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## Hypotheses about the Psychological Benefits of Horses

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**Abstract**

In the last few decades, therapeutic horse-riding has become recognized as a progressive form of therapy, particularly for people with disabilities. Although there is a substantial amount of literature that supports the physical benefit of therapeutic riding, only anecdotal evidence exists in relation to its psychological benefits. The purpose of this paper was to develop hypotheses about the mechanisms by which therapeutic riding might have a beneficial psychological effect. These hypotheses can then be tested, leading to a more detailed knowledge base. To develop these hypotheses, we examined the current literature to identify the implied hypotheses about why horse riding might be psychologically beneficial. Three potential hypotheses emerged from the literature, namely, (1) that the psychological benefits of therapeutic riding are actually unrelated to the horse; (2) that the horse provides a particularly positive context within which psychological gains are facilitated; and (3) that the horse itself has specific therapeutic qualities that bring about unique changes not otherwise likely to occur. The challenge for researchers in this area is to design studies that adequately test these competing hypotheses.

**Keywords**

Therapeutic riding, equine therapy, physical and psychological well-being

## Hypotheses about the Psychological Benefits of Horses

Over the last few decades, horse-riding has become recognized internationally as a progressive form of therapy for people with disabilities and/or disadvantage (1,2). Therapeutic riding is differentiated from recreational riding in that the term refers to the use of the horse and equine-oriented activities to bring about the achievement of a range of positive outcomes, including, physical, emotional, social, cognitive, behavioral, and educational goals (3). Across the world, there is much variation with regard to the way in which different organizations conduct and implement therapeutic riding. Indeed, therapeutic riding has been referred to by many different names, including equine facilitated therapy, equine assisted learning therapy, hippotherapy or Riding for the Disabled (RDA). In this paper, we will use the term “therapeutic riding” to refer to all forms of therapy that utilize the horse to achieve positive outcomes, even if the intervention only involves contact with the horse rather than actual riding activity.

The beneficial physical effect of therapeutic riding has been documented (e.g., 4-9). However, in addition to its physical benefit, some proponents have suggested that therapeutic riding has a range of psychological benefits (10) and, therefore, should form the basis of a legitimate psychotherapeutic activity. Indeed, there is evidence that over half of people in need of psychological assistance, particularly men and those from other minority groups, are unlikely to access traditional interventions (11) and that choice about the nature of that intervention was strongly associated with success. These findings highlight the importance of offering less traditional psychotherapeutic methods such as therapeutic riding.

Little is known, however, about how therapeutic riding programs might achieve positive psychological benefit. For instance, it is possible that these psychological benefits are merely an artifact of improved physical mobility (3). In fact, the negative psychological impact of decreased mobility in people with disabilities has been extensively researched (12-15), giving credence to this possibility. Unfortunately, however, there is little empirical evidence available to address these questions (16,17). The purpose of this paper is to use the available evidence to generate hypotheses about the mechanisms by which therapeutic riding may influence psychological outcomes. These hypotheses can then form the basis of further empirical testing, giving structure to the area in future.

### **History of Therapeutic Riding**

The premise of therapeutic riding is that horses have been an essential and meaningful partner for humans throughout time, and have been recognized for their role in emotional recovery. The horse was first acknowledged as a healing agent in early mythology, when a physician is said to have prescribed horse-riding for those with untreatable conditions as it would cheer their spirits (18). In 1870, a Scottish physician suggested that the riding of a spirited horse should be a recognized treatment for people with depression because it stirred ‘life forces’ into activity (19). Indeed, it has been claimed that, in the 1700’s, horse-riding was prescribed for the Pope to assist with his ailments (20). Although not specific to the horse, researchers have found evidence that Florence Nightingale advocated for the integration of animals into health care settings (21,22). Similarly, Sir Winston Churchill is purported to have publicly claimed that, “there is something about the outside of a horse that is good for the inside of a man”

(cited in 23). These anecdotes indicate the generalized positive influence horses are thought to have on the psyche.

Despite these early indications that horse-riding can be psychologically beneficial, its integration into the health and welfare setting has not eventuated. Although therapeutic riding was offered to wounded soldiers after World War I (2), it was not until a Danish rider with paralysis won a silver medal at the 1952 Helsinki Olympic Games that Riding for the Disabled was established in England. Shortly after that time, official therapeutic riding organizations also began operating in North and South America, Europe, Asia and Australia; a testament to the growing demand for therapeutic riding among people with disabilities (3).

### **The Psychological Benefits of Therapeutic Riding**

With the increasing profile of therapeutic riding throughout the world, it has become necessary to document its benefits more systematically. Although the physical benefits of riding have been explored to a reasonably sophisticated level, there is little more than descriptive evidence to support the psychological benefits of therapeutic riding (16,17,24). The psychological outcomes examined in the existing literature have varied widely, and have included constructs such as self-esteem, self-efficacy, motivation, emotional well-being, and social and interpersonal relationships. Observations of therapeutic riding programs have indicated that the most common emotional benefits associated with riding include increases in confidence, self-esteem and a sense of control (25-28).

In an early study conducted by Renaud (cited in 20), 45 people who had experienced a severe stroke were all referred to at least one year of horse-riding.

Although none achieved any lessening of their paralysis, there were significant improvements in strength and activity. Importantly, all 45 participants demonstrated improved emotional well-being, but whether or not this was a direct consequence of the therapeutic riding could not be determined. In a more recent study which examined the experiences of seven at-risk young people who participated in a therapeutic horsemanship program, the relationships participants developed with the horses during this program were thought to contribute to their gains in confidence, self-esteem, and mastery (29). However, this data was gathered only at the end of the program so change over time could not be demonstrated. In another study that incorporated both pre-program and post-program data (30), it was found that self-esteem increased significantly following therapeutic riding. However, it was not possible to attribute these changes to horse-riding due to the receipt of other remedial programs by the participants and the lack of a controlled study design.

Using serial video recordings over time, Allori and Pasquinelli (31) demonstrated improved confidence, more effective social interaction and increased emotional attachment among riders for whom no improvements had been identified during the years prior to initiating therapeutic riding. Although not conclusive evidence, there was a greater likelihood that improvements could be attributed to the horse because it was the only major change reported in the lives of these participants. In a more controlled pre-post study of therapeutic riding, Klontz, Bivens, Leinart, and Klontz, (32) reported significant reductions in psychological distress and enhancements in psychological well-being. These improvements remained present at six months post treatment. However, without a comparable control group, it is difficult to determine whether or not these

changes could be attributed to therapeutic riding or simply to the introduction of any activity.

In another longitudinal study, Ewing et al. (16) found no pre-post differences in self-esteem, empathy, locus of control, loneliness, and depression among 36 youths with severe emotional disorders. However, based on their observations and interviews, positive changes were reported in self-care, attitude, openness, and social skills, suggesting that quantitative methods may not be sufficiently sensitive to successfully measure the types of changes associated with therapeutic riding. Pauw (33) also noted a frequent discrepancy between qualitative and quantitative results in this area, and suggested that a distinction should be made between statistically significant differences and clinically meaningful changes. However, research has not yet tested this suggestion.

Despite the powerful anecdotal and descriptive evidence that supports the beneficial psychological outcomes associated with therapeutic riding programs, sound controlled research on this topic is scant (17). Basile (34) concluded that the difficulties associated with conducting controlled research in this area means that although practitioners who use therapeutic riding may attribute psychological successes to the horse (35), existing research does not enable this conclusion to be drawn (33,36).

In this paper, we examine the causal attributions made by researchers in this field about the mechanisms by which horse-riding might have a beneficial psychological effect. Our paper is based on the assumption that the anecdotal and descriptive conclusions represented in the literature are likely to reflect underlying hypotheses about how therapeutic riding influences psychological outcomes, even if these hypotheses are not articulated clearly. Although the small amount of literature in this area generally lacks



rigorous designs, published articles do contain implicit assumptions about the hypothesized mechanisms by which therapeutic riding may have a positive psychological impact. By examining these implicit assumptions, it is possible to generate hypotheses that can later be tested. Thus, our paper will enable research to progress beyond questions of whether or not therapeutic riding is beneficial to more sophisticated questions about how this intervention is likely to influence psychological outcomes, if indeed it does. It may also encourage researchers to design studies that can test alternative hypotheses regarding the means by which horse-riding influences psychological health.

### **Method**

We conducted a review of the recent literature on therapeutic riding published between 2008 and 2012 inclusive. This narrow search period was selected to ensure that the literature from which hypotheses were drawn was based on the latest knowledge in the area. The most recent systematic review in this area (37) focused on studies of equine facilitated psychotherapy published up to 2009. The studies identified in this review were mostly published between 2006 and 2008, following a rapid increase in therapeutic equine programs around the world triggered by the release of the Equine Facilitated Mental Health Association practice standards in 2005. Thus, the studies conducted during this peak prior to 2008 were among the first to offer empirical evidence supporting the potential of therapeutic riding as a psychotherapeutic process. For our purpose, articles published following this boom period are likely to be better informed and more inclined to explore the mechanisms of these purported beneficial effects.

The Key-word searches were conducted of six relevant databases (PsycINFO, MEDLINE, PROQUEST, Scopus, Web of Science, and CINAHL). Key words were (Equine facilitated learning, equine facilitated psychotherapy, horse-riding, hippotherapy, therapeutic horse-riding, horsemanship, and equine therapy) paired with key terms (Therapy, well-being, psychological benefits, physical benefits, social benefits, recreational, health, recovery, rehabilitation, healing, treatment, intervention, psychotherapy, illness, disability, and life skills). In addition, the reference lists contained in the retrieved articles were also examined for any additional articles that warranted inclusion. The initial search produced 4460 articles in total, which was reduced to 2261 when duplicates were removed. An initial review of the abstracts was conducted to remove articles that were clearly unrelated to the therapeutic use of horses, leaving 156 articles.

Two raters then independently assessed the articles, and retained only articles that (a) were related to the psychological effects of therapeutic horse-riding; (b) focused exclusively on therapeutic horse-riding, as opposed to animal-assisted therapy more generally; and, (c) described, explicitly or implicitly, the mechanism by which therapeutic riding had a beneficial psychological effect. After exclusion of articles that did not meet these criteria, 30 articles remained (36-66). The full text of each article was examined and data pertaining to any explicit or implicit hypotheses about the potential mechanisms by which therapeutic riding impacted on psychological functioning were extracted.

Text drawn from the articles was coded and categorized into thematic clusters based on the similarity of meaning. We used these categories to define the hypotheses

about the mechanisms by which therapeutic riding might have beneficial psychological effects.

## **Results**

Our analysis revealed that, at the broadest level of categorization, three competing hypotheses were apparent. Each of these hypotheses is outlined in more detail below.

Hypothesis 1: The psychological benefits of therapeutic riding are unrelated to the horse and would occur in any similar program.

A theme contained in the published articles was that the psychological benefits of therapeutic riding were not associated with the horse itself, but were due to some other generic aspect of an equine program that could be equally present in any other activity. For instance, researchers noted that the observed benefits of therapeutic riding may be due to the fact that the activity occurs in a “non-health care” setting (38). Alternatively, the therapeutic riding center may simply represent a place where pleasure and fun can occur, as it would in any social or recreational center. For example, Favali and Milton (39) reported that one reason that individuals found benefit in therapeutic riding was because they valued the connection to nature and wildlife. Thus, these researchers suggested that perhaps it is the connection to nature that facilitates the psychological benefits associated with therapeutic riding. Other researchers have suggested that the psychological benefits observed following therapeutic riding may be no different to those associated with owning pets (40), and therefore are not specific to the horse.

Some researchers suggested that the benefits of therapeutic riding may be due to the multi-sensory nature of the activity (41), and to enhanced body awareness (42). Presumably, these beneficial effects could be observed with other multi-sensory activities that enhance body awareness, and are thus not specific to the horse. Bass et al. (41) also proposed that the horse may be perceived as a rewarding stimulus which may lead to increased motivation and social engagement. Again, there are numerous activities that individuals may perceive as rewarding, and therefore if this is indeed the mechanism by which therapeutic riding has positive psychological effects, these benefits cannot be readily attributed to the horse itself.

Hypothesis 2: The horse itself provides a particularly positive context thereby facilitating the likelihood of psychological gains, which may derive from other sources.

The second major theme contained in the assumptions that underlie many of the published articles is that the horse is a vital medium, although not a specific catalyst for the therapeutic process. Specifically, it provides an emotionally positive context that can enhance the likelihood of beneficial change. For instance, the horse can provide a unique opportunity for experiences that will impact specifically on the psychological well-being of riders. Although other activities, such as adventure programs (43,44) or pet therapy (45,46) might be equally able to provide aspects of this experience, this hypothesis suggests that the horse is unique in its ability to provide a total context.

Several researchers noted that situations likely to arise during the course of therapeutic riding provide useful material that can serve as metaphors for issues relevant to an individual's life (47-49). Therapeutic riding can also provide a context in which

individuals who are reluctant to communicate can feel more comfortable to do so, even if only with the horse (47). Further, some individuals with physical disability have noted that therapeutic riding can facilitate a sense of normality given the limitations they often face due to their disability (39). Others have reported that the experience of therapeutic riding can serve as a distraction from upsetting experiences and emotions (39), thus suggesting that therapeutic riding may provide a context that leads to positive psychological outcomes.

Another way in which therapeutic riding may facilitate positive psychological outcomes is by providing a space in which individuals can heal. Dell et al. (50) explored the experiences of First Nation and Inuit Youth with therapeutic riding. Based on participants' journals, reflections, and interview data, these researchers concluded that the beneficial effects from the program were enhanced through the provision of a "culturally-relevant space" (p. 319), which was facilitated by the horse. Finally, therapeutic riding provides a context in which it is possible to meet and engage with other individuals with similar interests, thereby enhancing social connectedness and interpersonal relationships (51,52).

Hypothesis 3: The horse itself has specific therapeutic qualities that bring about unique psychological changes not otherwise likely to occur.

There was a strong assumption within some published articles that the act of horse-riding or engaging with a horse stimulates a range of psychotherapeutic processes that could not exist without the involvement of the horse. As such, the horse could be considered a catalyst that brings about unique therapeutic changes. According to this

hypothesis, several therapeutic processes could be initiated by a horse, including trust, control and mastery, emotional expression and sensory integration, each of which is thought to lead to psychological benefits.

For instance, the emotional connection and sense of trust that can be fostered through the relationship with a horse was thought to be significant. The horse is predictable over time, relatively undemanding in its relationships, does not make judgments, and places no conditions on its affection (49,52-61). Horses have a delicate form of communication that is sensitive to the non-verbal messages of humans and animals in its vicinity. However, they are not subject to the socio-cultural norms and taboos that influence the way in which people respond to each other. This unique combination provides a safe environment in which people, especially those with disabilities, can build trust.

In addition to trust, the act of horse-riding was thought to foster a sense of autonomy, self-efficacy, confidence, problem solving skills, leadership, freedom, choice, and control (47,49,52,54-56,60-65). Indeed, the level of mastery and control that accompanies horse-riding is probably unmatched by any other activity. For instance, despite its size, a well-trained horse will allow a rider to have complete control and make choices about direction and speed. For the first time, many riders have a freedom of movement, control and assertion they have not experienced.

Riding also encourages people to face and overcome their fears (60) by enabling them to accept and master a significantly “risky” activity that is relatively uncommon in the general population, but in a controlled environment. The horse is a potentially frightening animal with a strength, speed and size that would overwhelm most people.

However, therapeutic horses are selected and trained for their gentleness, predictability and good behavior, thus eliminating “actual” risk and allowing success while maintaining the perception of risk and challenge.

Therapeutic riding was also thought to stimulate communication between the horse and individual, and facilitate the use of non-verbal language and emotional expression (47-49,52,54,57-62). The horse relies totally on its well-developed system of non-verbal communication and responds positively to the non-verbal communication of its riders. Indeed, the horse necessitates a reliance on non-verbal expression, thus giving riders a means of expressing themselves, particularly those who do not have language skills or are restricted in their non-verbal expression by the norms and demands of society.

Unlike many other activities, horse-riding requires the use of all the senses. Horse-riding was thought to stimulate a vast range of actions and abilities -- physical and cognitive skills, non-verbal expression, the use of appropriate voice commands, a range of tactile stimuli including warmth, hardness and softness, overwhelming smells, constant noise and rhythm, appealing and varied sights, and social contact (36,59,64,66). The integration of these diverse modalities was thought to result in an awareness of self and environment that would not otherwise be gained. In comparison to horse-riding, traditional interventions tend to focus on separate aspects of the person (i.e., the body, the emotions, living skills etc.).

Even when riding was not involved, the unique act of grooming a horse was thought to contribute to a variety of positive therapeutic outcomes. Specifically, caring for a horse, and caressing a horse (and having the horse respond to this affection) was

believed to facilitate improved quality of intimacy; one which some people may not have previously experienced (38,47,61). Researchers also described a sense of “giving back to the horses” through the act of grooming, creating an intimacy with the horse that was thought to facilitate the development of empathy (56, p. 208).

## **Conclusions**

Given the cost of maintaining a therapeutic riding program (28), it is imperative that researchers examine the three hypotheses that have emerged from this study to determine the mechanisms by which these programs influence psychological outcomes. If the benefits of therapeutic riding are associated with some generic aspect of the program, rather than the horse-related activity, outcomes cannot be attributed to the horse. In this case, similar benefits could be achieved through a more cost-effective manner. Thus, there is little rationale for continued support of therapeutic riding programs.

One aspect of any intervention that impacts on cost-effectiveness is its duration relative to its sustainability. Some early anecdotal and observational evidence suggest that therapeutic riding can have positive psychological benefits within a relatively short timeframe (28,32,67,68). Further, the psychological gains that arise from therapeutic riding are thought to be durable (25). Nevertheless, if similar outcomes can be achieved through a more cost effective medium, then the added cost of running an equine program may not be justified.

The second hypothesis, that the horse is beneficial because it creates a positive context, is plausible and is not inherently contradictory to the value of therapeutic horse riding. Naturally, the extent to which this hypothesis can account for the beneficial psychological impact of horse riding will depend on individual riders and their



preferences. However, there is some evidence to suggest that horses may be a universally enjoyable animal and that most people would find horse-riding to be an exciting and pleasurable activity (69). It is not surprising, therefore, that horse-related activities can stimulate a high degree of motivation in vulnerable populations (60,70). This motivation can easily be used to facilitate learning or alter behavior.

Some researchers have concluded that in addition to the motivation generated by horses, therapeutic processes such as participation and integration are inherent in the horse-related encounters (71). For instance, therapeutic riding centers usually offer the opportunity for riders to mix with a range of other riders and volunteers, all of whom share a passion for horses. In this context, the horse becomes a facilitator of inclusion and communication. Horses become a topic for spontaneous conversation, allowing people to express themselves to an interested audience without fear of rejection. Horsemanship necessitates constant interaction between a team of people and a horse. To safely participate in horse-related activities, the team must communicate both verbally and non-verbally at all times. Indeed, it has been suggested that the horse can build a “bridge” between riders, volunteer helpers and the coach or therapist (72,73).

If, however, horses offer a unique therapeutic process, as described in the third hypothesis, then a great deal more planning and clinical thought must go into these programs in future. Although there is no evidence to confirm this hypothesis, it is highly plausible that the simple, unconditional and trusting relationship that develops between a rider and his or her horse may, under certain circumstances, generalize to other interpersonal relationships (74,75). Indeed, a number of researchers have used horses to directly address therapeutic goals or develop life skills. For instance, Strausfeld (76)

reported reduced levels of fear among people with drug addictions once they had mastered their fear of horses. Other researchers have shown how therapeutic riding programs have facilitated the likelihood of safe “risk-taking” behaviors in other areas (77). In accounting for the possibility that the horse is a therapeutic tool, Jacquelin (78) described how it is not threatening and is likely to respond to emotional expression in a consistent rather than unpredictable manner. Thus, people are unlikely to feel embarrassed when interacting with their horse and are, thus, able to express their own emotions freely without fear of rejection.

Over a decade ago, at the 10<sup>th</sup> International Congress on therapeutic riding, the focus was solely on issues of whether or not the horse was the primary mechanism of change. At this conference, the founder of L’Arche Communities, Dr. Jean Vanier (79), commented that the emotional pain experienced by those who are most vulnerable in society is enormous. They have spent a lifetime being rejected, restricted, and prevented from achieving their goals. He noted that the path to healing involved the rediscovery of their value and self-confidence and the development of true friendships. To allow healing to occur, Vanier argued that we must abandon the concept of power and welcome difference into our world as a treasure rather than a threat. He concluded that horses, with their unconditional acceptance and tolerance, offered an invaluable path to mental recovery, yet were rarely used in a therapeutic way. However, if we are to fully understand the therapeutic value of the horse, we must examine the efficacy of horse-riding more robustly and determine the actual mechanisms by which it has its psychological impact, if any. Irrespective of whether qualitative or quantitative methods are used, the challenge for researchers in this area is to design studies that can examine

the hypotheses identified in this study and, hopefully, build an evidence-base on which to improve the potential application of this therapeutic technique.

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**References**

1. Masini A. Equine-assisted psychotherapy in clinical practice. *Journal of Psychosocial Nursing* 2010;48:30-34. doi:10.3928/02793695-20100831-08
2. NAHRA. National Association for Horse Riding. USA: NAHRA; 2000.
3. Lessick M, Shinaver R, Post KM, Rivera JE, Lemon B. Horseback riding: Exploring this alternative therapy for women with disabilities. *AWHONN Lifelines* 2004;8:47-53. doi:10.1177/1091592304263956
4. Benda W, McGibborn NH, Grant K. Improvements in muscle symmetry in children with cerebral palsy after equine-assisted therapy (hippotherapy). *Journal of Alternative and Complementary Medicine* 2003;9:817-825. doi:10.1089/107555303771952163
5. Biery MJ, Kauffman N. The effects of therapeutic horseback riding on balance. *Adapted Physical Activity Quarterly* 1989;6:221-229.
6. Cherng RJ, Liao HF, Leung HW, Hwang AW. The effectiveness of therapeutic horseback riding for children with spastic cerebral palsy. *Adaptive Physical Activity Quarterly* 2004;21:103-121
7. Lechner HE, Kakebeeke TH, Hegemann D, Baumberger M. The effect of hippotherapy on spasticity and on mental well-being of persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation* 2007;88:1241-1248. doi:10.1016/j.apmr.2007.07.015
8. Snider L, Kornen-Bietnsky N, Kammann C, Warner S, Saleh M. Horseback riding as therapy for children with cerebral palsy: Is there evidence of its effectiveness?

Physical and Occupational Therapy in Pediatrics 2007;27:5-23.

doi:10.1300/J006v27n02\_02

9. Sterba JA. Does horseback riding therapy or therapist-directed hippotherapy rehabilitate children with cerebral palsy? *Developmental Medicine and Child Neurology* 2007;49:68-73. doi:10.1017/S0012162207000175.x
10. Quirroz Rothe E, Jimenez Vega B, Mazo Torres R, Campos Soler SM, Molina Pazos M. From kids and horses: Equine facilitated psychotherapy for children. *International Journal of Clinical and Health Psychology* 2005;5:373-383.
11. We Need to Talk Coalition. We need to talk: Getting the right therapy at the right time. Mind: UK.
12. Duckworth MP, Jezzi T. Physical injuries, pain, and psychological trauma: Pathways to disability. *Psychological Injury and Law* 2010;3:241-253.  
doi:10.1007/s12207-010-9086-8
13. Holbrook TL, Anderson JP, Sieber WJ, Browner D, Hoyt DB. Outcome after major trauma: 12-month and 18-month follow-up results from the trauma recovery project. *The Journal of Trauma* 1999;46:765-771. doi:10.1097/00005373-199905000-00003
14. Mayou R, Bryant B. Outcome in consecutive emergency department attenders following a road traffic accident. *The British Journal of Psychiatry* 2001;179:528-534. doi:10.1192/bjp.179.6.528
15. Norman SB, Stein MB, Dimsdale JE, Hoyt DB. Pain in the aftermath of trauma is a risk factor for post-traumatic stress disorder. *Psychological Medicine* 2008;38:533-542. doi:10.1017/S0033291707001389

16. Ewing CA, MacDonald PM, Taylor M, Bowers MJ. Equine-facilitated learning for youths with severe emotional disorders: A quantitative and qualitative study. *Child Youth Care Forum* 2007;36:59-72. doi:10.1007/s10566-006-9031-x
17. Kaiser L, Spence LJ, Lavergne AG, Vanden Bosch KL. Can a week of therapeutic riding make a difference? – A pilot study. *Anthrozoos* 2004;17:63-72. doi:10.2752/089279304786991918
18. Haskin MR, Erdman WJ, Bream J, Mac Avoy CG. Therapeutic horseback riding for the handicapped. *Archives of Physical Medicine and Rehabilitation* 1974;55:473-474.
19. Mayberry RP. The mystique of the horse is strong medicine: Riding as therapeutic recreation. *Rehabilitation Literature* 1978;39:192-196.
20. Woods D. Horseriding: Catching on as a therapy for the disabled. *CMA Journal* 1979;121:631-650.
21. Beck A. The use of animals to benefit humans: Animal-assisted therapy. In Fine A, ed. *Handbook on Animal Assisted Therapy: Theoretical Foundations and Guidelines for Practice*. San Diego, California: Academic Press;2000.
22. Brodie SJ, Biley FC. An exploration of the potential benefits of pet-facilitated therapy. *Journal of Clinical Nursing* 1999;8:329-337. doi:10.1046/j.1365-2702.1999.00255.x
23. Running Press. *The horse notebook: An illustrated journal with quotes*. Philadelphia, PA: Author; 1984.

24. Vidrine M, Owen-Smith P, Faulkner P. Equine-facilitated group psychotherapy: Applications for therapeutic vaulting. *Issues in Mental Health Nursing* 2002;23:587-603. doi:10.1080/01612840290052730
25. Cushing JL, Williams JD. The Wild Mustang Program: A case study in facilitated inmate therapy. *Journal of Offender Rehabilitation* 1995;22:95-112. doi:10.1300/J076v22n03\_08
26. Karol J. Applying a traditional individual psychotherapy model to equine-facilitated psychotherapy (EFP): Theory and method. *Clinical Child Psychology and Psychiatry* 2007;12:77-90. doi:10.1177/1359104507071057
27. Stephens J. Ponies and therapy. *Pets & Vets* 1999;1:44-47.
28. Tyler J. Equine psychotherapy: worth more than just a horse laugh. *Women and Therapy* 1994;15:139-146. doi:10.1300/J015v15n03\_11
29. Burgon HL. 'Queen of the world': Experiences of 'at-risk' young people participating in equine-assisted learning/therapy. *Journal of Social Work Practice* 2011;25:165-183. doi: 10.1080/02650533.2011.561304
30. Rufus S. The effect of horse riding therapy on the self-concept of learning disabled children. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 48; 2000.
31. Allori P, Pasquinelli A. Therapeutic riding as a model of integrated rehabilitation. *Scientific and Educational Journal of Therapeutic Riding* 2000;6:46-52.
32. Klontz BT, Bivens A, Leinart D, Klontz T. The effectiveness of equine-assisted experiential therapy: Results of an open clinical trial. *Society and Animals* 2007;15:257-267. doi:10.1163/156853007X217195

33. Pauw J. It's the horse that makes the difference: how should we measure this difference?. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 39; 2000.
34. Basile RB. The psychological effects of equine facilitated psychotherapy on behaviour and self-esteem in children with Attention Deficit/Hyperactivity Disorder (ADHD). *Scientific Journal of Therapeutic Riding* 1997:10-15.
35. Hanneder S. It's the horse that makes the difference – but the difference made is always different. *The Federation of Riding for the Disabled International Congress* 49; 2000.
36. Ratliffe KT, Sanekane C. Equine-assisted therapies: Complementary medicine or not? *Australian Journal of Outdoor Education* 2009;13:33-43.
37. Selby A, Smith-Osborne A. A systematic review of effectiveness of complementary and adjunct therapies and interventions involving equines. *Health Psychology* 2013;32:418–432.
38. Bachi K, Terkel J, Teichman M. Equine-facilitated psychotherapy for at-risk adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology and Psychiatry* 2012;17:298-312. doi:10.1177/1359104511404177
39. Favali V, Milton M. Disabled horse-rider's experience of horse-riding: A phenomenological analysis of the benefits of contact with animals. *Existential Analysis* 2012;21:251-262.
40. Alborough E. Common (horse) sense. *Therapy Today* 2012;23:40.



41. Bass MM, Duchowny CA, Llabre MM. The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders* 2009;39:1261-1267. doi: 10.1007/s10803-009-0734-3
42. Debuse D, Gibb C, Chandler C. Effects of hippotherapy on people with cerebral palsy from the users' perspective: a qualitative study. *Physiotherapy Theory and Practice* 2009;25:174-192. doi: 10.1080/09593980902776662
43. Anderson L, Schleien SJ, McAvoy L, Lais G, Seligmann D. Creating positive change through an integrated outdoor adventure program. *Therapeutic Recreation Journal*, 4th Quarter 1997:214-229.
44. Hill NR. Wilderness therapy as a treatment modality for at-risk youth: A primer for mental health counselors. *Journal of Mental Health Counselling* 2007;29:338-349. doi:10.1108/13666282200700038
45. Anderson KL, Olson MR. The value of a dog in a classroom of children with severe emotional disorders. *Anthrozoos* 2006;19:35-49. doi:10.2752/089279306785593919
46. Prothmann A, Bienert M, Ettrich C. Dogs in child psychotherapy: Effects on state of mind. *Anthrozoos* 2006;19:265-277. doi:10.2752/089279306785415583
47. Froeschle J. Empowering abused women through equine assisted career therapy. *Journal of Creativity in Mental Health* 2009;4:180-190. doi:10.1080/15401380902945228
48. Garcia DM. Of equines and humans: Toward a new ecology. *Ecopsychology* 2010;2:85-89. doi: 10.1089/eco.2009.0042

49. Lentini JA, Knox MS. A qualitative and quantitative review of equine facilitated psychotherapy (efp) with children and adolescents. *International Journal of Psychosocial Rehabilitation* 2009;13:17-30. doi:10.2174/1876391X00901010051
50. Dell CA, Chalmers D, Bresette N, Swain S, Rankin D, Hopkins C. A healing space: The experiences of First Nations and Inuit Youth with Equine-Assisted Learning (EAL). *Child & Youth Care Forum* 2011;40:319-336. doi: 10.1007/s10566-009-9073-y.
51. Kinney A. Horses help injured veterans regain direction, *Oakland Tribune*; 2012. Retrieved from <http://search.proquest.com.libraryproxy.griffith.edu.au/docview/919806691?accountid=14543>
52. Smith-osborne A, Selby A. Implications of the literature on equine-assisted activities for use as a complementary intervention in social work practice with children and adolescents. *Child & Adolescent Social Work Journal* 2010;27:291-307. doi: 10.1007/s10560-010-0201-1
53. Akaltun E, Banning N. When the therapist is a horse. *Therapy Today* 2012;23:14-18.
54. Bexson T. Talking horses. *Mental Health Today* 2008:16-17.
55. Frank A, McCloskey S, Dole RL. Effect of hippotherapy on perceived self-competence and participation in a child with cerebral palsy. *Pediatric Physical Therapy* 2011;23:301-308. doi: 10.1097/PEP.0b013e318227caac
56. Mallow A, Mattel P, Broas L. "For the love of horses": Establishing a protocol for women in a therapeutic community to work with rescued horses. *Journal of Social*

Work Practice in the Addictions 2011;11:205-208. doi:

10.1080/1533256X.2011.566477

57. Meinersmann KMPRN, Bradberry J, Roberts FBPRN. Equine-facilitated psychotherapy with adult female survivors of abuse. *Journal of Psychosocial Nursing & Mental Health Services* 2008;46:36-42. doi: 10.1016/s0140-6736(02)08417-9
58. Rose JF. Therapy horses school nurses in emotional fitness. *RN* 2008;71:18-20.
59. Swindell M. Equine therapy and social work: A winning combination. *The New Social Worker* 2010;17:8-8.
60. Trotter KS, Chandler CK, Goodwin-Bond D, Casey J. A comparative study of the efficacy of group equine assisted counseling with at-risk children and adolescents. *Journal of Creativity in Mental Health* 2008;3:254-284.  
doi:10.1080/15401380802356880
61. Yorke J, Adams C, Coady N. Therapeutic value of equine--Human bonding in recovery from trauma. *Anthrozoos* 2008;21:17-30. doi: 10.2752/089279308X274038
62. Cody P, Steiker LH, Szymandera ML. Equine therapy: Substance abusers' "healing through horses". *Journal of Social Work Practice in the Addictions* 2011;11:198-204.  
doi: 10.1080/1533256X.2011.571189
63. Davis E, Davies B, Wolfe R et al. A randomized controlled trial of the impact of therapeutic horse riding on the quality of life, health, and function of children with cerebral palsy. *Developmental Medicine and Child Neurology* 2009;51:111-119.  
doi:10.1111/j.1469-8749.2008.03245.x

64. Håkanson M, Möller M, Lindström I, Mattsson B. The horse as the healer-A study of riding in patients with back pain. *Journal of Bodywork and Movement Therapies* 2009;13:43-52. doi:10.1016/j.jbmt.2007.06.002
65. MacLean B. Guest editorial: equine-assisted therapy. *Journal of Rehabilitation Research and Development* 2011;48:9-12. doi:10.1682/JRRD.2011.05.0085
66. Cerino S, Cirulli F, Chiarotti F, Seripa S. Non conventional psychiatric rehabilitation in schizophrenia using therapeutic riding: the FISE multicentre Pindar project. *Ann Ist Super Sanita* 2011;47:409-414. doi: 10.4415/ann\_11\_04\_13
67. Bizub AL, Joy A, Davidson L. “It’s like being in another world”: Demonstrating the benefits of therapeutic horseback riding for individuals with psychiatric disability. *Psychiatric Rehabilitation Journal* 2003;26:377-384. doi:10.2975/26.2003.377.384
68. Glazer HR, Clark MD, Stein DS. The impact of hippotherapy on grieving children. *Journal of Hospice and Palliative Nursing* 2004;6:171-175. doi:10.1097/00129191-200407000-00013
69. All AC, Loving GL, Crane LL. Animals, horseback riding and implications for rehabilitation therapy. *The Journal of Rehabilitation* 1999;65:49-68.
70. Hauser G. Humanist approaches in the field of therapeutic riding. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 62; 2000.
71. Daniels J. The unique contribution of horses in education. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 75; 2000.
72. Baioni E. Horses: what answers for the severely handicapped person?. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 47; 2000.

73. Bates A. Of patients & horses: Equine-facilitated psychotherapy. *Journal of Psychosocial Nursing & Mental Health Services* 2002;40:17-19.
74. Russig D. Relationships in equestrian therapy for handicapped people – point of view of a handicapped therapist. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 53; 2000.
75. Williams C. Equine-facilitated psychotherapy benefits students and children. *Holistic Nursing Practice* 2004;18:32-35.
76. Strausfeld P. Therapeutic Riding as a special clinic for drug-addicted women. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 66; 2000.
77. Riffkin J. Risk-taking amongst RDA coaches: A proposed study. *Scientific and Educational Journal of Therapeutic Riding* 1998:33-35
78. Jacquelin T. Therapy with the horse for sexually abused children. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 80; 2000.
79. Vanier J. The place of people with disabilities in our societies. *The Federation of Riding for the Disabled 10<sup>th</sup> International Congress* 106; 2000.