

Hippotherapy: developing motor and communication skills

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Hippotherapy involves use of horse riding as rehabilitative treatment. It's an effective, enjoyable therapeutic activity for various groups with various disorders [1-3] – including those with Rett syndrome. The pleasant, motivating therapy sessions help people maintain focus and prolong endurance. This increases opportunities for learning and for developing motor and communication skills. Physical contact with horses plays a key role in hippo therapeutic sessions.

Prior to commencing hippotherapy, always account for individual needs and then develop appropriate therapeutic goals and an individual program with selected exercises. After therapy starts, follow-up and evaluate individually tailored intervention programs regularly, and adjust, as necessary.

Horses and hippotherapy

Base the horse selection on these traits:

- *Steady, calm temperament* – to accept riders' divergent movements and behaviours and the presence of various aids.
- *Patience and dependability* – to ensure that they don't move during mounting and dismounting.
- *A good match between horse size and rider size* - to avoid (i) pain due to horses' backs being too wide or (ii) instability due to horses' backs being too narrow.
- *Smooth, steady, rhythmical movements in walking and trotting* – to make it easier to stay on the horse.

Some horses have an exceptional ability to adapt to various situations, which makes them great therapists.

Balance and posture

A horse generates 1,000 three-dimensional movements in 10 minutes of walking [4].

Ensure that all key stakeholders (e.g., horse handlers and family members) understand that the riders must actively *absorb these movements to remain balanced on the horse's back*. Forward and backward rotational movements of the horse's pelvis are transmitted to riders as pelvic rotations, which help riders remain facing forward. Up and down movements of the horse's back are transmitted to riders as lateral movements of the spine to prevent falling sideways. To stay in sync with movements – to prevent falling backward or forward – acceleration and deceleration inherent in a horse's gait pattern must be absorbed in the riders' hips and spine. These responses are the same as those required in normal walking.

Riders sit on a moving base – yet the base is moving on the earth's surface. Equilibrium reactions are automatically activated by starting and stopping and changing direction and speed. For riders

with poor muscle tone, these reactions strengthen and tighten muscles. Sitting astride horses enlarges riders' sitting bases, which enables postural control – and increases potential for a symmetric sitting position, which in turn, enhances symmetrical muscle activity in the core. Taken together, these benefits might delay spine deformity development such as scoliosis.

Equipment and implementation

Sitting on a pad fitted with a girth allows the horse's warm temperature to be transmitted to the rider's skin; in this case, stronger input from horseback movements to a rider's pelvic floor occurs – compared to sitting on a saddle. The warmth and rotational effect on the pelvis may have a relaxing effect on tense muscles in riders' legs (although tension in the legs may increase if stirrups are used).

For safety and security:

Always use an equestrian helmet. Use walking belts around riders' waists if their balance is poor. That way, handlers/assistants can support riders.

Ensure that someone, who is skilled in evaluating horses' behaviours and riders' varying capabilities, provides the hippotherapy – so that demands on horses and riders are reasonable.

Extensive sensory input

The brain's thalamus filters a stream of sensory information and selects information that's relevant for a task [5]. In Rett syndrome, the necessary discriminatory function is often reduced. Sensory input (that is irrelevant in relation to a task) is not suppressed; this results in hyperactive responses that affect execution of that task.

During hippotherapy, sensory input from receptors in the skin, joints, muscles, eyes, ears and nose are transmitted in an understandable context and are thus easier to integrate. Extensive sensory input may increase wakefulness and the attention span, which in turn facilitates endurance and opportunities to learn and develop.

Communication

Besides learning and practising motor skills, hippotherapy improves communication skills.

Ensure that all stakeholders understand that through music, pictures and practice, riders can increase their attention spans and learn to initiate horse movements using eye pointing, verbal sounds and body movements. For example, riders repeatedly put the horses in walk *when music starts playing* - and stand still *when music stops* (horse and rider expectations are easier to recognize when tasks are repeated/practiced).

Results of riders' actions are experienced in riders' bodies via horses' movements, so the connection between cause and effect is clearer. Use pictures and eye pointing in various ways during hippotherapy sessions.

Therapeutic goals and exercises

Riders' ability to develop their potential depends on (i) a thorough assessment of body structure and functional motor and communication skills and (ii) appropriate therapeutic goals such as *improve* posture, balance and communication skills; *regulate* muscle tone; *reduce* hand stereotypies; and *increase* hand use.

Predictable situations, routines and structure before and during hippotherapy sessions facilitate positive experiences and prevent unnecessary anxiety – as does clear, concise, consistent communication between riders and handlers. In preparation for a session:

- Show riders pictures (at home) of a horse or a helmet.
- Change to special riding clothes.
- Arrange attractive toys/objects on a tray.
- Apply a brace that supports the elbow to diminish hand stereotypies – if necessary.
- Arrange various stations in the ring to offer riders tasks of varying degrees of difficulty. For example, set out several cones in slalom positions (alter the narrowness – depending on the rider's balancing skills). Build a t-shaped crossroad with fence barriers.

Follow a predictable structure during sessions: consistently demonstrate a clear start, use the same types of exercises, and demonstrate a clear conclusion.

Encourage hand function development: hand stereotypies might be lessened if riders' hands are assisted when clasping around the girth's firm handles or when holding the reins. Show attractive toys/objects on a tray and use eye pointing to encourage riders to choose an object, reach for it, and grasp it. Encourage riders to pat/stroke the horses – to motivate voluntary hand movements and to feel the horses' warm skin.

If you set up a crossroad, ask the handler to lead the horse into the crossroad and stop there. Then encourage the rider to choose to turn right or left via eye pointing. Note that trotting offers an experience of speed, which experiences has shown to delight some individuals.

References

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