Increasing Public Awareness of the Benefits of Hippotherapy: An Advocacy Plan Melanie A. Vohnout Faculty Mentor: Beth Ann Hatkevich, Ph.D., OTR/L Site Mentor: Deborah Sords, PT, HPCS Department of Rehabilitation Sciences Occupational Therapy Doctorate Program The University of Toledo May 2011

Note: This document describes a Capstone Dissemination project reflecting an individually planned experience conducted under faculty and site mentorship. The goal of the Capstone experience is to provide the occupational therapy doctoral student with a unique experience whereby he/she can demonstrate leadership and autonomous decision-making in preparation for enhanced future practice as an occupational therapist. As such, the Capstone Dissemination is not formal research.

Therapy comes in a variety of forms and methods, each having its own unique benefits. One particular group of therapy programs is known as equine assisted therapy, this is where the horse is used in the therapy process. A more specific type of equine assisted therapy is hippotherapy. Hippotherapy literally means, "treatment with the help of the horse," which comes from the Greek word "hippos" meaning horse (American Hippotherapy Association [AHA], 2007). According to the American Hippotherapy Association (AHA) hippotherapy is a term that refers to the use of the movement of the horse as a tool by physical therapists, occupational therapists, and speech-language pathologists to address impairments, functional limitations, and disabilities in patients with neuro-musculoskeletal dysfunction (2007).

When hippotherapy is used as a treatment strategy multiple client factors can be addressed at one time. The ultimate goals of hippotherapy when used by occupational therapy practitioners are to address process, motor, and interaction skills to enhance occupational performance (Latella & Langford, 2008). For example, when a client is asked to change positions on the horse from facing forward to facing backwards, he or she needs to process and motor plan how to move his body in order to complete the task. Additional client factors such as cognitive, sensory, neuro-musculoskeletal, movement-related, and speech functions may also be enhanced through hippotherapy (Latella & Langford, 2008). For example, the client is encouraged to verbalize commands to the horse and horse handler, "walk on," to get the horse to move, and "whoa," to get the horse to stop.

The methods and theories behind the practice of hippotherapy as a treatment strategy and occupational therapy suggest a theoretical match between the two. For example, there is a shared understanding between occupational therapy and hippotherapy theory that using a naturalistic environment is beneficial to the client. The horse and its surroundings provide the basis for functional movement, which is necessary for purposeful activity that is the essence of life (Engel, Weisberg, & Splinter-Watkins, 2007). When hippotherapy is used as an occupational therapy treatment tool, it can reinforce occupation-centered goals through generalization of basic skills learned. Occupational therapists can appreciate the quality of life through the lens of occupation, and changes in health care demand that occupational therapy services expand beyond the medical model setting. Therefore, this advocacy plan was developed to promote the awareness, benefits, and use of hippotherapy to the general public and health care providers as part of an integrated treatment program to help achieve functional outcomes for clients.

Literature Review

As early as the 1500s, the gentle movement of the horse was felt to be medically beneficial (Engel, Weisberg, & Splinter-Watkins, 2007). Therapeutic uses of the horse have been used throughout Europe since the early 1950s (AHA, 2007). However, it was not until the 1952 Olympics in Helsinki where Liz Hartel won a silver medal in equestrian sports, and told the world how riding had helped her recover from polio, that the realization of the potential benefits and uses of horses as a source of therapy became known worldwide. Then, in the 1960s therapeutic riding centers developed throughout Europe, Canada, and the United States. Currently hippotherapy is being employed in 24 different countries, and is recognized and accepted by the American Physical Therapy Association, American Occupational Therapy Association, and the American Speech and Hearing Association (AHA, 2007).

Hippotherapy works because the movements experienced by the individual on the horse gently and rhythmically moves the rider's body in a manner similar to the human gait (North American Riding for the Handicapped Association Inc. [NARHA], 1969). These rhythmical and three-dimensional movements of the horse cause the rider to move up-down, forward-backward, side-side, and rotationally, facilitate postural corrections the rider may not be able to achieve on his or her own (Engel & MacKinnon, 2007). The average size horse takes 90 to 110 steps a minute, requiring the rider to shift weight and make subtle postural adjustments with every step (Engel & MacKinnon, 2007). Therefore, the 2700 to 3300 stepping repetitions over a typical 30 minute hippotherapy session, combined with high patient motivation provide the ideal practice learning environment for new skills and to facilitate the neuro-physiologic systems that support all of our functional daily living skills. For example, while on horseback the client can complete a table top puzzle after gathering the puzzle pieces from around the arena to work on visual spatial and fine motor skills.

Another way that hippotherapy works is that the farm environment where the therapy takes place offers a unique experience. The horses and the horse farm environment provide the basis for functional movement, which is necessary for purposeful activity that is the essence of life. All of the surrounding stimuli of the farm atmosphere stimulate all of the rider's senses, often times with a positive response (AHA, 2007). A typical farm atmosphere for example, might include sounds of the horses neighing or eating, the smell of the fresh air and the horses themselves, the sight of horses running outside in pastures, and the feel of the hay and grain when feeding. Also, different therapists such as occupational, physical, and speech-language therapists can use the horse to work on more specific fine motor and gross motor skill control, sensory integration, communication skills, and daily living skills.

Additionally, hippotherapy works because it can meet the unmet needs of people with musculoskeletal disorders (Engel & MacKinnon, 2007). Riding a horse provides the rider with the opportunity for mobility without having to use a wheelchair, crutches or other assistive device that may typically be required. Hippotherapy provides interesting motor tasks such as

grooming, walking, riding, controlling, and caring for a horse that are not easily replicated in a clinical setting. Also, movement of the horse has shown to increase activity of the voluntary motor-loop and additional flow impulses to the tactile, proprioceptive, and vestibular systems through the periphery (Engel & MacKinnon, 2007).

The primary goal of hippotherapy is to improve an individual's posture, balance, mobility and functions (All, Loving, & Crane, 1999). Other proven benefits exist from hippotherapy as well. Often times among those individuals with mental or emotional disabilities a unique relationship forms between the horse and the client. This in turn can lead to increased confidence, patience, and self-esteem. Another benefit of hippotherapy is motivation to continue the therapy. Hippotherapy allows for time away from traditional exercises and routines, this can make the therapy process more enjoyable, and worth-while in the patient's eyes to continue the program.

Further psychological benefits documented from hippotherapy include: adjustment to disability, enhanced comprehension and memory skills, social skills, and improved communication (e.g., AHA, 2007; Engel & MacKinnon, 2007; NARHA, 1969; Silkwood-Shere & Warmbier, 2007; Shurtleff, Standeven & Engsberg, 2009). Some of the most commonly documented physical benefits of hippotherapy include: stimulation of reflexes, relaxation of spastic muscles, improved balance and posture, increased muscle strength, increased flexibility and coordination, increased fine and gross motor skills, improved proprioception and improved range of motion (e.g., AHA, 2007; Engel & MacKinnon, 2007; NARHA, 1969; Silkwood-Shere & Warmbier, 2007; Shurtleff, Standeven & Engsberg, 2009).

Research studies related to riding and hippotherapy before the 1990s focused on documentation of the benefits to the rider. For example, in 1953 Liz Hartel, the equestrian

Olympian with polio, established the "Pony Stable for Disabled Children," which was recommended by physicians for its medically related benefits, and in 1964 its services became reimbursable by Norwegian health insurance (Hubbard, Abreu, Jones, Opacich, Frease, Walker, & Shechtman, 2007). A study done by Riede (1988) concluded that prolonged exposure to horse acceleration could not damage the spine of the rider (as cited in Hubbard et al., 2007). Both of these examples provide a look into the early investigated and proven medical benefits of hippotherapy and equine related activities.

At the turn of the 20th century hippotherapy related research started to become more statistical and documented more thoroughly. Additionally, the focus of research changed. Initially, the research investigated hippotherapy as an intervention for scoliosis, kyphosis, and cerebral palsy (Hubbard et al., 2007). Currently, more recent research studies have expanded its study participants to include individuals with diagnoses such as autism, traumatic brain injury, multiple sclerosis, and spinal cord injury.

A study done by Lechner, Feldhaus, Gudmundsen, Hegemann, Michel, Zäch, and Knecht, (2003) evaluated the short-term effect of hippotherapy on spasticity of spinal cord injured patients. Thirty-two patients with spinal cord injuries with various degrees of spasticity had repeated sessions of hippotherapy. Each participant completed an average of 11 hippotherapy sessions, where spasticity of the lower extremities was scored according to the Ashworth Scale. The results showed patients had decreased spasticity following the hippotherapy sessions, and highest improvements were seen in participants with initially high spasticity scores (Lechner et al., 2003). This study suggests that hippotherapy can significantly reduce spasticity of lower extremities in individuals with spinal cord injuries, and should be used as part of an integrated treatment approach. One study done by Sams, Fortney and Willenbring (2006) compared language use and social interaction in children with autism receiving occupational therapy using either standard techniques or incorporating animals. Twenty-two children received both forms of therapy. The results suggest that the children demonstrated significantly greater use of language and social interaction in sessions incorporating animals when compared to sessions using exclusively standard occupational therapy techniques (Sams, Fortney & Willenbring, 2006). This study demonstrates a need for occupational therapy methods that utilize animals, in which the horse can be specifically used to facilitate improvement on multiple areas during therapy treatments.

A study completed by Silkwood-Sherer and Warmbier (2007) examined the effectiveness of hippotherapy as an intervention for the treatment of postural instability in people with multiple sclerosis. Fifteen people participated in the study, and each participant attended weekly hippotherapy intervention sessions for a 14-week period. The results showed a statistically significant improvement from pretest to posttest on the Berge Balance Scale and the Tinetti Performance Oriented Mobility Assessment (Silkwood-Sherer & Warmbier, 2007). This study demonstrates that hippotherapy could show promise in the treatment of balance disorders. Furthermore, hippotherapy should be used as a means of treatment during occupational therapy for balance goals.

Shurtleff, Standeven, & Engsberg (2009) completed a study to determine if hippotherapy improves head/trunk stability and upper extremity reaching/targeting in children with spastic dipelgia cerebral palsy (SDCP). The study consisted of 11 children ages 5-13 years with SDCP and 8 children without disabilities participating in a 12-week hippotherapy intervention program. The main outcome measures were collected from video motion captures using surface markers collecting data at 60Hz, a mechanical barrel to challenge trunk and head stability, and functional reach/targeting test on a static surface. The results from the study showed significant positive changes in head/trunk stability and reaching/targeting, elapsed time, and efficiency after 12 weeks of hippotherapy intervention (Shurtleff, Standeven, & Engsberg, 2009). This study reveals that hippotherapy improves trunk/head stability and upper extremity reaching/targeting. These skills form the foundation for many functional tasks, thereby supporting the need for using hippotherapy as part of an integrated treatment approach for individuals to achieve functional goals in occupational therapy.

Hippotherapy has been shown to be beneficial as part of a treatment plan to help individuals increase his or her skill levels and achieve functional goals (eg., AHA, 2007; Engel & MacKinnon, 2007; NARHA, 1969; Hubbard et al., 2007; Lechner et al., 2003; Shurtleff, Standeven, & Engsberg, 2009; Silkwood-Sherer & Warmbier, 2007). Hippotherapy is an ideal match with occupational therapy because hippotherapy is client centered and is occupationally based, which is also part of the theory behind the profession of occupational therapy. For example, hippotherapy allows for exclusive, one-to-one interactions between the client and therapist promoting individualized and graded sessions that meet client needs. Also, in a hippotherapy session the client is able to work on autonomous decision making while on horseback, allowing for each occupation to provide a greater sense of meaning and purpose to the rider.

The dynamic relationship between occupational therapy theory and hippotherapy makes occupational therapy the ideal profession to be advocating for hippotherapy as a treatment strategy. Occupational therapy practice is comprehensive and as client's become increasingly more complex and demanding of more meaningful and purposeful treatment methods, there will be a demand to expand treatment strategies beyond the clinical setting. The various success stories of the use of occupational therapy and hippotherapy have increased the application of hippotherapy treatment interventions. For example, a hippotherapy program led by occupational therapists for Oklahoma's challenged youth has shown support for the use of hippotherapy to decrease stress, increase social skills, and improve self-esteem among program participants (Diffendal, 1999).

Hippotherapy as an occupational therapy intervention strategy is often associated with sensory integration theory because the movement of the horse provides a multisensory experience (AHA, 2007). The occupational therapist at Fieldstone Farm uses the sensory integration theory with numerous clients. One particular client wears a weighted vest during hippotherapy sessions to help increase sensory input. Additionally, the gait of the horse and direction of movement can be graded to increase or decrease sensory input. For example, walking in circles or wavy lines to work on rotational movements, and changing the speed of the walk or trot can all be used to help grade the experience of sensory input. Parents of clients receiving hippotherapy at Fieldstone Farm have stated how they have seen improvements in attention, behavior, balance, and overall function as a result from the hippotherapy treatment sessions compared to that of other clinically based therapy treatments (Fieldstone Farm Therapeutic Riding Center [FFTRC], 2009).

Identification of Need

The underlying themes of all of the research evidence suggest that the horse is being used successfully in medically based interventions. Although multiple studies have shown evidence in favor of hippotherapy and animal related therapies (e.g., Hubbard et al., 2007; Lechner et al., 2003; Shurtleff, Standeven, & Engsberg, 2009; Sams, Fortney& Willenbring, 2006; Silkwood-Sherer & Warmbier, 2007) there is still more to learn and discover about the uses and benefits

that hippotherapy has to offer. For example, most of the therapeutic riding centers have hippotherapy sessions lasting 30 minutes, but some centers have longer sessions. There is no set standard on what is the best frequency, duration, or time frame sessions should follow. The North American Riding for the Handicapped Association promotes the use of equine-assisted activities and therapies, and offers certifications and accreditations of programs to help members maintain successful equine-assisted activities and therapies (NARHA, 1969). However, NARHA does not have standards for the use of hippotherapy as a treatment strategy, there are only standards regarding the safety of participants.

Additionally, much of the research that had been completed has not been published in peer reviewed journals, and there is a lack of consistency in terminology as far as the actual intervention used. Many times the terms hippotherapy and therapeutic riding are used interchangeably when they are actually two different treatment strategies. Hippotherapy is a treatment strategy conducted by a therapist whom uses the movement of the horse to achieve therapy goals, while therapeutic horseback riding is a method of riding where the instructor takes into account a person's physical, mental, and emotional strengths and limitations.

In addition to the lack of consistency in terminology there is the discrepancies in translation of all of the research that is completed oversees in Europe. Hippotherapy as a treatment strategy was developed in Europe, and continues to grow through research there. However, many insurances and third party payers argue that the research from European studies supporting the use of hippotherapy are not credible due to differences in research standards and the loss of effective results from translating the manuscripts into English.

The Horses and Humans Research Foundation (HHRF) exists to facilitate universal understanding and appreciation of the significant influences of horses on humans. The primary goal of HHRF is to support, promote, and fund scientific research that explores the claimed, yet unsubstantiated benefits of equine-assisted activities and therapies (Horses and Humans Research Foundation [HHRF], 2002). This in turn will lead to the establishment of the most effective methods and techniques for conducting existing and future programs. Tim L. Shurtlef, OTD, OTR/L, of St. Louis, Missouri is one of the members on the scientific committee for HHRF and has stated the following:

I think the most important thing we can do to enable people with disabilities to receive the benefits of hippotherapy and other equine-assisted treatments and therapies is to further develop the scientific evidence base for activities and therapies using horses. A solid evidence base will open doors for funding and make it unethical and irresponsible for insurance companies and third party funders to not pay for professional therapy that uses horses and their movement as treatment tools. (HHRF, 2002)

His statement helps to identify the discrepancy between the present state of hippotherapy that has not fully developed into a strongly evidence based treatment strategy that is reimbursable by third party payers. Versus the ideal status of hippotherapy that is backed by research, having standard treatment protocols, and being reimbursable by insurance companies and third party payers.

Most clients receiving hippotherapy are required to pay for the therapy session out of pocket. Because insurances and third party payers are not covering hippotherapy as a treatment method under their policy, clients are being denied the benefits and increased functional outcomes that the horse can elicit during a hippotherapy session. It is important for the public and members of the medical community to learn about and understand what hippotherapy is, and how hippotherapy can be beneficial for a wide variety of individuals. It is especially important for physical therapy, speech therapy and occupational therapy students to have a basic understanding of what hippotherapy is, since students are the future of the therapy professions that have the power to advocate and utilize the benefits from using hippotherapy as a treatment method. Therefore, it is important to advocate for the awareness and use of hippotherapy as a treatment strategy through the profession of occupational therapy. In this manner, occupational therapists can work with clients in order to improve functioning and limit functional impairments.

Advocacy Partners, Experts and Players

Throughout the Capstone Experience there were advocacy partners, experts, and players who provided assistance and helped in the efforts to increase the awareness and use of hippotherapy as a treatment strategy in a comprehensive treatment plan that occupational therapists can utilize. Local organizations, clubs, businesses, and therapeutic riding centers provided support during the Capstone Experience in advocating for the use hippotherapy. The following is a comprehensive list of advocacy partners that played a role in educating the public about the benefits of hippotherapy.

The key advocacy partners for the Capstone Experience were Debbie Sords, PT and Fieldstone Farm Therapeutic Riding Center (FFTRC). Debbie Sords is a Certified Hippotherapy Clinical Specialist (HPCS) who works at FFTRC. Debbie provided the first-hand experience and knowledge regarding the hands on practice of hippotherapy with children with disabilities at Fieldstone Farm. Debbie shared the process of becoming certified in hippotherapy, and proper handling techniques during hippotherapy sessions. For example, Debbie demonstrated the use of a thigh hold versus a heel hold during a hippotherapy treatment session. Furthermore, Debbie stressed the importance of taking warm up laps in the arena, followed by strengthening occupations, other occupations, and ending with a cool down lap before dismounting. Also, Debbie exhibited the importance of good communication skills and multitasking, since it is the therapist's job to lead the hippotherapy session and communicate to the horse handler and side walker what is expected of them during the session, while focusing on the rider and being aware of any other possible horses and riders in the arena. There were two other Certified Hippotherapy Clinical Specialists, Bobbin Davis, PT and Allison Evans, OTR/L, who worked at Fieldstone Farm and assisted in providing alternative view points and methods for handling clients during a hippotherapy session and different occupations utilized to meet goals.

Fieldstone Farm hosted different presentations and lectures related to hippotherapy and therapeutic horseback riding (see Appendix A for list of presentations and courses attended). Each presentation focused on a different aspect of equine-assisted activities and hippotherapy. The first presentation was titled: *Inside Autism: Therapeutic Riding and Autism*. The program director of Specialized Teaching for Children with Autism and Resource Services provided a general overview of Autism, and discussed different communication and behavior strategies that can be utilized when working with children who have Autism in a therapeutic riding center setting. For example, when communicating with the child use short and simple sentences and allow for time to process the question or statement.

Another presentation was delivered by Debbie Sords, PT, HPCS. The presentation was titled: *Disabilities Overview: Common Disabilities Seen in Hippotherapy and Therapeutic Riding Sessions*. Debbie reviewed commonly seen disabilities including Autism spectrum disorders, cerebral palsy, multiple sclerosis, Down's syndrome, developmental delay, and behavioral disorders, and the behaviors that an individual with one of these disorders may present with. Then Debbie discussed with the audience how to work with the client so that the

experience at Fieldstone Farm is enjoyable and productive. For example, when working with a client with a disability you should be empathetic and be aware of the safety of the client and horse at all times.

Lastly, Fieldstone Farm continuously offered and provided a therapeutic atmosphere where all of the employees, volunteers, and clients willingly shared their knowledge and experience related to all aspects of equine-assisted therapies and the benefits from participating in a hippotherapy program. Fieldstone Farm runs volunteer training sessions each month for new volunteers and retuning volunteers to learn about the facility and the rules and protocols that need to be followed. Additionally, FFTRC staff offer educational sessions for volunteers interested in learning more advanced horse handling skills and allowing the volunteer the opportunity to complete more work around the farm. Examples of some of the educational sessions included bridling a horse, putting on and removing horse blankets, ground skills for larger more advanced horses, and proper leading techniques of a horse for hippotherapy and therapeutic riding classes.

Another set of advocacy partners was the Geauga Horse and Pony Association (GHPA) and the Great Lakes Appaloosa Horse Club (GLApHC). I am a member of both of these horse organizations and was able to discuss hippotherapy and educate the members present at two different GHPA meetings and at two of the GLApHC meetings. Also, I was able to work with both organizations to reach out to its members that did not attend any of the meetings I attended. Both organizations were supportive in allowing me to reach out to the members and communities that each serves. For example, both organizations have monthly e-mail newsletters, and willingly included information about hippotherapy in them. Also, each club had their annual awards banquet that includes a printed booklet with award recipients, and advertisings, one advertising which was a brief description about hippotherapy.

Local tack shops including: Second Round Tack, Schneider's, Big D's and Valley Tack also served as advocacy partners in reaching out to educate the public about hippotherapy and the benefits of hippotherapy. All of these tack shops are located in the greater Cleveland area, and serve customers in Geauga, Cuyahoga, Summit, Portage, Medina, and Lorain counties. Each tack shop has a bulletin board that is available for customers to post information about horse shows, seminars, clinics, items for sale, and items wanted. Schneider's and Big D's also have a binder for flyers and business cards to be permanently displayed. Utilizing the bulletin boards and binders at each tack shop offered the opportunity to reach out to its customers and educate them about the use of hippotherapy as a treatment method, its benefits, and how to get involved with volunteering.

The Horseman's Corral is a published monthly all breed horse magazine distributed throughout Ohio, Eastern Indiana, and Western Pennsylvania. The Horseman's Corral is a magazine that is devoted to the horse and horseman, and has been providing related periodicals since 1969. This publishing magazine company played a role as an advocacy partner to help me reach out to a larger number of horsemen and horsewomen in Ohio and its surrounding states. Through The Horseman's Corral I was able to publish an article titled, *The Difference Between Hippotherapy and Therapeutic Horseback Riding*, in the 2011 March issue (see Appendix B for the article).

A final advocacy partner during my Capstone Experience was the 2011 43rd annual Equine Affaire, which was held in Columbus, Ohio from April 7th to April 10th. Equine Affaire is a long weekend devoted to the horse, providing educational programming with more than 230

clinics, seminaries and demonstrations on a wide variety of equestrian sports, horse training, management, health and business topics. During the 2011 Equine Affaire, I was able to help represent the Appaloosa Horse Breed Association through my involvement with the Great Lakes Appaloosa Horse Club. While helping to represent the Appaloosa breed I was also able to advocate for the use and benefits of hippotherapy when working at the Appaloosa Breed table exhibit. Discussions with Equine Affaire attendees revolved around horses and horse related programs and activities, and so the topic of hippotherapy frequently arose. Followed by, a deeper discussion revolving around hippotherapy, how it started, its benefits and getting involved with therapeutic riding centers.

Methods

While advocating for the use of hippotherapy as a treatment strategy and increasing the awareness about hippotherapy and its benefits I utilized multiple different methods and approaches. One of the most important methods for advocating for hippotherapy was educating the population about the usefulness and benefits hippotherapy has to offer for a wide population of people. Therefore, I frequently discussed the implications for the use and benefits of hippotherapy to members of GHPA and GLApHC at meetings and banquets, and with individuals attending Equine Affaire while working at the Equine Affaire Appaloosa Breed table. People with prior and current experience with horses who are involved with horses are always talking about his or her own horses, and like to hear about other people and their horses thus it was easy to bring up the topic of hippotherapy to this population. While defining the meaning and application of hippotherapy, I often found myself defining occupational therapy, as treatment sessions are directed by a licensed therapist.

Also, I was able to post informative fliers about hippotherapy and FFTRC at all of the local tack shops and community centers, including at tack swap meets, club meetings, and at the Columbus, Ohio Equine Affaire. I developed one flyer with the main objective to inform the viewer about hippotherapy and its benefits (see Appendix C hippotherapy flyer 1). This first flyer is intended for an audience that may have no prior hippotherapy or horse knowledge. This hippotherapy flyer was also printed in the GLApHC and GHPA banquet books and included in both of the clubs electronic newsletters for the month of April. A second flyer was developed with the main objective of recruiting volunteers for FFTRC, and was intended for an audience that may or may not have some horse related knowledge (see Appendix D for FFTRC flyer). This flyer was posted at four local tack shops because of the proximity of the tack shops to Fieldstone Farm and the likelihood that shoppers would be willing to volunteer at Fieldstone Farm.

Furthermore, I developed three different Power-Point presentations to educate different populations of the general public about what hippotherapy is. The first Power-Point presentation that I developed was intended for the use of Fieldstone Farm to use as a form of advertising in educating the public, staff, and volunteers about FFTRC's hippotherapy program and what the program has to offer (see Appendix E for FFTRC Power-Point). I was able to work in collaboration with the volunteer coordinator and program director at Fieldstone Farm to develop a presentation that accurately depicted what the therapeutic riding centers hippotherapy program is about.

The second Power-Point presentation that I developed was intended for the use of educating occupational, physical, and speech therapists about hippotherapy and how to become a Certified Hippotherapy Clinical Specialist (see Appendix F therapist Power-Point). I worked in collaboration with Debbie Sords, PT on the development of the presentation to ensure the accuracy of becoming certified in hippotherapy. The presentation provides an introduction to hippotherapy, how hippotherapy works, and its benefits. Then the presentation covers the research and development of hippotherapy as a part of an integrated treatment approach, and finally reviews the process of becoming certified. The Power-Point offers resources necessary to gather more information on certification, and provides contact information for therapeutic riding centers in the greater Cleveland area.

The final Power-Point presentation that I developed was intended for the use of educating the general public about hippotherapy and providing resources to learn more about hippotherapy and volunteer opportunities available (see Appendix G general Power-Point). This Power-Point presentation was developed so that it automatically plays each slide after a predetermined amount of time has passed. The automatic playing of the presentation allowed for any individuals attending Equine Affaire to view the Power-Point as he or she approached the Appaloosa Breed table. The Power-Point provides a brief description of what hippotherapy is and its benefits. The presentation concludes with resources where the viewer can learn more information about hippotherapy and volunteer opportunities if the viewer is interested. I also developed a brief handout for Equine Affaire participants that provided the definition of hippotherapy and lists the resources from the Power-Point (see Appendix I Equine Affaire handout).

Another method in advocating for hippotherapy was working to get an article published so that the benefits of hippotherapy and the concept of using a horse and a horse's movement as a tool to meet therapy goals could reach a larger group of people. I was able to get my article, *The Difference Between Hippotherapy and Therapeutic Horseback Riding*, published in the 2011 March issue of The Horseman's Corral (see Appendix B for the article). The article defined and explained the difference between hippotherapy and therapeutic horseback riding, which are often confused and the terms are mistakenly used interchangeably. The article also provides the reader with resources on learning more, becoming certified and volunteering. Having an article published in a horse related magazine helped to publicize and bring more awareness to the use of hippotherapy. Additionally, the same article was sent out in the April electronic monthly newsletters for GHPA and the GLApHC.

A final method that I used while advocating for hippotherapy was the Internet and all of the social networks available. I was able to use the Facebook pages for Fieldstone Farm and The American Hippotherapy Association for discussions, posts and questions related to hippotherapy and different opportunities available for learning more about hippotherapy. For example, after each of Fieldstone Farm's presentations I would make a brief post about the presentation so that anyone who was unable to attend, but was still a Facebook friend could gain insight about the presentation from reading the post. Lastly, through the use of the Internet and e-mail lists, I was able to work with GHPA and the GLApHC, to send out information about hippotherapy related events, seminars and benefits, like the presentations that were held at Fieldstone Farm.

In order for any of these methods and strategies to be effective in promoting hippotherapy I had to utilize my strengths in my interpersonal skills and abilities. Communication was extremely important in advocating for hippotherapy. Not only did I need to be professional, organized, and persistent when working with some organizations, I also needed to be outgoing, compassionate and empathetic when communicating with non-professionals. Furthermore, I needed to demonstrate, strength, confidence, and resilience whenever I ran into obstacles as I advocated for the benefits, use, and expansion of hippotherapy.

Identified Outcomes

As a result of all of the previously stated advocacy efforts I was able to accomplish educating some of the public about what hippotherapy is including its benefits, and how others can get involved. For example, I developed flyers that were posted at tack shops located in the greater Cleveland area, and in Columbus during the Equine Affaire. The flyers were able to reach hundreds of individuals to give the readers a brief description of hippotherapy and provided resources on how to learn more. Employees at the local tack shops stated how customers would read the hippotherapy flyer, and then the employee would hear the customer talking about the flyer with whomever they were shopping with. Also, every month when I came back to check on the status of the FFTRC flyer there would be two or three information slips torn off from people who were interested in volunteering at Fieldstone Farm.

The presentations that I developed also had a noticeable impact. I was unable to present the hippotherapy presentation to occupational therapists, but I was able to play the general Power-Point presentation at the Equine Affaire to the attendees that passed through the Appaloosa Horse Club booth. Many of the people who walked by and talked with me about the hippotherapy presentation had never heard of hippotherapy before and found it to be a fascinating therapy treatment strategy, and expressed interest in learning more about hippotherapy and how he or she could get involved and volunteer. Two hundred and fifty small Equine Affaire flyers were printed for handouts at the Appaloosa Breed table and after the weekend was over there were only 23 flyers left.

Additionally, I provided Fieldstone Farm with an electronic copy of their hippotherapy Power-Point presentation for future use within the facility. The volunteer director verbalized how much she liked the Power-Point, and the ability that the presentation has to explain the hippotherapy program at Fieldstone Farm to the public. Also, the facility is planning on including the presentation as a part of Fieldstone Farm's volunteer training education course, and for public education and advertising.

The article that was published in The Horseman's Corral had a huge impact on my advocacy efforts leading towards community awareness and education related to hippotherapy as a treatment strategy. The article was able to describe the difference between hippotherapy and therapeutic horseback riding which are commonly confused and the terms are often mistaken and used interchangeably. Additionally, the article provided resources for the reader to find more detailed information. The Horseman's Corral sells an estimated 26,000 copies a month, which means that the article reached at least that many different readers. In addition to the article being published in The Horseman's Corral, the article was included in the April monthly electronic newsletter for GHPA and the GLAPHC. I was contacted by several different members of both clubs commenting about the article and asking questions. One particular e-mail read, "I have a nephew with CP and he has improved greatly since he started hippotherapy, and I never fully understood what hippotherapy was until I read this article." The remainder of the other e-mails showed interest and wanted to learn more about hippotherapy and volunteer opportunities.

Throughout my advocacy efforts I was able to make an impact on the community by developing and sharing a facility outline and comparisons document of different therapeutic horseback riding facilities in the area (see Appendix I for facility outlines and comparisons). I traveled to different facilities to gather information about the programs offered, disabilities served, facility amenities, student statistics, and horse and staff makeup. Then I compiled the information into an easy to follow outline and shared the information with all of the other facilities for personal facility improvement. The newest program that I visited was Mane Stride

located in Oberlin, Ohio. The program founders consisted of one occupational therapist and two physical therapists, all three therapists greatly appreciated the ability to review the facility and outlines and comparisons document to help with improving their newly designed program.

The impact of the promotion of the use and benefits of hippotherapy as a treatment method should have a positive impact on the occupational therapy profession. As the public becomes more aware of how hippotherapy can be beneficial as part of an integrated treatment approach to help clients achieve functional goals, there will be more of a demand for occupational therapists to become Certified Clinical Hippotherapy Specialists. Also, as more of the public becomes aware and seeks out information about hippotherapy services it will require occupational therapists to become familiar with this specialty practice area and where hippotherapy services are provided in order to help clients reach higher levels of function and independence.

In summary, from all of the research and advocacy efforts it has only made me even more passionate about using hippotherapy as part of an integrated treatment approach to achieve functional goals. I have been able to determine exactly how to become certified in hippotherapy and I plan on taking the steps necessary to earn that certification. I have also become more outspoken about the benefits of hippotherapy, how beneficial it is, and how it can be integrated to work on everyday occupations.

Recommendations for Future

As you become an advocate for any cause you first need to become more educated in order to build evidence for the cause's promotion. Also, it is only natural to become more involved and passionate about the cause, finding yourself continuously advocating for the cause every day, even if you are not at a specific event or actually working on the project. The advocacy cause also begins to provide insight to the various advantages and benefits, ultimately increasing the awareness of your advocacy efforts.

Future efforts in advocating for the use of hippotherapy as a treatment strategy need to focus on increasing the amount of quantitative and randomized controlled research studies to increase the amount of scientific evidence on hippotherapy and other equine-assisted therapies. As more research is completed insurances and third party payers may begin to cover more treatment sessions. Also, educating practitioners on how to properly document and state what the therapy is for and how a patient will benefit, will help in order to increase the chances for insurance companies to cover the costs of hippotherapy and other equine-assisted therapies. Lastly, future efforts need to focus on educating how hippotherapy and other equine-assisted therapies involve more than just horseback riding. For example, stable management and maintenance, horse care, and equipment maintenance are all related to hippotherapy and equine-assisted therapy programs and offer beneficial occupations. All of these benefits can be transferred to other aspects of life and occupations of daily living. Feeding and caring for horses can provide carryover to food and nutrition related occupations and self-care occupations for the client.

Implications for Occupational Therapy

Based on the insights gained from developing this advocacy capstone in addition to the experiences of tis capstone semester, it is evident how occupational therapy practitioners can be advocates for any cause. First, research and education is the key component to the beginning of any advocacy efforts that are to be accomplished. Next, networking and developing relationships with different individuals and groups can help when looking for support and backing on an advocacy issue. Also, good communication and interpersonal skills are required. Lastly, and

most importantly, occupational therapy practitioners need to have genuine heart and concern related to the issues in which he or she is advocating for in order to be successful.

Occupational therapy practitioners can relate this advocacy project to their own individualized areas of practice in order to advance the public awareness and knowledge base about the benefits of hippotherapy and how hippotherapy can be used as a treatment strategy by simply being educated themselves. In every area and setting of practice, it is the obligation of the occupational therapist to provide the best care possible and resources necessary for his or her client to become as functionally independent as possible. Hippotherapy is centered on occupations being completed on horseback and in an equine related environment, occupational therapy practitioners understand the importance of treatment sessions revolving around completing occupations. Therefore, it is important for therapists to have a general understanding of hippotherapy, how it can be beneficial for different diagnoses, and integrating hippotherapy into a comprehensive treatment strategy to allow for the client to achieve his or her highest level of functional independence.

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Appendix A

List of Presentations and Courses Attended

Courses, Classes, Seminars, Lectures, Videos, Continuing Education, attended/viewed/read

1. Inside Autism: Therapeutic Riding and Autism

~Attended presentation at FFTRC on 1/10/11

Presentation was put on by Dana Jancik, M.A., CCC-SLP

S. T. A. R. S. Program Director

Specialized Teaching for Children with Autism and Resource Services

S.T.A.R.S. is a school-aged program providing educational services to students diagnosed with Autism Spectrum Disorder, in an environment that fosters acceptance, independence and success. It is a public school based program located in the Cardinal Local School District.

The staff is committed to "learn" about each student and, in return, teach each child in an environment which incorporates a multi methodological approach with a foundation in behavioral science to educate children with Autism Spectrum Disorder.

2. Hippotherapy: A Therapeutic Treatment Strategy

~ 1.0 Hr online CE approved for Physical Therapy

Course Objectives:

The goal of this module is to educate physical therapists about hippotherapy and improve their ability to identify suitable clients for referral to an appropriate facility. Following the completion of this manuscript, the reader will be able to:

- Understand the usefulness of hippotherapy as a specialty in physical therapy.
- Compare hippotherapy and its biomechanical benefits with therapeutic riding.
- Identify appropriate clients for referral to hippotherapy.

Course completed 1/13/11, available at: http://www.todayinpt.com/ce/PT09/CoursePage/

3. Fieldstone Farm Therapeutic Riding Center Volunteer Training Session

~ Attended FFTRC orientation and training session for volunteers on 1/19/11 Training session was put on by Melissa Hauserman, Volunteer Director

4. Disabilities Overview: Common Disabilities Seen in Hippotherapy and Therapeutic Riding Sessions

~ Attended presentation at FFTRC on 2/9/11

Presentation was put on by Debbie Sords, PT, HPCS, NARHA Certified Instructor

Appendix B

The Difference Between Hippotherapy and Therapeutic Horseback Riding

As horse people we all know first-hand that there are health benefits associated with owning, riding, and working with horses. For example, working with horses gets you moving physically and can be a work out, whether it is riding or cleaning stalls. Being around horses can provide social interaction, be a stress reliever and help to build ones confidence. Lastly, being involved with horses is continuously a learning experience and helps to keep our minds sharp. All of this being said there is an area of health care that utilizes the horse to help individuals reach desired functional goals known as hippotherapy. Unfortunately, hippotherapy is typically not covered by health insurance and hippotherapy is often confused with therapeutic horseback riding. Therefore, by reading this article I hope to help you understand the difference between the two and provide you with the resources necessary to do your part in educating others about the benefits and volunteer opportunities to help those that need it.

Hippotherapy is a physical, occupational, and speech-language therapy treatment that uses the dynamic movement of the horse to achieve therapy goals. This type of a treatment is effective because the gentle, rhythmic movement of the horse simulates human walking. The term hippotherapy comes from the Greek word "hippo" which means horse. Specially trained physical and occupational therapists use this treatment for clients with physical, social, emotional, and cognitive impairments. During a hippotherapy session the client is positioned on the horse, typically on a bare back pad which allows the rider to actively respond to the horse's movement. The therapist directs the movement of the horse, analyzes the client's responses, and adjusts treatments accordingly. Hippotherapy is used as a part of a treatment program to achieve functional goals and not the goal of teaching the individual to ride. Some of the benefits from hippotherapy include: increased muscle strength, increased flexibility and coordination, increased fine and gross motor skills, improved communication, improved posture control and balance, improved range of motion, and improved confidence and motivation.

Therapeutic horseback riding is a method of learning to ride a horse which takes into account a person's physical, mental, and emotional strengths and limitations. Therapeutic horseback riding sessions are conducted by a certified instructor and do not need to be conducted by a licensed therapist. Although therapeutic riding primarily works to teach the client how to ride, some of the same benefits from hippotherapy can be achieved through therapeutic riding. Improved physical strength, balance, mobility and coordination are accomplished through the physical act of riding a horse. Increased attention, concentration, learning, and verbal skills are inherent in learning the skills necessary to ride. Improvements in self-esteem, self-control, and confidence can be accomplished from the experience of learning to ride.

Hippotherapy and therapeutic horseback riding are fun and effective methods for working to achieve different medical and functionally related goals, and social, educational, emotional, physical and cognitive goals. To learn more about hippotherapy you can go to: www.americanhippotherapyassociation.com. If you are a therapist and interested in learning about becoming a certified hippotherapy specialist you can go to:

www.ptcny.com/clients/AHCB/index.html. Therapeutic riding centers are located all over Ohio and the United States and can use the help from volunteers to keep the facilities and programs running. Volunteers can perform activities ranging from working in the barn and with horses, to

helping with programs as a side walker or horse leader. To find a center near you to volunteer at you can go to: www.narha.org.

Appendix C

Hippotherapy Flyer 1

What is Hippotherapy?

Hippotherapy is a physical, occupational, and speech-language therapy treatment strategy that utilizes the dynamic movement of the horse to achieve therapy goals. This type of treatment is effective because the gentle, rhythmic movement of the horse simulates human walking. The term Hippotherapy comes from the Greek word "Hippo" which means horse

What are the benifits?





Benefits may include:

- Improved muscle strength
- Increased flexibility & coordination
- Increased fine & gross motor skills
- Improved communication
- Awareness of one's body in space (proprioception)
- Improved range of motion
- Improved posture control & balance
- Improved confidence & motivation

Learn More & Get Involved

To learn more about hippotherapy go to: www.americanhippotherapyassociation.com

If you are a therapist to learn more about becoming certified in hippotherapy go to:www.ptcny.com/clients/AHCB/index.html

To learn more and find a center near you to volunteer at go to: www.narha.org



Appendix D Fieldstone Farm Therapeutic Riding Center Flyer

Hippotherap An average size horse takes 90-110 steps a minute, requiring the rider to shift weight and make



subtle postural adjustments with every step. The **2700-3300 stepping repetitions over a typical 30 minute hippotherapy session**, combined with high patient motivation provide the ideal practice learning environment for learning new skills and functional motor strategies.



Learn about becoming a volunteer at Fieldstone Farm Therapeutic Riding Center and helping a rider to meet their goals at www.fieldstonefarmtrc.com or go to www.narha.org to find a therapeutic riding center near you.

Handicapped Association, Inc. PREMIER ACCREDITED CENTER

www.fieldstonefarmtrc.com 16497 Snyder Road Chagrin Falls, OH 44023 440-708-0013 www.fieldstonefarmtrc.com 16497 Snyder Road Chagrin Falls, OH 44023 440-708-0013
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Appendix E

Fieldstone Farm Therapeutic Riding Center Power Point



















Appendix F

Therapist Power Point



Objectives

- Understand the differences between hippotherapy and therapeutic horseback riding.
- Discuss the benefits of hippotherapy and
- Cite the evidence supporting the use of hippotherapy and other equine assisted therapies.
 Identify the steps required to becoming a Certified Hippotherapy Clinical Specialist.

What is Hippotherapy

- Treatment strategy that utilizes dynamic movement of the horse to achieve therapy goals
- -The rhythmic movement of the horse simulates human walking
- "Treatment with the help of the horse"
- Which comes from the Greekword "hippos" meaning horse

What is Hippotherapy

 According to the American Hippotherapy Association (AHA) Hippotherapy is a term that refers to the use of the term that refers to the use of the movement of the horse as a tool by Physical Therapists, Occupational Therapists, and Speech-Language Pathologists to address impairments, functional limitations, and disabilities in patients with neuro-musculoskeletal dysfunction; this tool is used as par of an integrated treatment program to achieve functional outcomes 1

When it All Started

peutic use of the horse has used throughout Europe the early 1950s

- Olympics, Liz Hartel won a medal in equestrian sports
- 1960s therapeutic riding centers developed throughout Europe, Canada and the United States

How Hippotherapy Works

- The rhythmical and three-dimensional movement of the horse facilitates postural corrections the rider may not be able to achieve on his or her own
- The rider moves up-down, forward-backward, side-side, and rotationally
- A full sized horse at a walk transfers about 110 multidimensional swing motions to the rider per minute

How Hippotherapy Works

- Farm atmosphere stimulates all senses
- The horse and its surroundings provide the basis for functional movement, which is necessary of purposeful activity that is the essence of life
- Use the horse to work on more specific fine motor and gross motor skill control, sensory integration, communication skills, and daily living skills

How Hippotherapy Works

- It can meet the unmet needs of people with musculoskeletal disorders -Mobility
 - -Interesting motor tasks
- activity of the voluntary motor-loop and additional flow impulses to the tactile, proprioceptive, and vestibular systems through the periphery

Benefits of Hippotherapy

Primary Goal

- -Posture
- -Balance



Benefits of Hippotherapy

- Psychological

 Adjustment to disability
 Enhanced
 comprehension and
 memory skills
 Social skills

- -Social skills -Improved -ommunication -Increased self-esteem -Improved confidence -Companionship of horses adds to therapeutic influence and motivation.





- Physical

 Stimulation of reflexes
 Relaxation of spastic muscles
 Improved balance
 Improved posture
 Increased muscle strength
 Increased flexibility and coordination
 Increased flexibility and gross motor skills
 Improved proprioception
 Improved range of motion

Research Studies

- Studies before the 1990s
 - -Pony Stable for Disabled Children
 - -Riede (1988) prolonged exposure to horse acceleration could not
 - -Documentation of benefits to rider

Research Studies

 Studies during the 20th Century -Baker (1991) study demonstrated decreased kyphosis of adults -Exner, Engelmann, Lange, and Wenck (1994) reported statistically significant effects on reduction of spasticity, pain, and impaired joint mobility of patients with paraplegia

Research Studies

- Lechner et al (2003) evaluated the shortterm effect of hippotherapy on spasticity of spinal cord injured patients
- 32 patients with SCI with various degrees of spasticity had repeated sessions (mean 11) of hippotherapy
- Results showed patients had decreased spasticity

Research Studies

- Silkwood-Sherer and Warmbier (2007) examine the effectiveness of hippotherapy as an intervention for treatment of postural instability in people with multiple sclerosis
- 15 participants attended weekly hippotherapy sessions for 14 weeks
- Results showed a statistically significant improvement from pretest to posttest on the Berge Balance Scale and the Tinetti Performance Oriented Mobility Assessment

Research Studies

- Shurtleff, Standeven, & Engsberg (2009) determined if hippotherapy improves head/trunk stability and upper extremity reaching/targeting in children with spastic dipelgia cerebral palsy (SDCP)
- 11 children ages 5-13 yrs with SDCP and 8 children without disabilities participated in 12 week program
- Results showed significant positive changes in head/trunk stability and reaching/targeting, elapsed time, and efficiency after 12 weeks of hippotherapy

Hippotherapy Research Conclusions

- Initial research in 1970s investigated hippotherapy as an intervention for scoliosis, kyphosis, and cerebral palsy
- More recent studies included individuals with autism, TBI, MS, and SCI
- Underlying theme of evidence sugges that the horse is being used successfully in medically based interventions

Becoming Certified

Credentials

- HPCS Hippotherapy Professional Clinical Specialist
- Designation of therapists who have advanced knowledge and experience in hippotherapy
 Examination offered twice a year in
- 18 states Columbus Ohio
Eligibility Requirements for HPCS

- Currently licensed to practice as a PT, OT, or SLP
- At least 3 years of FT or equivalent (6,000 hours) experience in the practice of PT, OT, or speech
- one direct treatment in hippotherapy within the 3 years prior to application deadline

Eligibility Requirements for HPCS

- Experienced and comfortable working with horses
- Independent riding ability
 Completion and filing of application for certification examination
- Payment of required fees



http://www.ptcny.com/clients/AHCB/inde

Becoming Certified

- Written exam with a maximum of 250 multiple-choice questions
- Total Testing time 4 hours
- Notified in 6 weeks of pass/fail
- Credentials are good for 5 years
 Retake or alternative requirements

-

Therapeutic Riding Centers Northampton Rd hoga Falls, OH 44222

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References

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Appendix G

General Public Power Point



Introduction What is Hippotherapy? -"treatment with the help of the horse," which comes from the Greek word "hippos" meaning horse.

Introduction

According to the American Hippotherapy Associator (AHA) Hippotherapy is a term that refers to the use of the movement of the horse as a tool by Physical or the movement of the horse as a tool by Physical Therapists, Occupational Therapists, and Speech-Language Pathologists to address impairments, functional limitations, and disabilities in patients with neuro-musculoskeletal dysfunction; this tool is used as part of an integrated treatment program to achieve functional outcomes.



When It All Started

- Therapeutic uses of the horse have be used throughout. Europe since the earl 1950s
- 1952 Olympics, Liz Hartel won a silv medal in equestrian sports
 - riding helped her recover from po
- 1960s therapeutic riding centers developed throughout Europe, Ca and the United States
 - Currently used in 24 countries

How Hippotherapy Works

- Movements on the horse gently and rhythmically moves the rider's body in a manner similar to the human gait
- Farm atmosphere stimulates all senses
- the horse to work on more specific fine motor gross motor skill control, sensory integration, skills, and dai



Benefits from Hippotherapy

- Improved muscle strength
- Increased flexibility & coordination
- Increased fine & gross motor skills Improved communication
- Awareness of one's body in space (proprioception)
- Improved range of motion Improved posture control & balance
- Improved confidence & motivation





More Information Available

- If you are a therapist and want to learn more about becoming
 - certified in hippotherapy go to: http://www.ptcny.com/clients/AHCB/index.html



More Information Available

 To learn more and find a center near you to volunteer at go to the North American Riding for the Handicapped Association – www.narha.org



Appendix H

Equine Affaire Handout



Appendix I

Facility Outlines and Comparisons



Fieldstone Farm Therapeutic Riding Center 16497 Snyder Rd Chagrin Falls, OH 44023-4313 (440) 708-0013 www.fieldstonefarmtrc.com

NARHA Accredited Facility

Fieldstone Farm Therapeutic Riding Center was founded in 1978, and has been operating from its current location since 1997.

Mission Statement:

Through a special partnership with horses, Fieldstone Farm Therapeutic Riding Center offers programs designed by professionals to foster growth and individual achievement for people with disabilities.

Facility Amenities:

Indoor Arena (200x 80) that can be divided into two smaller arenas by an electric hydraulic curtain, Observation Room (available both on main level and upstairs), Kitchen Area, Coat Room, Administrative Office Area, Bathrooms (2 sets that are accessible), Elevator, Student Waiting Area, Mounting Area (equipped with hydraulic lift that can be raised 5 ft), 2 classrooms, Carriage Room, Feed Room, Stall Area (36 matted stalls with automatic heated waterers, 8 crossties and 2 wash racks with hot and cold water), Outdoor Sensory Course, Outdoor Riding Arena, Outdoor Carriage Track (3/4 mile limestone path), Six large pastures for turnout, Gaitway High School (alternative classroom were up to 24 students can be served)

Activities offered:

Camps (Summer, Day, or Other), Competition (Special Olympic, Paralympics), Carriage Driving, Grooming & Tacking, Ground Work, Hippotherapy, Therapeutic Riding, Veterans Programs, Vocational Training, NARHA Horses for Heroes, EquiClub, Gaitway School, Instructor Training Program, Equine Partnerships, Mounted Lessons, Academic Enrichment. **Disabilities served:**

ADD or other Hyperactivity Disorder, Amputee, At Risk Youth, Autism, Cerebral Palsy, Developmental Delay or Disability, Downs Syndrome, Emotional, Behavioral, or Mental Health, Head Trauma/Brain Injury, Hearing Impairment, Learning Disability, Mental Retardation, Multiple Sclerosis, Paralysis, Orthopedic, Speech Impairment, Spina Bifida, Spinal Cord Injury, Stroke, Substance Abuse, Terminal Illness, Visual Impairment, Weight Control Disorders

Student Statistics:

- Male 60%, Female 40%
- Age
 - o 2-5 about 10%
 - o 6-10 about 34%
 - o 11-18 about 41%
 - o 19 & older about 15%
- Top 3 disabilities served
 - o Autism Spectrum, ADD/ADHD, Sensory Impairments
 - o Behavioral Disorders, Emotional/Mental/Psychosocial Disorders
 - o Cognitive Impairments, Developmental Disabilities, Fragile X, Down Syndrome

Staff and Board:

Fieldstone Farm is open six days per week, year round. There are approximately 36 staff members (10 full-time) and over 500 volunteers annually. Additionally, there are 25 board members and 9 foundation trustees.

- Ground Lesson Instructors: 5
- Riding Instructors: 5
- Advanced Instructors: 6
- Carriage Driving Instructors: 3
- Occupational Therapists: 1
- Physical Therapists: 2
- Hippotherapy Certified Practitioners: 3

Horses and animal break down:

Fieldstone Farm has on average 36 horses.

- Miniature horses: 2
- Ponies (any horse 14.2 hands or smaller): 13
- Draft Horses: 5
- Horses: 20
- Cats: 2

Documentation Style:

Narrative notes such as SOAP or SOAR notes are used for documentation.

Payment Methods:

Primary form of payment is self-pay. Some financial assistance/scholarships are available from Fieldstone Farm.

Models of Practice utilized at facility:

- Sensory Integration
- Model of Human Occupation
- Biomechanical Model
- Canadian Occupational Performance
- Psychosocial
- Behavioral
- Neurodevelopmental Therapy
- Occupational Adaptation
- Motor Learning
- Brunnstrom Movement Therapy



Mane Stride 11911 Leavitt Rd. Oberlin, OH 44074 info@manestride.com

Mane Stride is not a NARHA Accredited Facility, but has plans for future accreditation

Mane Stride is an equine assisted therapeutic and riding program that was established in 2009 to provide therapeutic riding lessons and equine assisted therapy to children with mentally and physically disabling conditions.

Mission Statement:

The mission of Mane Stride is to improve the quality of life and function of people with disabilities with the use of the horse as a therapeutic tool.

Facility Amenities:

32 matted box stalls (10 x 10), 2 indoor arenas, 1 outdoor arena, 3 turnouts, an indoor wash rack, heated/air conditioned viewing room and restroom facilities in the barn, multiple tack rooms and grooming stalls.

Activities offered:

Hippotherapy, Therapeutic Riding, Ground Lessons

Disabilities served:

Autism, Cerebral Palsy, Developmental Delay or Disability, Emotional, Behavioral, Learning Disability, Multiple Sclerosis, Orthopedic, Speech Impairment, Scoliosis, Sensory Integration Disorder.

Student Statistics:

At the current time Mane Stride has only been in operation and accepting clients for a few sessions.

- Male 67%, Female 33%
- Age
 - Serve students 5-18 years of age
- Top 3 disabilities served
 - Autism Spectrum
 - o Sensory Integration disorder
 - Cerebral Palsy

Staff and Board:

Mane Stride is open Monday, Tuesday, Wednesday, Friday and Saturday by appointment and sees clients the months March through December. The three founding therapists are full time employees and there is always a riding instructor from the facility that is present during treatment sessions and there are approximately 30 volunteers.

- Ground Lesson Instructors: 3
- Riding Instructors: 1
- Advanced Instructors: 0
- Carriage Driving Instructors: 0

- Occupational Therapists: 1
- Physical Therapists: 2
- Hippotherapy Certified Practitioners: 3

Horses and animal break down:

Mane Stride is located at Equine Differences. Equine Differences is set up for and owns about 30 horses, and the Mane Stride program leases the space and horses, and only uses about 6 horses for the current therapeutic program.

- Miniature horses: 0
- Ponies (any horse 14.2 hands or smaller): 0
- Draft Horses: 0
- Horses: 6
- Cats: 4
- Dog: 1

Documentation Style:

Narrative notes such as SOAP or SOAR notes are used for documentation. Check sheets are also utilized for attendance and documenting progress.

Payment Methods:

Primary form of payment is self-pay. There are currently plans for fundraisers and grant applications in order to provide some financial assistance/scholarships.

Models of Practice utilized at facility:

- Sensory Integration
- Model of Human Occupation
- Biomechanical Model
- Canadian Occupational Performance
- Behavioral
- Neurodevelopmental Therapy
- Occupational Adaptation
- Motor Learning
- Brunnstrom Movement Therapy



7490 Edison St Ne Hartville, OH 44632-9328 (330) 935-2300 tammi@pegasusfarm.org

NARHA Accredited Facility

Pegasus Farm is located on 120 acres in Hartville, Ohio. Pegasus was established in1985 by three teachers and has been in operation since the spring of 1986.

Mission Statement:

The mission of Pegasus Farm is to maximize the potential of persons with disabilities to become independent, well-rounded, self-confident individuals by providing equine activities along with recreational, social and vocational support.

Facility Amenities:

80 x 120 Indoor arena that is heated, program offices, volunteer station, observation room, gift shop, hydraulic lift for mounting, 2 outdoor riding arenas, Adapted Riding Course (therapeutic driving and riding trail), wooded trails (20 acres located beyond the pastures), Michael Fierro Memorial (gazebo serves as a private area), three different barn areas with stalls, outdoor playground and picnic area.

Activities offered:

4-H, Camps (Summer, Day, or Other), Driving, Equine Facilitated Experiential Learning, Grooming & Tacking, Ground Work, Recreational Riding, Therapeutic Riding, Vaulting/Interactive Vaulting, Veterans Programs, Vocational Training

Hippotherapy is currently not offered. Hippotherapy was available in the past and there is a possibility of having it offered again in the future.

Disabilities served:

ADD or other Hyperactivity Disorder, At Risk Youth, Autism, Cerebral Palsy, Developmental Delay or Disability, Downs Syndrome, Emotional, Behavioral, or Mental Health, Head Trauma/Brain Injury, Hearing Impairment, Learning Disability, Mental Retardation, Multiple Sclerosis, Paralysis, Orthopedic, Speech Impairment, Spina Bifida, Stroke, Substance Abuse, Terminal Illness, Visual Impairment, Weight Control Disorders

Student Statistics:

- The majority of the students are female versus male
- Age
 - Serve students 3-90 years of age
 - o 74% between 4 years and 20 years
- Top 3 disabilities served:
 - o Down Syndrome
 - o Cerebral Palsy
 - o Autism Spectrum disorders

Staff and Board:

Pegasus Farm is open six days per week, year round. There are approximately 23 staff members (6 full-time) and over 300 volunteers. Additionally, there are 17 board members and 8 committees.

- Ground Lesson Instructors: 1
- Riding Instructors: 5
- Advanced Instructors: 4
- Carriage Driving Instructors: 2
- Occupational Therapists: 0
- Physical Therapists: 0
- Hippotherapy Certified Practitioners: 0

Horses and animal break down:

Pegasus Farm has an average of 35-38 horses.

- Miniature horses: 2
- Ponies (any horse 14.2 hands or smaller): 18
- Draft Horses: 3
- Horses: 10
- Cats: 3
- Dogs: 1
- Other: 1 goat, 2 alpacas

Documentation Style:

Narrative notes such as SOAP or SOAR notes are used for documentation. Check sheets are also utilized for attendance.

Payment Methods:

Primary form of payment is self-pay. Pegasus Farm is a Medicaid Provider and a respite site for 7 counties and so respite money can be used to pay for lessons. Some financial assistance/scholarships are available.

Models of Practice utilized at facility:

- Sensory Integration
- Model of Human Occupation
- Biomechanical Model
- Canadian Occupational Performance
- Psychosocial
- Behavioral
- Occupational Adaptation
- Motor Learning



Valley Riding, Inc. a Cleveland Metropks Affiliate 19901 Puritas Ave Cleveland, OH 44135-1095 (216) 267-2525 valleyriding@sbcglobal.net

NARHA Accredited Facility

Valley Riding, Inc. is a non-profit affiliate of the Cleveland Metroparks, and was established in 1988.

Mission Statement:

To provide quality English horseback riding instruction and equine assisted activities to children and adults and to enhance awareness and appreciation of horses in a metropolitan setting.

Facility Amenities:

60x200 Indoor Arena with mirrors, Heated Lobby, Offices, Heated Wash racks,

Classroom/Activity Room, 2 Sets of Bathrooms, Multiple Tack Rooms, 2 Outdoor Riding Arenas, 2 Round Pens, Metro-Park Trails.

Activities offered:

Camps (Summer, Day, or Other), Riding Lessons, Barn Tours (fieldtrips), Therapeutic Riding, Boarding

Hippotherapy is currently not offered. Hippotherapy was available in the past on a very limited basis and there is a possibility of having it offered again in the future, but no plans are currently in place.

Disabilities served:

ADD or other Hyperactivity Disorder, Autism, Cerebral Palsy, Developmental Delay or Disability, Downs Syndrome, Emotional, Behavioral, or Mental Health, Head Trauma/Brain Injury, Learning Disability, Mental Retardation, Multiple Sclerosis, Orthopedic, Speech Impairment, Visual Impairment

Student Statistics:

- Male 15%, Female 85%
- Age
 - Serve students between 4–45 years of age
 - More than 50% of students are between 10-15 years of age
- Top 3 disabilities served
 - o Autism Spectrum Disorder
 - Attention Deficit Disorder
 - o Developmental Delay

Staff and Board:

Valley Riding Inc. is open seven days per week, year round. There are approximately 27 staff members (6 full-time) and over 100 volunteers per week. Additionally, there are 18 board members and 8 committees.

- Ground Lesson Instructors: 0
- Riding Instructors: 10
- Advanced Instructors: 2
- Carriage Driving Instructors: 0
- Occupational Therapists: 0
- Physical Therapists: 0
- Hippotherapy Certified Practitioners: 0

Horses and animal break down:

Valley Riding Inc. has on average a total of 70 horses at the facility, of those horses about 32 are lesson horses and may be used in the therapeutic riding classes, and the remainder of the horses are owned by boarders.

- Miniature horses: 0
- Ponies (any horse 14.2 hands or smaller): 14
- Draft Horses: 3
- Horses: 15
- Cats: 2
- Dogs: 1

Documentation Style:

Initial evaluations are completed for each student. Check sheets are also utilized for attendance and some brief notes are made on attendance sheets.

Payment Methods:

Primary form of payment is self-pay. Some financial assistance/scholarships are available through Valley Riding, and some of the participants are receiving county support for family resources.

Models of Practice utilized at facility:

- Model of Human Occupation
- Biomechanical Model
- Canadian Occupational Performance
- Psychosocial
- Behavioral



Victory Gallop 1745 N Hametown Rd. Akron, OH 44333 (330) 666-0300 vgallop@aol.com www.victorygallop.org

NARHA Accredited

Victory Gallop is a nonprofit organization that is located in Bath, Ohio, the program opened its doors in January of 1995.

Mission Statement:

Victory Gallop, Inc. (Victory Gallop) will provide innovative, progressive and quality therapy for children with life-threatening illnesses, behavioral and/or emotional challenges through the use of horses. We believe our first responsibility is to the children who will benefit from our services. Our goal is to offer a safe, nurturing environment,-which allows the children to increase their self-esteem and physical fitness, enhance task completion, and improve socialization and communication skills.

Facility Amenities:

9 Box Stalls, Heated/Air Conditioned Activity Room that over looks the indoor arena, 60 x 150 indoor arena, Outdoor riding arena, bathroom, tack room, laundry room with washer and dryer, Wash rack, Playground, Metro-park Trails.

Activities offered:

Grooming & Tacking, Ground Work, Recreational Riding, Therapeutic Riding, Camp, Fun Days, Birthdays, Ground Lessons.

Hippotherapy is currently not offered. Hippotherapy has never been offered at the facility and is not currently being planned for the future.

Disabilities served:

ADD or other Hyperactivity Disorder, At Risk Youth, Autism, Emotional, Behavioral, or Mental Health, Learning Disability, Speech Impairment, Substance Abuse, Terminal Illness, Cancer. **Student Statistics:**

Victory Gallop serves about 65-70 students per week.

- Age: 3-18 years
- Top 3 disabilities served
 - Autism Spectrum
 - Attention Deficit Hyperactivity Disorder
 - o Depression/Bipolar

Staff and Board:

Victory Gallop Inc. is open Mondays, Fridays and Saturdays, during the months of March to December. There are approximately 6-7 staff members (3 full-time) and over 30 volunteers weekly. Also, there are multiple committees.

• Ground Lesson Instructors: 7

- Riding Instructors: 4
- Advanced Instructors: 2
- Carriage Driving Instructors: 0
- Occupational Therapists: 0
- Physical Therapists: 0
- Hippotherapy Certified Practitioners: 0

Horses and animal break down:

Victory Gallop has on an average 10 horses.

- Miniature horses: 1
- Ponies (any horse 14.2 hands or smaller): 3
- Draft Horses: 0
- Horses: 6
- Cats: 2
- Dogs: 6

Documentation Style:

Victory Gallop primarily uses a check-list and brief notes on charting for documentation.

Payment Methods:

Primary form of payment is self-pay. Victory Gallop does offer financial assistance through sponsorships and scholarships.

Models of Practice utilized at facility:

- Sensory Integration
- Model of Human Occupation
- Canadian Occupational Performance
- Psychosocial
- Behavioral
- Allen Cognitive Disabilities Model
- Coping Model of Practice
- Role Acquisition

Annotated Bibliography

All, A. C., Loving, G. L., & Crane, L. L. (1999). Animals, horseback riding, and implications for rehabilitation therapy. *Journal of Rehabilitation*, 65, 49-57.

There is no abstract available for this article. This article reviews the use of animals in therapy for people with disabilities, including the implications and issues that arise for rehabilitation professionals. Published literature was more easily available on Animal-Assisted Therapy (AAT) that focused on common pets that are easily transported, for example dogs and cats; compared to therapeutic horseback riding or hippotherapy, which requires larger animals and the client to travel to a facility. Therefore, the authors divided their review into two sections, the first section is on interventions that do not use horses, and the second section is on interventions that use horses.

The article further divides interventions using animals into four categories: Pet Visitation, Animal-Assisted Therapy, Hippotherapy, and Therapeutic Horseback Riding. After reviewing all of the literature, the authors concluded that all categories of interventions show proven benefits to the clients. However, each intervention strategy needs to be carefully assessed for appropriateness and calculated benefits for each individual client. Also, the author's state how important it is for future research related to AAT needs to work on the development of standardized measurement tools. This article is relevant because the authors stated how publications related to hippotherapy were not vast in number, thereby indicating the need for advocating for more research and information related to the benefits of hippotherapy services. American Hippotherapy Association. (2007). Hippotherapy as a treatment tool, Introduction to hippotherapy, The history of hippotherapy, and Present use of hippotherapy. Retrieved January 12, 2011, from

www.americanhippotherapyassociation.org

There is no abstract for this website or these articles found on the website. This is a very informative and pertinent resource for the Capstone Experience. This website is the association that provides general information, history, research, credentialing, classes and other resources related to hippotherapy. Specifically the article on hippotherapy as a treatment tool provides definitions and domains for OTs, PTs, and SLPs, and for terminology related to hippotherapy. Also, the article lists general indications and impairments for hippotherapy. A timeline dated back to the 1900's provides an outline of the history of hippotherapy. Lastly, the article discussing current use of hippotherapy stresses the widespread acceptance of hippotherapy within the medical/professional and educational communities, including the American Physical Therapy Association (APTA), American Occupational Therapy Association (AOTA) and the American Speech and Hearing Association (ASHA). The article talks about certification in hippotherapy and how significant of a tool the horse is, given the ability of the therapist to modify the horse's movement, rhythm, dimensionality, and regularity to make demands on the individual involved in treatment.

This resource is very important for the Advocacy Capstone Experience because the AHA may serve as a key player in the plan. The AHA will be able to provide links to other resources such as potential courses that could be attended and research available. Also, the site can offer information on how to get certified in hippotherapy, and potential contact information to other therapists that are certified.

American Hippotherapy Certification Board. (2001). Certification in the examination in the clinical specialty of hippotherapy. Retrieved January 17, 2011 from, http://www.ptcny.com/clients/AHCB/index.html

There is no abstract for this website. This is the official site for certification in hippotherapy. This site contains all of the eligibility criteria in order to apply for the certification examination. The site also includes the deadline dates, exam dates, fees, and regional testing centers. Downloadable forms for the application process including the handbook are available through the site and by postal mail. This site is important because it outlines the steps required to become a certified clinical hippotherapy specialist, which is one of the objectives that I have written for my capstone. There is an examination site in Ohio and it is located in Columbus. The fee for the examination for American Hippotherapy Association members is \$275 and for non-members is \$350. This website will be useful when developing the Power-Point for educating therapists on hippotherapy and certification. Also, knowing the certification process will be useful when talking to interested members of society and for my own personal use after graduation in order for myself to begin the certification process.

American Hippotherapy Certified Board. (2010). Hippotherapy clinical specialist certification examination: Handbook for candidates. Retrieved January 14, 2011, from http://www.ptcny.com/PDF/AHCB.pdf

There is no abstract for this handbook. This is the current handbook for candidates that are interested in applying for the examination for the hippotherapy clinical specialist certification examination. This is a very important source that explains the pre-requests for the examination, including dates, fees, and testing locations. The handbook also provides an outline of the content that will be on the examination, and beneficial resources for examination preparation. There are example questions that could be on the test to help the test taker when studying. Lastly, this handbook provides the forms for application for the examination that need to be filled out. I will be able to use this resource when I am developing the Power-Point presentation for therapists to ensure accurately stating what the certification and examination process entails. I will also use this handbook when I am outlining the steps that therapists are required to take when becoming certified in hippotherapy.

Bassett, J. (2002). Back in the saddle: Therapist and horse 'giddy up' for functional goals and much more. *ADVANCE for Occupational Therapy Practitioners*, *18(14)*, 14.

There is no abstract for this article. This article discusses the account of a physical therapist using hippotherapy to work with children to achieve functional goals. The location of the farm is in Pennsylvania. The therapist stresses how in hippotherapy, goals are function-oriented, capitalizing on the horse's natural ability to provide a foundation of improved neuromotor function and sensory processing. Also, the article distinguishes the difference between hippotherapy and therapeutic horseback riding, which are often confused and used interchangeably. Hippotherapy is not aimed at teaching participants to ride. Hippotherapy is part of a complete treatment program in which evaluations, documentation, attainment of specific goals, discharge criteria, and billing all stay consistent with the therapist's professional protocol. Although this article is based on a physical therapist using hippotherapy was used for functional goals. Occupational therapists' work with clients on being as independent and functional as possible, thus this hippotherapy program can be a model for future occupational therapy lead hippotherapy programs in the future.

Bronson, C., Brewerton, K., Ong, J., Palanca, C., & Sullivan, S. J. (2010). Does

hippotherapy improve balance in persons with multiple sclerosis: A systematic

review. European Journal of Physical and Rehabilitation Medicine, 46(3), 347-353.

Abstract: AIM: Multiple sclerosis (MS) leads to changes in balance due to the breakdown of a number of neurological processes. Hippotherapy utilizes the movement of the horse to provide sensory feedback and has been used as a therapeutic intervention for different neurological conditions. Little is known about the effects of hippotherapy in MS. The purpose of this study is to systematically review and examine the evidence for hippotherapy as an intervention to improve balance in persons with MS. METHODS: Major electronic databases were searched for articles relating to hippotherapy, MS and balance. Only full length articles published in peer reviewed journals that were written in English or translated into English were included. Articles were assessed using a modified quality index that was used for descriptive purposes only and did not exclude any study from the review. RESULTS: All studies examined in this review were either case-control or case-series. Collectively all three studies reported improvements in balance. Pre-test and post-test Berg Balance Scale scores in two studies revealed that primary progressive MS demonstrated the greatest amount of change after hippotherapy compared to other subtypes of MS. CONCLUSION: Hippotherapy has a positive effect on balance in persons with MS and has an added benefit of enhancing quality of life. The data is limited and further research will lead to a greater knowledge base and has the potential to increase accessibility for hippotherapy to be used as a rehabilitation modality.

This research study is relevant to the profession of occupational therapy because it expands on the concept of balance and postural control for the basis of function, and looks at those individuals diagnosed with MS. It is important to have a diverse amount of hippotherapy research related to multiple different diagnoses. Only three research articles were found that met the criteria for this study, but all three of the articles reviewed showed benefits and improvements for those with MS who participated in hippotherapy treatment sessions. There may be more research regarding hippotherapy as a treatment approach for individuals with MS, however the research may not all be published in peer reviewed journals or the research may have different terms tagged that were not included in this electronic database search. Either way, more research needs to be completed and published to support the current research on the benefits of hippotherapy among the MS population showing improved balance, function and quality of life. This research is needed to help formulate standards for practice and ensure insurance and third party reimbursements. Additionally, this research substantiates the use of hippotherapy as an intervention strategy for balance goals.

Casady, R. L. & Nichols-Larsen, D. S. (2004). The effect of hippotherapy on ten children

with cerebral palsy. Journal of Pediatric Physical Therapy, 16(3), 165-172.

Abstract: PURPOSE: The purpose of this study was to determine whether hippotherapy has an effect on the general functional development of children with cerebral palsy. METHODS: The study employed a repeated-measures design with two pre-tests and two post-tests conducted 10 weeks apart using the Pediatric Evaluation of Disability Inventory (PEDI) and the Gross Motor Function Measure (GMFM) as outcome measures. A convenience sample of 10 children with cerebral palsy participated whose ages were 2.3 to 6.8 years at baseline (mean +/- SD 4.1 +/-1.7). Subjects received hippotherapy once weekly for 10 weeks between pre-test 2 and post-test 1. Test scores on the GMFM and PEDI were compared before and after hippotherapy. RESULTS: One-way analysis of variance of group mean scores with repeated measures was significant (p < 0.05) for all PEDI subscales and all GMFM dimensions except lying/rolling. Post hoc analyses with the Tukey test for honest significant differences on the PEDI and GMFM total measures as well as GMFM crawling/kneeling and PEDI social skills subtests were statistically significant between pre-test 2 and post-test 1. CONCLUSIONS: The results of this study suggest that hippotherapy has a positive effect on the functional motor performance of children with cerebral palsy. Hippotherapy appears to be a viable treatment strategy for therapists with experience and training in this form of treatment and a means of improving functional outcomes in children with cerebral palsy, although specific functional skills were not investigated.

The authors of this research study methodically explored whether hippotherapy has on effect on the general function of children with cerebral palsy or not. The authors thoroughly explain the methods used to collect data, and describe the tools used to measure the data. The tools used in this study have research that supports the validity of the measures. This article concludes that there are positive effects from the use of hippotherapy as a treatment method to work on improving functional outcomes in children with cerebral palsy. These results are influential in the practice of occupational therapy because occupational therapists work with clients on improving function, thereby increasing independence. Additionally, being on horseback offers a meaningful and purposeful occupation for the client, while he or she is working on achieving functional goals. However, this article like many others has a small sample size consisting only of 10 children. More research needs to be conducted with larger sample sizes to help solidify research results. Lastly, I like how the authors stress the importance of the therapists having experience and training in the area of hippotherapy helping to advocate for therapists to explore this area of practice. Stating the importance for therapists having training is a step towards developing standards of practice within the area of hippotherapy.

Champagne, D. & Dugas, C. (2010). Improving gross motor function and postural control

with hippotherapy in children with Down syndrome: Case reports. Physiotherapy

Theory and Practice, 26(8), 564-571.

Abstract: The purpose of this case report is to describe the impact of an 11-week hippotherapy program on the gross motor functions of two children (respectively 28 and 37 months old) diagnosed with Down syndrome. Hippotherapy is a strategy that uses the horse's motion to stimulate and enhance muscle contraction and postural control. The children were assessed by the Gross Motor Function Measure (GMFM) and accelerometry. The results indicate that both children improved on many dimensions of the GMFM. Power spectral analysis of the acceleration signals showed improvement in postural control of either the head or trunk, because the children adopted two different adaptive strategies to perturbation induced by the moving horse.

This research demonstrates how hippotherapy can be used to benefit young children with Down syndrome. Occupational Therapy works with young children often times with body control for exploratory play purposes as the child grows and develops. This case report supports the use of hippotherapy as an intervention to be used in children with Down's syndrome to enhance postural control. Postural control is extremely important and one of the first building blocks for becoming independent with functional mobility. For example, a child needs to be able to sit independently before attempting to stand and move around. This article supports the use of hippotherapy, but there were only two subjects in this study. The lack of study participants diminishes the statistical significance of the study results. Further research needs to be done with larger sample sizes with this population in order to obtain statistical evidence for the use and benefits of hippotherapy on postural control in children with Down's syndrome. Cook, R., Hipsher, C., & MacKinnon, J. R. (2007). Part II: Research. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp.127-173). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 16: Using a Developmental Riding Therapy Approach to Provide Occupational Therapy to a Client With Traumatic Brain Injury: A Single-Case Study

- Although a TBI is a non-progressive brain lesion, the long term impact may cause interference with learning ability, cognitive integration, social interaction and status, selfesteem, and motivation for personal goal setting and achievement.
- A head injury is a disability that can require a long rehabilitation process, which can make patients frustrated and less motivate for therapy.
- Developmental riding therapy (DRT) is the integration of neurophysical and psychosocial treatment procedures with developmental positions and sequences in the form of purposeful activities, tasks, and games to gain specific medical goals in the treatment of clients with central nervous system disorders such as TBI.
- Case Study: "Dawn"
 - Dawn was involved in a serious motor vehicle crash when she was 18 years old.
 Dawn was hospitalized for 7 months, in a coma for the first 6 weeks and with diagnosis of TBI.
 - For three years post-accident she attended physical, occupational, and speech therapies, and three months after discharge from therapies Dawn was enrolled in

group therapeutic horseback riding lessons. After two eight weeks group lessons, Dawn obtained a physician's referral for private OT sessions using the horse.

- Results after three years of OT using DRT Significant positive gains in all areas tested.
 - 30% increase in function in self-care tasks
 - ROM demonstrated an average of 26% increase
 - The Goodenough-Harris Draw-a-Person Test indicated a 6yr 3mo gain in cognitive functioning
- Conclusion: It is generally though that most recovery is achieved in the first year of disability. The case study presents a person seen 4 years post TBI. The DRT approach shifts attention from self to horse; it enhances strengths and defines target areas in a way that does not seem problem-focused to the client. This system clearly disguises the therapeutic process through pleasurable tasks and challenging skills, thereby progressing clients through a series of meaningful, purposeful achievements that enable them to see themselves as competent.
- Chapter 17: Therapeutic Horseback Riding and Reaction Time in Children with Disabilities: An Exploratory Pilot Study
 - This study measured reaction time in children who participated in a therapeutic riding program as well as in a group of children not participating in a therapeutic riding program.
 - Reaction time is a reflection of the length of time it takes for a movement to be planned.

- First hypothesis was that in a pretest-posttest simple experimental design, a significant changing the reaction time of the children in the riding group would occur between the beginning and end of the riding program.
- Second hypothesis was that the reaction times of the children in the riding group would be significantly different from the reaction times of the children in the non-riding group.
- There were 2 children in the riding group and 2 in the non-riding group, ranged in age from 8 yrs 6 mo to 8 yrs 11 mo. The riding group participated in an 8-week therapeutic riding program.
- Custom software calculated the time from when the stimulus appeared to when the participant released the switch.
- Results show that both of the participants in the riding group had shorter reaction times in the posttest than in the pretest. The participants in the non-riding group had slightly slower reaction times in the posttest than in the pretest.
- Because of the small sample size inferential statistics could not be used to determine whether the results were significant.

Chapter 18: Effect of Hippotherapy on Physical Capacity in Parkinson 's Disease: A Single-Case Study

• Hippotherapy provides a strong sensorimotor and sensory-integrative component and thus is an appropriate occupational therapy intervention for the enhancement and maintenance of stages of Parkinson's disease.

- The study focused on a 42 year old man (Jim) diagnosed 11 years previously with Parkinson's disease.
 - He received OT involving 30 min weekly hippotherapy sessions for 1 year.
 Hippotherapy was the only form of therapy received during the study time.
 - Gait analysis and dynamometer grip strength testing were chosen to measure physical capacity.
- Results: From the initial evaluation to the 1 year evaluation gait analysis demonstrated the following:
 - Increased stride length of 78%
 - A 16% slower stride time
 - A 74% increase in walking speed
 - An improvement of 74% in relative speed
- Results: From the initial evaluation to the 1 year evaluation grip strength show an increase of 17% on the right, no decrease or increase on the left, and a combined score increase in strength of 9%.
- Conclusions: This single-case study indicates that OT using hippotherapy had a positive effect on both short and long term physical function.

Chapter 19: What is the State of Hippotherapy Research and Where Should we Go From Here?

• The purpose then, of this chapter is to examine the research that has been generated in recent years, critically analyze it, and comment on its benefits and limitations.

- Analyses of 18 research studies
 - Multiple terms are use to describe therapeutic riding, only 3 of 18 studies use hippotherapy.
 - The number of participants range from 1 to 40
 - 12 focused on children, 2 on adults, 2 on both, and 2 did not specify the age of the participants
 - 7 involved participants with mixed or more than 1 medical condition, 4 with CP, 2 with ADHD, 2 autism, 1 MS, 1 learning disability
 - Most outstanding limitation is design and analysis, wide age range of participants, low number of participants, instrumentation.

These chapters finish up the research section of the text. These chapters as well as the rest of the research section evaluate the effectiveness and positive outcomes for the use of hippotherapy and therapeutic riding among different populations. It is important to read and learn about new findings in this new and exciting area of occupational therapy. Understanding the research related to hippotherapy allows for evidence based practice.

Debuse, D., Gibb, C., & Chandler, C. (2009). The effects of hippotherapy on people with

cerebral palsy from the users' perspective: A qualitative study. Physiotherapy

Theory and Practice, 25, 174-192.

Abstract: Although there is now some evidence for specific effects of hippotherapy on people with cerebral palsy, these studies fail to provide a comprehensive picture of the effects of hippotherapy. This was the first qualitative study to explore the hippotherapy experience of people with cerebral palsy from a user perspective. The effects of hippotherapy and their context were of particular interest. Seventeen users aged from 4 to 63, with or without their parents, participated in focus groups or individual interviews in six centers in Britain and in Germany. The main effects of hippotherapy, as identified by users and parents, are normalization of muscle tone, improved trunk control, improved walking ability, carryover effects of hippotherapy to activities of daily living, and increased self-efficacy, confidence, and self-esteem. This study provided unique and new insights into the context in which hippotherapy happens, as well as its effects on impairment, activity, participation, and quality of life in people with cerebral palsy. The study's findings are integrated with the existing literature on motor learning and pedagogy to try to explain the complex effects of hippotherapy as reported by users and parents. A conceptual framework that illustrates these effects and their interactions is introduced.

This research study is relevant to the profession of occupational therapy because

occupational therapists work with a client and treats him or her as a whole person. Also, the idea of choice as a part of an OT intervention is widely studied and encouraged in order to increase meaning and purpose accompanied with the desired outcomes from an occupation. This study demonstrates how the hippotherapy client and the client's family interpret the effects of hippotherapy, and as in any treatment method if the individual is able to participate in occupations that provided meaning and purpose and the individual and his or her family are able to see improvements, compliance with the treatment program is more probable. Hippotherapy as a treatment strategy used by occupational therapists can provide meaningful and purposeful occupations to the client, thereby producing increased positive functional improvements compared to other treatment strategies. Dever, R.S. & Dawson, M. (2007). Part III: Evaluation and Treatment Planning. In B.
 Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy:* A guide for occupational therapy (pp.174-182). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 20: Treatment Guide: A Tool for Organizing an Documenting a Hippotherapy Session

- Incorporation hippotherapy into OT practice provides therapists with a unique environment in which to challenge their client's adaptation skills, sensory processing capabilities, and fundamental movement patterns through meaningful and purposeful activity to maximize their potential for independence.
- Following the hippotherapy session the therapist reviews the client's progress and completes a report for the next session.
- Writing out a detailed hippotherapy session treatment guides serves many purposes.
 - Primary importance of the treatment guide directs particular activities with specific professional based therapeutic goals and objectives.
 - The goals and objectives are clearly established and outcomes are measured according to one's professional training, there can be no doubt that a hippotherapy session is occupational therapy rather than physical or speech therapy.
- Chapter 21: Integrating Hippotherapy Into Mainstream Rehabilitation: The Collaboration of a Private Practice With A Hospital Rehabilitation Center
 - For hippotherapy to be part of "mainstream" occupational therapy, it must be incorporated into traditional rehabilitation services.

- Many areas of the United States have no hippotherapy services available.
- This chapter explores a model that has expanded OT services using hippotherapy in the North Atlanta, Georgia area.
 - Hippotherapy practice collaborates with a hospital system
 - This is one possible model of collaboration. OTs are encouraged to be creative in developing models that facilitate quality OT services using hippotherapy to increase the available services for our clients.

This brief section touches on how important documentation and providing hippotherapy services are to clients. Documentation needs to be detailed, clear, objective, and professionally written for purposes of showing improvements to insurance companies, other health care professionals, the client's and their families. The majority of insurances and other third party payers do not pay for hippotherapy services. Therefore, it is even more important to document sessions thoroughly to help demonstrate the benefits of hippotherapy. Also, collaborating with already established hospitals and health care centers is a method of reaching out to clients that can greatly benefit from occupational therapy directed hippotherapy interventions.

Diffendal, J. (1999). Hippotherapy: A new approach to violence prevention? *ADVANCE for Occupational Therapy Practitioners*, Retrieved January 11, 2011, from http://occupational-therapy.advanceweb.com/Article/Hippotherapy.aspx

There is no abstract for this article. This is an interesting article that talks about the development of a pilot hippotherapy program for Oklahoma's challenged youth to help in violence prevention. The program ran for 16 two hour sessions, twice a week for eight weeks, the students progressed from learning horse anatomy and horse safety to mounting and riding. One of the primary goals of the program was to have participants associate lessons learned with the horses with skills to use in everyday situations. All of the children in the program took preand post- short-form Bruininks-Oseretsky Motor Perceptual Child's Depression Inventory tests, and the Piers-Harris Self-Esteem Scale. The article does not give statistical data, but does make account of one boy who improved his score of a 36 to a 1 on the depression inventory test, and improved his social interaction score from 42 to 70. This article is lacking statistical evidence, but does show subjective support for the use of hippotherapy as an intervention strategy to decreases stress, increase social skills, and to improve self-esteem.

Engel, B. T., Devery, R. S., Marx, C. A. & Spink, J. (2007). Part IV: Practice Techniques.
In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp. 241-256). Bethesda, MD: AOTA
Press.

Summary/highlights and Significance of text.

Chapter 32: Medical Value of Vaulting: A Review of the Literature

- The literature on the use of vaulting as therapy for people who have disabilities is limited.
- Summary of Literature
 - Basic exercises in vaulting can be used to promote developmental milestones.
 - Vaulting requires frequent change of body position, allowing for further interpretations of patterns
 - Schultz (1997) reported on children with autism having stereotypes and mannerisms absent by the end of one year of vaulting and the children were able to interact with each other.
 - Vaulting elicits the development of trust and cooperation.
 - Finzgar and Schneide (1994) divided vaulting into six levels. This system addresses physical, cognitive and emotional challenges.
 - Level 1: body and spatial awareness, coordination and balance.
 - Level 2: development of muscular endurance and flexibility.

- Level 3: increasing flexibility and endurance; development of body strength and coordination, dynamic and static motor control.
- Level 4: flexibility and strength; increase exercises requiring strength and extension, balance, and static tension and endurance.
- Level 5: ability to raise body part from the back of the horse and maintain equilibrium; increase endurance through more difficult positions.
- Level 6: use of space in all planes; increased variety of movements, amplitude, and creativity.

Chapter 33: A Developmental Approach to Treatment of a Child with Multiple Disabilities

- Case study following Nick" who has a primary diagnosis of CHARGE and a secondary diagnosis of left stroke resulting in right side weakness, right side neglect, profound hearing loss, and respiratory complications.
- What is CHARGE Syndrome?
 - CHARGE syndrome is an uncommon diagnosis that affects 1 in 12,000 births.
 - It is based on the physical presentation of a child with a specific set of birth defects.
 - CHARGE is an acronym based on the most common features seen in children with the syndrome:
 - Coloboma, a cleft or failure of the eyeball to close

- Cranial nerve damage, may result in facial palsy, swallowing problems or hearing loss
- Heart defects
- Atresia: blockage or narrowing of the choanae (passages from the back of the nose to the throat that make it possible to breath)
- Retardation of growth and development
- Genital and urinary abnormalities
- Ear abnormalities or hearing loss
- CHARGE facial features tend to include a square shaped face and head, flat cheekbones, facial asymmetry, a wide nose with a high bridge and unusual ears.
- No laboratory test can diagnose CHARGE syndrome, and the cause is unknown.
- Nick received OT, PT, SLP and developmental therapy at a NARHA accredited facility, each service was provided once a week for 60 minutes.
- Upon his initial evaluation, he was totally dependent for support, balance, and stability and had a high guard response to movement.
- At one year reevaluation, he could sit p independently for a distance of 40 feet while the pony was walking. He used his hands for balance and reached without shoulder fixing.
Chapter 34: Visual Perception and Low Vision Training: A Follow Up Activity After Hippotherapy

- Visual perception is the ability to understand, process, and interpret what one sees.
- Gains in visual perceptual skills from a hippotherapy session may occur from the heightened state of awareness and alertness experienced by the client.
- This chapter provided five puzzles to work on low vision training ranging in difficulty level.

Chapter 35: Horse Handling Techniques

- Developing a repertoire of skilled horse handling techniques is a critical aspect of equineassisted therapy.
- One technique is the therapy triangle.
- The horse, the therapist and assistant form the triangle.
- The connectedness is a fundamental aspect of the system and it is used for 3 parallel purposes:
 - o 1: allows the team to take advantage of every moment during session
 - 2: the therapy triangle provides an in hand method of handling the horse that is client centered
 - o 3: the therapy triangle requires a client specific safety handling protocol
- If the client requires two side supporters for complete postural security on the horse then another method of horse handling must be used.

• This technique was designed specifically for clients who have good trunk and head control, possess appropriate postural reactions in regard to upright posture on the horse with graded movement challenges and have consistent behavior control.

These final chapters in the practice techniques section of the text provide multiple examples and details on how hippotherapy and equine-assisted therapies are beneficial to clients. One chapter summarizes the use of vaulting as a part of treatment and breaks down the six levels of vaulting related to the development of strength, balance, coordination and control. Another chapter provides a case study and discusses in depth about a rare diagnoses called CHARGE syndrome and how vaulting improved areas of functioning for a client with CHARGE syndrome. Finally, there are copies of available puzzle handouts that can be used in visual training exercises. All of these chapters are relevant to occupational therapy as they are discussing the benefits of equine-assisted therapies and how treatments can lead to increased functional ability and independence. The examples of the handouts that can be used in visual training, provide a basis for intervention and can be graded by therapists to be used with other client interventions.

Engel, B. T., & MacKinnon, J. R. (Eds.). (2007). Enhancing human occupation through

hippotherapy: A guide for occupational therapy. Bethesda, MD: AOTA Press.

Book Description: Occupational therapy has always focused on the individual as active in meaningful and purposeful activity. In hippotherapy, the therapist uses the horse as an intervention strategy to help stimulate a client, who passively sits astride a moving horse and then accommodates him or herself to the movement. If there is no active, purposeful participation and the client is not actively or purposely involved, how does occupational therapy fit? That question has led to the development of this book, the first detailing occupational therapy's current and potential contributions to hippotherapy. Occupational therapy uses activities as a strategy for intervention. Therapists help reintroduce activities to those with injuries, diseases, or disabilities to increase their meaningful function and enjoyable life. Use of the horse can address many of the physical and psychological problems that clients encounter when they are completely involved with the horse and its environment. The chapters in this book will appeal to different audiences depending on their needs, interests, educational qualifications, and experiential backgrounds. It will be useful for undergraduate and graduate students who want to study more about hippotherapy; for faculty members who plan to include hippotherapy in their academic curricula; for researchers who are studying and documenting hippotherapy; for clinicians who are working in hippotherapy or therapeutic horseback riding and want to update their knowledge in research or a particular practice area; and for riders or their family members who are interested in the development, application, and benefits of hippotherapy.

This is a valuable source for my Capstone Experience because it is written by

occupational therapists and explains all areas of hippotherapy and how it relates to the practice of occupational therapy. The book goes into detail on the following five parts that the book is organized into: history, philosophy and theory, research, evaluation and treatment planning, practice techniques, and business management and training techniques. Included in the text are actual assessment tools, and evaluation forms that can be used during hippotherapy treatments, and evaluations. This book will be very beneficial in supporting and advocating for occupational therapy guided hippotherapy treatment sessions.

Engel, B.T., Weisberg, J., & Splinter-Watkins, K. (2007). Part I: History, philosophy, and theory.
In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp. 1-29). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 1: An Introduction to Hippotherapy Terminology and Development

- As early as the 1500s, the gentle movement of the horse was felt to be medically beneficial. Contemporary use of the horse to treat individuals with disabilities has developed rapidly during past 45 years throughout world.
- In the late 1960s, therapeutic riding was introduced in the United States from Canada and Europe.
- The term, hippotherapy, hippo meaning horse, was coined by the Swiss to describe a specialized medical treatment prescribed and monitored by physicians and carried out by therapists.
- In 1992, the American Hippotherapy Association was established.
- Hippotherapy generally is accepted internationally as the model for the use of the horse as a treatment strategy, although different countries may use different terminology.

Chapter 2: Hippotherapy in the Practice of Occupational Therapy

- The equestrian environment and the horse provide challenges that are never constant. The companionship of horses adds to therapeutic influence and motivation.
- The horse and its surroundings provide the basis for functional movement, which is necessary for purposeful activity that is the essence of life.

- In occupational therapy practice, the horse's movement is of prime importance. The horse's movement can be combined with riding skills, vaulting, and sensorimotor and cognitive development, as long as the objective is achieving the client goals and not "teaching riding."
- Treatment sessions in OT may involve sitting astride the horse, therapy off the horse, or both.
- Examples of client goals and occupations: riding provides, sensory input, spatial awareness, coordination, and strength, grooming provides the client with tactile input, gradation of pressure, ROM, and spatial relationship, saddling involves cognition skills, strength, and physical coordination, leading facilitates spatial relationship.

Chapter 3: Determining the Goodness of Fit Between Occupational Therapy and Therapeutic Riding

- Occupational therapists appreciate the quality of life through the lens of activity. Changes in health care demand that OT services expand beyond the medical model setting.
- The American Hippotherapy Association (AHA) recognizes the three-dimensional movement of the horse as a successful intervention to help clients reach functional outcomes. Both the horse and environment of the horse offer an opportunity for a nontraditional therapeutic intervention.
- The shared understanding of using the natural environment to benefit the individual suggests a theoretical match between therapeutic riding and occupational therapy.

• Treatment goals tend to fall under the categories of sensory integration, biomechanical treatment, and cognitive treatment subcategories.

Chapter 5: Theoretical Frames of Reference Applied to Hippotherapy and Equine-Assisted Occupational Therapy.

- A. Jean Ayres
 - Five major syndromes were identified from the data of the statistical analysis that Ayres gathered, including apraxia, form and position in space, integration of the two sides of the body, visual figure-ground perception, and deficits in tactile perception.
 - How hippotherapy fits into practice of sensory integration:
 - Apraxia: motor planning activities, grooming requires movement of arms and fingers, astride horse requires stretching & manipulation of the reins, vaulting positions graded for difficulty based on function and motor planning.
 - Form and position in space are dependent on proprioceptors. The
 proprioceptive and vestibular systems address postural responses, balance,
 and gravitational security all of which can be addressed through activities
 on or off of the horse. Stimulation on the horse from different gaits and
 movements.
 - Integration of the two sides of the body and postural deficits are addressed in all movements and riding positions on the horse.

- Touching and petting the horse as well as fingering grain and hay when feeding can stimulate deficits in tactile perception and discrimination.
- Visual figure-ground and visual perceptions are stimulated by the vestibule-ocular reflex, which helps to stabilize the visual field during riding. Sensory modulation manifestation, such as gravitation insecurity and lack of tolerance to movement, can be graded easily on the horse by selecting different sized horses with different gaits.
- Gail S. Fidler
 - Fidler focused on the analysis of activities that include motor, sensory integration, cognitive, psychosocial, and interpersonal skills matched to the individual's preparedness to learn.
 - Fidler's early psychoanalytic thoughts focused on interpersonal relations and symbolic expression of objects and activities.
 - With a live animal and its historic symbolic nature, the horse, its stable, its care, and its companionship, proved a unique setting for doing in a special purposeful and meaningful occupation.
- Mary Reilly
 - Looked at profession of OT to state that its original hypothesis was that "man though the use of his hands, as they are energized by mind and will, can influence the state of his or her own health". She felt that OT needed to be concerned about the growth and production of humans.

- Within the environment of the horse, the client uses his or her hands and influences his or her health.
- Elizabeth J. Yerxa
 - Her premise was that OT should be aimed at client actualization through choice, self-initiated purposeful activity, reality orientation, and perception of self and the environment. Using the horse within hippotherapy and equine-assisted therapy practice setting brings forth all of Yerxa's features.
- Gary Kielhofner
 - The Model of Human Occupation (MOHO). Occupation is the underlying principle of the model.
 - Occupation is incorporated in all aspects of hippotherapy and equine-assisted therapy. Examples: ground care tasks of grooming, washing. Learning how to stable, feed, and water a horse is a purposeful task that can support the person's own self-care habits. Riding offers opportunity for physical and mental challenges.
- Anne Cronin Mosey
 - She felt everyone needs and occupational balance that reaches for equilibrium of potential through purposeful interaction with the environment. This applies to practitioners of hippotherapy and equine-assisted therapy as they grade the occupations to make the just right challenge for individuals.

- Winnie Dunn
 - She developed the Ecology of Human Performance (EHP) framework is formed around 5 major areas: establish/restore, adapt/modify, alter, prevent, and create. The claim for the framework is that "ecology, or the interaction between person and the context affect human behavior and task performance." She also stresses best practice.
 - Dunn's best practice would be most appropriate for the equine setting because additional knowledge and skills are required.
- Carolyn M. Baum and Charles H. Christiansen
 - They developed the person-environment-performance-occupation-based frame work. This client-centered model aims to improve the performance of individuals in valued occupations. The model focuses on the interaction of the personenvironment-occupation or the doing that is meaningful to the person.
 - In hippotherapy, the practitioner and the horse are the client's enablers that help overcome difficulties. Environment is a major part of this setting along with the performance of the person involved.
- Mary Law
 - Law and her colleges developed the person-environment-occupation model to incorporate the client, environment and occupation in the therapy process. They also developed the Canadian Occupational Performance Measure that allows the client to appraise occupational performance.

- The hippotherapy and equine-assisted setting only can be client centers with a partnership with the practitioner. The partnership all can include the horse when all work together to resolve problems and develop communication.
- Claudia K. Allen
 - She developed the Cognitive Disability Frame of Reference. Allen felt that
 "therapeutic activity compensates for disability by utilizing remaining capabilities to accomplish desirable activities with satisfactory results."
 - Hippotherapy generally helps to motivate an individual to enhance what he or she will do.
- David Nelson
 - Developed a conceptual framework of therapeutic occupation and has broken down occupation into parts.
 - A situation can be developed to produce a cause and effect that helps a person understand how to make the horse go and stop. The horse encourages a person to be motivated to do; that in turn, brings fulfillment of the occupation.
- Sally Schultz & Janette Schkade
 - Occupational adaptation (OA), a frame of reference describes 2 basic OT concepts: that of occupation and that of adaptation.
 - The equine setting allows for problem -solving of the client and adaptation made by the practitioner to facilitate a successful experience.

• The horse helps to naturalize the "therapeutic aspect" of the environment, thus making it an occupation performance area where skills and safety factors are developed in a partnership among individuals, clients, family, practitioners, horse, and the environment.

This outline of the first four chapters of the text lays the foundation for understanding the concept and theory behind hippotherapy and equine-assisted therapy related to the profession of occupational therapy. Terminology is explained as well as the development of hippotherapy and equine-assisted therapies. There is stress on occupation that is meaningful and purposeful and how hippotherapy provides that hands on doing that has meaning and purpose to achieve functional goals. Lastly, the forth chapter reviews different OT theories and frames of reference and discusses how exactly all of the frames of reference are utilized in hippotherapy and equine-assisted activities.

Engel, B.T., Weisberg, J., & Splinter-Watkins, K. (2007). Part I: History, philosophy, and theory. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp. 30-46). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 5: Relating Hippotherapy to the AOTA Occupational Therapy Practice Framework

- Hippotherapy focuses directly on the input from equine movement to effect therapeutic changes in the client.
- Equine-assisted therapy includes activity on or off the horse that may or may not include a moving horse but does involve the environmental context, performance skills and patterns, activity demands, and client factors.
- For OT, the Practice Framework is a guide for practice helps to delineate the areas of OT evaluation, intervention, and outcomes. The Framework has two purposes: 1- to describe the domain of OT and 2- to outline the process of OT practice.
- For the hippotherapy setting, posture, balance and function are primary considerations for therapeutic intervention utilizing equine movement.
- The activity demands of being on or around a horse and in that environment must be considered for appropriateness for each particular client.
- The Framework lists five categories of OT intervention: therapeutic use of self, therapeutic use of occupations and activities, consultation process, education process, and other.

- The first category is critical to equine assisted OT in that the therapist must only understand the goals of OT practices but also be knowledgeable and comfortable in the horse environment.
- The versatility of the horse and horse environment allows use in any occupations and activities depending on the goals and purpose of the client intervention.
- Strictly defined, hippotherapy can fall into the preparatory methods category of intervention for OT. The physical multidimensional movement and sensory input of the horse prepares the client for occupational performance.
- Hippotherapy broadly defined, may be classified under purposeful activity because the activity on the horse allows the client to engage in goal directed behaviors or exercises within a therapeutically designed context, leading to occupation or occupations.
- The consultation process is an area in which OTs may be called on to consult with therapeutic riding programs or with clinical or school programs to institute a hippotherapy program.
- The versatility and flexibility of the horse and equestrian environment lends itself to great adaptability for practice and meeting therapeutic goals within the Framework.

Chapter 6: Classical Dressage as the Underpinning of Hippotherapy

• The foundation of hippotherapy is the effect the horse has on its rider.

- The therapy horse needs to be athletic and properly trained to be able to accomplish forward-backward-side yielding and other desired movements, as well as to handle changes in tempo and gait.
- The point of classical dressage training is to develop the natural aptitude of the horse by developing its strength, agility, gait, tempo, and natural way of going (its overall movement pattern) while carrying a person on its back.
- OT's using the horse as a practice strategy needs to be concerned with classical dressage because it provides a theoretical base that gives a horse the training necessary to become an adequate provider in riding and therapy.
- The horse working with you during a hippotherapy session is the partner whom you ask to perform movements to stimulate the rider. You are the practitioner; he is your assistant, along with an instructor or volunteers: this is the therapy team.
- On a horse, a rider is stable when his or her center of gravity (mass) sits over the pelvis (base of support), which is over the center of gravity (mass) of the horse, allowing the rider to move with the horse and receive the therapeutic influence of the horse's motion.
- The horse's movement helps us become more aware of our body and helps us to control intrinsic movements and develop coordination, which then can be used while riding using the reins or for other occupations off the horse.

- The quality of the movement of the horse and the rider's ability (infants to adults) to follow the horse's movement while maintaining postural stability and performing a given task is the heart of the therapy process.
- The horses back transfers directly to the rider's body the normal walking pattern that is nearly identical in movement and reactions to human walking. While the horse walks the rider is moved up-down, forward-backward, side-side, and rotationally. Per minute a full sized horse at the walk transfers about 110 such multidimensional swinging motions to the rider.
- The stride of an average adult equals the stride of a 16-hand horse.
- The movement of the horse increases activity of the voluntary motor-loop and additional flow of impulses to the tactical, proprioceptive, and vestibular systems through the periphery.

These two chapters in the first part of this text help to finish up the philosophy and theory behind hippotherapy and equine-assisted therapy. Chapter five directly relates hippotherapy to the AOTA Practice Framework. The chapter outlines how different methods, strategies, and occupations of hippotherapy relate to evaluation, intervention, and outcome measures of occupational therapy practice. The last chapter of this section of the text reviews training methods of the horse, to make the horse the best therapy horse possible. Also, the chapter discusses what the OT needs to know when selecting horses to use with different clients to make the just right challenge. Engel, B.T., Zanin, C. M., & Viviano, A.K. (2007). Part IV: Practice Techniques. In B.
Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy:*A guide for occupational therapy (pp.183-205). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 22: Occupational Activity Analysis Process: A preparation for Treatment

- The equine environment can be adapted to meet many different needs, for example neurological and cognitive dysfunction may be addressed while astride the horse, and the psychosocial issues may be addressed through bonding and nurturing environment that includes interaction with a horse.
- This chapter discusses activity, task analysis, and occupation, in addition to other major components of the OT session. Through analysis of tasks, activities, occupation, and environment, the equine environment and the horse can help the client develop transferable skills for everyday living.
- History
 - The action in OT involves the integration of the senses; the primary senses of sight, sound, smell; and the sensorimotor cognitive, temporal, and psychosocial systems.
- Activity Analysis
 - Activity analysis is a process whereby the therapy practitioner determines the performance demands of the activity by first understanding the activity as a whole and then breaking the activity down into component parts.

- o By analyzing activities the OT can determine their value for intervention
- Clark and Allen (1985) broke down activity into 3 parts: 1-description of the activity, 2-its properties, and 3-performance requirements.
- Task analysis is the process of analyzing the dynamic interaction among a person, his or her environment, and selected tasks.
- If a practitioner is to be effective in the field of hippotherapy and equine-assisted therapy, riding and horsemanship skills are essential; it is not enough to have an instructor handle the horsemanship aspect.
- Task Analysis
 - Tasks are combinations of actions that are involved in an activity; they are a piece or unit of an activity, not the activity itself.
- Occupation
 - Occupation refers to all life activities and tasks that are unique and meaningful to people across the life span.
 - The OT practitioner's role is to help direct the client to perform meaningful occupations that, in turn, will affect the client's quality of life, health, and well-being.
 - The focus always remains on the goal to be accomplished, never on the skill of riding.

- The uniqueness of this nonclinical setting may help motivate the client and, the setting can be refreshing.
- Motivation can increase a person's participation in activities.
- Purposeful Activity
 - Purposeful activities are those that have special meaning to the person who is interacting with the non-human environment, either alone or with others.
 - In the equine setting, practitioners can provide age-appropriate play activities both on and off the horse, and those activities can be initiated by the child in purposeful play.

Chapter 23: Treatment of Hypotonia

- Hypotonia or low muscle tone
- Definition of Hypotonus
 - The term hypotonus is frequently misused or used interchangeably with words such as flaccidity, flaccid paralysis, paresis, or weakness.
 - Hypotonus is decreased postural control or muscle tone caused by a lesion or lesions in part of the brain, which results in difficulty or inability to move, to sustain a posture against gravity, or to support functional movement.
 - Hypotonia frequently is seen in diagnoses such as athetoid or ataxic cerebral palsy, Down syndrome, and various developmental disorders.
- Characteristics of the Hypotonic Child

- The limbs and trunk appear to sink into gravity.
- The child lacks joint stability; the child may appear passive or unmotivated to move.
- Difficulty with shifting weight and has an inability to bear weight through the limbs in normal alignment.
- Usually have a high threshold for pain and decreased perception of body awareness
- o Coordination may be impaired, postural instability
- o Respiration often is shallow and noisy
- Treatment of the Child with Hypotonia
 - Several techniques are used to gain joint stability and the improve the quality of movement patterns:
 - Weight bearing or joint compression is used to increase joint cocontraction and improve proximal stability
 - Weight shift and balance reacts is stressed during treatment to improve movement transitions
 - Proper biomechanical alignment of the joints, training the child to place a hold a limb against gravity is encourage to promote strength and joint stability.

- Application of external sensory input, used to help activate the muscles
- Graded movement and vestibular stimulation are provided to increase level of alertness and motivation.
- The therapist's use of speech is important; the correct phrase to trigger a motor response must be found.
- Visual stimulation is an effective teaching tool.
 - A mirror can give the rider an opportunity to "check" his own posture and to provide a visual picture of what correct postural alignment in the saddle looks and feels like.
- Precautions for the Child with Hypotonia
 - The child or adult with hypotonia is "hyper-mobile" and has an excessive range of limb excursions because the person lacks ligament, muscle, and tissue resistance toward extreme movement ranges.

Chapter 24: Developmental Sequence on Horseback

- The term developmental sequence is commonly accepted as describing the typical sensorimotor progression of development in the first few years of life.
- Neuromotor development is concerned with this maturation of the nervous system and the parallel acquisition of control over the muscular system.
 - Maturation begins at the head region and proceeds toward the feet
- Developmental Sequence on Horseback

- Equine-assisted therapy draws from the treatment principles of the Bobaths' Neurodevelopmental Treatment
- Client lying prone over the horse's barrel
 - Lying prone over the barrel may be uncomfortable for some clients and the position should be used sparingly
 - This position provides the therapist with an opportunity to mobilize the client's pelvis and scapulae, improve symmetry throughout the body and promote generalized relaxation throughout the trunk and pelvis
 - Precautions: position can cause dizziness, be aware of riders with a shunt, stomach tubes, or ileostomies, and use experienced sidewalkers, because client have a tendency to slip in this position.
- o Client lying prone over the horse's back and sitting backward on the horse
 - This position is usually more comfortable for the client and provides greater opportunity to incorporate relation techniques to reduce spasticity.
 - Upper extremity weight bearing
 - Improved trunk control and abdominal and extensor strength
 - Legs around the horse's barrel promotes abduction and external rotation, also a strong hamstring stretch
 - Upright sitting while facing backward, trunk extension and neutral pelvis can be facilitated

- Provides opportunity to facilitate weight shift, proximal co- contraction, and equilibrium reactions
- Precautions: constant vigilance of the client's head and neck control is required, some clients fatigue rapidly in this position, and some complain of disorientation from decreased visual input
- Client Lying Supine on Horse's Back
 - When supine position is used effectively, the therapist can focus on elongation techniques for the neck and trunk, active and passive stretching of UE and LE, shoulder-pelvis dissociation, and abdominal strengthening activities.
 - Precautions: fearful in this position because feeling of vulnerability, pillow can be used under head to decrease the hyperextension of the neck, monitor helmet fit; lower back should be monitored to avoid strain.
- o Client Sitting Facing Forward
 - This position is difficult for many clients because the base of support and weight bearing surface is narrower than the other positions.
 - Treatment goals of improving the client's posture, balance, mobility, and function are continually emphasized in this position.

Chapter 25: Facilitation of Functional Communication Skills in Hippotherapy

• The Scope of Practice of the AOTA includes communication and interaction skills as a performance skill.

- Developmental Sequence
 - A typically developing 2-3 year old child's speech is 50% to 75% understandable;
 the child verbalizes toilet needs, requests desired items by name, identifies several body parts follows 1-2 steps commands, asks 1-2 part questions.
 - A 3-4 year old child's speech is 80% understandable, child understands opposite concepts (stop/go, in/out, big/little), follows 2-3 part commands, uses 4-5 word sentences.
 - A 4-5 year old child produces sentences of 4-8 words, uses adult like grammar most of the time, understands concept of numbers up to 3, can count to 10 by rote.
 - A 5-6 year old child follows instructions given to a group, uses past tense and future tense appropriately, sentences with details, sings rhymes, asks questions.
 - A 6-7 year old child understands most time concepts and directions that include left and right, engages in conversation, and uses sentences about 6 words long.
- Facilitating communication during hippotherapy will optimize the interactions during the therapy session and promote a rider's performance abilities.

This section of the Engle text, practice techniques, is very informative on how hippotherapy can be used for the treatment of multiple diagnosis's and treatment goals. The text reviews some of Bobath's neurodevelopmental techniques and how they are strongly embedded into hippotherapy practice. The text provides illustrations on how different positions on horseback can challenge the client and work on different goals. Precautions are listed for each position as well. The profession of occupational therapy can be very diverse and this Engle text is a wonderful resource for more in-depth information, research and treatment strategies in the realm of occupational therapy based hippotherapy.

Exner, G., Engelmann, A., Lange, K., & Wenck, B. (1994). Basic principles and effects of

hippotherapy within the comprehensive treatment of paraplegic patients. Journal of

Rehabilitation, 33, 39-43.

Abstract: A total of 67 patients, both paraplegic and quadriplegic, had participated in a hippotherapy program over a study period of almost 18 months, with positive effects found relative to spasticity, certain pain syndromes, as well as contraction syndromes associated with impaired joint mobility. Frequently the only effective measure at all, and moreover of astonishingly lasting effect, the spasticity-reducing treatment turned out especially beneficial. Along with these statistically supported findings, a number of associated effects were noted in the physiotherapy and, especially, the nursing sectors, with easier catheterization, more rhythmical bowel function, more balanced mood with improved sleep, and a generally increased openness and motivation. Hippotherapy has proven a valid method within a synergistic approach for comprehensive care in paraplegia. This research looks at the benefits of hippotherapy for the person who is a paraplegic or

quadriplegic. As a person being treated for both paraplegia and quadriplegia rang of motion, self cares, medical care, feeding and overall function all may require assistance from an occupational therapist. This study supports the use of hippotherapy as a comprehensive treatment strategy. Hippotherapy was shown to decrease spasticity, improve joint mobility, improve mood and sleep among participants, and to increase motivation. The warmth and the gentle movement from the horse walking relaxes muscles and provides the rider with a gentle stretch which facilitates joint mobility. In conclusion, this study supports the use of hippotherapy as a comprehensive part of the care program for patients both whom are paraplegic and quadriplegic eliciting improvements in all aspects of physical, functional, medical, and emotional health.

Fieldstone Farm Therapeutic Riding Center. (2009). Retrieved January, 20, 2011, from http://www.fieldstonefarmtrc.com/index.php

There is no abstract for this website. This website is important for my capstone because this is the primary site where I am obtaining all of my hands on hippotherapy experience. Also, my mentor is employed at this facility. The website provides general information about the facility including the facilities mission statement. Additionally, the site offers information on volunteering, becoming a student, staff, statistics, news and events, community education opportunities, donating, and links to other partner organizations. This site is a good tool for me to educate myself about the facility and upcoming events that are being held at this facility. Furthermore, by reviewing this facilities web page I can gather important information when developing the facility outlines and comparisons. Based on the information gathered from this site I can develop a standard outline and set of information that I will collect from all of the other therapeutic riding centers that I will be visiting this semester. Gewurtz, R., Eccles, A., Abreu, B. C., Heyn, P., Reistetter, T. A., Patterson, R., Bufford,
W. L., Masel, B. L, Ottenbacher, K. J., Hubbard, S. L., & Carr-Heyn, D. L.
(2007). Part II: Research. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp.
89-102). Bethesda, MD: AOTA Press.

Chapter 10: Use of Sensory Integration in Equine-Assisted Therapy: An Occupational Therapy Perspective

- Hippotherapy in North America is carried out directly by a rehabilitation or health care professional such as an occupational therapist, physical therapist, or speech pathologist, depending on the clients' specific therapeutic needs and goals.
- This chapter discussed of OTs can use EAT to assist clients with sensory processing dysfunctions using the principles of sensory integration (SI) theory.
- The skills involved in riding can be graded to enable successful experiences while providing the "just-right" challenge.
- Sensory Integration
 - The neurological process of SI, which consists of receiving and organizing sensations, contributes to the development of self-regulation, comfort, motor planning, gross and fine motor skills, attention, and readiness for learning.
 - The goal of SI intervention is to improve the way people who experience SI dysfunction receive, process, and organize sensations, thus improving their ability to interact with their environment.

- Tactile Inputs
 - EAT can provide divers opportunities for direct tactile input that can be graded by the OT to meet the individual needs of the rider.
 - The most unique tactile experience provided during EAT comes from the horse's movement, which gives the rider constant tactile input. Positioning on the horse can provide different levels of stimulation.
 - Riders can be encouraged to pet the horse with their hands or participate in grooming the horse using different textured brushes and grooming tools.
 - Tactile "adventure bins" can be set up in the ring so riders can reach into the bins while on the horse to find a toy.
- Vestibular inputs
 - Some of the sensory processing benefits of EAT are as follows: decreased sensory defensiveness, increased attention, concentration, and focus with decreased distractibility and impulsivity, increased coordination and motor planning, increased communication, increased responsiveness, increased selfconcept, improved self-regulation.

Chapter 11: Postural Control Comparisons of Horseback Rides With and Without Brain Injury

- Postural control impairment is a common problem associated with TBI and stroke.
- Postural control assessment and training is key to rehabilitation interventions.

- Postural control is accomplished through a complex multilevel coordination of central and peripheral nervous system responses that are used to regain and maintain balance.
- After brain injury, many people develop impairments in vision, proprioception, and the vestibular and musculoskeletal systems.
- Hippotherapy is a horse-mediated rehab technique that can be used to train postural control after brain injury.
- Clinicians believe that the displacement of the rider's center of pressure while riding facilitate normal righting and equilibrium responses.
- The purpose of this study was to quantitatively compare the effect s of horseback riding in riders without disability and riders with brain injury. The authors hypothesized (1) that postural control, as measured by center of pressure distribution, will differ between the two groups of riders and (2) that a relationship exists among group classifications.
- Method: The investigation proposed to study the center of pressure distribution as a measure of postural control. The population included 12 experienced riders without disability, 14 novice riders without disability, and 7 clients with brain injury.
- Instrumentation: A Force Sensing Array (FSA) mat place on the saddle was used to measure the rider's center of pressure distribution and frequency. FSA is a computer based system that can map pressure distribution on nay weight bearing surface.

- Procedures: We examined the pressure sensory readings and dispersion distribution during two laps at a NARHA-certified therapeutic hippotherapy arena. One lap was clockwise and the other in a counter clockwise direction.
- Data collection: A 256 -sensor (16 inches x 16 inches) pressure mat was placed between the saddle and the rider for each trial.
- Results
 - o Examination of rider BMI show no significant difference among groups
 - Results indicate that riders with brain injury showed a significantly higher activation of sensors in the mat at 60mmHg than the inexperienced and experienced riders.
 - The riders with brain injury showed less automatic or conscious postural adjustments, less variation in movements, and less awareness of the potential consequences of horseback riding.
 - The riders with brain injury collapsed in the seat with their thighs and knees forward on the horse.
- Discussion: This pilot is one of the first to examine objectively postural control indices among riders with and without brain injury using pressure-mapping technology placed over the horse's saddle.
- Conclusion: Pressure mapping can illuminate the study of postural control as it relates to the effectiveness of hippotherapy as a rehabilitative technique.

Chapter 12: Influence of Hippotherapy on Tonic Bite: A Case Study

- This case study reports how hippotherapy was used as a treatment modality to decrease the incidence of tonic bite by (1) identifying the sequel of events leading up to the event and (2) developing strategies to avoid the event.
- Background
 - At the time of the study, Matt was a 6-year-old male with a clinical diagnosis of triplegia due to cerebral palsy.
- Tonic Bite
 - Biting has been found to be the most frequent abnormal reflex in people with cerebral palsy with spastic or athetoid tone.
- Method and Intervention
 - Using a single-case study design, data were collected using direct observation and review of videotape over a period of 1 hippotherapy session per week for 3 months.
 - o Matt spent approximately 20 min on the horse each session
- Conclusion
 - Significant problem both on and off the horse was the tendency for Matt to bite his hands, a bite that was both involuntary and tonic and led to pain and risk of infection. Matt had been provided with soft splints to protect his hands. It was

observed that while riding on the horse, the incidence of tonic bite of his fingers decreased and function hand use (hold the reins) increased.

These three chapters further discuss the benefits of hippotherapy and EAT that have been documented through research. Sensory integration is an aspect of treatment that is unavoidable when involved with hippotherapy and other EAT. The occupational therapist needs to make sure to grade the amount of sensory input for each individual client based on his or her needs. Postural control is necessary in completing functional activities and self-care activities. The pilot study on postural control for riders with brain injury compared to riders without disability provides some of the first objective data of the benefits of hippotherapy on this population. Finally, the case study shows the versatility and carry over that hippotherapy can have by exploring the benefits of preventing tonic bite from horseback riding. Hippotherapy and other EAT are shown to have endless amounts of benefits for behavioral, functional, emotional and physical areas. It is extremely important to continue building on previous research, and using the research to guide the practice in the occupational therapy profession.

Gohmert-Dionne, H.L., Viviano, A.K., Wiger, N., & Moore, A.J. (2007). Part IV: Practice Techniques. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp.223-240). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 29: Improving Pediatric Cognitive Function in Equine-Assisted Occupational Therapy and Hippotherapy

- Health brain development relies on people to provide stimulation that organizes connections in the cortex for language and complex thought.
- Research implies that the cognitive functioning of pediatric clients may be enhanced through the abundance of environmental opportunities in an equestrian setting.
- After childhood, synaptic apoptosis, or the atrophy and death of the infrequently used synapses occur.
- Creating Enriched Environments in Hippotherapy
 - One study found that exposure to nature has positive effects on cognitive functioning: the degree of exposure a child received to nature resulted in a subsequent improvement in cognitive functioning.
 - When the brain is challenged through all its sensory receptors with fresh and changing inputs, new synaptic connections grow, the cortex thickens, and dendritic branching thickens with more spines and larger cell bodies.

- In hippotherapy the combinations of obstacles and variety of maneuvers performed are endless and quickly adapted.
- Enrichment and Hippotherapy
 - o Enrichments include movement, language, problem solving, music, and art.
 - Topographical orientation is the ability to orient oneself within one's environment.
 - Pegboard and jigsaw puzzles are problem-solving activities that can be used in treatment sessions.
 - Music can be too distracting or over stimulating for clients with sensory-related disorders.
- Effects of Stress on Learning
 - A study reported in Wilensky (2002) revealed that among 281 children, those with higher exposure to nature were significantly better able to deal with stressful life events that were children in "low-nature" settings.
- Role of Hydration on Cognitive Function
 - The body requires 8-12 glasses of water daily for optimal brain function.
- Summary
 - Research suggests that hippotherapy and equine-assisted therapy can help improve the cognitive functioning of pediatric clients by providing enriched

environments through movement, language, problem-solving activities, music and art.

Chapter 30: Use of Hippotherapy as a Treatment Method During Occupational Therapy with Children Who Have Histories of Abuse and Neglect

- Abuse and neglect may lead to profound impairments and changes in development that affect a child's ability to assume life roles and participate in daily activities at home, school, and in the community.
- Effects of Abuse and Neglect
 - An individual child's response to a traumatic event varies and may include a mixture of fight or flight response (hyperarousal) or an avoidance and psychological fleeing response (disassociation).
 - Hyperarousal may result in hypervigilance, anxiety, reactive and alarm responses, increased heart rate, freeze, fear, flight, and panic or terror.
 - Disassociation may result in detachment, numbness, compliance, decreased heart rate, suspension of time, derealization, minipsychosis, and fainting.
 - Trauma may result in long term chronic and potentially permanent changes in a child's emotions, affect, behavior, cognition, physiology, and neurophysiology.
- Occupational Therapy for Child Abuse and Neglect
 - Reed (2001) indicated performance areas that may be affect when a child suffers abuse or neglect:

- 1- self cares and ADLs
- 2- productivity, play and academic readiness
- 3- leisure and recreation
- 4- sensorimotor function
- 5- cognition
- 6- psychosocial development
- The equine environment is rich in opportunities to promote self-care and activities of daily living, productivity and play, leisure and prevocational skills, sensorimotor function, cognition, and psychosocial development.
- When riding and interacting with horses, riders will have numerous opportunities to respond to a unique treatment that facilitates healing of their bodies, minds, and spirits.

Chapter 31: Vaulting: An Effective Therapeutic Method

- Modern vaulting first developed in Germany as a preparatory program to improve riding skills and today is a competitive, world-class sport.
- This chapter describes the general vaulting process, vaulting's benefits, and its versatility for therapeutic intervention.
- What is vaulting?
 - Vaulting is exercises or gymnastics performed on the back of a moving, roundshaped horse.
- o All 3 gaits are used
 - Walk, in which the back sings three-dimensionally
 - Trot, which has an invigorating springiness
 - Canter, which has powerful rocking action
- In vaulting someone other than the rider controls the horse, the horse is equipped with a surcingle with handles, the horse is longed in such a way that it has good self-carriage and moves steadily.
- In vaulting used for therapy the emphasis is not on teaching acquisition of vaulting or riding skills, physical development, enhancing developmental skills, social skills, sequencing, coordinating movements, physical strength
- The horse can be of any breed or size as long as all gaits are well balanced, regular, and without tension.
- Equipment
 - Surcingle with handles
 - o Side reins
 - o The horse
 - Back pad on the horse
- Vaulting Exercises

- Vaulting is based on seven compulsory exercises (all of which can be modified for different skill levels)
 - The mount
 - The basic seat
 - The flag
 - The mill
 - Swing and scissors
 - Kneeling and standing
 - Dismount- either half-flank off or full flank dismount
- Vaulting at the walk
 - Vaulting at the walk is the introduction to vaulting for everyone regardless of ability or disability or mental, emotional, social, or other disadvantage.
- Vaulting at the Trot and Canter
 - When the rider masters vaulting at the walk, the trot can be attempted
 - Vaulting exercises at the trot require more strength, courage, and body control than at the walk
 - Canter is the preferred gait for older children "at risk" and people with social, emotional psychological and other nonphysical problems.

- Special Aspects of Vaulting
 - Vaulting is the only equestrian activity in which control of the horse is not the issue of the participant
 - Everyone starts with the same exercises and progresses through the stages that must be mastered before the next stage can be attempted.
- Vaulting as a Therapeutic Modality
 - What makes vaulting different is the control the longeur has over the situation.
 The vaulter is free to concentrate on his or her own reactions and explore his or her own abilities and limitations without worrying about controlling the horse.
 - Vaulting is a great "concentration trainer"
 - A group of children with different strengths can motivate and learn from each other
- Preparing the horse
 - o Because one horse is used, everybody must work together toward a goal
- Warm-up and stretching
 - Is a good time to work on increasing ROM and strengthening the shoulder girdle.
 - Adding music to the warm-up adds rhythm and timing to motion.
- Double and triple vaulting
 - Two or three vaulters can be on a horse at a time

- The trainer can use this closeness to work on developing trust, attention, and empathy among the vaulters
- Many issues can be addressed when together on the horse:
 - Physically interacting with another person
 - Teamwork and problem solving
 - Working with another person to reach a common goal
 - Helping another person
 - Learning responsibility
 - Identification with and consideration for other people
 - Working with people of different abilities
- Who can benefit from vaulting?
 - Most children enjoy vaulting, but it is particularly suited for the following groups:
 - Developmental delay/deficiencies
 - Sensory processing and motor control deficiencies
 - Physical disabilities
 - Learning disabilities, dyslexia, and attention deficit hyperactivity disorder
 - Autism

• Vaulting requires learning to move in harmony with the horse, even when the vaulter moves in all directions along all axes, along or with other vaulters.

All three of these chapters focus on different treatment areas and populations that can benefit from occupational therapy guided hippotherapy and equine-assisted interventions. The chapter on cognition emphasizes the enriching environment that the equine environment has to offer and how beneficial the environment is for improving cognitive functioning. The next chapter discusses hippotherapy as a treatment tool for children who have histories of abuse and neglect. I particularly like the list of assessments that can be used with these children and all of the examples for developing the six performance areas that Reed identifies that are affected from abuse and neglect. The third chapter discusses the use of vaulting and how vaulting can be used as a form of group therapy. Vaulting is a very interesting form of equine-assisted activities that has potential for utilization in therapy.

Haehl, V., Giuliani, C., Lewis, C. (1999). Influence of hippotherapy on the kinematics and

functional performance of two children with cerebral palsy. The Journal of Pediatric

Physical Therapy, 11, 99-101.

Abstract: Therapists use hippotherapy to improve postural control in children with neuromotor dysfunction. Understanding the influence of the horse's movement on the child may clarify mechanisms, which influence posture during hippotherapy. This study was conducted in two phases. First measures of the kinematic relationship between the rider and the horse were developed. A kinematic analysis of the rider's trunk and the horse's back was used to describe postural orientation, postural stability, and temporal phase relations of a novice and an experienced rider. Both riders exhibited biphasic movement patterns in response to the horse's movement. The experienced rider had a more vertical orientation of the trunk and delayed postural response to the movement of the horse. Next, we examined the influence of 12 weekly hippotherapy sessions on the postural control, coordination, and function of two children with cerebral palsy. Both children with cerebral palsy approximated the biphasic movement patterns exhibited by the two children developing typically. Both also demonstrated improved coordination between the upper and lower trunk, and between the lower trunk and the back of the horse. One child's functional mobility improved.

This research is relevant to the profession of occupational therapy because it studies the

effect of hippotherapy on postural control, coordination, and function of children with cerebral palsy. All three areas studied affect a childes independence and ability to complete play and selfcare occupations. Postural control is the basis for all static and dynamic occupations. Coordination is also required for multiple occupations throughout the day such as dressing, playing, eating, and functional mobility. Although this study saw improvements in all areas due to the hippotherapy intervention, the study size was small, and only one child's functional mobility improved. The study shows the groundwork of how hippotherapy can help children with cerebral palsy to improve postural control, coordination, and function. Yet, more studies with larger sample sizes need to be conducted to validate the use of hippotherapy as a treatment strategy for attaining postural control and coordination goals.

Hilburn, J., Tidman, M. M., & Hueners, P. (2007). Part IV: Practice Techniques. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy:*A guide for occupational therapy (pp.206-222). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 26: Grooming and Tacking-UP as Intervention

- This chapter is intended to demonstrate how the major frames of reference used by OTs can be intricately woven into activities such as grooming and tacking-up the therapy horse.
- A Therapy Experience
 - "Max" tall for his age is 4 years old with high intelligence and advanced verbal skills, but has a learning disability, with delayed gross motor and fine motor development, most likely due to hypotonia and gravitational insecurity.
 - Max was involved with grooming the horse to improve his tactile and vestibular responses, UE strength, and motor-planning skills.
- Tacking-Up as a component of Therapy
 - OT's will find that horse grooming and tacking-up are easily adapted for the intervention needs of clients with disabilities.
 - o Grooming an tacking activities integrate the demand for various senses and skills
 - Gross motor functions, muscle tone, co-contraction of muscles are influenced by heavy work patterns while a client carries a grooming kit, saddle blanket or saddle.

- Brushing a horse because antigravity, resistive movement patterns are inherent in this activity facilitate UE strength and ROM.
- Bilateral UE integration, coordination, postural response, equilibrium responses, high level of tactile input, cognitive-perceptual skills.
- Comparison of human body parts to that horse's parts are easily done
- Opportunities to use verbal and non-verbal communication skills
- Enhanced tool use and motor planning, following directions and solving problems, sequencing.
- Social and emotional development, clients' nurturing instincts toward the horse.
- Client becomes aware of her or her own behavior and how it might affect the horse, learns to please the horse
- Self-esteem is enhanced when the client is successful in controlling such a large animal as the horse.
- Summary
 - These activities involve role acquisition, human occupation and occupational behavior.

Chapter 27: Hippotherapy and Sensory Defensiveness

• Sensory integration is the CNS ability to organize and use sensory input in order to respond appropriately to the environment

- Sensory integrative dysfunction is a general term characterizing the inability of the nervous system to organize incoming stimuli and allow a person to respond in an appropriate way.
- Children with sensory defensiveness can be described as being overly active, hyperverbal, and destructible and as having disorganized responses to the environment.
- This chapter offers insight into the world of treating sensory defensiveness through hippotherapy, therapeutic riding, and OT strategies.
- Effects on Attention
 - Difficulty filtering and organizing incoming sensory information, it can manifest as a lack of initiation or maintenance of attention.
 - A child with attention problems may be unable to discern the importance of incoming stimuli or be able to filter unimportant stimuli
 - Cognitive mechanisms, such as attention, involve a balancing of threshold demands in the CNS.
 - The ability to attend and receive sensory information is regulated largely through an area in the brain stem called the reticular formation.
 - The reticular formation is a net like structure that acts as the arousal center in or brains that either wakes us up, clams us down or excites us.

- The reticular formation assists in the inhibition of environmental over stimulation and permits us to attend to a singular action or shift our focus from one activity to another.
- Tactile System
 - The tactile system can be described as a 2 part system
 - The protective system
 - Begins with a series of touch receptors located throughout the body, that is responsible for deciphering incoming messages then either activating or deactivating the sympathetic response.
 - Sympathetic response interprets the stimulus and determines whether the stimulus is hot or cold, sharp or dull, soft or hard, and so on.
 - This system is responsible for the flight-fright response.
 - The discriminatory system
 - Involves the communication of sensory centers in the cerebral cortex with the peripheral structures
 - Limbic system interacts with the tactile system and contributes to responses in the areas of learning and memory, aggression, and self-preservation. This system has a role in modulating emotional responses

- Effects of Sensory Defensiveness on the Tactile System
 - Tactile defensives can be defined as an overreaction of the tactile system to a non- noxious stimulus that would otherwise not threaten an organized system
 - A tactilely defensive child learns from his or her adverse tactile experiences and may ultimately avoid valuable opportunities for tactile exploration.
- Visual and Auditory Systems
 - o The visual system receives information from the physical environment
 - Information from the visual system also is sent to parts of the cerebral cortex and brain stem that are responsible for visual tracking coordinated eye hand movements and integrating various tactile sensations.
 - The auditory system receives sound waves from the physical environment through a network of receptors located within the inner ear
 - The information is organized and integrated with input from the vestibular, proprioceptive and visual systems
 - o Effects of Sensory Defensiveness on Visual and Auditory Problems
 - A person who has sensory defensiveness may be unable to filter the incoming information and may become overwhelmed by the amount of visual input

- Lacks the inhibitory process necessary to modulate incoming stimuli.
- Proprioception
 - Proprioception is the ability to organize and integrate physical input that is
 received through the muscles and joints in response to an organism's own
 movement. Information from proprioception stimuli is necessary for body
 awareness and is needed in the performance of smooth coordinated movements.
 - o Effects of Proprioceptive Dysfunction on Sensory Defensiveness
 - Dysfunction in the vestibular proprioceptive system often is present in people displaying hypotonic or low muscle tone.
 - Display poor righting and equilibrium responses when positioned to work against gravity
 - Praxis can be defined as action based on will
 - Children with dyspraxia have deficits in motor planning that result in observable motor clumsiness
- Vestibular System
 - This system can be characterized as a sensory system that detects the pull of gravity and coordinated adjustments to the movements of the head and neck.
 - Semicircular canals are present in the inner ear and are connected to the vestibulocochlear nerve. This nerve carries information to receptors in the brain.

- The goal of this network is to maintain equilibrium and detect head position during directional movement
- The vestibular system works with the tactical, proprioceptive, visual and auditory systems to provide body awareness, visual perception, bilateral integration, position in space and movement discrimination.
- o Effects of Sensory Defensiveness on the Vestibular system
 - Characteristics of children with disorganized vestibular systems include hypotonic muscle tone; deficits in endurance, bilateral integration, equilibrium, and postural responses; and a positive post rotary nystagmus.
 - The vestibular system is ultimately responsible for stabilizing visual field to allow a person to focus on the task at hand and complete a goal directed activity.
- Behavior Problems in Sensory Defensiveness
 - o Socialization challenges often exist with poor sensory processing
 - May appear to be consistently agitated in group situations because they cannot determine what they need to regulate their systems.
 - Likely to try new experiences and is apt to display poor coping skills in new or unfamiliar situations
- Language Problems in Sensory Defensiveness

- Slowly developing language skills may be one of the first signs to parents or teachers that a child is experiencing sensory processing problems.
- Language can generally be classified as a receptive and expressive.
 - Difficulties with receptive language, the brain is not able to fully integrated or comprehend incoming information either auditory or written
 - Speech or expressive language is related directly to postural stability, including muscle strength, tone, and function; respiratory control; sensory processing and integration; motor planning; and the coordination of the speech mechanism.
- Lack of functional communication may result in an irritable, socially inappropriate, disruptive, passive, or generally unhappy child because of an inability to get basic needs satisfied.
- Effects on Independence in Activities of Daily Living
 - Performance areas such as dressing, bathing, grooming and feeding also are affected
 - o Don't like the textures of food or the feel of water or certain fabrics
 - Unlikely to initiate play
- Benefits of Hippotherapy
 - Hippotherapy techniques have a profound effect on sensory systems in people experiencing sensory defensiveness

- o Vestibular system
 - Unique, rhythmic movement of the horse provides continuous vestibular stimulation throughout the activity. Change in direction of the horse or of the rider also provides a change in vestibular input.
- Proprioceptive system
 - Rider's proprioceptors are activated continuously in the session, resulting in improved proprioception. Input can be graded by the speed of the horse, change in direction of the horse, change in direction of the rider, and length of the session.
- o Tactile System
 - The rider receives a steady stream of tactile input, including deep and light touch, warmth from the horse's body, textures of the pads or other tack used, and pressure sensations to other body parts.
- o Olfactory System
 - Is stimulated by the many smells of a stable or ranch environment
- o Visual System
 - Hippotherapy often takes place in a circular or oval arena which produces somewhat repetitive visual stimulation. Predictability of oncoming stimuli may be comforting to the rider.
- o Auditory System

 Stimuli present in the voices of the handler, side walkers, and the horses steps, other noises the horse may make (such as sneezing) and all other sounds common to the equestrian environment.

Chapter 28: Sensory Integration and Hippotherapy

- Sensory integration is the neurological process that organizes sensation from one's own body and from the environment and makes it possible to use the body within the environment.
- Adaptive response is an adjustment to environmental demands
- Three levels to consider when addressing sensory integration functions:
 - Sensory system modulation: under/over arousal
 - Functional support capabilities help integrate and modulate input from arousal
 - End products that reflect integration of the modulation and functional support systems through appropriate adaptive responses
- Applying Sensory Integration to Hippotherapy
 - Provision of enhanced sensation is inherent to hippotherapy
 - Riding a horse provides constant sensory information, and the information is derived from multiple different sources
 - Riding provides opportunities for changes in gait, stops and starts, sounds, changes in direction

• Planning and implementing treatment should follow these steps: modulate sensory arousal needs, address functional support capabilities, and focus on end product activities.

Sensory defensiveness is extensively discussed in these chapters and provides a great overview of the sensory system and how sensory integration can be used in hippotherapy. Different examples of controlling sensory input are provided for activities both on and off of the horse. For example, regulating the speed that the horse is moving, changing directions that the horse is moving in and completing abrupt stops and starts on horseback are all methods for grading the amount of sensory input the rider is receiving. Additionally, common signs and symptoms of sensory defensiveness are provided for tactile, auditory, olfactory, and visual senses. As an occupational therapist utilizing hippotherapy which often times is primarily done with children it is important to have a solid understanding of sensory processing, sensory defensiveness, and how to use sensory integration in the equine environment.

Horses and Humans Research Foundation (2002). About Us. Retrieved January 31, 2011,

from http://www.horsesandhumans.org/About_Us.html

There is no abstract available for this website. This is the website for the Horses and Humans Research Foundation (HHRF) that exists to facilitate universal understanding and appreciation of the significant influences of horses on humans. The primary goal of HHRF is to support, promote, and fund scientific research that explores the claimed, yet unsubstantiated benefits of equine-assisted activities and therapies; this in turn will lead to the establishment of the most effective methods and techniques for conducting existing and future programs. The secondary goal is to educate the public (including parents, therapists, potential clients, insurance companies and physicians) on research findings so that equine-assisted activities become more accessible to those in need. This source is important and relevant to occupational therapy and this capstone because the purpose of this foundation is to support research and educate the public. Occupational therapy is about using the best means at promoting health through occupation and HHRF works to support the growth of research related equine-assisted activities and the health benefits from participating with horses. Additionally, references from the professionals currently advocating for hippotherapy can be reached through this site, along with statements and data relevant to the need for research, and benefits from using hippotherapy as a treatment strategy for occupational therapy.

Hubbard, S. L., Abreu, B. C., Jones, J. S., Opacich, K. J., Frease, L. A., Walker, K., & Shechtman, O. (2007). Part II: Research. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp. 47-88). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 7: A Chronological and Historical Review of Research Related to Hippotherapy

- Hippotherapy can be defined as neurophysiological based treatment with the help of the horse. The primary focus of hippotherapy is to use the rhythmic movement of the horse to habilitate the rehabilitate the rider's posture and response control over movement. The rhythmical and three-dimensional movement of the horse facilitates postural corrections that the rider may not be able to achieve on his or her own.
- Riede (1998) elaborated on the definition of hippotherapy by describing it as a new era in "kinesitherapy" that expands on joint mobilization and muscle strengthening to include modification of sensory feedback (via the horse). Riede also notes that hippotherapy addresses other unmet needs of people with musculoskeletal disorders: the desire yet decreased ability to move and a need for interesting motor tasks.
- The purpose of this chapter is to describe the wealth of ideas and pilot data that can be gleaned from past research that in turn can be incorporated into future research using current and advanced measurement technology and research design.
- Studies before the 1990s
 - Therapy riding was recognized in 1951 when Lis Hartel, a Danish riding teacher and an equestrian Olympian with polio, met and established the "Pony Stable for

Disabled Children" in 1953. Treatment at the Pony Stable was recommended by physicians and, in 1964, its services became reimbursable by Norwegian health insurance.

- Studies documenting three-dimensional movement of the horse
 - Riede (1988) was the first to graphically demonstrate the effect of the threedimensional movement of the horse against the three axes of movement of the rider: up-down, forward-backward, and side-to-side. Draft horses demonstrated increased up-down acceleration compared with recreational horses, and ponies demonstrated an increased frequency. The horses trot does not simulate human running.
 - Results from Riede (1988) indicated that even prolonged exposure to horse acceleration could not damage the rider's spine at the walk, trot, or canter.
 - A study by Harris, Pulliam, Coffman, Rhkop, and Schroader (1997) indicated that walking and riding at the walk exhibit similar trunk movement, according to electromyography and muscle activation. These results support the use of hippotherapy to enhance postural muscle endurance and reinforce data on similarities between the horse's walk and the human gait.
- Studies documenting benefit to the rider
 - Multiple studies conducted with results demonstrating: improved coordination of movement sequences, gain in range of motion, improved balance, efficiency of hip abductors and knee flexors and extensors, more erect posture.

- Therapeutic riding is the only treatment that provides vibration to the spine of the rider, generated by the movement impulses of the horse, which in turn improves postural stability, normalizes muscle tone, and increases balance and coordination.
- Studies during the 1990s
 - Baker (1991) studied the effect of hippotherapy on flexible kyphosis of adults with developmental disabilities, 3 of 4 adult's demonstrated decreased kyphosis following hippotherapy.
 - Exner, Engelmann, Lange, and Wenck (1994) published in German a study of 67 patients with paraplegia and quadriplegia who received hippotherapy, they reported statistically significant effects on the reduction of spasticity, pain, and impaired joint mobility.
 - Multiple studies were reviewed documenting benefits for the following populations/diagnoses in the following: cerebral palsy- improved posture and grasp, down syndrome-balance, scoliosis- improved curvature, brain injuryimproved functional balance, extremity control, cerebral palsy, decreased spasticity improved pelvic ROM, TBI- increased strength, ROM, functional movement, increase in self-care tasks.
- Studies during the 2000s
 - Chronic back pain patients demonstrated increased lower back muscle strength, increased balance between back muscle symmetry

- o Improvement in upright postural stability for children with cerebral palsy
- Therapeutic riding benefits included acquisition of new movement skills, reduction in spasticity and hyperkinesia, and mobilization of compensatory abilities.
- Conclusion
 - This chapter reviewed 75 research studies. Movement of the horse was the IV for the majority of the studies; 4 of the studies compare hippotherapy with more traditional neurodevelopmental treatments. Outcome measures varied from digestive, cardiac, respiratory function to spinal health, posture muscle tone, gait, balance, and ROM.
 - Initially in the 1970s hippotherapy was investigated as an intervention for scoliosis, kyphosis, and cerebral palsy. More recent studies have included individuals with autism, brain injury, multiple sclerosis, and spinal cord injury.
 - The underlying theme is that evidence from around the world suggests that the horse is being used successfully in medically based interventions.

Chapter 8: Hippotherapy and Evidence-Based Practice

- Evidence based practice is the formal gathering and synthesis of information from research studies by using a systematic research review to determine and conduct best clinical practice.
- Five steps to follow in evidence based practice (EBP)

- Set the Question: Effectiveness studies answer the question. Did clients receiving hippotherapy improve? How much did they improve? Evidence on treatment efficacy in hippotherapy is difficult to obtain. This type asks the question, which hippotherapy treatment made the clients better?
- 2. Search for and Sort the Evidence: Identify, select and summarize evidence.
 EBP is best conducted through the use of scientific databases. Primary research is studies that report original analytical investigations; they can be experimental or observational. Secondary studies are those that summarize and drew conclusions from primary research.
- O 3. Critically Appraise and Formally Evaluate the Evidence: The level of evidence in primary research originally was ranked by Sackett using numerical indexes from I to IV or letter indexes from A to D, where I or A represents the greatest level of rigor and control.
- o 4. Apply Scientific Research Findings to Practice
- o 5. Evaluate the process
- Review of the Evidence on Hippotherapy
 - Equine-assisted therapy, hippotherapy, therapeutic riding is a multidimensional intervention that appeals to people across the life span as well as across a spectrum of abilities and disabilities.
 - Many physical and psychological benefits of therapeutic horseback riding have been reported. Benefits include improved strength and agility, muscle

tone, and weight-bearing ability, improved standing ability, and enhanced self-esteem, self-image, and interpersonal skills.

- Understanding the interplay between physical demands and psychosocial phenomena will best illustrate the unique value of horse-mediated therapies.
- Hippotherapy is a specialty in OT practice that requires the following activities to improve its research base:
 - o Better outcome measures at all levels-impairment, disability and participation
 - o More systematic qualitative and quantitative investigation
 - o Improved research designs

Chapter 9: Interrater Reliability of the GREAT Postural Rating Scale for Therapeutic Riding

- Sitting on the back of a moving horse is perhaps the only technique for improving posture and alignment that offers a rhythmically moving base of support in the context of a meaningful activity.
- This chapter describes a study assessing the Gainesville Riding through Equine-Assisted Therapy (GREAT) scale, and instrument designed to assess the postural alignment of rides with disabilities sitting astride a horse and to determine the internal consistency and interrater reliability of the instrument.
- Correct postural alignment is defined as the alignment of body parts that results in minimum stress on the structures of the body.

- Postural adjustments are "automatic, anticipatory, and ongoing" to "enable an individual to maintain balance against gravity, optimal alignment between body parts, and optimal orientation of the head, trunk, and limbs."
- No consensus exists as to "correct" sitting posture, particularly for people with conditions that restrict their ability to move independently.
- The GREAT postural scale considers the position of the head and neck, shoulders and thoracic spine, pelvis and lumbar spine, hip angle, and alignment of hell in a visual assessment by the therapist.
- The rider is assessed in the lateral plane: the rater is parallel to the center of the rider to eliminate distortions that might result from an oblique viewing angle.
- The correct alignment earns a score of 0 at all five segments.

These three chapters outlined above all relate to research and the importance of research. These chapters are relevant to occupational therapy because they provide information on the benefits found for the use of hippotherapy and other equine-assisted activities. Furthermore, there is an actual chapter that discusses how to use evidence based practice when providing occupational therapy to a client, it is important to have knowledge as to what research is out there and what still needs to be further investigated. Lastly, the chapter on the GREAT postural scale provides a possible tool to be used during hippotherapy sessions. This tool can allow for objective documentation to show improvements from one hippotherapy session to the next. Additionally, there is need for continued development of the Great postural scale and other tools for documentation and research purposes to help solidify the benefits of hippotherapy and equine-assisted therapies.

Kimberg, I. (2005). Everything you wanted to know about coding. *ADVANCE for Occupational Therapy Practitioners*. Retrieved January 14, 2011, from http://occupational-therapy.advanceweb.com/Article/Everything-You-Wanted-to-Know-About-Coding.aspx

There is no abstract for this article. This article provides and explains the differences between ICD codes and CPT codes for billing occupational therapy services. The article then lists and describes 15 of the most common billing codes that are used by occupational therapists, and includes a definition of what each billing code entails. This is an important topic related to hippotherapy because hippotherapy services are often provided in a non-traditional setting, but billing for the services provided is still necessary. It is important for those occupational therapists using hippotherapy as a treatment strategy to accurately document the therapy session and to be clear about the treatment strategy being used (the horse, the horse's movement, the environment). It is also important for occupational therapists to bill for the services that are being provided, and this article provides a good description of common billing codes to allow for accurate billing.

Latella, D. & Langford, S. (2008). Hippotherapy: An effective approach to occupational therapy intervention. *OT Practice*, *2*, 16-20.

There is no abstract for this article. This article is actually written by a graduate OT student completing her capstone and her supervisor. The article provides a general background and evidence for the use of hippotherapy. Additionally, the article talks about how hippotherapy as an occupational therapy intervention can be primarily linked to the sensory integration theory because the movement of the horse provides a multisensory experience. What I like the best about this article is that it is written simply so that any therapist can understand the benefits of hippotherapy and how it can be used as an approach for occupational therapy intervention without having to know much about horses. Also, the article provides a case study example along with tables explaining what was done during hippotherapy sessions and how those occupations carried over to the functional goals of the individual in the case study.

Lebo, S. (2010). Along for the ride: Hippotherapy is a unique practice area for OTs.

ADVANCE for Occupational Therapy Practitioners, 26(2), 27-29.

There is no abstract for this article. This article provides an objective account of hippotherapy and how it can be used as a practice area for occupational therapists. The article talks about appropriate clients for hippotherapy and precautions that should be taken. The article states that hippotherapy is for individuals two years of age and older. Some of the most common contraindications for hippotherapy include: atlantoaxial instability or other spinal instabilityrelated issues including implants or severe scoliosis, shunts (with some exceptions), and severe allergies. The article also briefly talks about how an occupational therapist can get started in the area of hippotherapy. Most OTs that practice in the area of hippotherapy began their involvement with horses in childhood, however anyone can become certified. There are classes offered through the American Hippotherapy Association for basic equine skills and treatment principle courses. The article briefly mentions that therapists (OTs, PTs, SLPs) can pursue the Hippotherapy Clinical Specialist Credential (HPCS). Credentialing entails sitting for a national exam, the therapist must be in practice for at least three years and have at least 100 hours of hippotherapy practice experience. Overall, I found this article to be informative as it directly relates to the occupational therapy profession and is written for occupational therapists. I also found it interesting how one OT who was quoted in the article about hippotherapy said that she became an OT specifically to work as an occupational therapist in the area of hippotherapy.

Lechner, H. E., Feldhaus, S., Gudmundsen, L., Hegemann, D., Michel, D., Zäch, G. A., &

Knecht, H. (2003). The short-term effect of hippotherapy on spasticity in patients

with spinal cord injury. Spinal Cord, 41(9), 502-505.

Abstract: STUDY DESIGN: Assessment of spasticity before and after hippotherapy treatment. OBJECTIVE: To evaluate the short-term effect of hippotherapy on spasticity of spinal cord injured patients (SCIs). SETTING: Swiss Paraplegic Centre, Nottwil. METHODS: 32 patients with spinal cord injury with various degrees of spasticity had repeated sessions (mean 11) of Hippotherapy-K. Spasticity of the lower extremities was scored according to the Ashworth Scale. RESULTS: In primary rehabilitation patients Ashworth values after hippotherapy were significantly lower than before (Wilcoxon's signed-rank test: P<0.001). Highest improvements were observed in SCIs with very high spasticity. No significant difference between short-term effect in paraplegic and short-term effect in tetraplegic subjects was found. CONCLUSIONS: Hippotherapy significantly reduces spasticity of lower extremities in SCIs. This research is relevant to the profession of occupational therapy because spasticity can

affect an individual's ability to perform activities of daily living and functions. Spasticity can limit the normal rang of motion of joints to the point making the individual dependent on someone else to perform dressing, bathing, and functional mobility occupations. This research demonstrates how hippotherapy can reduce spasticity of lower extremities in people with SCIs, thus helping to increase the person's independence. The warmth and rhythmic movement from the horse during hippotherapy sessions demonstrates benefits in decreasing spasticity among patients with SCIs. However, more research needs to be conducted in the United States demonstrating scientifically the medical benefits from hippotherapy so that insurances will begin to cover the costs.

McGibbon, N. H., Benda, W., Duncan, B. R., & Silkwood-Sherer D. (2009). Immediate and

long-term effects of hippotherapy on symmetry of adductor muscle activity and

functional ability in children with spastic cerebral palsy. Archives of Physical

Medical Rehabilitation, 90, 966-974.

Abstract: Objectives: To investigate the immediate effects of 10 minutes of hippotherapy, compared with 10 minutes of barrel-sitting, on symmetry of adductor muscle activity during walking in children with cerebral palsy (CP) (phase I). To investigate the long-term effects of 12 weeks of hippotherapy on adductor activity, gross motor function, and self-concept (phase II). Design: Pretest/posttest randomized controlled trial plus clinical follow-up. Setting: Outpatient therapy center. Participants: Children with spastic CP (phase I: n_47; phase II: n_6). Interventions: Phase I: 10 minutes of hippotherapy or 10 minutes of barrel-sitting; phase II: 12 weekly hippotherapy sessions. Main Outcome Measures: Phases I and II: adductor muscle activity measured by surface electromyography. Phase II: gross motor function and self-perception profiles. Results: Phase I: hippotherapy significantly improved adductor muscle asymmetry ($P_{-.001}$; $d_{-.132}$). Effects of barrel sitting were not significant ($P_{-.05}$; $d_{-.10}$). Phase II: after 12 weeks of hippotherapy, testing in several functional domains showed improvements over baselines that were sustained for 12 weeks post treatment. Conclusions: Hippotherapy can improve adductor muscle symmetry during walking and can also improve other functional motor skills.

This research explores the affects of hippotherapy on adductor muscle control when

walking for children with cerebral palsy. The study concluded that hippotherapy can improve muscle symmetry during walking and can also improve other functional motor skills. Additionally, the authors noted that parents of the children stated that increased confidence from the hippotherapy sessions carried over into other everyday activities at home and at school. Some of the male participants rated feelings of being more athletic and able to participate in sport activities. This concept of increased self-esteem and confidence relates directly with quality of life, which is an important aspect of occupational therapy. Occupational therapists treat the client as a whole, and work on more then just functional outcomes. This study demonstrates how hippotherapy can help improve functional motor control and mobility thereby increasing independence in occupations of daily living. However, hippotherapy has the ability to go even further into improving self-esteem and confidence which can influence overall quality of life.

North American Riding for the Handicapped Association, Inc. (1969) About NARHA. Retrieved January 11, 2011, from http://www.narha.org/WhoIsNARHA/About.asp There is no abstract available for this website. This source is important because it is the national organization that helps to promote excellence in equine assisted activities and provides standards for accreditation. Safety rules and regulations are of highest importance for this organization as it promotes the use of equine-assisted activities and programing. This site is also important because Fieldstone Farm Therapeutic Riding Center is accredited by the North American Riders for the Handicapped Association (NARHA), and so the facility and all of its programming meets these standards. Lastly, this site provides valuable information including facts, the history of NARHA, future trends, educational opportunities, research, and other equine assisted activity and therapy programs in the United States and Canada. Therefore, this site will serve as a useful tool throughout my Capstone Experience to help me locate therapeutic riding centers in the greater Cleveland area, and potential educational opportunities in the area.

Sams, M. J., Fortney, E. V., & Willenbring, S. (2006). Occupational therapy incorporating

animals for children with autism: A pilot investigation. American Occupational

Therapy Association, 60, 268–274.

Abstract: This investigation compared language use and social interaction in children with autism receiving two forms of occupational therapy: occupational therapy using standard techniques, and occupational therapy incorporating animals. Twenty-two children between the ages of 7 and 13 received both forms of therapy in a school-based occupational therapy program for children with autism. Results suggest that the children demonstrated significantly greater use of language and significantly greater social interaction in sessions incorporating animals when compared to sessions using exclusively standard occupational therapy techniques. Findings are discussed in the context of recent research that has highlighted the importance of enhancing the motivation of children with autism to engage actively in therapeutic and learning processes. In order for sensory integration therapy to be successful, children must be actively

playing with the therapist. This study was designed to explore if animals could be included in the therapy session in order to help motivate and encourage children with Autism socially. The authors found that children played and talked more in the therapy sessions that included animals. This allowed the therapist to focus on activities that challenged the child. The study was not blinded, which means that both the therapists and the children knew why the animals were included in the session, this could have potentially made the reporting therapists biased towards the desired results. Overall, this study demonstrates how the use of animals, specifically horses, can be beneficial as part of occupational therapy services when working on social and communication skills in children with Autism.

Shurtleff, T. L., Standeven, J. W., & Engsberg, J. R. (2009). Changes in dynamic

trunk/head stability and functional reach after hippotherapy. Archives of Physical

Medicine and Rehabilitation, 90(7), 1185-1195.

Abstract: Objectives: To determine if hippotherapy (therapy using a horse) improves head/trunk stability and upper extremity (UE) reaching/targeting in children with spastic diplegia cerebral palsy (SDCP). Design:Pre-postoperative follow-up with a 12-week intervention and 12-week washout period after intervention. Setting: A human performance laboratory with 6 camera video motion capture systems for testing. Participants: Eleven children (age 5–13y, average 8y) with SDCP, 8 children (age 5–13y, average 8y) without disabilities. Intervention: Hippotherapy intervention performed at 3 therapeutic horseback riding centers. Main Outcome Measures: Video motion capture using surface markers collecting data at 60Hz, a mechanical barrel to challenge trunk and head stability, and functional reach/targeting test on static surface. Results: Significant changes with large effect sizes in head/trunk stability and reaching/targeting, elapsed time, and efficiency (reach/path ratio) after 12 weeks of hippotherapy intervention. Changes were retained after a 12-week washout period. Conclusions: Hippotherapy improves trunk/head stability and UE reaching/targeting. These skills form the foundation for many functional tasks. Changes are maintained after the intervention ceases providing a skill foundation for functional tasks that may also enhance occupational performance and participation.

This research is relevant to the profession of occupational therapy because it expands on

previous studies of postural control and explores closely the dynamic head and trunk stability of a participant after completing hippotherapy treatment sessions. The ability to control your head and trunk allows for stable support when completing dynamic occupations such as reaching for items. The results of this study showed that those children with SDCP were able to more accurately reach for objects after completing hippotherapy sessions. The hippotherapy group's results resembled the control group's results for reaching occupations of typically developing children. This study supports previous study results, and provides objective evidence that hippotherapy improves trunk and head stability, which is the basis for functional activities.

Silkwood-Sherer, D. & Warmbier, H. (2007). Effects of hippotherapy on postural stability,

in persons with multiple sclerosis: A pilot study. Journal of Neurologic Physical

Therapy, 31, 77-84.

Abstract: PURPOSE: The purpose of this pilot study was to examine the effectiveness of hippotherapy as an intervention for the treatment of postural instability in individuals with multiple sclerosis (MS). SUBJECTS: A sample of convenience of 15 individuals with MS (24-72 years) were recruited from support groups and assessed for balance deficits. METHODS: This study was a nonequivalent pretest-posttest comparison group design. Nine individuals (4 males, 5 females) received weekly hippotherapy intervention for 14 weeks. The other 6 individuals (2 males, 4 females) served as a comparison group. All participants were assessed with the Berg Balance Scale (BBS) and Tinetti Performance Oriented Mobility Assessment (POMA) at 0, 7, and 14 weeks. RESULTS: The group receiving hippotherapy showed statistically significant improvement from pretest (0 week) to posttest (14 week) on the BBS (mean increase 9.15 points (x (2) = 8.82, p = 0.012)) and POMA scores (mean increase 5.13 (x (2) = 10.38, p = 0.006)). The comparison group had no significant changes on the BBS (mean increase 0.73 (x (2) = 0.40, p = (0.819)) or POMA (mean decrease 0.13 (x (2) = 1.41, p = 0.494)). A statistically significant difference was also found between the groups' final BBS scores (treatment group median = 55.0, comparison group median 41.0), U = 7, r = -0.49. DISCUSSION: Hippotherapy shows promise for the treatment of balance disorders in persons with MS. Further research is needed to refine protocols and selection criteria.

This study is one of the most recent studies completed that supports the evidence in the practice of hippotherapy. This study was completed using adult participants, whereas the majority of research in the area of hippotherapy uses children research participants. Furthermore, this research study used a larger sample size compared to other research that primarily is made up of case studies and single-subject designs. Therefore, this is an important research article in advancing knowledge about hippotherapy and the use of hippotherapy with adults. This article will be helpful in advocating for the use of hippotherapy for adults and for people who have balance disorders.

Smith, B. (2009). Hand it to hippotherapy: Using the horse to develop fine-motor skills.

ADVANCE for Occupational Therapy Practitioners. Retrieved January 11, 2011,
from http://occupational-therapy.advanceweb.com/Article/Hand-it-to-

Hippotherapy-2.aspx

There is no abstract for this article. This article was very informative and provided multiple different occupations that can be completed during hippotherapy sessions that can increase fine motor skills. Some examples that the author provided included: braiding the horses mane, brushing the horse, coloring and drawing while on horseback, pulling clothespins off the mane to place in a small basket, and removing toys/cards attached with Velcro. The article also mentioned how closely related hippotherapy is to the sensory integration theory. A fact that was stated in the article that I found extremely interesting is that, "the horse walks at a rate of 110-120 beats per minute, therefore riding a horse provides over 3,000 opportunities for the rider to accommodate his or her pelvis during a 30 minute therapy session (as cited in the text, Reide, 1988)". Overall, this article was very interesting and provides many different examples of how an occupational therapist can integrate fine motor occupations into a hippotherapy session.

Snider, L., Korner-Bitensky, N., Kammann, C., Warner, S., & Saleh, M. (2007). Horseback

riding as therapy for children with cerebral palsy: Is there evidence of its

effectiveness? Journal of Physical and Occupational Therapy in Pediatrics, 27(2), 5-

23.

Abstract: A systematic review of the literature on horseback riding therapy as an intervention for children with cerebral palsy (CP) was carried out. The terms horse, riding, hippotherapy, horseback riding therapy, equine movement therapy, and cerebral palsy were searched in electronic databases and hand searched. Retrieved articles were rated for methodological quality using PEDro scoring to assess the internal validity of randomized trials and the Newcastle Ottawa Quality Assessment Scale to assess cohort studies. PICO questioning (Population, Intervention, Comparison, and Outcomes) was used to identify questions of interest to clinicians for outcomes within the context of the International Classification of Functioning, Disability and Health. Levels of evidence were then accorded each PICO question. There is Level 2a evidence that hippotherapy is effective for treating muscle symmetry in the trunk and hip and that therapeutic horseback riding is effective for improved gross motor function when compared with regular therapy or time on a waiting list. No studies addressed participation outcomes.

This article covers the results from a systematic review of the literature on horseback

riding therapy as an intervention. Overall, the literature review found that hippotherapy is effective for treating muscle symmetry in the trunk and hips. Also, the review found that therapeutic horseback riding is effective for improved gross motor function when compared with regular therapy. This article as well as other articles that I have found indicate that there are benefits from the use of hippotherapy, yet the point in this article is that four different search terms for hippotherapy were used to find articles from different databases. One of the reasons that insurances are unwilling to pay for hippotherapy is that there is not enough research, but there is numerous amounts of research out there it is just that not all researchers are using correct terminology. There is too much confusion between the differences between hippotherapy, therapeutic horseback riding, equine movement therapy, and horseback riding therapy, that terms are used interchangeably when in actuality the terms represent different treatment approaches. For this reason it is even more important to educate the public about hippotherapy and the differences between the different types of horse therapies. The profession of occupational therapy has experience with confusion of terminology because of activity therapy versus occupational therapy. This article supports the need for advocating for hippotherapy just as the profession of occupational therapy continually is advocating for itself. Stoner, J., MacKinnon, J.R., Noh, S., Lariviere, J., MacPhail, A., Allan, D.E., Laliberte-Rudman, D., & King, N. (2007). Part II: Research. In B. Engel, & J. MacKinnon (Eds.), *Enhancing human occupation through hippotherapy: A guide for occupational therapy* (pp.103-126). Bethesda, MD: AOTA Press.

Summary/highlights and Significance of text.

Chapter 13: Efficacy of Hippotherapy as a Treatment Strategy for Children with Autism

- Occupational therapists, as part of the treatment team, typically address sensory processing and modulation deficits.
- The sensory diet consists of sensory-based activities that can be done throughout the day in a variety of settings. The inclusion of hippotherapy into an occupational therapy program can be part of a sensory diet.
- The current study, attempts to meet the needs of children with autism and their families by examining the use of hippotherapy as a treatment strategy and adding to the body of knowledge on hippotherapy a part of OT for children with autism.
- Method
 - o 12 participants, ages between 4 and 10 and had a diagnosis of PDD or autism.
 - All 12 riders were given a pretest and posttest at the beginning and end of the 10week period.
- The Riding Program

- Hippotherapy once a week for 10 weeks. Each session lasted 60 minutes and was divided into 30 minutes of pre-mounted activities followed by 30 minutes of mounted activities.
- Procedures
 - The Sensory Profile is a standardized instrument that assesses the sensory processing skills of children on basis of parent or caretaker observations of various tasks. In addition to, a weekly questionnaire was given to parents and caretakers.
- Results
 - Test scores in the experimental group increased in the categories of multisensory processing, modulation related to body position and movement affecting activity level, modulation of sensory input affecting emotional response, modulation of visual input affecting emotional response and activity level, and behavioral outcomes of sensory processing.
 - Data gathered from questionnaires: in weeks 1&2, 33% of response was positive, and by weeks 5&9, 83% of responses were positive.
- Discussion
 - The benefits of combining pre-mounted sensory integration treatment followed by a mounted hippotherapy treatment appeared to have a positive impact on the participants.

 This study reinforced the notion that using functional or recreational activities to address therapeutic needs may be more motivating and satisfying for children with special needs and their families.

Chapter 14: A Study of Therapeutic Effects of Horseback Riding for Children with Cerebral Palsy

- The purpose of this study was to examine the physical and psychosocial therapeutic benefits that children with cerebral palsy derive from participation in a horseback riding program.
- Method
 - Study focused on children with mild to moderate cerebral palsy. There were 19 children (10 girls, 9 boys) with a mean age of 6.5 years.
 - The children in the experimental group participated in a 6-month horseback riding program.
- The Riding Program
 - The program was a 1 hour weekly session, focused on the development of functional riding skills, basic horse and stable knowledge, and skill at games on horseback.
- Procedures
 - Pretested and posttested by two testers a PT and an OTS
- Quantitative Measures

- The physical outcome variables that were assessed included posture, gross motor function, fine motor function, and ADLs. The following instruments were used: The Gross Motor Function Measure (GMFM), the fine motor component of te Peabody Developmental Motor Scale (PDMS), the Vineland Adaptive Behavior Scales (to measure ADLs), the Harter Self-Perception Scale, and the Child Behavior Checklist (CBC).
- Qualitative Measures
 - The riding instructor journal, the PT program summary documented observations, parent observed report sheets, and videotape of the child
- Quantitative Results
 - GMFM revealed no statistical support, PDMS only significant report was in grasping, Vineland Adaptive Behavior Scale failed to confirm statistically significant changes. In general the Harter Self Perception Profile, Vineland Adaptive Behavior Subscale and CBC failed to confirm statistically benefits of the therapeutic horseback -riding program.
- Qualitative Results
 - The children in the riding program showed weekly progress in their sitting position on the horse. The PT reported progress in physical and psychosocial areas. Parents observed positive changes in functional skills such as gait and ADL.
- Discussion

• In conclusion, the significant findings of this study suggest that for children with moderately involved CP, grasp improved and perceived self-adequacy increased as a result of the riding program.

Chapter 15: Perceived Efficacy of Therapeutic Riding for Children with Autism

- The purpose of this pilot study was to examine changes in the social and related behaviors of children with autism after participating in a therapeutic riding program.
- Methodology: 5 children attended a 10- week hippotherapy program with sessions once a week for 2 hours.
- Instrument: The programs effectiveness was evaluated by way of parents' perceptions. A questionnaire was filled out by the parent/guardian during the first week of the program and again within the week of the final session.
- Results: Quantitative results were inconclusive. The qualitative results that were based on the open ended questions demonstrated positive feedback and results.
- Discussion: Qualitative evidence suggests that riding provided benefits for the children, who responded enthusiastically and eagerly in the presence of the horses. The study's results are consistent with the literature describing the rich sensory-integrative environment provided through horseback riding.
- Conclusion: The pilot study offered support that riding has the potential for facilitating change in social behavior.

These chapters continue to discuss relevant research related to the use and benefits of hippotherapy interventions for children with Autism and cerebral palsy. Children who have Autism are complex and can have multiple impairments, particularly sensory and socially related. Hippotherapy and the environment that a hippotherapy session takes place has the ability to provide an absorbent amount of sensory opportunities. The senses of sight, sound, touch, and smell can all be aroused from hippotherapy and equine-assisted therapies. The research from this section supports the use of hippotherapy for sensory modulation and social interactions of children with autism. It is important to use a variety of different treatment strategies when working with the diverse symptomology of Autism. Additionally, the research investigated the effects of therapeutic riding with children having CP. The study concluded that in moderately involved CP; grasp improved and perceived self-adequacy increased as a result of the riding program intervention. These results suggest the applicability of using equine-assisted therapies to help individuals with CP improve on goals related to grasp and self-adequacy.