standard deviation scores for pre-tests and post-tests of the PSE and the RSE are shown in Table 1. Mean post-test scores for the PSE ( $M = 82.00$ ,  $SD = 6.47$ ) were higher than pre-test scores ( $M = 82.00$ ,  $SD = 6.47$ ). Similarly, scores on the RSE increased from pre-test ( $M = 18.60$ ,  $SD = 6.12$ ) to post-test ( $M = 21.40$ ,  $SD = 7.48$ ). Range scores from pre-test to post-test on both questionnaires were consistent over time.

Table 1

*Descriptive Statistics for Study Instruments*

Questionnaire	Range	Min	Max	Mean	SD
PSE Pre-test	17	73	90	82.00	6.47
PSE Post-test	18	80	98	89.00	5.90
RSE Pre-test	17	8	25	18.60	6.12
RSE Post-test	16	12	28	21.40	7.48

Results of a paired t-test indicated a statistically significant increase in scores from pre-test to post-test on both the PSE ( $r = .922$ ,  $p = .026$ ) and the RSE ( $r = .995$ ,  $p = .000$ ) (See Table 2). These findings support the hypotheses that: (a) participants' post-test scores of physical self-efficacy will be significantly higher than their pre-test scores after participating in a THR program, and (b) participants' post-test scores of global self-esteem will be significantly higher than their pre-test scores after participating in a THR program. Given the small sample size, individual means of each participant were examined to assess whether there was an outlier which could have affected the overall mean change. Inspection of the data indicated that two participants, in comparison to the other three participants, reported higher levels of global self-esteem ( $M = 23.5$ ) at pre-test. Post-test scores on the RSE were also higher for these two participants ( $M = 26$ ). Analysis between demographic variables and outcome measures showed that pre-test scores ( $r = .94$ ,  $p = .02$ ) and post-test scores ( $r = .91$ ,  $p = .03$ ) on the RSE were related to participants' level of experience with horses. This finding indicates that the more experience participants had with horses, the higher their global self-esteem. No other demographic variables were significantly correlated with the outcome measures.

Table 2

*Paired T-test Correlations for Study Instruments*

Questionnaire	N	Correlation	Significance
PSE Pre-test and PSE Post-test	5	.922	.026*
RSE Pre-test and RSE Post-test	5	.995	.000**

*Note: \*  $p < .01$ , \*\*  $p < .0001$*

## CHAPTER 5

### DISCUSSION

In this study, a sample of five military veterans with disabilities took part in an 11-week *Horses for Heroes* therapeutic horseback riding (THR) program offered by the North American Riding for the Handicapped Association (NARHA). Participants in this program reported higher physical self-efficacy on the Physical Self-Efficacy Scale (Ryckman et al., 1982) and higher global self-esteem on the Rosenberg Self-Esteem Scale (Rosenberg, 1965) from pre-test to post-test after 11-weeks of THR. This finding indicates that THR increased the physical self-efficacy and global self-esteem of this group of veterans and, therefore, supports the hypotheses of the present study. The finding that THR increases physical self-efficacy corresponds with the findings of Farias-Tomaszewski et al. (2001).

#### *Limitations*

Although findings from this exploratory study make an important contribution to the rather limited body of empirical research on therapeutic horseback riding, as well as serving as the first known empirical documentation of the benefits of THR and veterans with physical disabilities, there are several limitations to this study. The design of the study was limited to persons who voluntarily participated in THR and, as a result, they may have had some proclivity toward wanting to enhance physical self-efficacy and global self-esteem aspects. For example, all participants viewed themselves as being moderately to extremely active prior to acquiring their disabilities. This outcome suggests that THR may improve physical self-efficacy and self-esteem in people who were active

before acquiring a disability, but it may not generalize to people who are inactive or slightly active. It is also important to mention that two participants exercised regularly, which may be a contributing factor to post-test scores.

Scores may have also been confounded due to testing effects caused by the pre-test measures of physical self-efficacy and global self-esteem. Participants may have responded differently on the post-test due to sensitivity caused by the pre-test. Desire to respond in a socially acceptable way may have also influenced some participants responses. Participants' pre-conceived notions about the expectancies of the study and/or administrator bias may have also affected outcome scores. In addition, the study did not use a true experimental design such as using random assignment for persons who received the THR treatment versus a no-treatment group. As a result, it could be that therapeutic effects may have resulted from a host of other explainable factors that had nothing to do with the treatment. Furthermore, a larger sample would have helped to alleviate these potential threats to validity.

A final problem is that the reported treatment effects, while observed, only apply to this one THR program. Whether these same effects are observed in other THR programs is unknown. Emphasis must be placed on the fact that the instructor of this particular program is a master's level psychotherapist. Other Horses for Heroes programs may not have an instructor with these qualifications, therefore, the results obtained in this study cannot be generalized to all NARHA Horses for Heroes programs. For these reasons, it is important to conduct further study from multiple settings that use this intervention.



### *Implications and Future Research*

The findings of this study offer several clinical implications for therapists and rehabilitation professionals treating veterans with physical disabilities, as well as for the United States Department of Veterans Affairs. THR programs for veterans developed by NARHA may improve the physical self-efficacy and global self-esteem of participants. These THR programs provide participants with the opportunity to experience success through controlled challenges (Farias-Tomaszewski et al., 2001), supporting Bandura's (1977) theory that self-efficacy beliefs are improved through mastering tasks perceived as challenging. In addition, therapists should be aware of clients' participation in THR, and should make every effort to discuss the outcomes of the program with them. Furthermore, it would be even more beneficial for clients if therapists would meet with THR instructors to discuss improvements, and perhaps even attend a THR session. The United States Department of Veterans Affairs should also recognize the importance of utilizing THR as a treatment option for veterans with physical and psychological disabilities. An additional conclusion of this study is that veterans with disabilities, who had previously been engaged in a physically active lifestyle prior to acquiring their disabilities, can once again engage in an activity that allows them to assume an athletic identity. This conclusion is also supported by Zabriskie et al., (2005). Investment in the rehabilitation process may also increase as a result of increased physical self-efficacy and reestablished athletic identity. THR programs may also help veterans with disabilities be more involved within the community, as many riding facilities offer lessons to people

without disabilities as well. This allows THR participants to socialize with other members of the community.

Future research should focus on acquiring a larger sample size and, if possible, should utilize an experimental design. It would also be beneficial to incorporate qualitative data, in conjunction with the quantitative data, to better assess participants' feelings about the program and perceived benefits. One method of obtaining qualitative data is to conduct pre- and post- interviews, using structured questions, with participants and their families and friends. Furthermore, longitudinal studies would help to determine the long-term benefits of THR, therefore, several follow-up studies should be conducted. The demographic questionnaire used in this study would benefit from the addition of an assessment of participants' functional impairments. As mentioned previously, the education and qualifications of THR instructors likely play a critical role in program success. Future studies should aim to examine these factors and how they impact success from program to program. Lastly, according to Lessick et al. (2004) there are many physical, psychosocial, and educational gains from participating in THR that have not been examined in this study. Therefore, exploring the benefits of other constructs is warranted.

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## APPENDIX A

**The Physical Self-Efficacy Scale**

**Instructions:** Below is a list of statements dealing with how confidently and how well you view yourself to be able to perform physical tasks. If you **strongly agree** with the statement, circle **1**. If you **agree**, circle **2**. If you **agree somewhat**, circle **3**. If you **disagree somewhat** circle **4**. If you **disagree**, circle **5**. If you **strongly disagree**, circle **6**.

- (R) 1. I have excellent reflexes. (1) ..... 1 2 3 4 5 6
2. I am not agile and graceful. (1)..... 1 2 3 4 5 6
- (R) 3. I am rarely embarrassed by my voice. (2)..... 1 2 3 4 5 6
- (R) 4. My physique is rather strong. (1)..... 1 2 3 4 5 6
5. Sometimes I don't hold up well under stress. (2)..... 1 2 3 4 5 6
6. I can't run fast. (1)..... 1 2 3 4 5 6
7. I have physical defects that sometimes bother me. (2)..... 1 2 3 4 5 6
8. I don't feel in control when I take tests involving physical dexterity. (1)..... 1 2 3 4 5 6
- (R) 9. I am never intimidated by the thought of a sexual encounter. (2)..... 1 2 3 4 5 6
10. People think negative things about me because of my posture. (2)..... 1 2 3 4 5 6
- (R) 11. I am not hesitant about disagreeing with people bigger than me. (2)..... 1 2 3 4 5 6
12. I have poor muscle tone. (1)..... 1 2 3 4 5 6
13. I take little pride in my ability in sports. (1)..... 1 2 3 4 5 6
- (R) 14. Athletic people usually do not receive more attention than me. (2)..... 1 2 3 4 5 6

15. I am sometimes envious of those better looking than myself. (2)..... 1 2 3 4 5 6
16. Sometimes my laugh embarrasses me. (2)..... 1 2 3 4 5 6
- (R) 17. I am not concerned with the impression my physique makes on others. (2)..... 1 2 3 4 5 6
18. Sometimes I feel uncomfortable shaking hands because my hands are clammy. (2)..... 1 2 3 4 5 6
- (R) 19. My speed has helped me out of some tight spots. (1)..... 1 2 3 4 5 6
- (R) 20. I find that I am not accident prone. (2)..... 1 2 3 4 5 6
- (R) 21. I have a strong grip. (1)..... 1 2 3 4 5 6
- (R) 22. Because of my agility, I have been able to do things which many others could not do. (1)..... 1 2 3 4 5 6

### **The Physical Self-Efficacy Scale Scoring**

The scale is a 22-item, 6-point Likert scale with items answered from strongly agree to strongly disagree. The scale consists of two subscales: Factor 1-Perceived Physical ability (the number 1 in parentheses following questions indicates Factor 1) and Factor 2-Physical Self-Presentation Confidence (the number 2 in parentheses following questions indicates Factor 2).

Scoring:

**1 = 1 point    2 = 2 points    3 = 3 points    4 = 4 points    5 = 5 points**  
**6 = 6 point**

Items with an (R) in front of them are reverse scored.

**1 = 6 points    2 = 5 points    3 = 4 points    4 = 3 points    5 = 2 points**  
**6 = 1 point**

Sum the scores for the 22 items. The higher the score, the higher the physical self-efficacy.



## APPENDIX B

### Rosenberg Self-Esteem Scale

**Instructions:** Below is a list of statements dealing with your general feelings about yourself. If you **strongly agree**, circle **SA**. If you **agree** with the statements, circle **A**. If you **disagree**, circle **D**. If you **strongly disagree**, circle **SD**.

- |     |  |    |   |   |    |
|-----|--|----|---|---|----|
| 1.  | On the whole, I am satisfied with myself.                                  | SA | A | D | SD |
| 2.* | At times, I think I am no good at all.                                     | SA | A | D | SD |
| 3.  | I feel that I have a number of good qualities.                             | SA | A | D | SD |
| 4.  | I am able to do things as well as most other people.                       | SA | A | D | SD |
| 5.* | I feel I do not have much to be proud of.                                  | SA | A | D | SD |
| 6.* | I certainly feel useless at times.   | SA | A | D | SD |
| 7.  | I feel that I'm a person of worth, at least on an equal plane with others. | SA | A | D | SD |
| 8.* | I wish I could have more respect for myself.                               | SA | A | D | SD |
| 9.* | All in all, I am inclined to feel that I am a failure.                     | SA | A | D | SD |
| 10. | I take a positive attitude toward myself.                                  | SA | A | D | SD |

### **Rosenberg Self-Esteem Scale Scoring**

**The scale is a ten-item Likert scale with items answered on a four-point scale, from strongly agree to strongly disagree.**

Scoring:

SA = 3      A = 2      D = 1      SD = 0

Items with an asterisk (\*) are reverse scored.

SA = 0      A = 1      D = 2      SD = 3

Sum the scores for the 10 items. The higher the score, the higher the self-esteem.

The scale may be used without explicit permission. The author's family, however, would like to be kept informed of its use:

The Morris Rosenberg Foundation  
c/o Department of Sociology  
University of Maryland  
2112 Art/Soc Building  
College Park, MD 20742-1315

## APPENDIX C

## Demographic Questionnaire

**Directions: Please answer the following questions as accurately as possible by checking the appropriate boxes or filling in the blanks provided.**

1. What is/are your disability/ies? Please list.

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2. How long have you had your disability? Please fill in the blanks.

\_\_\_\_\_ years and \_\_\_\_\_ months

3. What is your age? Please fill in the blank.

\_\_\_\_\_ years old.

4. What is your gender? Please check the appropriate box.

- Male  
 Female

5. Please check the box which best corresponds to your racial/ethnic identity (if you select "other," please fill in the blank):

- White/Caucasian

- Black/African American
- Hispanic/Latino
- Asian
- Native American or Alaska Native
- Native Hawaiian or Pacific Islander
- Other: \_\_\_\_\_

6. What war did you serve in and for how long? Please list.

Name of war: \_\_\_\_\_ Years: \_\_\_\_\_ Months: \_\_\_\_\_

Name of war: \_\_\_\_\_ Years: \_\_\_\_\_ Months: \_\_\_\_\_

Name of war: \_\_\_\_\_ Years: \_\_\_\_\_ Months: \_\_\_\_\_

7. Have you ever done therapeutic horseback riding before? Please check the appropriate box.

Yes

No

8. Prior to this therapeutic horseback riding program that you are currently enrolled, what level of experience do you have riding horses? Please check the appropriate box.

None (have never ridden a horse)

Novice (have ridden a few times with assistance)

Intermediate (have walked, trotted, and cantered on own)

Expert (have performed advanced maneuvers, jumping, etc.)

9. Prior to this therapeutic horseback riding program that you are currently enrolled, what level of experience do you have handling horses? Please check the appropriate box.

None (have never handled a horse)

Novice (have led a horse with assistance)

Intermediate (have led and groomed a well-behaved horse)

Expert (have successfully handled horses with behavioral problems)

10. Have you started your therapeutic riding lessons yet? Please check the appropriate box.

- Yes
- No (if no, go to question 12)

Since the therapeutic riding program began, how many lessons (days) have you had in this program? (If you don't know the exact amount, please estimate). Please fill in the blank.

\_\_\_\_\_ lessons (days).

11. On average, how often do you ride or expect to ride in your therapeutic riding program each day and during the week?

\_\_\_\_\_ time(s) per day

\_\_\_\_\_ time(s) per week

12. Are you currently involved in any other therapeutic recreation programs? If so, please explain.

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13. Are you involved in any other sports or athletics (competitively or as a hobby)? Please check the appropriate box.

- No
- Yes. If yes, please explain:

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**14. PRIOR TO acquiring your disability, how would you rate your level of physical activity? Please circle the number that best describes your activity level.**

<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Not at all</b>			<b>Minimally</b>			<b>Moderately</b>			<b>Extremely</b>	
<b>Active</b>			<b>Active</b>			<b>Active</b>			<b>Active</b>	

**15. AFTER acquiring your disability, how would you rate your level of physical activity? Please circle the number that best describes your activity level.**

<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Not at all</b>			<b>Minimally</b>			<b>Moderately</b>			<b>Extremely</b>	
<b>Active</b>			<b>Active</b>			<b>Active</b>			<b>Active</b>	

## APPENDIX D



**Implied Informed Consent Form for Social Science Research**  
The Pennsylvania State University

**Title of Project:** The Effects of Therapeutic Horseback Riding  
Among Veterans with Disabilities

**Principal Investigator:** Erin Norbeck, Graduate Student  
325 CEDAR Building  
University Park, PA 16802  
(814) 360-1834; [ehn103@psu.edu](mailto:ehn103@psu.edu)

**Advisor:** Dr. James T. Herbert  
314 CEDAR Building  
University Park, PA 16802  
(814) 863-3421; [jth4@psu.edu](mailto:jth4@psu.edu)

<p><b>ORP OFFICE USE ONLY</b> DO NOT REMOVE OR MODIFY <b>IRB# Doc. #</b> The Pennsylvania State University Office for Research Protections Approval Date: Expiration Date: Social Science Institutional Review Board</p>
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- 1. Purpose of the Study:** The purpose of this research study is to explore how therapeutic horseback riding impacts the self-esteem and physical self-efficacy of veterans with disabilities.
- 2. Procedures to be followed:** You will be asked to answer three brief questionnaires -- one regarding general feelings about yourself, one about how confident you are regarding your ability to perform physical tasks and a final survey that asks about demographic information and your experience with therapeutic horseback riding. Completing these questionnaires should only take between 10 to 15 minutes. You will be asked to complete these questionnaires at the beginning of the first day of your therapeutic riding program. At the end of the program, you will be asked to complete two of the same questionnaires you completed earlier (one on general feelings about yourself, the other about your confidence in performing physical tasks). Completing these questionnaires should only take about 10 minutes.
- 3. Discomforts and Risks:** There are no risks in participating in the research component of the study, as the questions asked simply inquire about your physical abilities and general questions about how you are feeling on the particular day you complete the questionnaire. The physical risks associated with therapeutic horseback riding, which are independent of this study, are those that have been explained to you as part of your voluntary decision to participate in a therapeutic horseback riding program.
- 4. Benefits:** Answering questions regarding your feelings and physical abilities may provide you an opportunity to reflect on these aspects but, in general, there are no apparent benefits from answering these questions. The information that you and other participants provide will help us in better understanding the benefits of participating in a therapeutic horseback riding program for riders in the future, however. This information could help therapeutic horseback riding centers improve services for veterans and may generate increased interest among therapeutic horseback riding centers to develop new programs for veterans.

5. **Duration:** It will take about 10 minutes to complete each set of questionnaires, for a total of about 20 minutes spent.
6. **Statement of Confidentiality:** Your participation in this research is confidential and anonymous. Survey questions will not ask for any information that would identify you specifically (at the beginning and at the end of the therapeutic riding program). After you complete your responses to the research questions, questionnaires will be collected by a therapeutic riding instructor who will place this information in a self-addressed envelope mailed to the principal investigator. All data collected will be analyzed as a group and only the principal researcher and her faculty advisor will have access to the data. Penn State's Office for Research Protections, the Social Science Institutional Review Board, and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared because your name is in no way linked to your responses.
7. **Right to Ask Questions:** Please contact Erin Norbeck at (814) 360-1834 with questions, complaints, or concerns about this research study. You can also call this number if you feel this study has harmed you in any way. If you have any questions, concerns, or problems about your rights as a research participant or would like to offer input, please contact Penn State University's Office for Research Protections (ORP) at (814) 865-1775. The ORP cannot answer questions about research procedures. All questions about research procedures can be answered by the principal investigator or faculty advisor, Dr. James Herbert at (814) 863-3421.
8. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to take part in this research study.

Completion and return of the surveys implies that you have read the information in this form and consent to take part in the research.

Please keep this form for your records or future reference.