REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 24, No. 3 (2023)
http://www.veterinaria.org
Article Received: 15 September 2023; Revised: 25 October 2023; Accepted: 03 November 2023

Examining the Benefits and Effectiveness of Using Horses for Therapeutic and Recreational Activities with Aged Patients

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Abstract

Chronic pain is a complicated universal public health condition that impacts several aspects of daily living, work-related factors, quality of life and health. Some benefits for chronic pain can come from horseback riding elderly individuals by improving postural control and other bio-psychosocial mechanisms. Consequently, the present study examines the possible advantages of Equine-Assisted Therapy (EAT) as a means of managing persistent pain, with a particular focus on the effects on postural maintenance and bio-psychosocial mechanisms. Using Google Scholar and PubMed electronic databases, a thorough search of research was conducted using PRISMA guidelines. From the initial collection of 1000 studies, 25 publications, including seven randomized controlled trials, were chosen for inclusion in the review. The selected publications were subjected to a rigorous risk of bias assessment and essential characteristics of research participants and treatments were extensively reviewed. Applying change-from-baseline metrics, elderly individuals with low back pain had a substantial reduction in pain associated with horse riding simulators. Nonetheless, the meta-analysis using post-intervention variables yielded a p-value of 0.06. There were not enough papers on therapies using actual horses to allow for a meta-analysis. According to this study, horseback riding, especially when done with simulators, can be an effective form of exercise for lowering chronic pain, especially in older people with low back pain.

Keywords: Chronic Pain, Horseback Riding, Aged Patients, Simulator, Bio-psychosocial Process

INTRODUCTION

A wide variety of human services involving horses have been offered to people with a wide range of disabilities, health conditions and other significant life obstacles, from toddlers to older adults. It is established that these services involve horse (1). A significant objective of dementia care is quality of life (QoL), as the vitality of those suffering from dementia depends on fulfilling activities and positive emotional encounters. Best practices recommend utilizing complementary treatments to improve the QoL (2). Research on experimental interventions has shown that horses have a therapeutic effect; however, the possibility of equine therapy with horses has not yet been established in research (3). The existing condition of horse brief discussion on recreation therapy (RT) as well as aided activities and treatments (EAAT) the subject is looked at along with its goal is determined after the introduction (4). Animal-assisted interventions (AAIs), which are sometimes referred to pet therapy, are an extensive group of planned activities that involve animals and they are intended to improve human health. Figure (1) shows the benefits of equine therapy. With the aim of achieving therapeutic or learning effects, AAIs are distinguished by an integrated group of humans and animals (5).

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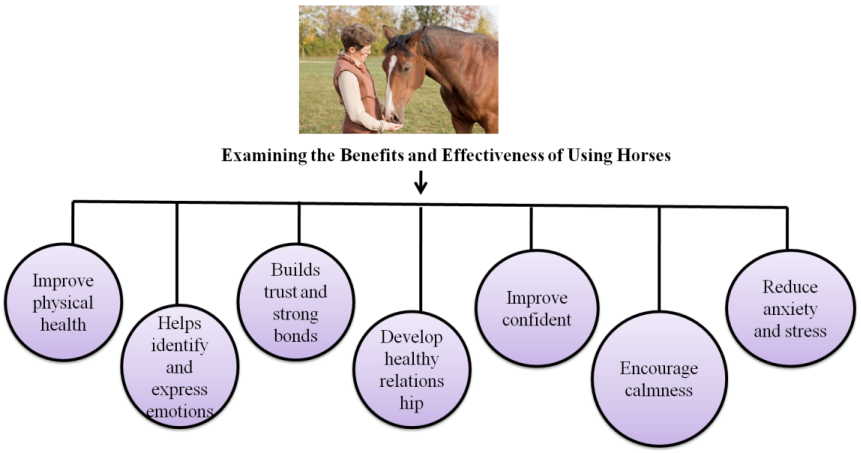

Figure (1). Benefits of equine therapy

(**Source:** Author)

The use of animals for medical treatments has an extensive record that dates back to antiquity. Using animal assistance to improve a person's general state, wellness and health is known as an AAI (6). A worldwide network of children and aged individuals with disabilities benefits from therapeutic horseback riding (THR). However, the reasons and mechanisms behind the observed advantages of THR are sometimes unclear. Assertions concerning supposed mechanisms that result in altered health effects as a consequence of THR are made in published literature (7). Human services that involve horses have expanded as well as diversified and it has been demonstrated that a wide range of services involving horses have been offered to individuals with a variety of impairments, medical ailments and other important life concerns, from toddlers to older adults (8).

The author (9) gathered the initial information on the viability, safety and patient contentment with psychology involving horses (PIE)-based resiliency treatment intended for medical practitioners. Before and after the procedure, instruments were used to measure changes in PF (AAQII), as well as participants' self-perceptions of the health of their bodies and minds (Physical Activity Enjoyment Scale). The study (10) offered a succinct analysis of both industries and the issues that they are experiencing as they advance into their next phase. The article (11) evaluated the viability and acceptability of using dyads in an adapted riding program as a comparison condition and gardening as an intervention. The outcomes emphasize how feasible and acceptable it is to include relatives in RMTM for individuals with dementia. It was possible to include a gardening comparison condition for future RCT piloting; a longer recruitment time and more extensive selection methods are required. The research (12) described AAIs outlines their historical significance in therapeutic healing and examines recent findings (13). The study (14) examined the psychological advantages THR at Riding for the Disabled Association (RDA) events in Tasmania offers to individuals with ASDs and other developmental disabilities from the viewpoints of coaches and parents. It investigated the effects of THR on the capacity to grow psychosocial competencies and engage in different vocations, especially those involving various social environments and locations. The article (15) determined that an equine-assisted activity program (EAAP) for individuals with dementia is acceptable by clarifying the programmatic procedures required to improve their security as QoL from the standpoint of suppliers. The research (16) improved social, psychological and physical wellbeing; people can interact with trained animals as part of animal therapy, commonly referred to as AAT. The author (17) determined to what extent elderly horseback riders' sense of connection to the animal impacts their social, psychological and health compared to dog owners. The primary variable of interest in the comparisons was the activity group that was modeled using a general linear model.

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Compare the horseback riders to dog owners and there was not a significant variance in their pet attachment scores. Recreational horseback riders had increased social and psychological health in an instance that is comparable to that of dog owners, almost reaching the animal connections scores of dog owners.

MATERIALS AND METHODS

In this particular investigation, PRISMA, the guidelines were followed. These therapeutic benefits are important for elderly people who can have problems like arthritis or decreased mobility. Overall physical fitness increases as a result of the horse's gentle motion, which helps tone muscles and encourage the solidity of the core. PubMed and Google Scholar were the database websites utilized to collect articles for the systematic assessment. The search queries that were utilized were pain, hippo-therapy, horseback riding, horse riding, or equine-assisted riding. The papers were added to the evaluation after meeting the eligibility parameters. The research was a controlled experiment. Once the duplicate reports were removed by removing the things that were not written in English, 200 potentially acceptable reports were discovered. 93 articles were eliminated for various reasons. After analyzing the abstract and title of the publications, the majority were eliminated because they had nothing to do with the purpose of the systematic evaluation. Some articles required a thorough screening process to guarantee that all inclusion and exclusion requirements were satisfied. A total of twenty five were finally discovered in the database, consisting of seven controlled studies and four uncontrolled trials as shown in Figure (2).

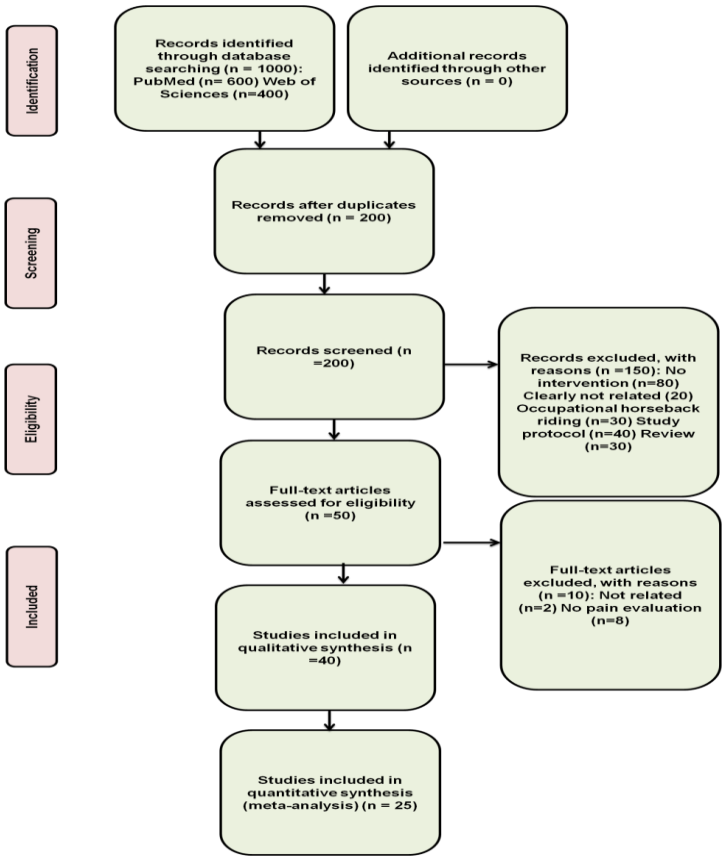

Figure (2). Flow of PRISMA (Source: Author)

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STATISTICAL ANALYSIS

Meta-analyses utilizing after-intervention measures and the included reports' baseline differences can have an impact on the findings project tool used to analyze the uncontrolled study (18). The meta-analysis employed both change-from-baseline and after-intervention measures to verify the findings and lessen the impact of those variations. The outcomes of the control group were compared with the average and standard deviations of the pain scores from the collective of automated horse simulators of the activities (19). The variability of the outcomes, the inverse variability and random-effects approaches were used for the analyses. Given that the VAS and NPRS were two of the levels utilized to measure pain, standardized mean difference (SMD) was used. The SMD results were interpreted using the Cochrane Handbook, which classified the results as minor significant consequences > 0.8, moderate impacts between 0.5 as well as 0.8 and effects score less than 0.5 (20-22). The analytical methodology was utilized to identify variability and present the findings with a 98% confidence interval (CI).

RESULTS

Bias Factor

The evaluation of an included control experiment's risk of bias was displayed in Table (1). It exceeded the requirements for participant representativeness and research design, with the exception that requires the selection of subjects at random for evaluation. In the most contemporary examination, the baseline back pain score was 1.50 for the baseline group, although the initial score was 4.37 for the EAT category.

Table (1). Assessing biased risk using the Evidence Project tool

(Source: Author)

Study	Equivalence of Comparative Units			Comparative Units			Representativeness		Total Score
	Part 1	part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	
Horse riding simulator studies									
Ref.no (23)	True			True			True		8/6
Ref.no (24)	False			True			False		6/8
Ref.no (25)	False			False			True		8/7
Real horse studies									
Ref.no (26)	True			True			False		
Ref.no (27)	True			False			False		6/5
Ref.no (28)	False			True			True		5/6

Under supervision, the group under control's members all received scores of 1.00 with a 0.00 standard deviation. The outcomes of the uncontrolled examinations that are included are analyzed in Table (2). The absence of a control group resulted in insufficient and unnecessary assessments. The outcomes of the control group were compared with

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Table (2). Utilizing the evidence project tool to analyze the uncontrolled study

(Source: Author)

Study	**Equivalence of Comparison Groups**			**Study Design**			**Participant Representativeness**		**Total Score**
	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8	
Actual equine research									
Ref.no (29)	True			False			False		6/3
Ref.no (30)	True			True			False		6/3
Ref.no (31)	True			False			False		6/2

Research Qualities

Table (3) displays the research method and initial participant characteristics for the articles with a control group. Each of these investigations was a randomized controlled assessment. In the experiments that examined the effects of EAT, 78 persons with the illness or arthritis participated. In the ten experiments that used horse riding simulators, 232 patients with LBP were involved. The participants were more aged in the actual horse investigations (average or median age >50) than in the simulator research (average or median age <30 in 4 of the five investigations included and ≈46 in the other one).

Table (3). Explanation of the activities

(Source: Author)

Study	**Design**	**Intervention**	**Participants**	**Outcomes**
Ref.no (32)	Planning of single-subject explore (SSED), type A-B-A	Ten thirty-minute therapeutic riding sessions per week. The workouts in the sessions included riding without using a visual aid and rotating the trunk or	40 participants (9 female) with the disease, ages 47.9 (8.4)	Regarding the treatment, three patients who had earlier experienced discomfort reported some degree of pain alleviation

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		balancing components.		
Ref.no (33)	Case report	The horse was brought and placed back from the barn or pasture, saddled, touched and mounted during an hour-long hippo-therapy treatment. In addition, the rider varied the horse's direction and speed while performing stretches and strengthening exercises.	The activities of an hour-long training session included picking up and dropping off strengthening drills while varying speeds and orientations.	The patient indicated that after receiving cognitive treatment, their neck and lower back discomfort has lessened.
Ref.no (34)	Through investigation, the examiner took any study-related deviations into consideration.	An average of 3.5 months passed during the course of treatment. The treatments varied in length from 5 to 45 minutes, with a range of 2 to 32 minutes. Based on the patient's current riding abilities and functional limitations, goals were set. Body awareness was stressed while riding horses during the sessions.	The course of therapy lasted for an average of 3.5 weeks. The duration of the treatments ranged from 5 to 45 minutes, with a range of 2 to 32. Objectives were established based on the patient's present riding abilities and functional limitations. During the training, body awareness was emphasized while riding a horse.	A group of four withdrew because of growing discomfort or terror. The results showed promise but were incongruent, with some patients reporting more pain and others reporting less

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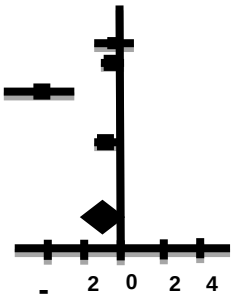
Ref.no (35)	Case study	45-minute weekly sessions for ten weeks. The therapy sessions involved the patient riding a horse at various speeds under the guidance of a counselor.	45-minute classes per week for ten weeks. During the sessions, a therapist would lead the patient on horseback rides at varying speeds.	a decrease in back pain from 5 to 1-2/10

Comparative groups and interventions

The explanation of the therapies used in the controlled experiments is displayed in Table (4). The two studies involving real horses used EAT as the basis for their interventions, which included riding, giving the horse various tasks to perform including grooming and caring for the horse. Thus, in addition to riding, the latest research involved some exercises meant to strengthen the relationship between the rider and the horse.

Table (4). Outcomes of discomfort following treatment

(Source: Author)

Study	Mean	Experimental	Total	Control				Mean Difference Standard	M. SD
Ref.no (34)		SD		M	Standard deviation	All	Weight	insufficient, 96%CI	insufficient, 96%CI
Ref.no (35)	23.7	17.25	10	22.55	7.77	9	10.0%	0.01 [-0.89, 0.91]	
Ref.no (36)	1.28	0.9	24	1.64	1.57	24	30.0%	0.28 [-0.85, 0.28]	
Ref.no (37)	1.12	0.11	9	3.8	0.87	9	20.0%	-4.13 [-5.92, -2.35]	
Ref.no (38)	17.2	8.66	40	21.84	8.54	40	40.0%	-0.65 [-1.10, -0.20]	
Ref.no (39)	2.23	2.15	24	1	0	23		Not estimable	
			107			105	100.0%	-0.89 [-1.81, 0.03]	

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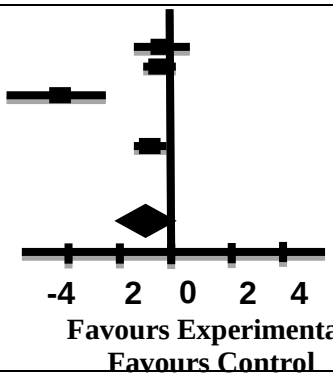
In the included research, the comparison groups differed. Control groups that owned actual horses either continued their prior therapy or received education in exercise and arthritis. Three research studies included a type of physical therapy and two investigations included an unused control group that received regular treatment. Table (5) shows the outcomes of pain that differ from baseline. These investigations involved simulators. Two meta-analyses were performed in relation to the horse simulator-based therapies. Articles in this category can have been selected based on the pain levels following the intervention.

Table (5). Outcome of pain that differs from baseline

(Source: Author)

Study		Experimental		Control	Experiment			Std. Mean Difference	Std. Mean Difference
Ref.no (40)	Mean	Standard deviation	All	M	Standard deviation	All	Weight	insignificant, 96%	insignificant, 96%
Ref.no (41)	-26.4	13.09	10	-21.11	3.33	9	60.5%	0.52 [-1.44, 0.40]	
Ref.no (42)	50.44	12.71	24	16.17	10.251	9	39.5%	-6.17 [-8.64, -3.71]	

The randomized controlled experiments included were one action research, two instance investigations and one single-subject experiment. These investigations had participants in all and the authors found positive results with pain decreasing during EAT treatments.

DISCUSSION

Assessing the aforementioned meta-analysis and systematic review sought to determine how riding horses, whether actual or trained, affected pain. The principal finding indicated that LBP patients could find it helpful to utilize equine-controlling models as a means of reducing their discomfort. Despite the fact that all of the studies included were randomized controlled trials, there is a great deal of heterogeneity, a small number of studies and a possibility for bias. Therefore, interpretation of the data must be done very carefully. In terms of EAT research, one of the considered publications showed between-group distinctions, while the other studies that were included had encouraging findings based on within-group or within-subject analysis. Despite being encouraging, there is little proof that EAT reduces pain and some contradicting results have been seen. Because horse-riding simulators can produce a similar sequence of stimuli that might cause particular postural reactions, they have become a popular substitute for actual horseback riding. It should be mentioned that this kind of treatment can have some benefits, such as lower expenses, because maintaining the equipment is less expensive than taking care of and training the

horses. The majority of the technique facilities are located outside of metropolitan areas since the facilities required to conduct the sessions with actual horses must be significantly greater. The fact that chronic pain is a biological illness, real-horse-based treatments was anticipated to yield more benefits than simulations for riding horses. This is because EAT has been shown to have good impacts on a variety of psychological factors, including autonomy, self-esteem and the capacity for self-regulation. It has been shown to improve emotional wellness as well as provide social advantages that are linked to the relationship between a rider and a horse.

CONCLUSION

To the best of our knowledge, this is the first thorough study and meta-analysis evaluating riding a horse affects one's degree of discomfort. A large SMD was obtained, showing promising findings and possible processes were examined. To investigate the impacts of EAT when using riding simulators, more study is needed. The results of the study add to the body of knowledge on interactions between humans and animals as well as the increasing body of data supporting the advantages of EAT for adult arthritics. Due to the small sample size, lack of sample variety and longitudinal assessment to determine the potential duration of EAT's beneficial effects, the important exploratory data presented here should be regarded with caution. Prospective investigations have to encompass extensive multi-center studies and a broader range of samples. The EAT science and future research designs would benefit from an examination of various dosages and riding durations. To determine whether or not it would be an effective therapy for clinical usage and third-party insurance payment, a cost-benefit analysis research would be helpful.

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