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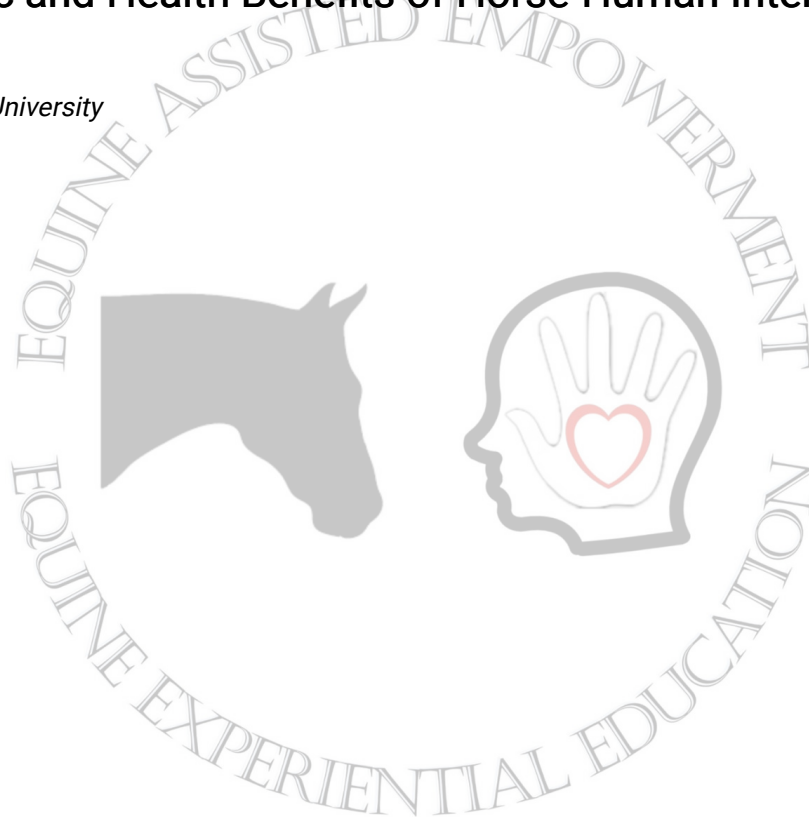
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Therapeutic and Health Benefits of Horse-Human Interactions

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Western Oregon University



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Therapeutic and Health Benefits of Horse-Human Interactions

By
Chelsea Wiley

An Honors Thesis Submitted in Partial Fulfillment
of the Requirements for Graduation from the
Western Oregon University Honors Program

Carla Johnson,
Thesis Advisor

Dr. Gavin Keulks,
Honors Program Director

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Abstract

With completing this thesis, I hope to achieve an answer that could potentially help numerous people with their recovery from tragic events or progress in their life overall. Horseback riding has been suggested to help special needs children and adults connect better with people and help them communicate their needs and wants, not only with people, but with the horses as well. I would want to further confirm the effects that it has on people since it can potentially help particular individuals, such as individuals with autism. Not only can individuals with disabilities benefit from therapeutic horseback riding, but patients recovering post-traumatic stress disorder and other disorders can benefit from this since it can help with communication, fine motor skills, and muscle memory.

This project will include statistics and information on therapeutic horseback riding through the use of many already established therapeutic riding centers to show the effects that this therapy has on its participants. It will also include public opinions and a government bill to show the relevance that this therapy has to the general population. Interviews and literary research will help to formulate a business plan that can allow therapeutic horseback riding to bring the fullest potential to the people that partake in this specific type of therapy.

Introduction

In 2013, the Professional Association of Therapeutic Horsemanship (PATH) posted in their latest fact sheet showing that 58,336 individuals with special needs, children and adults included, participated in certified equine therapy programs. The people that participated in these programs had an array of different disabilities ranging from muscular dystrophy and cerebral palsy to visual and hearing impairment, Down syndrome, autism and mental retardation, multiple sclerosis and spinal bifida (Professional Association of Therapeutic Horsemanship., 2013). As alternative methods of natural healing for disabilities are rising in popularity, equine therapy has become a suggested method of helping individuals not only with physical impairments, but also with mental and emotional instabilities.

Early care and education providers are often the first to notice a child's developmental differences because of their constant interaction with children throughout the day. Certain children may stand out within a class because of their lack of attention to their surroundings or their fixation upon certain objects within the classroom. "Educators of young children are aware that the earlier children with developmental delays, such as those caused by hearing loss or autism, receive intervention, the better their long-term outcomes are likely to be" and a method of intervention for these children could be hippotherapy to help develop their physical and cognitive skills (Nuner, J. E., & Stevens Griffith, A. C., 2008). Signs and symptoms of autism spectrum disorders are often noticeable as early as infancy and the more severe the developmental impact, the earlier the symptoms are noticed. However, "due to the

fact that ASD is highly complex and heterogenous in nature, it has proven difficult to operationalize a single measure to fully assess its multidimensional aspects” and fully diagnose the exact aetiology of ASD (Anderson & Meints, 2016). Many disorders fall under the realm of autism spectrum disorders, but the first indicators of a disorder would be concerns with socialization, sensory functioning, language, and cognitive functioning. Examples of these concerns could be:

- Resistance or discomfort when being held or touched,
- Lacking response to hugs,
- Isolated play in which the child is content with solitary activity rather than interacting with others,
- Preferring interaction with objects rather than with humans, and
- Atypical object interactions (Nuner, J. E., & Stevens Griffith, A. C., 2008).

When educators address the concern with the child’s parents, it becomes essential that no labels are placed on the child and that the educator has full support of the family by providing them with resources, such as hippotherapy, that could benefit their child greatly and give them a large potential to have a better quality of life.

Studies have been conducted to determine whether hippotherapy increased function and participation in children with autism spectrum disorder (ASD). One pilot study in particular showed that there was a “significant increase observed in overall adaptive behaviors and participation in self-care, low-demand leisure, and social interaction.” Having the ability to take care of one’s self and have successful social interaction is key to surviving in today’s evolving society, and if one is not seen as having these qualities, they may become an outcast or seen as “different” in the eyes of others. By improving these skills in autistic spectrum individuals, they could possibly be more successful in the world because they would be able to convey thoughts effectively

through expressive communication, written communication, and interpersonal relationships (Aizenman, H. F., Standeven, J. W., & Shurtleff, T. L., 2013).

With autism becoming a more widely known, proper diagnosis and treatment can be offered to the individuals who have this disorder. Dr. Ericka Wodka (Sarris, M., 2014) explained that children often learn social skills by watching other people's movements such as gestures. Having an equine therapy instructor performing one-on-one activities with an autistic child can be beneficial as well as having other children participating in the same activity because the child is able to see others performing the same task at hand. More personal and individualized therapy sessions enable the child to learn the complex motor skills in a way where the activities are broken down into small tasks. Learning the skills in a step-by-step method allows the therapist to accommodate for the individual's needs and make it more enjoyable for the client. Another advantage of having more individualized therapy sessions, it allows for the therapist to take extra care in interpreting what the client's needs and wants are. Teaching children with intellectual disorders may become challenging because the children are not always able to express what they want through oral speech and expressive movements.

With having a lack in motor muscle skills including balance and coordination, people with autism face challenges related to physical fitness. The motor skill issues begin in infancy, and the children accomplish milestones of sitting, crawling, and walking in unique ways that are not necessarily consistent with the norm. Challenges that come to the forefront of an ADS child's life could include throwing a ball, zipping up their

jacket, or even simply tying their shoe. With the below-average motor and communication skills, this challenge makes life frustrating not only for the child, but for their care providers as well (Sarris, M., 2014).

With doing this project, I hope to achieve an answer that could potentially help numerous people with their daily struggles that stem from ADS. Horseback riding has been suggested to help ADS children and adults connect better with people and help them communicate their needs and wants, not only with people, but with the horses as well. Not only at the physiological level, but “behavioral and evolutionary biology has indicated that there are basic universal mechanisms and structures underlying both social behavior in humans and animals, enabling interspecies social relationships to develop” ultimately having an impact on human social behavior (Anderson & Meints, 2016). I would like to further confirm the effects that this type of therapy has on people since individuals can greatly benefit from advances in their communication and fine motor skills. This project will include statistics and information on therapeutic horseback riding through the uses of many already established therapeutic riding centers to show the effects of this therapy. Interviews from professionals in fields pertaining to ASD and therapeutic horseback riding will provide this thesis with many constructive perspectives of this therapy. Finally, a business plan will be formulated that will allow therapeutic horseback riding to bring the fullest potential to individuals that partake in this specific type of therapy.

Overall Aspects Contributing to Individual from Therapeutic Horseback Riding:

Emotional

A study (Lanning, B. A., Baier, M. E., Ivey-Hatz, J., Krenek, N., & Tubbs, J. D., 2014) was conducted to assess the impact of equine assisted activities on quality of life for children diagnosed with autism spectrum disorder. Parents of children that participated in this study reported marked improvement in general behavior which was assessed by asking questions about how often the child is arguing, having difficulty concentrating and lying, or cheating. With the improvement of these behaviors, parents also reported improvements in their children's school functioning and physical functioning after participating in the EAA (Equine Assisted Activities) program. They described their children as having less difficulty running, paying more attention in class, keeping up with schoolwork, and having better school attendance. All of these progresses in the children's lives contribute to an overall greater quality of life since they are able succeed at a higher level than they were able to before.

A specific quality that was improved from the study (Lanning, B. A., Baier, M. E., Ivey-Hatz, J., Krenek, N., & Tubbs, J. D., 2014) was the child's self-esteem. Parents and professionals, such as equine therapists, can increase the self-worth of individuals with a learning disability through fun play and encouraging relevant social and life skills. Self-esteem and confidence are crucial ingredients in giving people with learning disabilities a sense of well-being and of beings valued member of a community. A blogger documented her methods for improving her daughter's self-esteem which included her

daughter participating in household chores, complimenting her, and being a positive role model for others (Goleniowska, H., 2014).



Overall Aspects Contributing to Individual from Therapeutic Horseback Riding:**Psychological**

Some behaviors that characterize Autism Spectrum Disorder are “problems with verbal and non-verbal communication, social integration and awareness, and stereotyped repetitive behaviors or interests” which could have an impact on their mental capacity to stay on task and follow directions (Anderson & Meints, 2016). The social differences can be explained by limited abilities to empathize with other individuals. People with ASD have increased ambitions when it comes to systemizing things and this tends to lead to a need for control, producing repeated behaviors, and narrowing of interests.

In a study where participants were obtained from Saint Nicholas Academy for Autism Trust (Anderson & Meints, 2016), results suggested that equine-assisted activities and therapies (EAAT) may improve social function in children and adolescents with ASD. Significant improvements were noticed in maladaptive behaviors. Maladaptive behaviors, as defined by the study, include internalized, asocial, and external behaviors that could have a negative implication on the individual's life. Improvements in this type of behavior have countless benefits and implications for the day-to-day life of a child or adolescent with ASD and could greatly stimulate the child or adolescent to pursue the positive changes that help them to normalize day-to-day life. Other improvements in this behavior also include a positive modulatory effect on stress, trust, and psychological health, providing the individual with improved social functioning.

Overall Aspects Contributing to Individual from Therapeutic Horseback Riding:

Physical

Incorporating both emotional and mental aspects, therapeutic horseback riding ultimately influences the physical aspect of the individual partaking in the therapy.

“Horses have been described as detecting minute changes in a human’s body language, thus providing a ‘mirror’ for the participant to gain insight into their own psyche” and being able to physically see and feel this change can greatly affect the participant (Anderson & Meints 2016). Therapy horses are trained to withstand many distractions that may stem from the rider such as throwing objects like when playing games, shouting, crying, and other instances. However, the horse does provide the rider with ‘feedback’ such as subtle body movements to let the rider acknowledge that there has been a disruption in the relationship that they have formed. Direct physical contact with the horse is an essential key factor for promoting positive behavior change. This suggests that the physical presence of the horse and the rhythmic motion of the horse add to the multi-sensory nature of therapeutic horseback riding. An increase in motor skills gained by participating in therapeutic horseback riding may provide the individual with improved social function skills, especially skills that are age-appropriate for the individual, according to research done by Volkmar et al. (1987).

Hippotherapy and How It Relates: Origin

Hippotherapy is the incorporation of equine movement by physical therapy, occupational therapy, or speech language pathology professionals in treatment. The term originates from “ancient Greek as ‘treatment with the help of a horse’” (Anderson & Meints, 2016). The first mention of horseback riding as therapy arose from the writings of Hippocrates in ancient Greece during the years of 460 – 377 B.C. Hippocrates became “the first to describe the benefits of horses for rehabilitation purposes, calling horseback riding ‘universal exercise’” (Anderson & Meints, 2016). Since then, other references to horseback riding have been made such as Tissot of France writing a book, ‘Medical and Surgical Gymnastics,’ and regarding riding at the walk as the most beneficial gait. More recently, the American Hippotherapy Association has studied and provided a standardized hippotherapy curriculum that started in 1969 as the North American Riding for the Handicapped Association (American Hippotherapy Association, Inc., 2010).

Hippotherapy and How It Relates: Effects Seen in Individuals

To determine if hippotherapy could help improve the physical aspects of an autistic person's life, a study was performed with six children who participated in twelve-weekly hippotherapy sessions. Pre- and post-session measures included force plate and video motion capture assessments as well as the Vineland Adaptive Behavior Scales-II. The force plates and video motion capture assessments measured the changes in postural control and significant decreases in movement variability of postural sway were observed. The Vineland Adaptive Behavior Scales-II measured the four main domains of communication, daily living skills, socialization, and motor skills with respective subdomains of receptive communication, expressive communication, written communication, personal daily living skills, domestic daily living skills, community daily living skills, and gross and fine motor skills. By performing these pre- and post-measures, the facilitators of the study were able to qualitatively and quantitatively contribute the improved function in the ASD children to the hippotherapy sessions. There is a willingness of the children's parents to provide their children with more opportunities to better their language, motor, and social skills and improvements if the child's improved physical and mental skills were seen in their home and social lives. Hippotherapy and activities of the same effectiveness could initiate a virtuous cycle in which more engagement hones the child's skills that would enable even more engagement in their life (Ajzenman, H. F., Standeven, J. W., & Shurtleff, T. L., 2013).

With reestablishing a child's sense of balance and motor skills, the horse's continuous movement constantly changes the stability of the rider and can improve

with that aspect. The children who participate in equine therapy may develop automatic postural mechanisms to better engage therapeutic and functional activities, suggesting that hippotherapy may have affected very basic skills fundamental to the development of more complex motor skills. Complex distal upper-extremity and hand skills are important for performance and participation in daily activities such as writing, steering the reins of the horse, and throwing a basketball. Improvements in receptive communication, coping, and daily activity participation could result from improved postural control. Hippotherapy has the potential to increase postural stability, providing children with Autism Spectrum Disorder the opportunity to increase performance and participation in daily activities. Being able to participate in daily activities allows the children to further develop their new-found skills, both motor and mental.

In addition to the study done with children assessing their physical postural stability, research was done by the Department of Physical Education and Sports Science at Aristotle University of Thessaloniki, Serres, Greece with adolescents that have intellectual disabilities in determining if hippotherapy had an effect on their static balance and strength (Giagazoglou, P., Arabatzi, F., Dipla, K., Liga, M., & Kellis, E., 2012). After attending a ten-week hippotherapy program, the adolescents had significant improvement in strength parameters when completing tasks at hand such as standing on one leg. This particular study provides evidence that hippotherapy can be used as an effective intervention for improving balance and strength in individuals with intellectual disorders and could influence functional activities and quality of life. Therapists strive to improve the quality of life in their patients through assisting them with improving

everyday actions such as speaking and moving. Improving the quality of life in individuals brings joy not only to the therapist, but to everybody involved in the patient's life. Differences between pre- and post-therapeutic individuals have been viewed both quantitatively and qualitatively.

Motivation is defined as a process in which internal and external factors direct and energize thoughts, feelings, and actions. Special needs children often lack the motivation to finish tasks because of their potentially lessened mental capacity to focus on a specific task as well as having lower control of their thoughts, feelings, and actions. McGibbon and Haehl suggested that hippotherapy motivates children to actively engage in the treatment because

1. The therapy demands and encourages participation.
2. The outdoor environment and exercise with the horse are pleasurable.
3. The presence of the child's family during the therapy is a major factor in motivating the child (Granados, A. C., & Agís, I. F., 2011).

These three reasons for increased motivation become very prevalent upon closer examination. Demanding participation is one thing with a child because they often do not want to comply with something that may appear too difficult for them to accomplish. However, once encouragement is added to the mix, children, with or without intellectual disorders, become much more compliant to do what is asked of them. The outdoor environment and exercise with the horse is pleasurable for children since they are able to experience a new activity with an animal that they may not have experienced before. Being mounted on the horse also provides the rider with a sense of warmth since the horse's body temperature is few degrees warmer than the human body. This extra warmth can help increase the rider's plasticity, reduce spasticity,

stretch the rider's muscles, and ultimately enhance the rider's overall sense of relaxation. Having a reliable support system, such as family, able to attend the hippotherapy sessions enable the child with special needs to show their family how they have progressed during the therapy. The family is then able to encourage the individual to keep improving and they are able to show them how proud they are of the individual's success (Granados, A. C., & Agís, I. F., 2011).

It is important to understand the impact that hippotherapy has on special needs children, especially children with autism, so that deeper level of understanding can be obtained to get to the root of why hippotherapy is successful with these children. With having deeper understanding of why this works, it will be vital for creating a business plan for this project. By creating a business plan that can be implemented in various horseback riding camps, these camps will be able to strengthen their accommodation for various disabilities and needs in the programs. Even though intellectual disorders can be assessed on a spectrum, just like autism, hippotherapy professionals can adjust the standardized program to fit to the needs of the individual. As studies have assessed the physical, social, and emotional benefits of hippotherapy, a more complete program can be developed to hopefully incorporate all aspects of those benefits that will enhance the quality of life of autistic individuals. Ultimately, therapeutic horseback riding benefits will vary amongst the spectrum of individuals participating in the therapy and results may not be immediately viewed in the individual. Since results are not immediate, this should not discount hippotherapy as a suitable form of therapy for autistic children because positive developments could be viewed months from an initial therapy session.

Basal Cortisol: History and Connection with Equine Therapy and Hippotherapy

Human-Animal Interaction (HAI) has seen an increase in the combination therapy plans of many individuals, especially people within the adolescent age range. Therapeutic horseback riding has been one of the more popular types of therapy to be incorporated into plans because of the effects seen in physical and mental health, well-being, and development. Pendry, Smith, and Roeter obtained a grant to perform randomized trials over an 11-week period to determine whether equine-assisted learning and therapy “strengthens adaptive patterns of cortisol production of adolescents, with the goal of preventing development of physical and mental health problems associated with deviations in basal cortisol patterns” (Pendry, Smith, & Roeter, 2014). Activity of the Hypothalamic Pituitary Adrenal (HPA) axis of adolescents was measured through salivary cortisol. Heightened levels of basal cortisol are hypothesized to play a major role in the development of stress-related disorders, especially in adolescence due to the onset of puberty. Typically, basal cortisol levels are significantly higher in the morning and as the day progresses, they will reduce to various levels depending on the individual. Having more stabilized cortisol levels throughout the day at this time in a child and adolescent’s life could help them to have a less emotionally straining life and lead to less depression, anxiety, and exclusion by peers (Pendry, Smith, & Roeter, 2014).

The trial consisted of “mounted and unmounted activities of human-equine behavior, engagement in equine management, in-hand horsemanship, some riding, and personal and group reflection” (Pendry, Smith, & Roeter, 2014). The participants of the

trial needed to meet certain criteria before being able to participate and for each week, there were certain goals that the participants were expected to accomplish. After analyzing the samples, it was found that after participants had the equine-intervention, they had significantly lower levels of cortisol upon waking in the morning compared to individuals that were waitlisted for the trial. Figure 1 below demonstrates the decrease levels of cortisol pre- and post-test and these results can conclude that by including HAI, specifically equine interaction, into an individual's treatment plan can help reduce stress levels triggered by heightened basal cortisol levels.

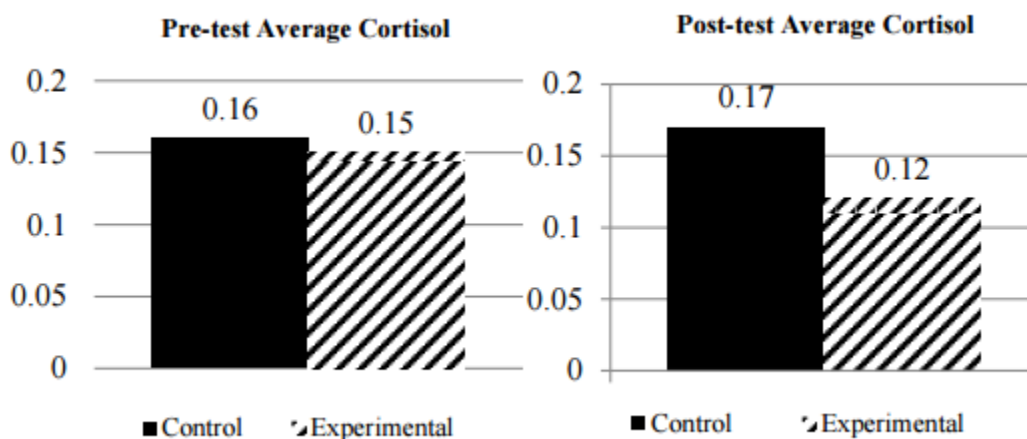


Figure 1. Basal cortisol pattern showing lower daily average levels at post-test for children assigned to the experimental trial (Pendry, Smith, & Roeter, 2014).

This study correlates with individuals with autism and other disorders under that spectrum because it provides a more empirical aspect to therapeutic horseback riding. Showing that stress and heightened emotions can be reduced through this type of animal interaction will benefit individuals participating because obtaining an environment that can potentially reduce stress-related behavior can improve the quality of one's life. Doing this can enable them to focus on learning and honing social, mental,

and physical skills. Some limitations that were mentioned by the people performing the trial included intervention components such as participant interaction and willingness. Their results may not have concluded in the same way if the children were less willing or comfortable to interact with horses, if their parents did not consent to the trial, or if they broadened the target group.

Another interesting factor that they mentioned in the article touched on the idea of what specific aspect of the equine intervention reduced the basal cortisol levels: grooming horses, riding horses, or other activities with the horses. Performing more trials and focusing on each of those target areas with the same pool of participants would potentially give them a fuller understanding of the way equine interaction affects cortisol levels. This trial made many comparisons of the equine intervention to canine interventions since there is more knowledge about that type of interaction. A well-known example of canines reducing stress levels can be seen in using therapy dogs in hospitals, homes, and other establishments. Whether an individual was around a dog for one minute or for an extended period of time, cortisol levels were significantly lower after interacting with the canine.

Reviews and Public Opinion: Scholarly Articles

Most studies present information about therapeutic horseback riding greatly benefiting the individuals that participate in the therapy. There are studies that support the contrary and state that no significant conclusions can be made about the horseback riding improving the participant. A particular study did an experimental analysis of the effects of therapeutic horseback riding on the behavior of children with autism. In this study, the effects were evaluated on children with autism using a multiple baseline across the participants design and a waitlist control group for comparison purposes. Every week, participants were observed in an after-school program during four center-based activities and during therapeutic horseback riding lessons. Intermittent probes of behavior at home were also conducted to use as a comparison to an environment change for the children. The therapeutic horseback riding, in this study, “did not produce systematic changes in affect, responding to others’ initiations, spontaneous initiations, off-task behavior, compliance, problem behavior, or performance on two standardized measures” (Jenkins, S. R., & Reed, F. D., 2013). Three of the four participants’ posture improved over the course of the therapeutic horseback riding experiment. Statistically, the data from the control group and the group that received the therapeutic riding did not differ greatly and so it was not perceived as an effective therapy for addressing problem behaviors or language deficits. With this study stating that there was not a substantial difference in the child’s behavior, it shows that therapeutic horseback riding may not be the most suitable type of therapy for every

child with autism spectrum disorder. Since this is a spectrum disorder, not a single type of therapy will be the most beneficial for every type of autism that exists.

When looking at the statistical information for the study that provided a four-part riding therapy session, the mean scores on the social interaction subscale of the GARS-2, which measures the participant's ability to relate appropriately to people, events, and objects, dropped from the "Very Likely Autistic" range to the "Possible Autistic" range (Ward, S. C., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N., 2013). Having a drop of this caliber showed that significant changes in ratings of participant's were not only visually apparent to family under relaxed conditions, but also apparent under a professional eye of the facilitators. The findings of this study were similar to those from previous therapeutic riding studies that have demonstrated changes in social communication and reaction to sensory stimuli. By having multiple studies that provide comparable results, this could indicate that therapeutic horseback riding could be a suitable form of therapy for individuals with autism spectrum disorder.

Immediate results may not be seen after just finishing a therapeutic riding session, but may be seen several months after. A particular study showed that there were no changes in the ratings provided by the Childhood Autism Rating Scale (CARS) during the pretreatment baseline period, but there was a significant decrease in the ratings after treatment at three months and six months of riding. This result suggests that children with autism spectrum disorder may benefit from equine-assisted activities in regard to the core features of the program (Kern, J. K., Fletcher, C. L., Garver, C. R., 2011). This study was designed to examine the effects of equine-assisted activities on

overall severity of autism symptoms using CARS and the quality of parent-child interactions using the Timberlawn Parent-Child Interaction Scale. Sensory processing changes were also examined along with overall quality of life and parental treatment satisfaction. A reduction in the severity of autism symptoms occurred with the therapeutic riding treatment and this reduction of the severity of symptoms could improve the overall quality of life including the social, mental, and physical aspects of life. With having the benefits being seen over the next several months of participation in the therapy sessions, parents of the autism spectrum disorder children expressed that the equine-assisted activities had benefitted their child and improved their quality of life.

To establish support for a new, novel type of therapy, there needs to be empirical support to suggest that it can serve as a treatment for specific mental disorders. Therapeutic horseback riding falls into the category of therapies that is lacking empirical support due to not having a specific set of standardized criteria that all institutions must follow. In a systematic review done reviewing scholarly peer-reviewed articles, Anestis et al. aimed “to establish the degree to which research on these interventions meets conventional standards of quality and indicates efficacy and effectiveness” for treating mental disorders (Anestis, Anestis, Zawilinski, Hopkins, & Lilienfeld, 2014). It is vital “to determine the degree to which [therapeutic horseback riding] has been reliably shown to produce clinically meaningful outcomes for individuals” (Anestis, Anestis, Zawilinski, Hopkins, & Lilienfeld, 2014). The studies needed to employ a protocol that could be followed as well as indicate the efficacy and

effectiveness of the program utilized. After culminating all the research they could pertaining to the 14 studies chosen, the results lacked uniformity of “appropriate experimental controls, proper experimental procedures necessary to test treatment outcome, and independent, unbiased raters” (Anestis, Anestis, Zawilinski, Hopkins, & Lilienfeld, 2014).

When some professionals and celebrities endorse health-related fads, people from all walks of life are more inclined to try them and see if they will experience the same benefits that are being claimed. Health programs such as the Dr. Phil show and the Dr. Oz show have made claims about therapeutic horseback riding being a treatment for a wide range of mental conditions and disabilities. However, with the lack of empirical evidence, these ‘sponsors’ of therapeutic horseback riding “run the risk of driving up opportunity costs by directing individuals with diagnoses for which evidence-based treatments exist (a) away from treatments with a strong empirical foundation and (b) towards alternative approaches devoid of such support” (Anestis, Anestis, Zawilinski, Hopkins, & Lilienfeld, 2014).

Using therapeutic horseback riding as a stand-alone therapy may have negative effects on an individual’s well-being because there could be more cost-efficient and suitable therapies for that individual. As opposed to discrediting therapeutic horseback riding all together, it could be used in conjunction with other therapies to provide an optimal treatment for an individual.

Reviews and Public Opinion: Oregon Legislative Assembly House Bill 2723

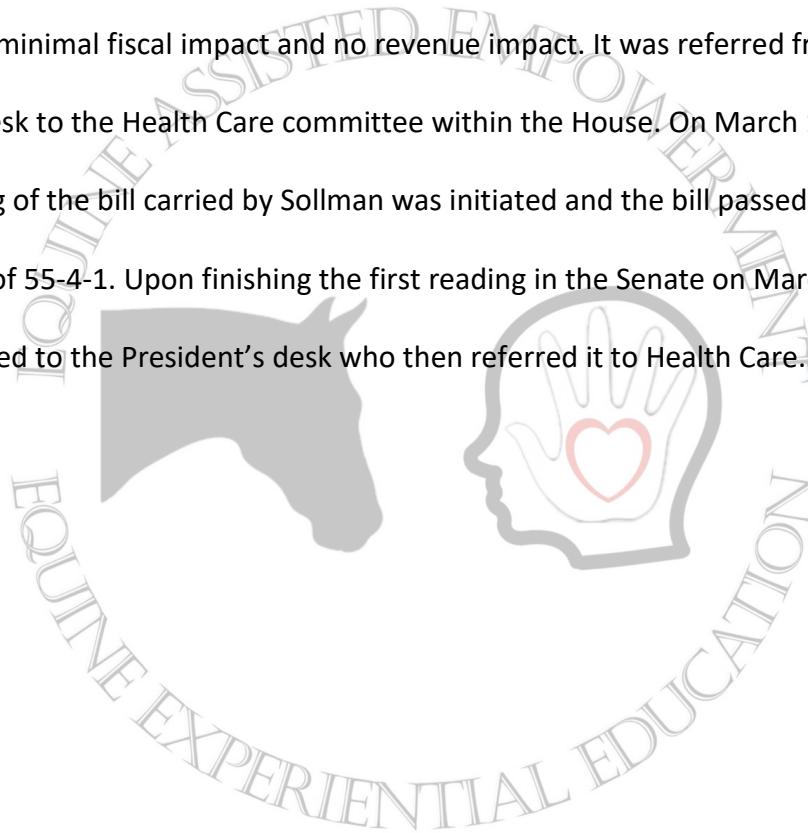
Sponsored by Oregon State Representatives Clem, Sollman, Gilliam, Hayden, Keny-Guyer, and Meek, House Bill 2723 “prohibits exclusion of hippotherapy from services provided in medical assistance” (“Relating to hippotherapy; declaring an emergency.,” 2017). This bill would allow for hippotherapy to be covered for recipients of medical assistance under the Oregon Health Plan (OHP). The Oregon Health Plan is a state Medicaid program that “provides health care coverage for low-income Oregonians from all walks of life. This includes working families, children, pregnant women, single adults, seniors and more” (Oregon Health Plan, 2014). According to the bill, as seen in the appendix, hippotherapy can be defined as “a form of physical therapy in which a patient sits or lies on the back of a horse for the therapeutic effect of the horse’s movement” and this definition compliments what is stated in the hippotherapy sections of this thesis.

Providing that this bill passes through the house and senate and becomes signed into law, it will provide individuals and their families the comfort knowing that a potentially beneficial type of therapy can be accessed and utilized in order to increase their quality of life. This bill was introduced to the House January 9, 2017 and a public hearing was held on February 13, 2017 where Representative Sollman provided the American Hippotherapy Association with time to present a reference list containing peer-reviewed articles and case studies as well as articles and chapters from early clinical observations. A presentation was also given by the American Hippotherapy

Association describing what hippotherapy is, its target audience, and how it can be a treatment tool in physical, occupational, and speech-language therapy.

States without exclusions on equine movement as a therapy tool include, Alaska, Arkansas, Florida, Georgia, Indiana, Missouri, Nevada, New Mexico, North Carolina, South Carolina, and Texas. Those states treat the inclusion of equine movement in therapy as they would any other scope of practice therapy tool/strategy (Blakely, 2017).

This bill has minimal fiscal impact and no revenue impact. It was referred from the Speaker's desk to the Health Care committee within the House. On March 16, 2017, a third reading of the bill carried by Sollman was initiated and the bill passed in the House with a vote of 55-4-1. Upon finishing the first reading in the Senate on March 20, 2017, it was referred to the President's desk who then referred it to Health Care.



Reviews and Public Opinion: Interviews

It was vital while creating the interview questions to remain objective and let the individuals being interviewed tell from their experiences when asked about therapeutic horseback riding. The pool of individuals interviewed were not targeted for their ability to support therapeutic horseback riding, but rather for their input on the therapy as a whole, including the potential negatives that may pertain to it. Ten questions were formulated to allow the interviewee to describe their current occupation in relation to this therapy, their personal history with it, positive and negative effects they have witnessed with it, as well as, improvements they think it needs, where they think this therapy will go in the next 10 years, and if they would recommend horseback riding as a therapy over other types of therapies available for individuals with special needs. A copy of the consent form and questions are located in the appendix of this thesis. The consent form and questions were formatted into a Google Form that was available online to allow the interviewees to fill out the interview at their convenience.

Through voluntary participation, seven individuals completed the interview through the Google Form format. Three of the individuals interviewed were instructors for therapeutic riding programs and 4 of the individuals were affiliated with disability services programs in academia. By receiving information from people who are not necessarily connected to the program itself gives this research a non-biased contribution. As seen in the Figure 2 below, all the interviewees were familiar with what therapeutic horseback riding was and none of them were hearing about this for the first time.

How long have you known about therapeutic horseback riding?

7 responses

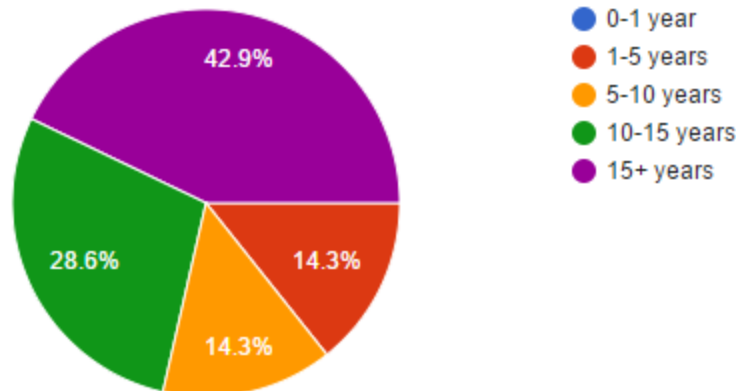


Figure 2. Statistics about knowledge about therapeutic riding obtained from interview

Of the program instructors interviewed, each of their backgrounds varied greatly. Jennifer Clark, from Grants Pass, OR, learned about this type of therapy when pursuing a college degree in Early Childhood Development and pursued starting a therapy center in her hometown. Her center serves more than 90 students per week since being founded in 2013. Amber Schoeff has “been involved in a therapeutic riding program [her] entire life [and] began volunteering at the age of 8 and ha[s] been an instructor/program coordinator for 5 years” (Schoeff, 2017). Megan Newell became familiar with therapeutic horseback riding through having a child with disabilities participate in this therapy and eventually becoming an instructor herself for client sessions. When asked about their opinion on the positive benefits of this therapy, a consensus formed with each instructor stating that this therapy can build core strength, improve muscle memory and balance, reduce spasticity, contribute to positive social interactions, as well as boost self-esteem and self-confidence. Other attributions that were noted by Megan included “a positive impact on empathy, planning, responsibility,

and sense stimulation” (Newell, 2017). Only a couple concerns arose from their responses regarding negative effects on the individual participating in therapeutic horseback riding. There may be times when the client should not ride including when the client has back injuries or anytime the client cannot be kept safe. Another instance when a negative effect could occur would be when the client might be intimidated by the horse “as they are such large and powerful animals; [however,] this isn’t necessarily a negative effect though as most do learn to work through this fear and trepidation and are able to participate effectively” (Newell, 2017).

Six out of the seven individuals interviewed agreed that this type of therapy needs to improve through expanding the common population’s knowledge of the therapy as well as increased community support. Collaboration with more outside resources would help to improve the understanding of therapeutic horseback riding because lack of knowledge is what “generally delays treatment as the general public, and often times even specialists, do not fully understand the benefits” (Newell, 2017). As mentioned in the previous section of this thesis, the House Bill 2723, upon approval, will make therapeutic horseback riding sessions more accessible to the public as it would be covered by insurance.

Of the interviewees that were not affiliated directly with a program, most of them were familiar with it with one of them training horses for this use and another has a son that used this therapy as a child. People with disabilities have “far too few resources” regarding recreational activities, according to Malissa Larson, the director of Disability Resources at Western Oregon University. The individual who trained horses

for therapeutic horseback riding and the individual whose son participated in this therapy both stated that it helped to develop coordination, self-confidence, as well as reduce anxiety and chronic pain/inflammation (Doe and Darling, 2017). Possible negative effects that were mentioned from this group of individuals included possible allergic reactions to horses and/or hay as well as potential for being stepped on by the horse. No other negative effects were mentioned or elaborated on.

In addition to other therapy, six out the seven individuals also agreed that they would recommend this type of therapy. Jennifer Clark stated that:

Horses provide a three-dimensional movement. Nothing emulates the walking gait of a human more closely than the walking gait of a horse. We have found that riding a horse improves core-strength and balance and is highly motivating for those confined to a walker or wheelchair. Children with autism are at peace when on the back of a horse. They are calm and enjoy the movement of the horse and interacting with people is easier for them while riding. We are able to work with these children on their behaviors and following directions in an environment where they feel safe. Horses are also very healing for individuals with anxiety, depression, and PTSD. They give these students an escape and a feeling of acceptance and no-judgement. There is a big difference between sitting in a counselor's office talking to someone you hardly know and being out in nature connecting with an animal (Clark, 2017).

Combination therapy was a reoccurring term used in the responses because "working on similar goals that an individual may be working on with therapists during office therapy" can only enhance those goals and make them easier to accomplish.

Building the Business Plan: Social, Physical, Thinking, and Emotional Aspects

The association between therapeutic horseback riding and the social communication and sensory reactions of children with autism has been widely examined and through current findings, “therapeutic riding emphasizes control, attention and focus, sensory management, and communication (verbal and/or nonverbal) in order to reach riding skills” (Ward, S. C., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N. 2013). A study in particular focused on the elements that are implemented into the therapeutic riding program and found that four specific areas are extremely beneficial to include when creating a program: orientation, mounting and riding, riding skills, and closure. At the beginning of each therapeutic riding lesson, the student and instructor started with activities such as touching the shavings from a stall, holding a lead rope, and putting carrots, apples, and grain in feed buckets for the horse. As the lessons progressed, they moved to touching the parts of a real horse and eventually grooming the real horse. Following the orientation, the student mounted the horse and safety checks occurred by the instructor. The student would be lead around on the horse and the first ten to fifteen minutes of riding would involve quiet riding where the instructor would not interact with the student and allow the student to become acclimated to the sights, smells, and motion of riding a horse. By allowing time for quiet riding, the student was able to relax after being mounted on the horse. After the quiet riding, the students participated in about twenty minutes of direct riding instruction that included a progression of riding skills, including posture and balance on the horse, verbal/physical cues for “walk on” and “whoa,” balance while trotting with

holds from the side walkers, reining a whoa, reining turns, reverse horse to change direction, and rein back. By being able to perform all of these skills, the students were improving their abilities for successful horseback riding. The closure activity occurred for the final ten minutes of each lesson and comprised of a fun game that promoted socialization between the other students, volunteers, or instructors present during the lesson.

Activities such as these will be implemented into the business plan for this project because they ultimately promote the success of the student. With promoting the success of the student, it encourages the student to do better with all aspects of the lesson and enables the student to bring the skills they learned at their therapeutic riding lesson back to their school environment. “After 10 weeks of TR, teacher ratings indicated that participating children with autism improved their social communication as well as their attention, tolerance, and reactions to sensory input in the classroom,” so this study showed that even after a time of not participating in therapeutic riding lessons, the student still retained the skills they learned from interacting with the instructors, volunteers, and horses (Ward, S. C., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N., 2013). Having the students process the information that they learn at the horseback riding lesson and be able carry it over to other situations in their school and home environments provides evidence that therapeutic horseback riding can have an impact on not just the physical functions of an individual, but impact their mental processes as well.

Building the Business Plan: Logistics

Even though this thesis is predominantly assessing therapeutic horseback riding and autistic individuals, creating a business plan that is universal, but adaptable to all disabilities would be ideal. Physical, social, and psychological disabilities can possibly benefit from this type of therapy as talked about in the interviews conducted merely through the individual participating. Physically, they can improve muscle tone and memory, strength, balance, coordination, and reduce spasticity while being on the horse. Since the horse's movement mimics that of the human gait, individuals that have physical limitations are able to gain muscle memory in the same walking muscles even though they are not able to walk themselves. Socially, the individual can partake in stimulation from not only the instructors and side walkers, but from other clients who are riding at the same time (if applicable). Psychologically, individuals can experience a sense of increased self-confidence and self-esteem by being able to control what goes on in the session, whether it is by them actually directing the horse in a more independent setting or by the individual choosing various activities and succeeding in them. They are able to experience empathy toward the horse as well as plan out their session and take responsibility to ensure that they complete all the tasks at hand.

Depending on the individual client, some sessions will run from 30 minutes to 1 hour. The varying length will be determined by the age, attention span, and interest displayed by the client. Typically, younger clients will participate in a shorter session, whereas, clients who are older may want to participate in an hour-long session. Each session will contain activities that will contribute to the physical, social, and

psychological well-being of the client. In the table below, activities that can be chosen, but are not limited to, are separated by category and are all to be done on horseback.

Physical	Social	Psychological
• Walking laps around an arena or trail • Playing “Simon Says” in order to move arms, legs, etc. • Egg and Spoon game for stability • Riding facing backwards • Throwing a ball or bean bags into a target • Laying down on the horse’s back while at a stand-still and in motion	• Talking with the instructor/volunteers • Discussing an agenda for the current session • Petting the horse and being considerate of it • Playing “Red Light, Green Light” • Encouraging horse to move forward by using words	• Scavenger Hunt based upon images around the facility • Matching images/letter/numbers/items to corresponding things • Reading/counting • Emotionally caring for their therapy animal • Determining what behaviors are appropriate to display during a session

Tack that should be utilized in this program will include surcingles, adaptive-riding saddles, and unaltered saddles, as well as proper padding to place under the previously stated items. The horses may be lead in bridles or halters, depending on the preference of the instructor. Images of the tack can be seen in the appendix. All clients should be accompanied by two side-walkers, one on each side, to ensure that the client is secured on the horse properly and is balanced throughout the entirety of the session.

Conclusion

Therapeutic horseback riding and hippotherapy is a newer, popular, and up-coming type of therapy in the realm of providing services to individuals with disabilities. Not on its own, but by incorporating this type of therapy into an individual's plan created by an occupational therapist and doctor, it can potentially benefit an individual, providing they are willing to work with horses. Individuals with autism who have participated in therapeutic horseback riding often have improved skills in the categories of problem-solving and sociability. The participants can tend to the horse's needs, express their own needs and wants of the horses and to the individuals assisting them, as well as participate in games with other participants during their same session. Improving social skills and reducing maladaptive behavior in children with Autism Spectrum Disorder (ASD) have countless benefits and implications in their day-to-day life.

Providing current and future programs with more standardized curriculums will greatly benefit the empirical and objective goals of the type of therapy. Even though each individual participating can have various degrees of disabilities, the program can be tailored to best suit the needs of the participant to ensure that they are obtaining the greatest benefit from the therapy sessions. Also, providing the general public with more knowledge about this type of therapy will not only increase awareness among people, but provide people the opportunity to try this type of therapy and see if it suits as a potential addition to their existing therapy plan.

Appendix

79th OREGON LEGISLATIVE ASSEMBLY—2017 Regular Session

A-Engrossed House Bill 2723

Ordered by the House March 14
Including House Amendments dated March 14

Sponsored by Representative SOLLMAN; Representatives HAYDEN, KENY-GUYER, MEEK (Proclamation filed.)

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

[Prohibits exclusion of hippotherapy from services provided in medical assistance.]

Requires Health Evidence Review Commission to evaluate therapeutic and clinical effectiveness of hippotherapy for purpose of possible inclusion on prioritized list of health services provided in medical assistance program and report findings to interim committees of Legislative Assembly related to health by December 31, 2017.

Sunsets January 2, 2019.

Declares emergency, effective on passage.

A BILL FOR AN ACT

Relating to hippotherapy; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. (1) As used in this section, "hippotherapy" means the use of equine movement as a treatment tool by physical or occupational therapists or speech-language pathologists.

(2) The Health Evidence Review Commission shall consider the therapeutic and clinical effectiveness and the cost-effectiveness of hippotherapy as a treatment tool to determine if hippotherapy meets the criteria for inclusion in the prioritized list of health services or in the clinical practice guidelines developed and maintained by the commission in accordance with ORS 414.690.

(3) No later than December 31, 2017, the commission shall report its findings under subsection (2) of this section to the interim committees of the Legislative Assembly related to health.

SECTION 2. Section 1 of this 2017 Act is repealed on January 2, 2019.

SECTION 3. This 2017 Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this 2017 Act takes effect on its passage.

Therapeutic and Health Benefits of Horse-Human Interactions

Western Oregon University Honors Program Senior Thesis Project

Interview Consent Form

This interview will consist of a series of ten questions pertaining to therapeutic horseback riding. By participating in this interview, whether one-on-one in person or via email, you are allowing the information you provide to be used as a means of research to further gain a more comprehensive understand of how therapeutic equine therapy affects a specific population of people. The interview answers provided will be published in the Honors Senior Thesis Project titled *Therapeutic and Health Benefits of Horse-Human Interactions* purely for the use of comparative perspectives. Substitute names will be utilized if you do not wish to have an identifying information in the publication or if an answer contains information regarding someone other than the individual being interviewed. By having this Honors Senior Thesis Project published in Creative Commons, it will hopefully give other people the opportunity to perform research on how to greater understand the effects of therapeutic horseback riding on individuals and how to better tailor to the needs of those individuals.

Potential discomforts or risks that could occur, but are not limited to, during this interview are exposure of a disability or sensitive information or discomfort of answering one or more questions pertaining to an individual's disability or experience. At any time while answering the provided questions, you may opt out of answering a specific question. You may also stop the interview if you do not wish to proceed any further. Opting out of a specific question or stopping the interview at any time will not result in any type of consequence. If you chose to withdraw from the interview at any time, the answers that had been provided prior will be shredded and discarded to maintain confidentiality.

I would like to use a substitute name for the published thesis project.

Circle One:

Name of individual being interviewed (print)

Yes

No

Signature of individual being interviewed

Copies of the consent form can be provided to the interviewee at the time of the interview. Inquiries or comments about procedures or interview questions may be made at any time prior, during, or after the interview and can be directed at the interviewer, Chelsea Wiley.

Date

Chelsea Wiley's contact information:
cwiley12@wou.edu

Therapeutic and Health Benefits of Horse-Human Interactions

Western Oregon University Honors Program Senior Thesis Project

Interview Questions

1. What is your current occupation?
2. How does it relate to therapeutic horseback riding?
3. How long have you known about therapeutic horseback riding?
4. Explain the experience you have had with this type of therapy.
5. How, if at all, does this type of therapy has positive benefits to the individual partaking in the activity?
6. What negative effects, if any, does equine therapy have on the individual partaking in the activity? How?
7. In what way(s) do you think this type of therapy needs to be improved?
8. Where do you see this type of therapy going in the next 10 years?
9. Would you recommend this type of therapy to an individual with a disability?
 - a. If yes, why is it beneficial over another type of therapy?
 - b. If no, why? And what type of therapy would you recommend as a substitute?
10. Are there any scholarly resources that you have found valuable on this topic?



March 21, 2017

TO: Chelsea Wiley

RE: Project Title: Therapeutic and Health Benefits of Horse-Human Interactions
IRB #: 929
Study approval period: March 21, 2017 – March 21, 2018

Dear Chelsea,

On 3/21/17, the WOU Institutional Review Board (IRB) reviewed and approved the above project protocol for the period indicated above. It was the determination of the IRB that your study qualified for exempt review based on the federal requirements for an exempt status based on exempt category #1. This category is restricted to research with no risk of injury to participants, that is conducted in established or commonly accepted educational settings, involving normal educational practices.

It is your responsibility to report promptly to the WOU IRB any adverse events or unanticipated problems involving risks to subjects or others. Additionally, you must contact the WOU IRB prior to implementing any changes in your study which may have bearing on the rights and welfare of the research participants including change in design, population targeted, and/or consent process. Protocol modifications must be approved by the IRB prior to implementation. Finally, should your study exceed the study approval period noted above, your protocol must be reapproved. Please contact the IRB chair to facilitate this process.

We appreciate your dedication to the ethical conduct of human subject research at Western Oregon University and your continued commitment to human subject research protections. If you have any questions, please feel free to contact myself or any other member of the WOU IRB.

Good luck in your research activities.

Sincerely,

A handwritten signature in blue ink that reads "W. Jeffrey Armstrong".

W. Jeffrey Armstrong, Ph.D.
Chair, WOU Institutional Review Board

Tack Utilized for Business Plan



Surcingle with Handles
<http://www.pvsupply.net/surcingles.html>



Surcingle with Back Support
<http://grayscustomsaddlery.com/newhope.htm>



Unaltered Western Saddle
<http://www.sstack.com/product/dura-tech-synthetic-western-saddle/>



Saddle Pad
<https://www.picovs.ca/product/classic-equine-contourpedic-western-saddle-pad/>



Western Bridle with Reins
http://www.polyvore.com/black_western_bridle/thing?id=19963273



Halter with Lead Rope
<http://www.centaurhorscare.com/centaurandreg-solid-halter-with-lead-469718>

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