



Contributions of Equine Therapy after Stroke

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Abstract

Introduction: Cerebral Vascular Accident (CVA) is an injury to the central nervous system that occurs due to a lack of tissue oxygenation due to congestion (ischemic) or vascular disruption (hemorrhagic) in a certain location of the brain. Stroke has been a considerable factor in disability, functional limitations or even death throughout the world.

Objective: To investigate and describe the contributions of hippotherapy in patients undergoing this intervention after suffering a stroke.

Methods: This study is designed as an integrative literature review. The electronic search was carried out through scientific databases: Scientific Electronic Library Online (Sicelo), US National Library of Medicine National Institutes of Health (PubMed), Latin American and Caribbean Literature (Lilacs) and Cochrane Library, accessed by Capes Periodicals (CAFe), from September to November 2023.

Results: This research consisted of 110 articles, of which 6 articles valid for this review were maintained after selection, remaining as they met the determined inclusion and exclusion criteria.

Conclusion: The hippotherapy method provides several benefits to practitioners, such as improving static and dynamic functional balance, gait performance, mobility, body posture, motor coordination, autonomy of movement, breathing, spatial and temporal orientation, verbal communication, relationships, improves sleep, attention, emotional control, self-esteem, communication and participation.

Keywords: Elderly; Postural Balance; Stroke; Horse-Assisted Therapy; Hippotherapy

Abbreviations

CVA: Cerebrovascular Accident;

Introduction

Cerebrovascular accident (CVA) is an injury to the central nervous system that occurs due to a lack of tissue

oxygenation due to congestion (ischemic) or vascular rupture (hemorrhagic) in a certain location of the brain. Stroke has been a considerable factor in disability, functional limitations or even death throughout the world [1]. Stroke is defined as a cerebrovascular disease that leads to neurological and/or motor loss secondary to a brain injury, which can lead to hemiparesis or hemiplegia on the side opposite to the injury, currently being among the conditions



that afflict the population and becoming one of the biggest causes of momentary and permanent disabilities or death in the world. The majority of the population affected by stroke has limitations in functionality and verbal communication, thus having difficulties in activities of daily living and also in participation activities [2]. Among the dysfunctions caused by stroke are motor changes, limitations in mobility, balance, cognition and posture, these postural changes exhibit flexed head and trunk, both in orthostasis as sitting. Since postural alignment is altered regarding trunk control and functional postural balance, and changes in balance are linked to changes in postural reactions and abnormal muscle synergies, therefore physiotherapy aims to improve the mobility of the lower trunk in the chronic stage after stroke [1].

In addition to conventional physiotherapeutic treatment, there are some other innovative therapies and therapeutic methods, including equine therapy, whose objective is to provide physical-motor, social and emotional benefits to practitioners (those who practice equine therapy) [3].

Equine therapy aims to improve functionality, with emphasis on those functions impaired in practitioners by the pathology that came to affect them. Since this demonstrates benefits on balance, trunk strength, weight displacement, motor planning, strength and general resistance, it also improves pelvic movements, due to the three-dimensional movement of the horse during gait, which resembles movements in human gait, in addition of these effects, advantages have been reported in gross motor function and balance. Hippotherapy has been used with these benefits in mind, and can be used in conjunction with conventional physiotherapy to demonstrate its functional benefits to varying degrees [4].

Methods

This is an integrative review, which was chosen as a method of the knowledge process about the topic in question, with the integrative review being an extremely important tool for identifying gaps in the areas of study. Carrying out this study was divided into stages, which were: Identification of the topic, the guiding research question, establishment of search and information extraction strategies, elaboration of inclusion and exclusion criteria for studies, critical analysis of the added studies in research, interpretation of results and synthesis of knowledge. As a search strategy, a bibliographic investigation was carried out between September and November 2023, through electronic searches in databases, including PubMed, Scientific Electronic Library Online (SciELO), LILAC, accessed by CAFE (CAPES journals) and Cochrane Library. The Health Sciences Descriptors (DECS), represented in Table 1, in English and Portuguese were used in the searches, with Boolean operators (OR and AND)

using the following combinations: (elderly) AND (stroke) OR (hemorrhagic stroke) AND (postural balance) AND (equine-assisted therapy) OR (equine -assisted); including in the searches only articles published between 2018 and 2023.

Descriptors	Portuguese	English
	Elderly	Elderly
	Brain stroke	Strok -hemorrhagic stroke
	Postural balance	Postural balance
	Horse-Assisted Therapy	Equine-assisted therapy
	Hippotherapy	Equine-assisted

Table 1: Descriptors used in the search:

Results

This research was composed of 110 articles, with 6 articles valid for this review being kept after selection, illustrated in table 1. The 6 articles remained because they met the inclusion and exclusion criteria previously determined, being appropriate to the theme investigated, being the objective of this study is to analyze and list the effects described in these studies, regardless of whether it is pure hippotherapy or in conjunction with conventional hippotherapy or others.

Discussion

This integrative review aimed to investigate and describe the contributions of hippotherapy in patients undergoing this intervention after suffering a stroke. The research reveals that there are few studies on the theme of hippotherapy in individuals with stroke, however, during the analysis, all studies were favorable to hippotherapy, four of the six articles observed an improvement in functional balance and in three of them they cited an improvement in autonomy of movement. and in aspects of relationships, communication and participation, the other articles bring findings such as improved self-esteem, emotions, posture, gait, mobility, coordination and improved sleep, among others.

In the study by Lovrić, et al. [5], parents' perceptions about changes in the basic life needs of children with disabilities after six months of therapeutic riding, with 11 of the 14 children included in the study only registering positive changes and only two not registering no changes. Lasting six months and weekly classes, parents' descriptions were collected on forms about noticeable changes in basic needs and explorations about the why these changes occurred, applying the triangulation method to abolish biases in the analysis. Of the positive changes mentioned, most

children, according to their parents' reports, improved their relationship and communication criteria, such as emotions, fears, moods and opinions. Most reported improvement in the mobility of the wrist and leg joints, another part cited improvement in movement, posture, coordination of movements and more autonomy in these movements, increased appetite and fluid intake, easier breathing during the day, without the presence of rapid breathing at rest, breathing more calmly during sleep, increased interest in playing with other people, more frequent hygiene practices and also greater independence in the act of dressing.

In the study by Matarazzo and Freitas [6] investigated the perception of professionals about the benefits and challenges in equine therapy, among the benefits highlighted are advances in balance, self-esteem and socialization, the latter being the most reported. In this report, he reports on the challenges that arise when developing this practice, which fall into physical, psychological aspects and the place of care (structure and displacement), among which are motor limitations of practitioners, insecurity of the elderly when riding the horse or performing exercises on it, in addition to the prejudice/acceptance obstacle.

According to Wieczorek, et al. [7] in their study with children with spastic diplegia and hemiplegia, it was evidenced that more than half of the children obtained important positive changes in body posture, these were observed in the position of the head, control and arm function, in the level I group as per the Gross Motor Function Classification (GMFCS) and improvement in trunk control in the level II group, showing that advances in children with hemiplegia and in groups of younger practitioners are more constant.

Bunketorp -Käll, et al. [8] in their clinical trial cites capacity and sustained improvement in short and speed walking capacity, also obtaining better functional motor performance, in the static/dynamic aspects and functional balance capacity.

In a prospective controlled study, between an active group comprising one or more interventions per week and a passive group. In this study, the active group achieved significant improvement in function, activities and participation, thus improving the performance of their daily occupations. In this, among the positive health benefits, there are greater autonomy, self-esteem, joy, self-esteem, pleasure in carrying out daily activities, improvement in sleep quality, balance and energy, according to the participants it is as if they adhere to a new identity [9].

According to research by Fisher, et al. [10] the benefits were evidenced mainly 3 months after treatment and also

during follow-up, demonstrating clinically considerable changes, seen after neuroimaging studies, important results in the functional connectivity of the caudate and a decrease in the gray matter density of the thalamus and caudate after the treatment. The first positive was associated with clinical improvement in post-treatment and 3-month follow-up. Higher basal functional connectivity was linked to a decrease in post-traumatic stress symptoms, suggesting that EAT also focuses on the response of reward circuits [11,12].

Conclusion

In the analysis of the studies collected, it was concluded that the hippotherapy method provides several benefits to practitioners, which has been shown to improve static and dynamic functional balance, gait performance, mobility, body posture, motor coordination, autonomy of movements, breathing, spatial and temporal orientation, verbal communication, relationships, improved sleep, attention, emotional control, self-esteem, communication and participation.

However, during the investigation it became clear that this practice is still subject to many obstacles, in addition to the barrier of prejudice, also the lack of information and training of specialized teams, and even more comprehensive equine therapy centers for all ages, mainly focusing on in practice with the elderly and that does not prioritize only the first phases of development.

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