

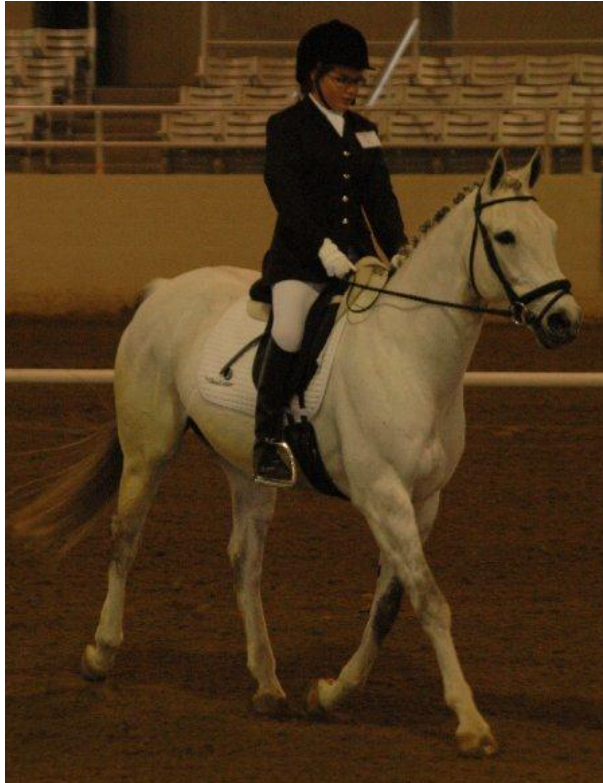
Clinical Implications of Hippotherapy

Bonnie Lutz, SPT, CSCS
Chapman University
August 2, 2010

About Hippotherapy

Why, who, what, when, how?

Why a horse?¹⁻⁷



▶ Movement

- ▶ Affects posture, balance, mobility, and overall function
- ▶ Challenges postural righting reactions by shifting the center of gravity
- ▶ Places high demand on the trunk musculature to maintain balance
- ▶ Provides mobilization of the lumbar spine, pelvis, and hip joints
- ▶ Encourages development of head and trunk postural control

▶ Sensory Input

- ▶ Continuous tactile, proprioceptive, vestibular, auditory, and visual feedback
- ▶ Unique, three-dimensional movement in space
- ▶ The movement of the horse mimics the normal movement of the human pelvis during walking, providing distinctive and inimitable sensory feedback.

▶ Tone

- ▶ The warmth and rhythmical movement of the horse is thought to reduce spasticity and abnormally high tone.

▶ Affect

- ▶ Subjective reports of affective and motivational effects



Hippotherapy

- ▶ Licensed Physical Therapist, Occupational Therapist, Speech Therapist
- ▶ One-on-one attention
- ▶ Clients tend to have more physical involvement
- ▶ May have priority matching of client to horse
- ▶ Therapeutic goals
- ▶ More expensive but more likely to be funded by private insurance
 - ▶ \$100-150 per session



Therapeutic Horseback Riding

- ▶ Certified Therapeutic Horseback Riding Instructor (NARHA⁸)
- ▶ One to six participants per lesson
- ▶ Clients tend to have less physical involvement
- ▶ May have less specific matching of client and horse
- ▶ Riding goals
- ▶ Less expensive but rarely funded by private insurance
 - ▶ \$40-80 per session

Who is appropriate for riding?

▶ Indications

- ▶ At least 2 years of age
- ▶ Neurologic Disorders
 - ▶ Cerebral Palsy
 - ▶ Brachial Plexus Injury
 - ▶ Traumatic Brain Injury
- ▶ Genetic and metabolic disorders
 - ▶ Down Syndrome
- ▶ Mild behavioral and cognitive disorders
 - ▶ Autism spectrum disorders

▶ Precautions

- ▶ Mild seizure disorders
- ▶ Moderate to severe weakness and poor balance
 - ▶ Multiple Sclerosis
- ▶ Atypical biomechanical alignment
 - ▶ Hip subluxation

▶ Contraindications

- ▶ Severe seizure disorders
- ▶ Osteoporosis
- ▶ Atlantoaxial instability
- ▶ Fear of horses, allergies
- ▶ Unable to maintain independent sitting on a mat



What it looks like...

- ▶ **Protocols**
 - ▶ Usually one or two sessions per week
 - ▶ Sessions last about 45-60 minutes
- ▶ **Off the horse**
 - ▶ Ground skills such as tacking and grooming the horse
 - ▶ Barn chores such as feeding the horses and other animals or pushing wheelbarrows
 - ▶ PROM, exercises, gait training, balance beam, jumping, climbing, throwing, and other therapeutic activities before and/or after riding
- ▶ **Mount and Dismount**
 - ▶ Safety awareness
 - ▶ ROM and strengthening
 - ▶ Fine motor skills to don helmet

- ▶ **The Team**
 - ▶ Therapist or instructor
 - ▶ One or two sidewalkers
 - ▶ Horse specialist (leader)



What it looks like...

- ▶ On the horse

- ▶ Warm-up

- ▶ Opposing motions for midline awareness: flexion/extension, side bending, abduction/adduction, etc.

- ▶ Trunk rotation

- ▶ Therapeutic Activities

- ▶ Positioning: sitting forward, backward, and sideways; quadruped, tall kneel, half kneel, standing; prone over barrel and backwards, supine over barrel and forwards; two-point; propping on elbows or extended arms

- ▶ PROM and AROM

- ▶ Crossing midline and other gross movements

- ▶ Postural control and trunk strength: walk-halt transitions, circles, serpentines, walk-trot transitions

- ▶ Fine motor: grasp and release, manipulation, bilateral coordination, reining

- ▶ Communication, behavior management

- ▶ Use rings, puzzles, balls, and other toys; wedges, boppy pillows, theratogs, and other therapeutic equipment

- ▶ Cool-down

- ▶ Brief trail ride



Clinical Outcomes

- ▶ Hippotherapy and Therapeutic Horseback Riding have resulted in improvements in:
 - ▶ Posture¹
 - ▶ Cardiovascular status (EEI)³
 - ▶ GMFM scores, especially Dimension E (walking, running, and jumping)^{2-4,7}
 - ▶ PEDI scores⁷
 - ▶ Self-report or family report of normalized muscle tone, increased ROM, improved walking ability, improved trunk/head control with upper extremity reaching and targeting, carryover into ADLs, increased self-efficacy, confidence, and self esteem^{11-12,16, 21}
 - ▶ Trunk and hip muscle symmetry^{13-14, 17}
 - ▶ Spasticity (MAS)¹⁵⁻¹⁶
 - ▶ Goal attainment (GAS)¹⁸
-



Clinical Outcomes



- ▶ Hippotherapy and Therapeutic Horseback Riding have resulted in improvements in:
 - ▶ Balance (Berg) and overall mobility (POMA)¹⁹
 - ▶ Sensory seeking, sensory sensitivity, and social motivation with less inattention, distractibility, and sedentary behaviors²⁰
 - ▶ Attention span, spatial awareness, concentration, listening skills, interest in learning, and verbal skills²²
- ▶ The vast majority of research exists on children with cerebral palsy. Other, less common populations for research include multiple sclerosis and spinal cord injury, and more recently autism spectrum disorders.



Clinical Implications

Why does this matter to me?

If I have a client who rides...

- ▶ Contact your client's riding instructor or therapist to determine what goals they have set, and let them know what your clinical goals are.
- ▶ Communicate any impairments or functional limitations for that particular client which you feel may be addressed through riding activities.
- ▶ Offer to volunteer or observe a session to gain a better understanding of the environment and techniques practiced.



Complimentary Clinic Treatment Ideas



- ▶ ROM
 - ▶ Ankle dorsiflexion
 - ▶ Hip abduction, external rotation
 - ▶ Balance
 - ▶ Static and dynamic tasks
 - ▶ Sitting and standing
 - ▶ Stable and unstable surfaces
 - ▶ Narrow base of support
 - ▶ Strengthening
 - ▶ Global hip and trunk musculature
 - ▶ Gross Motor
 - ▶ Transitional movements
 - ▶ Transitioning on and off Rody or peanut ball
 - ▶ Quadruped ↔ half and tall kneeling ↔ standing transitions
 - ▶ Crossing midline with trunk rotation
 - ▶ Fine Motor
 - ▶ Grasp and release
-



When to Refer

- ▶ **Recreational**

- ▶ Sport riding
- ▶ Barn activities
- ▶ Family involvement

- ▶ **Psychosocial**

- ▶ Interaction with peers, adults, and horses
- ▶ Communication
- ▶ Empowerment

- ▶ **Physical**

- ▶ Unique approach to meeting therapeutic goals
- ▶ See “Clinical Outcomes”



Southern California Programs

▶ Los Angeles and Ventura Counties

- ▶ Above & Beyond “Ordinary,” Inc. in Ventura
 - ▶ aboveandbeyondordinary.com
- ▶ Dream Catcher of LA Therapeutic Riding Centers in Los Angeles
 - ▶ www.dreamcatcherla.com
- ▶ Heads Up Therapy on Horseback in Canyon Country
 - ▶ www.headsuptherapy.com
- ▶ Move A Child Higher (MACH 1) in Pasadena
 - ▶ www.moveachildhigher.org
- ▶ Peacehawk Ranch in Malibu
 - ▶ www.peacehawk.org
- ▶ Ride On Therapeutic Horsemanship* in Chatsworth and Newbury Park
 - ▶ www.rideon.org
- ▶ Ride to Fly in Rancho Palos Verdes
 - ▶ www.ridetofly.com
- ▶ Ride with Pride Therapeutic Horsemanship, Inc. in Chatsworth
 - ▶ www.ridewithprideth.org
- ▶ Ride Your Horse! Therapeutic Riding Center in Cerritos
 - ▶ www.rideyourhorse.com
- ▶ Saddle Up Therapeutic Riding Center in Palmdale
 - ▶ www.saddleup.8m.com
- ▶ Special Equestrian Riding Therapy (SERT) in Moorpark
 - ▶ www.sert.org

▶ Special Spirit Inc. in Shadow Hills

- ▶ www.specialspirit.org

▶ Strides/Sinlimites Therapeutic Riding Centers in Granada Hills

- ▶ www.stridestherapeutic.com

▶ Orange County

▶ Back Bay Therapeutic Riding Club, Inc. in Newport Beach

- ▶ www.backbaytrc.org

▶ JF Shea Therapeutic Riding Center* in San Juan Capistrano

- ▶ www.sheacenter.org

▶ Helping Hooves in Anaheim

- ▶ www.helpinghooves.org

▶ Therapeutic Riding Center of Huntington Beach

- ▶ www.trchb.org

▶ Riverside and San Bernardino Counties

▶ Big Bear Therapeutic Riding Center

- ▶ bigbeartrc.org

▶ Canyon Ranch Physical Therapy, Inc*. in Colton

- ▶ www.hippotherapy.us

▶ Healing Horses Therapeutic Riding Centers in Indio

- ▶ www.healinghorsescv.org

▶ Queen of Hearts Therapeutic Riding Center in Riverside

- ▶ www.queenofheartsranch.com

▶ Therapy for Handi-capable Equestrians (T.H.E. Center) in Hemet

- ▶ www.t-h-e-center.org

References

1. Bertoti DB. Effect of therapeutic horseback riding on posture in children with cerebral palsy. *Phys Ther.* 1988; 8: 1505-1512.
 2. Cherng R-J, Liao H-F, Leung HWC, Huang H-W. The effectiveness of therapeutic horseback riding in children with spastic cerebral palsy. *Adapt Phys Activ Quart.* 2004; 21:103-121.
 3. McGibbon NH, Andrade C-K, Widener G, Cintas HI. Effect of an equine-movement program on gait, energy expenditure, and motor function in children with spastic cerebral palsy: a pilot study. *Dev Med Child Neurol.* 1998; 40: 754-762.
 4. Sterba JA, Rogers BT, France VP, Vokes DA. Horseback riding in children with cerebral palsy; effect on gross motor function. *Dev Med Child Neurol.* 2002; 44: 301-308.
 5. Sterba JA. Does horseback riding therapy or therapist-directed hippotherapy rehabilitate children with cerebral palsy? *Dev Med Child Neurol.* 2007; 49: 68-73.
 6. MacPhail AHE, Edwards J, Golding J, Miller K, Mosier C, Zwiers T. Trunk postural reaction in children with and without cerebral palsy during therapeutic horseback riding. *Pediatr Phys Ther.* 1998; 10: 143-147.
 7. Casady RL, Nichols-Larsen DS. The effect of hippotherapy in ten children with cerebral palsy. *Pediatr Phys Ther.* 2004; 16: 165-172.
 8. North American Riding for the Handicapped Association (NARHA) at: <http://www.narha.org>
 9. Sterba JA, Rogers BT, France VP, Vokes DA. Horseback riding in children with cerebral palsy; effect on gross motor function. *Dev Med Child Neurol.* 2002; 44: 301-308.
 10. Casady RL, Nichols-Larsen DS. The effect of hippotherapy in ten children with cerebral palsy. *Pediatr Phys Ther.* 2004; 16: 165-172.
 11. Debusse D, Gibb C, Chandler C. Effects of hippotherapy on people with cerebral palsy from the user's perspective: A qualitative study. *Physiother Theory & Pract.* 2009; 25(3): 174-192.
 12. Hamill D, Washington K, White O. The effect of hippotherapy on postural control in sitting for children with cerebral palsy. *Phys Occup Ther Perdiatr.* 2007; 27(4): 23-42.
-



References

13. Snider L, Korner-Bitensky N, Kammann C, Warner S, Saleh M. Horseback riding as therapy for children with cerebral palsy: Is there evidence of its effectiveness? *Phys Occup Ther Perdiatr.* 2007; 27(2): 5-23.
14. Benda W, McGibbon NH, Grant KL. Improvements in muscle symmetry in children with cerebral palsy after equine-assisted therapy (hippotherapy). *J Alt Complement Med.* 2003; 9(3): 817-825.
15. Lechner HE, Feldhaus S, Gudmundsen L, Hegemann D, Michel D, Zach GA, Knecht H. The short-term effect of hippotherapy in patients with spinal cord injury. *Spinal Cord.* 2003; 41: 502-505.
16. Lechner HE, Kakabeeke TH, Hegemann D, Baumberger M. The effect of hippotherapy on spasticity and mental well-being of persons with spinal cord injury. *Arch Phys Med Rehabil.* 2007; 88: 1241-1248.
17. McGibbon NH, Benda W, Duncan BR, Silkwood-Sherer D. Immediate and long-term effects of hippotherapy on symmetry of adductor muscle activity and functional ability on children with spastic cerebral palsy. *Arch Phys Med Rehabil.* 2009; 90: 966-974.
18. Murphy D, Kahn-D'Angelo L, Gleason J. The effect of hippotherapy on functional outcomes for children with disabilities: A pilot study. *Pediatr Phys Ther.* 2008: 264-270.
19. Silkwood-Sherer D, Warmbier H. Effects of hippotherapy on postural stability, in persons with multiple sclerosis: A pilot study. *J Neurol Phys Ther.* 2007; 31(2): 77-84.
20. Bass MM, Duchowny CA, Llabre MM. The effect of therapeutic horseback riding on social functioning in children with autism. *J Autism Dev Disord.* 2009; 39: 1261-1267.
21. Shurtleff TL, Standeven JW, Engsborg JR. Changes in dynamic trunk/head stability and functional reach after hippotherapy. *Arch Phys Med Rehabil.* 2009; 90: 1185-1195.
22. MacKinnon JR, Noh S, Laliberte D, Lariviere J, Allan DE. Therapeutic horseback riding: A review of the literature. *Phys Occup Ther Perdiatr.* 1995; 15(1): 1-15.
23. MacKinnon JR, Noh S, Macphail A, Lariviere J, Allan DE, Laliberte D. A study of therapeutic effects of horseback riding for children with cerebral palsy. *Phys Occup Ther Perdiatr.* 1995; 15(1): 17-34.
24. All photos used with parental permission, or are publicly available on Facebook (J F Shea Therapeutic Riding Center).

