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### The Effects of Equine Assisted Therapy on Post War Veterans

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# The Effects of Equine Assisted Therapy on Post War Veterans

## Disciplines

Occupational Therapy

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# The Effects of Equine Assisted Therapy on Post War Veterans

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## CLINICAL SCENARIO:

The profession of occupational therapy has new potential to reach out to the post war veteran population nationally in a ground-breaking way. Countless soldiers have been wounded both mentally and physically due to active war duty and often find themselves struggling to return to a civilized life after their service. Equine facilitated therapy, or hippotherapy, is one promising intervention strategy that may be beneficial to the wounded warrior population. Hippotherapy has been utilized for people with various conditions to help improve quality of life through the use of a horse. Horses can provide limitless therapeutic assistance to people in need. Hippotherapy utilizes equine movement as part of an integrated intervention program that can be implemented by an occupational, physical or speech-language therapist. Equine facilitated therapy can expand to improve psychological and emotional functioning as well. It is necessary to look at the effects of equine facilitated therapy to understand possible benefits that could be applied to the wounded warrior population. The research used for this critically appraised topic primarily focuses on the psychological effects when utilizing a horse for therapy intervention. The majority of the research focused on adolescents with severe behavioural or emotional deficits.

## FOCUSSED CLINICAL QUESTION:

**What are the effects of equine facilitated therapy on post-war veterans?**

## SUMMARY of Search, 'Best' Evidence' appraised, and Key Findings:

- A total of five research articles covering the effects of equine and animal related interventions on diverse populations were analysed by this writer.
- A case-control study by Bowers, Ewing, MacDonald, Taylor (2007) was deemed as the "best evidence" evaluated.
- The article assessed 28 students from an alternative day program who were considered to be at risk due to a wide range of behavioural problems.
- In the quantitative portion of the study, 5 outcome measures were used in a questionnaire process to assess various psychological aspects of the youth.
- The qualitative portion of the study examined case studies to illustrate the positive effects of the equine facilitated therapy

- This study concluded that positive effects were noted after equine facilitated therapy, despite the lack of statistical significance. The study also reported that many underlying factors may have contributed to the unexpected results.
- Although this study did not discuss the effects of equine facilitated therapy on post-war veterans, it did examine its effects on a population with similar conditions such as Post Traumatic Stress Disorder (PTSD) and various other psychological conditions.
- Klontz, B, Klontz T, Bivens, and Leinart (2007) addressed equine facilitated therapy in an open clinical trial to determine its effectiveness on people who have dealt with psychological distress and how it has impacted their life and their behaviour patterns.
- Schultz, Remick-Barlow, and Robbind (2006) closely examined equine assisted psychotherapy as an intervention modality for children who have experienced inra-family violence. This study looked at how the use of a horse impacted children with mood disturbances such as ADHD, PTSD, adjustment disorder, disruptive disorder and other psychological impairments.
- Barba (1995) examined 52 articles between 1988 and 1993 to analyse effects of the human/companion animal relationship. This critical review looked at studies that primarily focused on human feelings and attitudes toward animals, the role that animals can play on health and illness, and human/animal interactions.
- Berget, Ekeberg, Pederson, Bjarne, and Braastad (2011) analysed the use of animal assisted therapy with farm animals for people who have psychiatric disorders and the effects that animal assisted therapy had on people dealing with anxiety and depression.

### **CLINICAL BOTTOM LINE:**

Results from the found research indicate that psychological impairments can lead to decreased functional ability and suggest that therapy with the use of an animal can lead to improvements. There is a limited amount of research concerning equine facilitated therapy and its effects on psychological well being. Despite the lack of research, equine facilitated programs for wounded warriors are being implemented by many therapeutic horseback riding facilities across the United States as many notable benefits have been identified by numerous veterans. Occupational therapists with their skills of activity analysis and therapeutic use of self can utilize the horse as a therapeutic intervention for veterans who are suffering both emotionally and physically to facilitate an overall better quality of life.

**Limitation of this CAT:** This critically appraised topic has not been peer-reviewed and the author is not an expert in this area. The search is not exhaustive and has been conducted by a second year MOT student as part of a class assignment.

**SEARCH STRATEGY:****Terms used to guide Search Strategy:**

- **P**atient/Client Group: Post-war veterans
- **I**ntervention (or Assessment): Equine Assisted Therapy
- **C**omparison: N/A
- **O**utcome(s): Functional ability, quality of life

<b>Databases and sites searched</b>	<b>Search Terms</b>	<b>Inclusion/Exclusion</b>	<b>Notes</b>
CINAHL (October, 2011)	“animal assisted therapy” and “farm animals”	N/A	6 results: One applicable  Berget, Ekeberg, Ingeborg, Bjarne, & Braastad (2011) <i>Occupational Therapy in Mental Health</i>
CINAHL (October, 2011)	“equine” and “mental health”	Linked full text	2 results: 1 applicable:  Schultz, Remick-Barlow & Robbins (2006) <i>Health and Social Care in the Community</i>
CINAHL (October, 2011)	“hippotherapy” and “veterans”	N/A	0 Results found
CINAHL (October, 2011_	“equine” and “veterans”	N/A	0 Results found
CINAHL (October, 2011)	“horse” and “veterans”	N/A	0 Results found

PhycINFO (October, 2011)	“equine” and “post traumatic stress disorder	N/A	3 results:  Beale, L (2006) <i>Dissertation Abstract International</i>  Lefkowitz, Prout, Bleiberg, Paharia & Debiak (2006) <i>Journal of Human-Animal Studies</i>  Alschuler, E.L. (1999) <i>Annals of Clinical Psychiatry</i>
PsycINFO (October, 2011)	“animal assisted therapy” and “military veterans”	N/A	0 Results found
PILOTS Database (October, 2011)	“equine”	N/A	3 Results: None applicable
Web of Science (September, 2011)	“equine” and “post traumatic stress disorder”	Linked full text	0 Results found
Web of Science (September, 2011)	“equine assisted therapy” and “mental health”	Linked full text	3 results: 1 applicable: Repeat
Google Scholar	“equine facilitated mental health”	Linked full text Peer reviewed Since 2006	1,590 Results: Articles of interest and applicable: 2  Ewing,

			MacDonald, Taylor & Bowers (2007) <i>Child Youth Care Forum</i>  Bivens, Klontz, B; Klontz, T; Leinart (2007) <i>Society and Animals</i>
Google Scholar	“animal/human relationship”	Linked full text Peer reviewed Since 1988	Barba, E (1995) <i>Anthrozoos</i>

### **INCLUSION and EXCLUSION CRITERIA**

- Inclusion:
  - Peer reviewed articles
  - English
  - Linked full text
  - Participants who have received some form of equine facilitated therapy or animal assisted therapy
  - Equine related interventions
  
- Exclusion:
  - Physical effects were excluded because this critically appraised topic focused on the emotional/psychological effects of equine facilitated therapy
  - results with interventions that did not utilize equine facilitated or animal assisted therapy

## RESULTS OF SEARCH

- 5 relevant studies were located and categorised as shown in Table 1 (based on Levels of Evidence, Centre for Evidence Based Medicine, 1998)

**Table 1:** Summary of Study Designs of Articles retrieved

Study Design/ Methodology of Articles Retrieved	Level	Number Located	Author (Year)
Randomized Control Trial	II	1	Berget, Ekeberg, Ingeborg, Bjarne, & Braastad (2011)
Case Control	III	1	Bowers, Ewing, MacDonald, Taylor & (2007)
Cross Sectional	III	2	Bivens, Klontz, B; Klontz, T; Leinart (2007), Schultz, Remick-Barlow & Robbins (2006)
Critical Review	N/A	1	Barba, B.E. (1995)

## BEST EVIDENCE

The following study/paper was identified as the ‘best’ evidence and selected for critical appraisal. Reasons for selecting this study were:

- This study is recent
- Qualitative and quantitative data included
- This study examined an assortment of outcome areas
- This study used a wide variety of outcome measures to assess the outcome areas
- Each measure was individually analysed



## SUMMARY OF BEST EVIDENCE

**Table 2:** Description and appraisal of a case control study displayed in the following article:  
Ewing, C., MacDonald, P., Taylor, M., & Bowers, M. (2007). Equine-facilitated learning for youths with severe emotional disorders: a quantitative and qualitative study. *Child Youth Care Forum*, 36, 59-72. DOI: 10.1007/s10566-006-9031-x

**Aim/Objective of the Study/Systematic Review:** The purpose of this study was to better understand the effects of equine-facilitated therapy on adolescents who have been diagnosed with severe emotional disorders. This study attempted to address 5 hypotheses which consisted of: 1) A youth's sense of self-esteem would be increased after equine therapeutic intervention. 2) Feelings of interpersonal empathy would increase for the youth after equine facilitated therapy. 3) The youth would have an increase in their internal locus of control after participation in the study. 4) The youth would have a decrease in feelings of depression with equines utilized for intervention. 5) Decreased feelings of loneliness for youth who participated in equine facilitated therapy.

**Study Design:** This study was a case control study of adolescents who have been diagnosed with a severe emotional disorder. Control and experimental groups derived from the selected participants were examined over a 9 week period. Pre-tests and post-tests were administered to each participant in this study.

**Setting:** Serenata Farms School of Equestrian Arts in Big Springs, Kansas was the location used for this study in the initial phase. Due to financial implications, the study was moved to R&D Ranch in Topeka, Kansas. Both facilities were supervised by a member of the North American Riding for the Handicapped Association (NARHA) which has since changed its name to the Professional Association of Therapeutic Horsemanship (PATH).

**Participants:** Adolescents from Horse Power, an equine-facilitated learning program for middle and high school aged students from an alternative day school, participated in this study. Students who attended this day school were all referred to the alternative style of learning when they were unable to learn in traditional classrooms or mainstreamed special education classes. The participants included 28 students, both males and females of various ethnic backgrounds who all had some form of emotional disorder. For each 9 week session, 4 to 5 students were selected at a time to form the experimental group. The control group was made up of students awaiting participation in the subsequent experimental group. All participants were grouped together based on similarities in IQ and age as an attempt to reach group cohesiveness. Due to a wide range of behavioural problems, all participants in this study were considered to be "at risk".

**Intervention Investigated** (provide details of methods, who provided treatment, when and where, how many hours of treatment provided) Prior to the 9 week session, participants were administered a battery of questionnaires to be completed before participation. At the alternative school, each participant was individually pre-tested. The preliminary tests assessed participants' emotions of self-esteem, depression, loneliness, empathy, and locus of control. The same tests were administered following the 9 week session and served as a post-test to evaluate whether equine facilitated learning was effective for the participants. NARHA (now

PATH) certified instructors helped to maintain the structure/guidelines of this equine facilitated learning program throughout this study.

*Control:* Members of the control group were composed of participants from the same program who were waiting to take part in the experimental group. The control group was administered the same pre and post-test as the experimental group. Members of this group did not participate in equine facilitated learning for the duration of the 9 weeks that they were labelled as the control group.

*Experimental:* Members of the experimental group participated in twice weekly sessions that were approximately 2 hours each. The sessions lasted for 9 weeks; a total of 36 hours. Students received equine facilitated learning at the ranch and in the classroom as academic subject named Horse Power. Adolescents participated in a 9 week structure equine facilitated learning program that was intended to teach cooperation, trust, and responsibility skills in hopes of the students utilizing these skills in everyday life. Each participant was partnered with a horse that they would be with for the 9 week duration of the study, to promote feelings of connection and ownership between the youth and their horse. Along with being partnered with a horse, each participant was also partnered with a volunteer with horsemanship experience. The volunteers helped to teach safety, give riding lessons, and teach proper attire needed around horses and ways to interact with horses. Throughout the study, students often participated in total care and handling for the horse they were partnered with. Participants of this study also learned to tack and groom their horses while learning about the various pieces of equipment associated with such tasks, and were allowed to ride their horse if they chose to do so. They were also expected to clean their tack, the horses stall, and groom the horse as part of each session. "Circle time" was a time in which students were allowed to talk about their personal goals for the day and the positive aspects of Horse Power. The participants of the experimental group were administered a pre-test and post-test to evaluate effectiveness of this equine facilitated program.

### **Outcome Measures**

Outcome measures were administered through use of a pre-test and post-test to both the experimental and control groups. The outcome measures were as follows:

**Self-Perception Profile for Children:** This was a self-reporting instrument that measured self-esteem in children and adolescents. This assessed the youth's feelings of competence in 6 subscales including: 1) Scholastic Competence 2) Social Acceptance 3) Athletic Competence 4) Physical Appearance 5) Behavioural Conduct and 6) General Self-Worth. This measure is intended for use on children grades 3 through 9 and includes a wide variety of questions that try to avoid having students purposely responding with socially desirable answers. (Ewing, C., MacDonald, P., Taylor, M., & Bowers, M., 2007)

**Empathy Questionnaire:** This was a self-reporting instrument that looks at how participants understand others thoughts, feelings and perspectives and is divided into 4 subscales including: 1) Fantasy: The tendency to identify with characters in movies, books, etc. 2) Perspective-Taking: The ability to see things from another's point of view 3) Empathetic Concern: Feelings of warmth and compassion for others and 4) Personal Distress: Feelings anxiety and discomfort resulting from observing other people's unfortunate experiences. (Taken from the study, Ewing, C., MacDonald, P., Taylor, M., & Bowers, M. (2007))

**Locus of Control Scale:** This was a self reporting measure with 40 yes/no response questions pooled from 102 items. Due to internal and temporal consistency and divergent and

convergent validity within this measure, it was considered by this study to be the best available measure for measuring locus of control in children.

**Children's Depression Inventory:** This was a self reporting measure that attempted to assess children between ages 8 and 16 for depression. This measure was a 26 item questionnaire that asked students to choose 1 sentence out of 3 that best fit with the feelings they have had over the past 2 weeks.

**Children's Loneliness Questionnaire:** This was a self reporting 24 item questionnaire that asked students about feelings of loneliness, inadequacy, peer status, likes and dislikes.

### **Main Findings:**

The measures were all individually analysed using paired t-tests. Unfortunately, quantitative measures had no statistically significant differences noted between the pre and post-tests with the experimental group. The results are as follows:

### **Quantitative Results**

1. The hypothesis that self esteem would increase after equine facilitated learning was tested using the Self-Worth subscale of the Self Perception Profile for Children. This hypothesis was not supported because of lack of statistical significance.
2. It was hypothesized that participant's feelings of interpersonal empathy would increase after equine related interventions, but it was not found to have statistical significance and therefore was not supported.
3. The hypothesis that adolescents would have an increase in internal locus of control was also not found to be statistically significant.
4. The hypothesis that there would be a decrease in depression related feelings for the experimental group was also not supported by statistical significance.
5. It was also hypothesized that the experimental group would experience decreased feelings of loneliness, but the results did not find statistical significance.

**Table 3: Quantitative Measures With the Experimental Group**

<b>Measure</b>	<b>T-Test</b>	<b>Statistical Significance</b>
Self-Perception Profile for Children	-.54	>.59
Empathy Questionnaire	.19	>.84
Locus of Control Scale	-1.3	>.22
Children's Depression Inventory	-.81	>.42

Table 3 adapted from: Ewing, C., MacDonald, P., Taylor, M., & Bowers, M. (2007). Equine-facilitated learning for youths with severe emotional disorders: a quantitative and qualitative study. *Child Youth Care Forum*, 36, 59-72. DOI: 10.1007/s10566-006-9031-x (Original table

**Qualitative Results:** Since quantitative results did not suggest statistical significance, this study looked at various qualitative case studies to help clarify the effectiveness of equine facilitated therapy. The case studies were an accumulation of interviews and observations that were noted by the therapeutic riding instructor, the special education teacher, and the volunteers. The case studies illuminated the ways in which participation in the program benefitted the students who participated. The results of the qualitative portion of this study are as shown on the following page:

*First Case:* “V” has PTSD and a history of mental illness and emotional and physical abuse within her family. “V” recently experienced sexual assaults, which, along with past abusive experiences, has left her feeling very anxious, distressed, and afraid of men. After being paired with a horse named Bailey during the Horse Power program, “V” discussed some of her feelings, worries and fears in comparison to what the horse may have been feeling and began to relate her own personal life to Bailey’s life.

*Second Case:* “FC” has emotional disorders including Behavioural Disorder, Educational Mental Handicap and also has a speech impediment. She has a history of sexual abuse, poverty, a low-functioning mother, and has gone to school with poor hygiene, dirty clothes, and unwashed hair. “FC” demonstrated various conduct and behavioural issues. After one session, it was noted that “FC” was able to relate to the animal and had a natural way with her horse. She began to groom her horse and soon was displaying better behaviours in her own life. “FC” also displayed improved self-confidence and discipline.

*Third Case:* “R”, who has ADHD that was so severe that he was all over the place. He would crawl on floors, attempt to climb walls, and would often panic and run away due to problems with avoidance. During his sessions, “R” learned to build trust and be calm, just as his horse and volunteer had modelled. By the end of the sessions he displayed the ability to learn, demonstrated calmer behaviours, and felt trust for his instructor teacher and was able to turn to her instead of avoiding when he felt out of control.

*Fourth Case:* “BN”, a 10 year old male of average IQ has issues with Behavioural Disorder, situational depression because of family environment, and aggression and poor attitudes toward women. He also displays an explosive temperament and in the past, has assaulted his mother. Throughout the use of equine facilitated learning, “BN” displayed increased self-esteem, social skills and confidence which allowed him to return to mainstreamed middle school, and it was noted that Horse Power helped to speed up his progress.

### **Original Authors’ Conclusions**

Each outcome measure independently used in the quantitative data demonstrated a lack of statistical significance. The results often took the researchers by surprise because previous studies involving equine facilitated therapy found statistically significant improvements with equine related interventions. The authors of this study predict that the study may have been too short and that drastic change could not easily take place in such a short time frame. It was also thought that external home-life influences were occurring that could have prevented students from receiving the maximum benefit of the program. The qualitative results did however show positive effects of equine facilitated therapy on students with emotional disturbances.

### **Critical Appraisal:**

#### **Validity**

The paper chosen as ‘best evidence’ does not address validity in detail, which can be considered a limitation to this study and this critically appraised topic. However, it was determined that most of the measures used in this study were well known, valid, and reliable. The same methodology was used throughout the study to evaluate the comparison of pre-tests and post-tests for the participants. Biases were not discussed in the original study; however, one bias that should be considered is that there were 36 total students who participated in the

program, but due to lower functioning and IQ scores, certain students were not included in the study. This paper also did not address contamination or cointervention.

**Interpretation of Results** The quantitative results were unfavourable mostly due to lack of statistical significance. In my opinion, the lack of statistical significance may be due to the variable factors that can come in to play when working with animals. The qualitative portion of this study was favourable because it examined the effects of equine facilitated therapy on adolescents with emotional disorders in a case study evaluation. The case studies demonstrated clinical significance as the use of a horse for therapy intervention was shown to be effective on people with various emotional disorders. This is something that can be implemented by occupational, physical and speech therapists in the clinic, on a wide variety of populations.

**Summary/Conclusion:** In this specific article, adolescents with various emotional disturbances took part in 9 week sessions that involved equine facilitated learning through the program Horse Power. The adolescents often experienced difficulties in function and ability in daily life due to their psychological impairments. After participation in an equine facilitated therapy program, improvements in health and well-being were often noted. This was a trend supported by the other 4 studies analysed, which could be an asset to health practitioners including occupational, physical, and speech therapists, psychologists, and other people working with those who have emotional disorders. Since the use of a horse can have positive impacts on adolescents who have experienced severe emotional and psychological distress, there is reason to believe that horses could be utilized for therapy interventions with post-war veterans who have also gone through emotional and psychological distress. Programs all across the United States are developing equine related programs for wounded warriors who have been traumatized psychologically as well as physically, so further research should be conducted to ensure that this common practice is evidence based.

**Table 4: Characteristics of additional included studies**

	<b>Study 1</b>	<b>Study 2</b>	<b>Study 3</b>	<b>Study 4</b>
	<b>Klontz, B, Klontz T, Bivens, and Leinart (2007)</b>	<b>Schultz, Remick-Barlow, and Robbind (2006)</b>	<b>Barba (1995)</b>	<b>Berget, Ekeberg, Pederson, Bjarne, and Braastad (2011)</b>
<b>Intervention Investigated</b>	This study examined the effectiveness of Equine Assisted Experimental Therapy on people with psychological	This study looked at effectiveness of equine assisted psychotherapy in a cross sectional group of children with	This study evaluated the scientific methods and gaps in knowledge in other research articles involving the	This controlled study examined the beneficial effects of farm animals on anxiety and depression over a 3 month

	distress.	behavioural and mental health issues over 18 month period.	human/companion animal relationship.	period with farm animals used for interventions.
<b>Comparison Intervention</b>	Informally compared to those who were not receiving equine facilitated therapy.	Informally compared to those who were not receiving equine assisted psychotherapy.	Informally compared various studies that examine the human/companion animal relationship.	Informally compared to those who were not receiving treatment with farm animals.
<b>Outcomes Used</b>	Brief Symptom Inventory, to measure psychological symptom patterns and Personal Orientation Inventory to measure self-actualization.	Children's Global Assessment of Functioning (GAF) to assess mood disorders, PTSD, Adjustment Disorders, ADHD, and Disruptive Behaviour Disorders	Selby Research Assessment Form II guided the evaluation throughout the articles that were evaluated. It was used for assessing adherence to methodological standards in research.	Spielberger State Anxiety Inventory, Beck Depression Inventory to assess anxiety, depression, coping ability, and work interest.
<b>Findings</b>	Participants showed significant improvements on psychological functioning following equine facilitated therapy.	Equine assisted psychotherapy was effective in improving GAF scores in children who were diagnosed with emotional disorders.	Most of the studies found positive associations between animal contact and health. Also people were happier, more affectionate, more alert and less lonely.	Decreases in anxiety and depression were noted and some showed increased coping ability, mood, self-esteem and extroversion.

### **IMPLICATIONS FOR PRACTICE, EDUCATION and FUTURE RESEARCH**

- The research viewed has provided evidence in support of the possible expansion in occupational therapy services to utilize equine facilitated therapy for people with various psychological disturbances, including veterans and wounded warriors
- This research showed need for further research. Involving equine facilitated therapy, as limited research exists.
- The research found demonstrates the importance of understanding the impacts of equine facilitated therapy on various aspects of a person's life (both physical and mental).
- Further research is needed to show effectiveness of equine facilitated therapy with more statistical significance.
- An Innovative Practice Project (IPP) or student capstone project could be created or continued with local therapeutic horseback riding centres involving wounded warriors.
- Further research could be conducted to look at physical effectiveness of equine facilitated therapy to determine its use with post-war veterans.

- There is potential to increase OT services in the equine realm of therapy.
- More research opportunities could explore the psychological and physical effects of equine facilitated therapy to prove effectiveness of programs that are already implemented involving wounded warriors.
- Research could also be conducted to compare equine facilitated therapy to other forms of therapy that are currently used with post-war veterans (such as virtual reality therapy).

## References:

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