

Hippotherapy and cerebral palsy



Intervention Analysis

Background

Jane Walters is a five year old girl and has a diagnosis of left sided spastic hemiplegia, a form of Cerebral Palsy. Jane has two older sisters who attend horse riding lessons at their local stables. Jane has recently expressed an interest in joining them to her parents. However her parents are worried that because of her diagnosis she will not be able to keep up with her siblings. However Jane is very independent child and she doesn't believe that she is any different from other children of her age.

Diagnosis

Cerebral Palsy (CP) refers to non-progressive conditions characterised by impaired voluntary movement or posture, and resulting from prenatal developmental malformations or postnatal CNS damage (Reed, 2013, pp. 38-47).

According to the National Institute of Neurological Disorders and Stroke (2008), it is highly likely that a child with CP will have other medical disorders such as; cognitive impairments, seizures, delayed growth and development. Spastic syndromes such as Jane's occur in more than 70 percent of CP cases.

Spastic hemiplegia is a type of CP that typically affects the arm and hand on one side of the body, but can also include the leg. . The spasticity creates a state of resistance against any range of motion, this resistance ultimately increases with increasing speed of that movement (Reed, 2013, pp. 38-47).

Children with spastic hemiplegia will generally walk later and on tiptoe because of high heel tendons. Often the arm and leg on the child's affected side are shorter and thinner (National Institute of Neurological Disorders and Stroke 2008).

Impact of Right Hemisphere Brain Damage

The primary cause of CP is damage to white matter of the brain this is often caused by abnormal brain development, a bleed on the brain, or brain damage caused by a lack of oxygen in the brain, generally caused by a difficult birth.

Jane has left sided spastic hemiplegia, indicating that damage to the brain has occurred on the right hemisphere. It was felt important to consider additional complications related to right sided brain damage to ensure we are aware of Ellie's level of functioning physically, cognitively and behaviourally. Those that may relate to Ellie's case are listed below, however, it is important to recognise that each case must be treated individually; the symptoms and severity will vary for each individual.

Attention	Difficulty concentrating on a task or focusing on what is said or seen
Perception	Visual perception deficits causing a person to have difficulty perceiving or processing any information on the left visual field (left-sided neglect). For example, individuals with right hemisphere damage may have difficulty reading words on the left side of a page, eating food on the left side of a plate, or acknowledging the left side of their body

Reasoning and Difficulty identifying that there is a problem and generating solutions

problem

solving:

Memory:	Difficulty recalling previously learned information and learning new information.
Social communication	Difficulty interpreting abstract language such as metaphors, making inferences, and understanding jokes; and problems understanding nonverbal cues and following the rules of communication
Organisation:	Difficulty with systematically arranging information and planning, which is often reflected in communication difficulties, such as trouble telling stories with events in the right order, maintaining a topic during conversations
Insight	Difficulty recognizing problems and the impact on daily functioning.
Orientation:	Difficulty recalling the date, time, or place. The individual may also be disoriented to self (ASHA 2014).

Medical Considerations for Therapeutic Riding

People with cerebral palsy have difficulty coordinating and producing purposeful, functional movements. Some people have too much muscle tone, such as those with spasticity. Their muscles hold their limbs in rather stiff postures and it is difficult to relax these muscles. Thus, the rider cannot move his limbs easily except in the direction the spastic muscles pull. Other types of tone abnormalities include fluctuating tone, as seen in athetoid cerebral palsy and hypotonia, or too little tone.

Tone is an elusive thing to quantify. Using treatment techniques to temporarily make tone more normal does not suddenly result in normal, coordinated movement patterns. In fact, increased tone may be the result of pathologic weaknesses in other muscle groups coupled with the normal human desire to move. Muscle fibers are known to change over time, resulting in increasing, age-related difficulty in maintaining posture. It may be true that abnormal tone, especially spasticity, is an abnormal response to normal sensation, such as touch and movement sensation.

Orthopedic problems occur in people with cerebral palsy, perhaps partly because of the interaction of the abnormal neurologic system with the muscles, joints and soft tissues. The abnormal, usually asymmetrical pull of spastic muscles coupled with lack of normal movement and weightbearing can result in progressive scoliosis and dislocating hips. Other joints, such as wrists, elbows, knees and ankles, can lose flexibility and range of motion.

Despite these factors, the rhythmic motion, shape, warmth and inherently motivating quality of the horse can be helpful to people with cerebral palsy throughout their lives. Therapeutic riding can facilitate cognitive and sensorimotor development in childhood, help develop a sense of responsibility, self-confidence and fair play in adolescence and provide life-long recreation and sport. It can do all this while stimulating the good posture, balance and flexibility needed for functional independence off the horse.

Riding works best for maintaining range of motion and joint flexibility if a well-aligned, correct posture on the horse is always a goal. There is no

substitute for a horse with good, symmetric movement. Many riders with cerebral palsy can achieve normal balance, posture and movement on a horse if the instructor takes a long, slow approach, focusing on posture and alignment. These are not “therapy” goals. Good posture, hands-free balance and a “following seat” are prerequisites to riding with ease and comfort for the rider and the horse.

Riding sessions for people with cerebral palsy should never result in increased tone and discomfort. Ask the rider (family member or personal care assistant) how he feels after the session, when he's at home. Are the muscles relaxed or tight? If spasticity is worse after the session, decrease the amount of stimulation. Focus on less impulsion, more stretching and relaxation, more straight-line work and fewer circles. Use a horse with a wider base and a smoother walk. Offer an opportunity to sit and rest after dismounting. Try a saddle with a suede or synthetic cover so the rider's seat and legs will stick to the saddle better, which will increase his stability and decrease stress.

Recent articles by Ruth DismukeBlakely, SLP/CCC, in AHA News and NARHA News, indicate that the movement of the horse in hippotherapy sessions can increase the quantity, quality and volume of vocalization in the rider. For children with cerebral palsy, the horse is a wonderful motivation for speech, while the horse's movement can improve the coordination of breathing, swallowing and sound production. The horse naturally motivates children with cerebral palsy to move, explore and touch. Using the horse as a large, gentle, rhythmic and predictably moving gross-motor platform, where the child is invited and assisted to explore, can be even more useful than

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learning to ride. Instructors can encourage movement and hopefully “disconnect” it from the fear of failure. The result is self-confidence and courage on and off the horse.

The rider with cerebral palsy benefits from advance preparation in many areas. Stretching before getting on the horse, as recommended by a physical therapist, can reduce the warm-up time on the horse. When practicing walk-halt transitions, the instructor or therapist can use: “Prepare to walk”, “Prepare to halt”, “Get ready to whoa.” These preparatory phrases allow the rider to prepare or “set” the posture needed to accomplish the task.

If the rider has decreased or asymmetric range of motion at the hips and knees, select the horse that accommodates the problem so the rider can sit easily in good alignment without being pulled to one side. If the hip is partially dislocated (subluxed), the type of horse is essential. The lack of range of motion, spasticity, the horse’s natural shape and movement can all potentially worsen the subluxation. In general, the rider with cerebral palsy who has orthopedic problems at the hips or spine may benefit greatly from consultation with a physical therapist who can assist the instructor in creating an appropriate riding program.

-Liz Baker, PT, NARHA Medical Committee Chairman

<http://www.cpparent.org/hippotherapy/articles/cp.htm>

Bissell, C. 2015. Cerebral Palsy and Therapeutic Riding [Online]. Available at: <http://www.cpparent.org/hippotherapy/articles/cp.htm> [Accessed: 29 April 2015].

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Hippotherapy

Hippotherapy is a form of physical, occupational and speech therapy that uses equine (horse) movement to develop and enhance neurological and physical functioning by channelling the movement of the horse.

Hippotherapy is built on the concept that the individual's neuromuscular development is enhanced when their body makes adjustments to the gait, tempo, rhythm, repetition and cadence of a horse's movement.

What is hippotherapy?

In today's world, children with cerebral palsy often benefit from several traditional treatments and therapies designed to greatly enhance his or her abilities, and by extension, his or her quality of life. Some therapies - such as physical therapy - are commonly deployed for those with mobility and function impairment. But others, like equine therapy - also known as hippotherapy - take an unconventional path in the effort to increase a child's physical strength and cognitive capabilities.

Based on the concept that humans with physical challenges can benefit from both learned and spontaneous reactions while riding a horse, hippotherapy was conceived in the 1960s and used primarily in Germany, Austria, and Switzerland as a companion to more established treatments. Hippotherapy was recognized in the United States in the 1980s as a therapy that not only helps patients with neuromuscular dysfunction increase physical strength and cognitive ability, but also offers the individual a chance to take advantage of an enjoyable activity that contributes to a positive therapeutic experience.

Hippotherapy is a form of physical, occupational and speech therapy that uses equine movement to develop and enhance neurological and physical functioning by channeling the movement of the horse. Hippotherapy is not to be confused with therapeutic horseback riding, in which individuals are taught specific riding skills.

Hippotherapy is built on the concept that the individual and variable gait, tempo, rhythm, repetition and cadence of a horse's movement can influence human neuromuscular development in humans. Horseback riding triggers a series of complex physical and mental reactions; such as making physical adjustments to maintain proper alignment on the horse. Riders must also plan movements to maintain balance on the horse, and be able to interact with the animal.

Hippotherapy, through equine movement, works by further developing physical and cognitive abilities, including:

- Strength
- Control
- Balance
- Posture
- Endurance
- Coordination
- Sensory integration
- Understanding of visual cues

What are the benefits of hippotherapy?

Hippotherapy can help children with cerebral palsy on several fronts. Interacting with the animal can lift a child's spirits emotionally and psychologically while also providing valuable physical exercise as the child learns how to ride the horse properly. A horse's gait has three-dimensional movement—equine movement—similar to a human that helps a child plan physical responses to the horse's movement. Horseback riding requires subtle adjustments and positioning to maintain proper balance and posture.

Physical benefits include:

- Improved gross motor skills
- Trunk core strength
- Control of extremities
- Improved postural symmetry
- Reduced abnormal muscle tone
- Respiratory control
- Cognitive benefits include:
 - Improved attention
 - Visual coordination
 - Sensory input
 - Tactile response
 - Improved timing and grading of responses
 - Improved ability to express thoughts, needs
- Psychological benefits include:
 - Enjoyable interactions with the animal
 - Opportunities for social interaction
 - Improved self-esteem

When is hippotherapy advised?

There is no specific age, or point in a child's therapy, that dictates when or if a child would benefit from hippotherapy. Children as young as two years old, and teens, have benefitted significantly from hippotherapy.

The decision to employ hippotherapy will be based on several factors, including whether a child's specific physical and cognitive challenges could be improved by this therapy, and whether mitigating physical and cognitive conditions exist that would preclude a child's interaction with a horse.

Because it is not likely to be among a child's core therapies, hippotherapy is unlikely to be covered by many medical insurance plans.

How is hippotherapy performed?

A successful hippotherapy program incorporates the multi-dimensional movement of a horse with that of a human. The therapist will likely begin any course of treatment with an assessment of the child's physical, cognitive and psychological abilities to gauge whether hippotherapy is appropriate for a child, and what accommodations should be made if a child cannot sit on the horse in a conventional manner.

Once a therapist has determined that hippotherapy is appropriate for a child, he or she will explain how sessions will unfold. Additionally, a child and his or her parents will also be given detailed instructions regarding how to physically interact with the horse, including:

- How to safely mount and dismount a horse
- How to utilize equipment, such as saddles

- What to expect regarding the horse movement

After a child mounts the horse, it is the therapist's job to strictly monitor and control the horse while the child is riding horseback. The therapist will walk alongside the horse to direct equine movement and modify movement in a way that is safe for the child. As the therapist monitors the horse, he or she is also monitoring the child to watch for changing physical reactions such as balance, control, strength and range of motion skills.

Changes in physical reactions from the child are considered positive because when a child responds naturally to shifts in gait from the horse, it not only builds physical strength, but also vital connectivity in the brain.

Because hippotherapy is practiced by physical, occupational and speech and language therapists, activities and goals in therapy may vary. Physical therapists tend to focus on improving gross motor skills, balance, and strength; occupational therapists focus on sensory processing, vestibular and proprioceptive issues, and speech therapists focus on communication

Therapists will monitor the progress of a child, and make modifications to the child's plan of treatment as needed.

Where is hippotherapy performed?

Hippotherapy generally takes place at specialized institutions, generally in a horse-farm setting. Because the children will eventually ride the horses, and they are encouraged to interact with the animals, special attention is paid to ensuring the environment is stress-free, friendly, and supportive for children and their families.

Some programs are dedicated entirely to providing hippotherapy programs all year to the exclusion of other activities, and others will have occasional or seasonal programming during certain times of the year. Regionally, it can be challenging to find nearby programs because many horse farms are located in rural communities.

Who provides hippotherapy?

Those who practice hippotherapy are most often physical, occupational or speech and language therapists, and have met the rigorous educational and certification requirements to practice within those disciplines. See physical therapist, occupational therapist, and speech and language pathologists. In some cases, a hippotherapy practitioner may work closely with a professional horse trainer.

The American Hippotherapy Association offers a multi-level educational program that aims to educate aspiring practitioners with a foundation of knowledge regarding how to work with both patients and horses.

Certification in hippotherapy is open to physical, occupational and speech therapists that have practiced for three years in their field, and 100 hours of hippotherapy, through the AHA. Hippotherapy Clinical Specialty Certification can be obtained after the applicant sits for the HPCS examination. More information can be obtained at the AHA's website, which also includes a list of hippotherapy educators and certified practitioners.

The AHA's educational and certification program addresses several concepts, including:

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- Physical attributes of the horse
- Tacking and untacking of the horse
- Natural gait of the horse
- Unsoundness of horse movement
- Links between horse and human movement
- Emergency procedures and safety practices
- Selecting appropriate exercises
- Treatment plan effectiveness
- Creating quality and beneficial movements
- Relationship between treatment and functional outcomes

HPCS certification is valid for five years; practitioners must then undergo a re-certification process. During this process, applicants must either retake the HPCS examination, or provide written evidence of 120 hours in additional coursework. Fifty percent of the work must be hippotherapy-based, 25 percent must be related to hippotherapy, and 25 percent must be related to the applicant's professional discipline.

Hippotherapy practitioners, depending on their professions, may utilize equine movement in different ways. Physical therapists may focus on cultivating strength and balance in large muscles of the core, legs and arms; occupational therapists may focus on fine motor skills, cognitive functioning and sensory integration as it relates to everyday activities; and speech pathologists may focus on communication strategies that support speech and language, signing or other modes of communication.

<http://cerebralpalsy.org/>

<http://cerebralpalsy.org/about-cerebral-palsy/treatment/therapy/hippotherapy/>

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