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Hippotherapy: A Survey of Therapists Nationwide

Yvette J. Normandin

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HIPPOTHERAPY: A SURVEY OF THERAPISTS NATIONWIDE

By

Yvette J. Normandin
Bachelor of Science in Physical Therapy
University of North Dakota, 1994

An Independent Study
Submitted to the Graduate Faculty of the
Department of Physical Therapy
School of Medicine
University of North Dakota
in partial fulfillment of the requirements
for the degree of
Master of Physical Therapy

Grand Forks, North Dakota
May
1995
This Independent Study, submitted by Yvette J. Normandin in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Faculty Preceptor, Advisor, and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

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PERMISSION

Title Hippotherapy: A Survey of Therapists Nationwide

Department Physical Therapy

Degree Master of Physical Therapy

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Date April 5, 1995
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ABSTRACT

The purpose of this study was to survey physical therapists nationwide who are involved with North American Riding for the Handicapped Association (NARHA) certified centers to obtain their perspectives regarding the need for more empirical research and outcome studies, benefits of Therapeutic Horseback Riding, and methods of objective evaluation utilized when determining patient improvement. Of the 261 surveys mailed, 125 (48.8%) were returned with 110 utilized for data interpretation.

Respondents indicated a large need for more empirical research to support therapeutic horseback riding as a treatment method and to facilitate increased acceptance by the medical field in general. Only a small number of facilities reported that research had been conducted at their facility. A total of 24 research studies were documented, 12 of which included studies performed by students working towards a Master's degree in Physical Therapy.

Seven separate objective methods as well as six subjective observation techniques were listed as methods most commonly utilized to determine effectiveness of treatments. Twenty-five different benefits were reported among the respondents. Therapeutic Horseback Riding professional's level of training was variable. Respondents also indicated that a more comprehensive training
of professionals would assist in appropriate and safe treatment as well as avoidance of complications from a riding session.
Therapeutic horseback riding is a relatively new treatment method to the United States (1970s), yet is used quite extensively. Over the past 25 years, the field has grown to over 450 operating centers in the U.S. involving greater than 23,000 riders, 17,000 volunteers, and 5,000 horses.46 A few of the several benefits claimed to be facilitated by therapeutic horseback riding include: improved balance, strength and posture, decreased muscle tone, increased muscle coordination and control, improved confidence, self-esteem, motivation, and communication.1,5,7-13,15,1y,22,25,37,39,40,41,46-47 Despite the growing enthusiasm for therapeutic horseback riding as a therapeutic modality, research into its efficacy is virtually nonexistent.21 Clinicians have relied heavily on clinical observations and subjective reports from patients to support the use of therapeutic horseback riding. Scientific research is an absolute must if one wishes to document the significant achievements of riding programs and promote this activity as an accepted rehabilitation treatment method. The purpose of this project was to survey therapists involved with North American Riding for the Handicapped Association (NARHA) certified centers nationwide to obtain their perspectives regarding the need for more empirical research and outcome-based studies, the
benefits of therapeutic horseback riding, and methods of objective evaluation utilized when determining patient improvement.

Therapeutic horseback riding encompasses the entire field of riding for individuals with disabilities. In a recent issue of NARHA News, four primary classifications of therapeutic horseback riding were introduced: (a) therapy, (b) education, (c) sport, and (d) recreation and leisure. Traditionally, therapeutic riding is separated into only three categories or divisions: medicine, education, and sport.

The medical division is commonly termed hippotherapy, derived from the Greek base "hippo," meaning horse. It is a passive form of therapy concentrating on the therapeutic benefits of horseback riding. Equine activities are utilized to achieve physical, psychological, cognitive, and behavioral goals. The rider accommodates to the swinging motions of the horse rather than controlling the movement of the horse. A therapist or riding instructor works one-on-one with the rider to obtain an erect, balanced position upon the horse. The therapist monitors the rider's position and adjusts the treatment accordingly. Backriding is a commonly used adjunct to hippotherapy. Backriding, as its name states, refers to a treatment session where the therapist sits behind the rider. The therapist uses graded input (facilitation or inhibition) to maximize the rider's balance and posture.

Educational therapeutic horseback riding is a combination of therapy and leisure activities. Therapy is conducted in a group, incorporating games into
the equine activities of riding, vaulting, and driving.\textsuperscript{1,3,13,29,35,45} Riders have more control of the horse's movements while riding on horse (riding), performing gymnastic skills on the horse (vaulting), and driving a horse-drawn cart (driving).

The goal of the educational division is to incorporate cognitive, behavioral, psychosocial, and physical goals into an activity while teaching adaptive skills. Horseback riding is extremely motivating as the rider can exert some control over his/her situation.\textsuperscript{5} The rider can see the immediate response of the horse to his actions and has the opportunity to constantly achieve new goals. The sense of achievement, increased self-confidence, and motivation are difficult to simulate off the horse.\textsuperscript{30}

Pure leisure (or sport) includes riding, driving, and vaulting for recreation and competition.\textsuperscript{1,3,4,29,31,32,35,39,45} This division includes sports such as dressage, show jumping, hacking, etc. The primary objective of sport is to teach the rider skills involved in that activity. Educational benefits and changes in behavior are the natural results obtained while experiencing the thrill of competition and enjoyment of the horse.\textsuperscript{35} The therapist's role in this realm of therapeutic horseback riding is that of an advisor. He/she may offer suggestions about exercises so the rider may achieve a higher level of riding. Adaptations may be included to allow the rider more freedom from his/her disability.

Literature has supported or indicated the benefits of horseback riding for a variety of diagnoses including: Down syndrome, cerebral palsy, spinal cord
injuries, traumatic brain injuries, multiple sclerosis, spina bifida, muscular
dystrophy, and poliomyelitis. Improvement has also been documented in patients with learning disabilities or other perceptual, mental, or emotional problems.

Accompanying the indications for therapeutic horseback riding are documented contraindications. Atlanto-axial instability, a frequent complication of Down syndrome, is a strong contraindication to therapeutic horseback riding. Other common contraindications include scoliosis with a curvature of greater than 30 degrees; hip subluxation and dislocation, if pain or inadequate range of motion exists; osteoporosis; coxa arthrosis due to lack of range of motion; uncontrolled seizure disorders; allergies; spinal cord injuries higher than thoracic spine level six; and diagnoses in an exacerbated state such as multiple sclerosis or rheumatoid arthritis.

History of Therapeutic Horseback Riding

The use of therapeutic horseback riding for individuals with disabilities has been reported in literature for centuries. Early Greeks utilized horseback riding for patients who could not be healed, in order to cheer their spirits. The first reported study on the therapeutic value of the horse was conducted by Chassigne in France around 1875. Chassigne believed the horse did benefit the neurologically involved and other patients with disabilities by improving their posture, balance, joint movement, and muscle control.
Dr. John Brown explained his rationale for horseback riding in *Elementa Medicinal*. He described life and health as a state of permanent excitation, maintained by a balance of stimuli. He grouped illnesses into two main categories, authentic and asthenic. Authentic illnesses were the result of overstimulation of an individual, which in turn required sedating agents. Asthenic illnesses were due to the lack of excitation, for which he prescribed horseback riding. Mayberry stated that although Dr. Brown's rationale may not be considered sound, "some of his patients probably did benefit from the psychodynamics and physical exercise involved in riding a lively horse over a challenging course."

Horseback riding as a treatment method was brought to the world's attention by a young woman from Denmark, Liz Hartel. Mrs. Hartel, an accomplished horsewoman, was stricken with polio in 1943 and for a time utilized a wheelchair for mobility. She resumed riding horses for enjoyment and to strengthen her weakened muscles. With much hard work, determination, and perseverance, Mrs. Hartel went on to win the silver medal in dressage at the 1952 Olympic Games. The challenges she overcame inspired many and, at that time, international attention became focused on horseback riding as a means of therapeutic recreation.

A second central figure credited with promoting therapeutic horseback riding is Elsbet Bodthker of Norway. The first therapeutic horseback riding in Norway was provided by Bodthker who, upon the recommendation of a
physician, used her own ponies with post-polio and cerebral palsy individuals. In the early 1950s, Mrs. Bodthker, Miss Ulla Harpoth, and Mrs. Hartel began to use therapeutic horseback riding as a form of therapy.29

In Great Britain, Mrs. Norah Jacques, an accomplished horsewoman, began matching handicapped children and horses together for recreational purposes.22 Her success eventually led to the 1964 establishment of the Pony Riding for the Disabled Trust. The Advisory Council on Riding for the disabled was formed in 1964. In 1969, this council became known as the Riding for the Disabled Association.

The use of therapeutic horseback riding in North America originated in Toronto, Canada in 1965-66.9,13,22 Due to the efforts of Joseph Bauer (a man who attributes his recovery from hemiplegia to riding), Dr. Renaud and Dr. Fielden, the Communication Association for Riding for the Disabled (CARD) was formed in 1968.22

Maudie Hunter-Warfel led the way for therapeutic horseback riding's growth in the United States with the establishment of the Happy Horsemanship for the Handicapped (HHFTH) in 1967.4,22 The major aim of the HHFTH was not therapy but enjoyment of horseback riding.

The Cheff Center located in Augusta, Michigan, grew from the generosity of Mr. P. T. Cheff, a philanthropist who provided the necessary funds to develop a riding program.22 The Cheff Center was opened in 1970 and
incidentally is the largest facility in the world specifically constructed for instructing individuals with handicaps to ride.\textsuperscript{13}

The North American Riding for the Handicapped Association (NARHA) was founded in 1969 by Alexander MacKay Smith, Lida L. McCowan, and John A. Davies of the Chigwell Center in Britain.\textsuperscript{4,22} NARHA's purpose is to provide quality horseback riding centers through instructor training and certification; center accreditation to ensure safe, quality instruction; and multiple continuing educational opportunities through workshops, annual meetings, and conferences.\textsuperscript{33}

Supporting Literature

A review of literature uncovered eight research studies pertaining to the therapeutic use of horseback riding. Bertoti\textsuperscript{9} conducted a study to measure postural changes in children with spastic cerebral palsy. A postural assessment scale was developed to rate head and neck, shoulder and scapula, trunk, spine, and pelvis alignment. Therapists used their observational skills to view the children's posture from the anterior, posterior, and lateral directions. Previously gathered qualitative data were used in conjunction with the postural assessment scale. A significant improvement in posture was noted in eight of the eleven children after participating in a riding program. Increased midline head control, improved symmetry, increased trunk elongation, and more erect postures were also documented.
In 1982, Wingate\textsuperscript{25} reported an improvement in posture, head control, gait, strength, and a decrease in lower extremity hypertonus was reported by parents of children with disabilities. In a pilot study involving children with language deficits, learning disabilities, and motor skill difficulties, Dismuke et al\textsuperscript{14} documented improvement in a variety of areas. After participation in a riding therapy program, sentence structure became more complex, sensorimotor skills were improved, and increased strength was noted in shoulder, hip, and knee musculature. Increased self-esteem of the riders was reported by the rider's parents and was thought to be related to the rider's achievements in a unique skill which his/her peers do not possess, but greatly admire.\textsuperscript{14}

MacKay-Lyons et al\textsuperscript{21} investigated the effects of therapeutic horseback riding on patients with multiple sclerosis. Significant gains were observed in free walking speed and stride length. Increased lower extremity spasticity was noted with this population, which warranted an avoidance of fast paces on the horse for patients with multiple sclerosis. Psychological well-being, in terms of the level of depression and the global severity of psychopathological symptoms, was positively influenced.

Fox et al\textsuperscript{16} conducted a pilot study using an instrument they developed for objective evaluation of balance, coordination, strength, and posture for individuals participating in a therapeutic horseback riding program. Following riding, patients showed a 7.2% increase in balance and coordination; an 8.1% and 13.8% increase in arm and leg strength respectively; and an 18.0%
improvement in the curvature of the spine (posture). Subjective reports form therapists and parents indicated a concomitant progress occurred in self-confidence and peer interaction.

The effects on balance of individuals with mental retardation were studied in 1989 by Biery and Kauffman. They concluded that therapeutic horseback riding would be a beneficial adjunct to other therapies if the aim or goal for the individual included improved balance.

Rosenthal obtained data through a questionnaire pertaining to the benefits of risk exercise from 102 individuals involved with riding centers in England, Ireland, Wales, Canada, and the United States. The results of his study supported therapeutic horseback riding as an "elicitor of euphoria and elation," as well as pleasure, mobility, motivation, and courage. According to Walker, horseback riding has an element of danger which most persons with disabilities find stimulating/motivating and lacking in their lives.

When Brock utilized Fox et al's instrumentation in a separate study, an increase in arm strength and coordination was noted. Brock reported self concept and psychomotor improvement as difficult to assess due to the inaccessibility of psychomotor evaluation tools.

Of the eight research studies conducted, only Bertoti, Fox et al, Wingate, and Brock used objective methods to determine the efficacy of therapeutic horseback riding. Furthermore, these four studies failed to utilize a control group to contrast and compare with the experimental group. The
remaining studies relied upon subjective observation or reports from therapists, parents, or riders. Additional research must be conducted to determine if therapeutic horseback riding is an efficacious treatment method.

Rationale and Theories for the Use of Hippotherapy in the Clinic

A child born with a disability frequently struggles to achieve those skills "well children" accomplish automatically. Muscles often will not respond with typical movement patterns due to neuromuscular or central nervous system damage. Extremities and/or trunk musculature may be hypertonic and respond to head or body movement in a reflexive pattern. It becomes the medical team's mission to become involved early in development in the hope that intervention will allow the child the best possible chance at a "normal" or more functional development. In the clinical setting, a physical therapist may attempt to assist the child by facilitating at the knees, hips, or trunk; however, the therapist cannot facilitate all the necessary muscles to allow the child to walk with a normal gait pattern. Therefore, therapists may incorporate the use of Swiss balls, swings, or bolsters for sensory integrative activities, and ambulatory assistive devices to achieve a "functional" gait pattern. Even with this type of assistance from a therapist, often the child still does not receive the opportunity to walk in a normal, unimpeded, smooth pattern. Reide stated that, "hippotherapy is the only treatment method which exposes a child to the physical effects of vibration during movement which improves postural stability, normalizes tone, and increases balance and coordination."
The dynamic movement of the horse simulated the three-dimensional movement of the human pelvis, incorporating flexion/extension, lateral flexion, and rotation. This motion provides the normalized repetitive sensorimotor input necessary for the development of sensorimotor control and motor relearning by the central nervous system. The horse’s movement provides an opportunity for children to experience the normal movement of pelvis, trunk, and extremities. The rider receives continual sensorimotor input from the horse allowing him to organize, integrate, and form new, more functional motor programs.

Exercises performed on horseback are postulated by literature to assist with the rehabilitation of the client. When standing in stirrups, the knee, hip, and trunk extensor musculature is strengthened as the child rises from the horse’s back and returns to a seated position. Upper extremities are strengthened and balance challenged when the rider raises his arms above his head and/or out to the side, incorporating rotation. The horse’s dynamic motion during exercises promotes a continuous challenge to righting and equilibrium reactions of the trunk which are necessary for balance.

With slow execution of exercises, it is speculated that tone decreases. It is proposed that the rhythmical movement and warmth of the horse allows the rider to relax, leading to a reduction of tone. Correct positioning of the rider on the horse has been shown to influence spasticity and promote relaxation. Pressure on the sole of the foot by the stirrup and the position of the lower
extremity in flexion, abduction, and external rotation has been reported to decrease the positive supporting reflex.\textsuperscript{31}

As reported in the literature, one of the greatest attributes of hippotherapy is its intrinsic motivational factors and psychosocial benefits.\textsuperscript{1,5,22,24} Horses have always been regarded as mysterious, powerful, and fascinating.\textsuperscript{22} Often children with disabilities are allowed to participate in a limited scope of activities. For many children, therapeutic horseback riding may be one of the first activities in which they can participate while many of their peers cannot.\textsuperscript{15} The mysteriousness of the horse and knowledge that they are successful in a very unique activity may motivate the rider, and spark interest in therapeutic activity once again.

Hippotherapy incorporates many treatment theories presently used in the clinical setting. Proprioceptive Neuromuscular Facilitation (PNF), Neurodevelopmental Treatment (NDT), Rood, Motor Systems, and Sensory Integration (SI) theories have a direct link to hippotherapy.\textsuperscript{16,26}

Proprioceptive Neuromuscular Facilitation (PNF) is based on the stimulation of proprioceptors to either promote or hasten the response of the neuromuscular system.\textsuperscript{43} Rotation is the key factor in movement associated with PNF. Horseback riding incorporates rotation when the rider alternately reaches towards the horse's tail then returns to a forward sitting position.\textsuperscript{40} PNF diagonals may be performed while riding when the rider reaches with both upper extremities towards the right and left feet (CHOP), then returns to an
upright, sitting position (LIFT). The aforementioned skills fall into the skill level of motor performance.

In normal motor development, four stages of motor control exist: mobility, stability, controlled mobility, and skill. As children develop, they progress through the mobility, stability, and controlled mobility levels until reaching the skill level. Hippotherapy is utilized by positioning the rider prone over the barrel (back) of the horse to promote relaxation and allow the therapist to mobilize the pelvis and scapulae (mobility level). The rider can then progress to a forward or backward sitting posture on the horse's back, weight-bearing through the arms (stability level). By altering the stride length, speed, transitions, and direction of the horse in these positions, a proximal co-contraction of the musculature occurs, facilitating stability. Controlled mobility is incorporated by reaching toward the horse's ears or rotating to touch the horse's tail or buttock region. The rider must shift his center of gravity and hold the position using correct musculature in order to be successful at this level. Finally, activities such as a four point position on the horse's back, or four point with one extremity raised, are classified under the skill level. A high degree of balance and coordination are a prerequisite if the child is to be successful at the skill level.

Under the Neurodevelopmental Treatment (NDT) frame of thought, abnormal tone (high, low, or fluctuating) causes abnormal movement and consequently a breakdown in the normal postural reflex mechanism.
basic premise of NDT is the concept involving hierarchical levels of integrated motor functions. The cortex (higher center) controls equilibrium reactions, voluntary, and conscious movement. This center inhibits the lower centers which house the primitive reflexes.\(^6\) When a neurological insult occurs, the lower centers are thought to be released from the higher center control and thus "abnormal tone" and primitive reflex patterns emerge. If left untreated, the patient continually receives feedback from distorted positions.\(^{44}\) These sensations begin to be associated as normal and do not allow for error detection. Therefore, outside intervention is necessary to decrease tone and facilitate normal body alignment.

Traditionally, graded handling techniques by a therapist provide the patient with a more normal sensorimotor experience of movement, allowing the patient to organize and modify his existing distorted body image.\(^{18}\) The horse's rhythmical motion and warmth can decrease "abnormal" muscle tone.\(^{1,5,22-25}\) Tone is reduced by the sensorimotor stimuli (tactile, proprioceptive, and vestibular) the rider receives from the horse. Once tone is reduced, the horse's gait, stride length, and direction can be altered, which forces the rider to accommodate with trunk and extremity musculature.

Rood's approach considers motor functioning to be inseparable from sensory mechanisms.\(^8\) Sensory input either facilitates desirable or inhibits undesirable motor activity. Sensory motor patterns are developed from fundamental reflex patterns, which are present at birth and controlled at a
lower, subconscious level. With development, these reflexes are modified by the use of sensory input/stimulation until movement becomes controlled on a higher, conscious level.

For many children with some form of neurological dysfunction, the sensory information received by the central nervous system is not processed correctly. As a result, there exists an inability to experience a normal developmental process and integration of reflexes. The horse provides a child with repetitive sensorimotor stimulation (a key point of Rood’s theory) through visual, tactile, vestibular, auditory, and proprioceptive pathways. It is proposed that exercises performed on horseback provide the rider with a continual bombardment of sensory stimuli which are integrated and consequently assist in producing more stability and normalized mobility. It is of utmost importance that the child and horse are well matched in gait as the body of the rider integrates only that sensory input or stimuli resembling his natural gait. If the sensory input is too foreign, the child’s body is not able to integrate the movement, and the input is ignored.

The Motor Systems Theory, a circular organization of control, is composed of both open and closed loops. Open loop or feed forward is the internal preparation of an individual for an upcoming motor task. Closed loop or feedback loop is movement guided by sensory input received from an external source. Hippotherapy utilizes both concepts as the rider must respond to the sensorimotor input received from the horse and make postural
corrections (a closed loop response). Furthermore, the child must activate
trunk and extremity musculature before the horse starts and stops walking if he
is to maintain balance during the drill (an open loop response).

Motivation is a key factor in the Motor Systems Theory, with all other
levels including cognition, perception, sensation, musculoskeletal, and central
nervous system equal with one another. Motivation is an important part of
horseback riding, as it provides the child with an exciting, new, risk-filled activity
that needs to be conquered.\textsuperscript{7,22}

Central to this theory are four factors: (a) activity must occur in a
functional task, (b) the person must be able to error detect, © the ability to
assess conditions and adjust accordingly must exist, and (d) the ability to adapt
to perceived errors must occur.\textsuperscript{42} Each of these factors is incorporated in
hippotherapy. Horseback riding provides an extremely functional task for the
rider as the three dimensional movement of the horse's pelvis simulates a
normal human gait.\textsuperscript{2,4,11,22,29,31,33,37,40,41,45} Secondly, the rider must error detect
while riding in response to the continual shift of the rider's center of gravity.
Third, the rider must constantly adjust his posture if he is to remain upon the
horse. Lastly, the rider must adapt to errors in balance and muscle activation
while riding.

Finally, Sensory Integration is a process by which the nervous system
organizes sensory information for use in life situations like the classroom, the
playground, activities of daily living, and relationships with others.\textsuperscript{28} It requires
the patient to make an adaptive response to his environment. According to Clark-Zanin,\textsuperscript{28} the brain organizes itself through successful adaptation and participation in activities which are purposeful, goal-oriented, and challenging. Horseback riding is a sensory integration activity due to the strong sensory input the rider receives from the horse's movement, coat, stirrups, and reins. While the rider's attention is focused on the exercises to be performed, the nervous system is stimulated to receive, process, organize, and integrate all the sensory information required to complete the task.

According to MacKay-Lyons\textsuperscript{21} and Clark-Zanin,\textsuperscript{28} the gaits of the horse enhance rhythmic vestibular and joint receptor stimulation as well as muscle spindle and Golgi tendon organs which promote neuro-integration. The rhythmic movement of the horse further acts on many other sensory receptors, thus creating an integrated sensory experience. The experience affects the balance mechanism, position sense, and sense of motion as well as muscle activity and relaxation.

In summary, many of the therapeutic theories that are utilized in a clinical setting can be directly applied or incorporated into the therapeutic horseback riding arena. The horse rather than the therapist imparts sensory information to the patient and either facilitates desired responses or inhibits unwanted responses. It is a holistic treatment method which gives the rider knowledge of normal movement patterns and an improved sense of body position.\textsuperscript{48}
METHODOLOGY

Survey Design

After an in-depth review of literature, it was discovered that as the field of therapeutic horseback riding has exploded, empirical research has not followed at the same pace. Four empirical studies including: Bertoti,9 Wingate,25 Brock,45 and Fox et al16 were located. Health care reform will require that practitioners provide proof or evidence that treatment methods are efficacious in order to support quality of care, improve outcomes, and receive reimbursement for services provided. In the past, clinicians have used subjective rather than objective methods to evaluate the effectiveness of their treatments and the improvements made in their clients' ability to function. Objective evaluation methods for this treatment modality are not frequently stated in the literature.

Many questions arose from the review of literature and a survey was developed to address these concerns directly. Questions were developed to investigate physical therapists' perspectives regarding therapeutic horseback riding's benefits, methods of objective evaluation, research, and empirical data collection. The survey's questions fall into the following categories: (1) demographics, (2) benefits of therapeutic horseback riding, (3) research conducted at therapeutic horseback riding centers, and (4) methods of
evaluation utilized by therapists when determining improvement or increased ability of patients in the therapy sessions.

The survey included a cover letter explaining its purpose and addressed confidentiality issues. A consent form was not deemed necessary or utilized as therapists could refuse to participate by not returning the survey. Return address and postage were provided.

All facilities included in the study were selected based on their association with the North American Riding for the Handicapped Association (NARHA). One-half of the NARHA certified centers per state were randomly selected for participation in this survey.

The survey was mailed first class, with a follow-up survey mailed four weeks later, and a postcard reminder two weeks after the follow-up issue. Upon return, each survey was assigned a number to protect the confidentiality of those therapists and centers involved.
RESULTS

Of the 261 surveys mailed, five were returned unopened due to a lack of a forwarding address. Subsequently, the final survey count numbered 256. One hundred twenty-five surveys were returned for a fair return rate of 48.8%; however, of the 125 surveys, fifteen were returned stating the facility did not employ or have contact with a physical therapist so could not respond to this survey. Of the remaining 110 surveys, 66 respondents (60%) were physical therapists and 44 (40%) respondents were not. Those who were not physical therapists, yet responded to the survey, included seven therapeutic riding instructors, six facility directors, five occupational therapists, two students, one physical therapist assistant, one therapeutic recreational therapist, and 22 classified in an other category as no title was stated (see figure 1). It was indicated by personnel at five centers that physical therapists are utilized on a consultation basis at their facilities. Four other programs were recently organized (within the past six months) and plan to obtain the services of a physical therapist as soon as funds are available.

Ninety-nine (91.7%) of the respondents were female while only nine (8.2%) were male. Ages ranged from 19 to 64 ($x = 41.3$, $s = 9.7$). The years of experience as a physical therapist ranged from 0 to 39 with a median of 18
Fig 1.--Number of differing professionals responding to survey
years, while years of experience in therapeutic horseback riding ranged from 0 to 34 with a median of six and a mode of four years (see figure 2).

Sixty-nine or 64.5% of respondents indicated they had received some form of training in therapeutic horseback riding. Respondents indicated a broad spectrum of education in therapeutic horseback riding, ranging from full course study and licensure as a therapeutic horseback riding instructor to attendance of only brief workshops, courses, regional conferences, two-day seminars, and/or lessons.

Slightly under half (41.5%) of respondents indicated that therapeutic horseback riding sessions were utilized in conjunction with clinical therapy sessions. Comments received did not indicate a consistent pattern of outside therapy attendance. Those participants who did receive accessory physical therapy services were treated in either a clinical or school setting.

The perception of acceptance of therapeutic horseback riding by the medical field was fairly low at 36.6%. Some therapists reported a slow increase in acceptance among physicians and other medical professionals as they observed personally the benefits of and enjoyment received from therapeutic horseback riding, as well as when they became more educated on the specific aspects involved in this form of treatment. One comment received stated acceptance was low because many physicians were still unaware of therapeutic horseback riding as a treatment method. Ninety-nine percent of the survey sample felt a greater acceptance of therapeutic horseback riding by the medical
Fig. 2--Years of Experience in Physical Therapy and Therapeutic Horseback Riding
profession would be facilitated by more empirical research. Specifically, one program director stated that a greater acceptance would occur if more research were not only conducted but also published in established scientific journals. Furthermore, he stated that therapeutic horseback riding must receive more general public and media attention.

Twelve centers (10.9%) indicated that research is currently being conducted at their separate facilities; however, eight more centers indicated research is being planned for the near future. Twenty-four research and/or case studies were reported among the 12 centers. Of the 24 studies, eight or 30% had been conducted by graduate students from various colleges in partial fulfillment of requirements for a Master's degree in Physical Therapy. Although a small number of centers had conducted research, 99 (91.7%) responses either mildly or strongly agreed that more research is not only necessary for acceptance by the medical profession, but also to support therapeutic horseback riding as a valid treatment method.

Acquisition of developmental milestones (73.2%) and Range of Motion (ROM) (64.6%) were the most common objective measurements utilized when determining treatment effectiveness. Timed balance activities (43.9%), standardized testing (39%), and Manual Muscle Testing (MMT) (31.7%) followed closely behind (Table 1). Neurodevelopmental Treatment (NDT) evaluations and Sensory Integration (SI) were listed as accessory objective methods utilized in response to an open ended "other" question, subjective
Table 1.--Frequency of Evaluation Methods Utilized in Therapeutic Horseback Riding When Determining Treatment Efficacy

<table>
<thead>
<tr>
<th>Measurement Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental Milestone Acquisition</td>
<td>73%</td>
</tr>
<tr>
<td>Range of Motion</td>
<td>65%</td>
</tr>
<tr>
<td>Timed Balance Activities</td>
<td>44%</td>
</tr>
<tr>
<td>Standardized Testing</td>
<td>39%</td>
</tr>
<tr>
<td>Manual Muscle Testing</td>
<td>32%</td>
</tr>
<tr>
<td>Functional Skill Achievement</td>
<td>10%</td>
</tr>
<tr>
<td>Posture Evaluation</td>
<td>7%</td>
</tr>
<tr>
<td>Improvement in Performance on Horse</td>
<td>3%</td>
</tr>
<tr>
<td>Observation</td>
<td>3%</td>
</tr>
<tr>
<td>Gait Evaluation</td>
<td>3%</td>
</tr>
<tr>
<td>Sensory Integration Evaluation</td>
<td>2%</td>
</tr>
<tr>
<td>Goal Achievement</td>
<td>2%</td>
</tr>
<tr>
<td>Neurodevelopmental Treatment Evaluation</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>
evaluation methods including observation, gait and posture evaluations, goal achievement, functional skill achievement, and performance ability on horseback were techniques that had been employed at respective centers.

When responding to a question regarding the benefits of therapeutic horseback riding, 95.3% reported an increase in motor control and strength of trunk musculature, improved ROM (78.5%), normalization of tone (75.7%), righting and equilibrium reaction facilitation (88.8%), improved speech and language skills (70.1%), and acquisition of developmental milestones (62.6%). Seventeen other categories were listed as beneficial with two major areas highlighted including self-esteem (18.2%) and self-confidence (12.7%) (see Table 2). SI, motor planning, social skills, motivation, improved ambulation, improved fine motor control, increased proprioception and independence, increased risk taking, increased balance, improved coordination, communication, education and attention, and prevention were placed into another category.

Complications of increased tone (25.2%), inability of participant to tolerate entire treatment session (49.5%), and excessive stimulation with a resultant loss of head control (18.7%) were found to occur during treatment sessions. Other complications specified by centers included allergies, gastric reflex difficulties with excessive stimulation from the horse, sudden blood pressure changes, inappropriate arousal in children with autism and ADD, pressure sores, decreased balance, hypererythemia during summer months,
Table 2.--Frequency of Benefits in Therapeutic Horseback Riding

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Motor Control &amp; Strength of Trunk Musculature</td>
<td>95%</td>
</tr>
<tr>
<td>Facilitation of Righting &amp; Equilibrium Reactions</td>
<td>89%</td>
</tr>
<tr>
<td>Improved Range of Motion</td>
<td>79%</td>
</tr>
<tr>
<td>Normalization of Muscle Tone</td>
<td>76%</td>
</tr>
<tr>
<td>Improved Speech &amp; Language Skills</td>
<td>70%</td>
</tr>
<tr>
<td>Acquisition of Developmental Milestones</td>
<td>63%</td>
</tr>
<tr>
<td>Increased Upper Extremity Usage</td>
<td>56%</td>
</tr>
<tr>
<td>Improved Respiratory Function</td>
<td>47%</td>
</tr>
<tr>
<td>Improved Self-Esteem</td>
<td>18%</td>
</tr>
<tr>
<td>Improved Self-Confidence</td>
<td>12%</td>
</tr>
<tr>
<td>Improved Motor Planning</td>
<td>6%</td>
</tr>
<tr>
<td>Improved Social Skills</td>
<td>6%</td>
</tr>
<tr>
<td>Improved Attention</td>
<td>5%</td>
</tr>
<tr>
<td>Sensory Integration</td>
<td>4%</td>
</tr>
<tr>
<td>Motivation</td>
<td>4%</td>
</tr>
<tr>
<td>Coordination</td>
<td>3%</td>
</tr>
<tr>
<td>Improved Ambulation</td>
<td>2%</td>
</tr>
<tr>
<td>Improved Proprioception</td>
<td>2%</td>
</tr>
<tr>
<td>Independence</td>
<td>2%</td>
</tr>
<tr>
<td>Risk Taking</td>
<td>2%</td>
</tr>
<tr>
<td>Fine Motor Control</td>
<td>2%</td>
</tr>
<tr>
<td>Balance</td>
<td>2%</td>
</tr>
<tr>
<td>Communication</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Education</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Prevention</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>
back/joint aches, irritability and seizure activity (Table 3). Multiple respondents (13) indicated that if riders are monitored correctly (i.e., position on and pace of horse), complications can be kept to a minimum, and tone is increased only momentarily.
Table 3.--Frequency of Complications Found in Therapeutic Horseback Riding

<table>
<thead>
<tr>
<th>Complication</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inability to Tolerate Entire Treatment Session</td>
<td>50%</td>
</tr>
<tr>
<td>Increased Tone</td>
<td>25%</td>
</tr>
<tr>
<td>Excessive Stimulation with Resultant Loss of Head Control</td>
<td>19%</td>
</tr>
<tr>
<td>Allergies</td>
<td>2%</td>
</tr>
<tr>
<td>Irritability</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Back &amp; Joint Aches</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Seizure Activity</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Hypererythemia</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Gastric Reflex Triggered</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Sudden Changes in Blood Pressure</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Pressure Sores</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Decreased Balance</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Increased Inappropriate Arousal for Children With Autism or ADD</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>
DISCUSSION

The results of this survey allows physical therapists and other professionals alike to gain some insight about this somewhat new and interesting field of study. The overwhelming response by those surveyed indicated that very little research had been conducted and even less published. This is congruent with current literature and may be a contributing factor to the scarcity of literature pertaining to therapeutic horseback riding and difficulty one encounters when attempting to retrieve information from sources. Some current literature states that more research should be conducted; however, a rationale is not given as to why research is not being conducted. A lack of time, money, and ability to collect objective measures were given as reasons respondents have not been involved in research. Grant money was found to be difficult to obtain, and many centers were poorly funded. Time constraints played a factor when those involved with therapeutic horseback riding were volunteering their time.

The documentation of acceptance of therapeutic horseback riding by medical professionals has not been published to my knowledge. Based on respondents' subjective answers, the lack of acceptance and research corresponded with one another. For instance, when there is not any money to
conduct research, therapeutic horseback riding receives less medial attention. In response, fewer individuals know about and support it and, as a result, fewer dollars are granted for ongoing research. Some respondents indicated that they have no interest or desire to be involved in research.

Responses received about evaluation and methods utilized matched closely to those reported in the literature. Many respondents specified subjective methods that they use in conjunction to those objective methods included in the survey. This indicated that a large amount of the reported benefits of therapeutic horseback riding may be based on subjective observation of the client.

A significant number of individuals felt a large benefit received from therapeutic horseback riding was improved self-esteem and self-confidence. Again, this cannot be measured directly. If self-esteem and self-confidence were able to be objectively documented to increase after therapeutic horseback riding, it may lend itself directly to use with persons with disabilities.

It was evident from the data that there was a large variety in the level of training received prior to being directly involved at a therapeutic horseback riding center. Many persons had not received any form of formal training at all. The largely variable range of training is a concern as respondents reported complications as avoidable if the patient was monitored correctly. If those in therapeutic horseback riding have not had prior training in this area, how can they then monitor the client properly to avoid these complications?
Furthermore, according to the NARHA Guide\textsuperscript{33} Standards for Operating Centers, the operating center shall have sufficiently trained personnel to meet the type and volume of services offered to achieve its goals and objectives.

Respondents indicated a few limitations of this survey. The survey did not differentiate between therapeutic horseback riding and hippotherapy. Some practitioners suggested that a definition of the terms would have assisted them in responding to the questionnaire. Beyond the limitation of a definition, some respondents felt that future studies could include direct questions about sensory integration and transdisciplinary treatments. The fair survey response rate was lower than expected and I am uncertain how that could have been improved as a standard methodology was utilized.
RECOMMENDATIONS/CONCLUSIONS

It is apparent that most professionals involved with therapeutic horseback riding are convinced it provides a beneficial, rewarding, and exciting form of therapy of recreation for those with disabilities. This treatment method allows the rider to feel the freedom of movements he is unable to experience off the horse. This freedom of movement and involvement in such a unique activity may hasten the rider's progression to more challenging skills and activities. This conclusion has been reached largely through subjective observations of riders on horseback as well as some objective measures. Although this group of individuals believes therapeutic horseback riding is an effective tool to assist those with disabilities, they are doing little to empirically prove the efficacy of treatment through research. Personally, I find this quite limiting for the field of therapeutic horseback riding as a whole. Individuals in the field of therapeutic horseback riding must utilize objective measures to document changes in client's functional abilities. If they continue to rely on subjective measures, they will be unable to develop quantifiable data to prove the effectiveness of therapeutic horseback riding to the medical society. One cannot expect more acceptance by the medical field without providing the data to support a treatment as efficacious. Since there is a limited amount of grant money
available for research, and many facilities have already conducted research with university students, a continuation of this practice may be wise as a benefit is realized by both the facility and the student. The field of therapeutic horseback riding would benefit greatly if those students would follow through by publishing their findings.

Those who have a disability may be lacking self-esteem and may benefit tremendously from horseback riding if it allowed them to improve their self-image. Qualitative research regarding therapeutic horseback riding’s effect on self-esteem should be explored as a significant number of respondents indicated they believed self-esteem was positively influenced by horseback riding.

More training of those involved with therapeutic horseback riding would facilitate a more uniform and quality treatment program. A lack of knowledge on behalf of the staff poses risks for those individuals participating in a program. Respondents listed risks such as overstimulation with resultant increased tone, loss of head control in a hypertonic client, inability to tolerate an entire treatment session, poor horse/rider match, inappropriate arousal in an autistic client, increased use of asymmetrical patterns, and decreased balance and motor control. Those clients involved with a therapeutic horseback riding center deserve the benefit of a well trained staff in order to achieve the most from each riding session, and avoid complications which may arise from improper positioning on or pace of the horse.
EXPEDITED REVIEW REQUESTED UNDER ITEM (NUMBER[S]) OF HHS REGULATIONS
EXEMPT REVIEW REQUESTED UNDER ITEM (NUMBER[S]) OF HHS REGULATIONS

UNIVERSITY OF NORTH DAKOTA
HUMAN SUBJECTS REVIEW FORM
FOR NEW PROJECTS OR PROCEDURAL REVISIONS TO APPROVED PROJECTS INVOLVING HUMAN SUBJECTS

PRINCIPAL INVESTIGATOR: Yvette J. Normandin
TELEPHONE: (218) 891-4755 DATE: 9-14-94

ADDRESS TO WHICH NOTICE OF APPROVAL SHOULD BE SENT: 209 State Street Apt. 309 Grand Forks, ND 58203

SCHOOL/COLLEGE: Medical DEPARTMENT: Physical Therapy PROPOSED PROJECT DATES: 9/94 - 4/95

PROJECT TITLE: Hippotherapy for the physical therapist: A survey of therapists nationwide.

FUNDING AGENCIES (IF APPLICABLE): ________________________________

TYPE OF PROJECT: ______ NEW PROJECT ______ CONTINUATION ______ RENEWAL ______ DISSERTATION OR THESIS RESEARCH X STUDENT RESEARCH PROJECT ______ CHANGE IN PROCEDURE FOR A PREVIOUSLY APPROVED PROJECT

DISSERTATION/THESIS ADVISER, OR STUDENT ADVISER: Peggy Mohr

PROPOSED PROJECT: ______ INVOLVES NEW DRUGS (IND) ______ INVOLVES NON-APPROVED USE OF DRUG ______ INVOLVES A COOPERATING INSTITUTION

IF ANY OF YOUR SUBJECTS FALL IN ANY OF THE FOLLOWING CLASSIFICATIONS, PLEASE INDICATE THE CLASSIFICATION(S):

____ MINORS (<18 YEARS) ______ PREGNANT WOMEN ______ MENTALLY DISABLED ______ FETUSES ______ MENTALLY RETARDED

____ PRISONERS ______ ABORTUSES ______ UND STUDENTS (>18 YEARS)

IF YOUR PROJECT INVOLVES ANY HUMAN TISSUE, BODY FLUIDS, PATHOLOGICAL SPECIMENS, DONATED ORGANS, FETAL MATERIAL, OR PLACENTAL MATERIALS, CHECK HERE ______

1. ABSTRACT: (LIMIT TO 200 WORDS OR LESS AND INCLUDE JUSTIFICATION OR NECESSITY FOR USING HUMAN SUBJECTS.

See inclosed sheets for abstract.
PLEASE NOTE: Only information pertinent to your request to utilize human subjects in your project or activity should be included on this form. Where appropriate attach sections from your proposal (if seeking outside funding).

2. PROTOCOL: (Describe procedures to which humans will be subjected. Use additional pages if necessary.)

See enclosed sheets for protocol.
3. **BENEFITS:** (Describe the benefits to the individual or society.)

See enclosed sheets for benefits.

4. **RISKS:** (Describe the risks to the subject and precautions that will be taken to minimize them. The concept of risk goes beyond physical risk and includes risks to the subject's dignity and self-respect, as well as psychological, emotional or behavioral risk. If data are collected which could prove harmful or embarrassing to the subject if associated with him or her, then describe the methods to be used to insure the confidentiality of data obtained, including plans for final disposition or destruction, debriefing procedures, etc.)

See enclosed sheets for risk information.
5. **CONSENT FORM**: A copy of the **CONSENT FORM** to be signed by the subject (if applicable) and/or any statement to be read to the subject should be attached to this form. If no **CONSENT FORM** is to be used, document the procedures to be used to assure that infringement upon the subject’s rights will not occur.

Describe where signed consent forms will be kept and for what period of time.

See enclosed sheets for consent form information.

6. For **FULL IRB REVIEW** forward a signed original and thirteen (13) copies of this completed form, and where applicable, thirteen (13) copies of the proposed consent form, questionnaires, etc. and any supporting documentation to:

   Office of Research & Program Development  
   University of North Dakota  
   Box 8138, University Station  
   Grand Forks, North Dakota 58202

On campus, mail to: Office of Research & Program Development, Box 134, or drop it off at Room 101 Twamley Hall.

For **EXEMPT** or **EXPEDITED REVIEW** forward a signed original and a copy of the consent form, questionnaires, etc. and any supporting documentation to one of the addresses above.

The policies and procedures on Use of Human Subjects of the University of North Dakota apply to all activities involving use of Human Subjects performed by personnel conducting such activities under the auspices of the University. No activities are to be initiated without prior review and approval as prescribed by the University’s policies and procedures governing the use of human subjects.

**SIGNATURES:**

Principal Investigator  

Project Director or Student Adviser  

Training or Center Grant Director  

DATE: ________________________  

DATE: ________________________  

DATE: ________________________  

(Revised 8/1992)
Abstract: Now more than ever in this era of health care reform, empirical studies and research are a must in order to support treatment efficacy, quality of care, and improved outcomes. Therapeutic horseback riding is one treatment method which is relatively new to the United States (1970's), yet is utilized quite extensively in some areas of the U.S. Over the past 25 years, besides a few minor studies, very little empirical research or outcome based studies have been conducted and published in this field. The purpose of this project is to survey physical therapists nationwide who are involved with North American Riding for the Handicapped (NARHA) certified therapeutic riding centers to obtain their perspectives regarding the need for more empirical research and outcome studies, benefits of therapeutic horseback riding, and methods of objective evaluation utilized when determining patient improvement.

Protocol: Two hundred twelve North American Riding for the Handicapped Association (NARHA) certified centers will be sent the survey, with directions to forward the survey onto a physical therapist on staff. These accredited center names and addresses were obtained from the 1994 NARAH Guide. Due to the numerous centers nationwide (524), 50% of the total centers in each state will be randomly selected. The survey will consist of demographic questions, as well as questions pertaining to the areas of benefits, research, and methods used to objectively evaluate persons involved with the therapeutic horseback riding program. Each survey will be assigned a number upon return in substitution of the therapist's name to ensure confidentiality.

Survey development: In a review of the literature, it was determined that very few empirical studies have been published, with the reported benefits of therapeutic horseback riding varying greatly. It was found that most methods used to evaluate patients response to treatment are subjective measures with only one study utilizing an instrument to objectively quantify the progress of persons involved in a therapeutic horseback riding program. The survey questions were developed to investigate physical therapist's perspectives on benefits, methods of evaluation, research and empirical data collection.

Procedure: Each survey will be mailed with a postage paid return envelope included. Upon return of surveys, data will be collected and analyzed under a coding system to protect the confidentiality of respondents.

Benefits:

1. Help to determine what physical therapists practicing in a therapeutic horseback riding center consider to be the greatest benefits of their treatment sessions.
2. Discover what methods of objective evaluation are utilized by therapists when determining therapeutic horseback riding's efficacy, and identify the perceived need for objective evaluation by therapists.

3. Ascertain how many centers are currently conducting or participating in some form of research, and the need for increased research.

**Risks:** The only possible risk associated with this survey would be the confidentiality of the physical therapists. This however has been eliminated by assigning a number to the survey upon return, using this number rather than any name or therapeutic horseback riding center when referring to a subject in the study.

**Consent Form:** As therapists give their consent by returning the survey upon completion, a consent form is not necessary. There will not be any association of the therapist's name or therapeutic center with the data collected.

All surveys will be kept on file with the following for a period of two years.

Yvette Normandin SPT
505 Demers Avenue
Fisher, MN 56723
Outline of Independent Study  

- Thesis  
- Dissertation  
- Project Design  

Student  
Yvette Jacqueline Normandin  

Date  
10-14-94  

Proposed Title  
Hippotherapy for the physical therapist: A survey of therapists nationwide.  

Anticipated Date of Graduation  
May 15, 1995  

Description of the nature of the problem/study, the process, procedure or methodology to be followed, and the proposed results/outcome:  

Although therapeutic horseback riding for the disabled was introduced into the United States in the mid-1960's, very few empirical studies have been conducted and published since that time. As clinicians, it is imperative that we carry-out research as evidence that our treatment methods are efficacious. Quality of care and treatment outcomes require research to support them.  

I am interested in surveying physical therapists nationwide involved with therapeutic horseback riding centers in order to ascertain what forms of research or outcome based studies are presently being conducted at these centers, what hippotherapy treatment benefits are commonly observed, and what methods are utilized to objectively evaluate the clients for treatment effectiveness.  

After a thorough review of the literature, a questionnaire was developed, which included questions regarding (1) demographics, (2) benefits of therapeutic horseback riding, (3) research or outcome based studies presently being conducted, and (4) objective evaluation methods utilized in hippotherapy centers.  

Therapeutic horseback riding centers were selected randomly from each of the fifty states. In order to obtain a non-biased sample, it was determined that one half of the centers in each state would be randomly selected for participation. These centers will be sent a questionnaire accompanied by a cover letter explaining the purpose and methods of the study. Upon return of the surveys, a number will be assigned to each survey to ensure confidentiality of all participating centers.  

Upon conclusion of data analysis, it is anticipated that the results of this study will indicate (1) physical therapists perspectives regarding therapeutic horseback riding, (2) research currently in progress, (3) methods of objective evaluation, and (4) factors determining the publication of research completed in this area. Hopefully, this study will stimulate further research into hippotherapy and it's clinical effectiveness for those clients with disabilities.  

Signatures of approval as specified in the "Degree Requirements" section of the Graduate Bulletin:
DATE: September 22, 1994
NAME: Yvette Jacqueline Normandin  DEPARTMENT/COLLEGE  Physical Therapy
PROJECT TITLE: Therapeutic Horseback Riding: A Survey of Physical Therapists

The above referenced project was reviewed by a designated member for the University's Institutional Review Board on 9/28/94 and the following action was taken:

☐ Project approved. EXPEDITED REVIEW NO. ___.
Next scheduled review is on ________________.

☒ Project approved. EXEMPT CATEGORY NO. __. No periodic review scheduled unless so stated in REMARKS SECTION.

☐ Project approved PENDING receipt of corrections/additions in ORPD and approval by the IRB. This study may NOT be started UNTIL IRB approval has been received. (See REMARKS SECTION for further information.)

☐ Project approval deferred. This study may not be started until IRB approval has been received. (See REMARKS SECTION for further information.)

☐ Project denied. (See REMARKS SECTION for further information.)

REMARKS: Any changes in protocol or adverse occurrences in the course of the research project must be reported immediately to the IRB Chairman or ORPD.

cc: P. Mohr, Adviser
Dean, Medical School

[Signature]
Signature of Chairperson or designated IRB Member
9/28/94
Date
UND's Institutional Review Board

If the proposed project (clinical medical) is to be part of a research activity funded by a Federal Agency, a special assurance statement or a completed 596 Form may be required. Contact ORPD to obtain the required documents. (7/93)
The following questions have been developed in order to find out physical therapist's views on the need for more empirical data collection, research, methods of objective evaluation utilized, and apparent benefits of therapeutic horseback riding.

Please circle the numbers corresponding to our answer for each question. If you would like to expand on any answer, feel free to do so in the margins next to the question.

1. Your sex. ______ 2. Your age. ______

3. Years of experience as a physical therapist. ______

4. Years of experience in therapeutic horseback riding. ______

5. Have you received formal training in therapeutic horseback riding?
   1. YES
   2. NO

6. Does the facility you work at use therapeutic horseback riding sessions in conjunction with therapy in a clinical setting?
   1. YES
   2. NO

7. In your opinion, has the medical field in your region of the United States accepted therapeutic horseback riding as an effective rehabilitation method?
   1. YES
   2. NO

8. Do you believe that there would be greater acceptance of therapeutic horseback riding by the medical field and better reimbursement from third party payers if more empirical research was conducted?
   1. YES
   2. NO

9. Do you agree that more research or outcome based studies would be appropriate and/or necessary to support therapeutic horseback riding as a treatment modality?
   1. STRONGLY AGREE
   2. MILDLY AGREE
   3. NEITHER AGREE OR DISAGREE
   4. MILDLY DISAGREE
   5. STRONGLY DISAGREE

10. Has your center been involved in any empirical research, outcome based studies, or other projects?
    1. YES
    2. NO

11. If you answered yes to the question above please list the studies that have been conducted.

12. What objective methods do you as a therapist use when evaluating a patient and determining effectiveness of your treatment?
    1. STANDARDIZED TESTING
    2. TIMED BALANCE ACTIVITIES
    3. RANGE OF MOTION MEASUREMENTS
    4. ACQUISITION OF DEVELOPMENTAL MILESTONES
    5. MANUAL MUSCLE TESTING
    6. OTHER (PLEASE SPECIFY)
13. What do you feel are the major benefits of therapeutic horseback riding? (Circle all that apply)

1. INCREASED MOTOR CONTROL AND STRENGTH OF TRUNK MUSCULATURE
2. IMPROVED RANGE OF MOTION
3. NORMALIZATION OF MUSCLE TONE
4. FACILITATION OF RIGHTING AND EQUILIBRIUM
5. IMPROVED RESPIRATORY FUNCTION
6. INCREASED U/E USAGE
7. IMPROVED SPEECH AND LANGUAGE SKILLS
8. ACQUISITION OF DEVELOPMENTAL MILESTONES
9. OTHER (PLEASE SPECIFY)

Is there anything else that you feel you should include on therapeutic horseback riding to make this study more conclusive? If so please use the following space for that purpose. Any further comments are greatly appreciated.

14. Please indicate any complications you observed from the use of therapeutic horseback riding.

1. INCREASED TONE IN A HYPERTONIC CLIENT
2. INABILITY TO TOLERATE ENTIRE TREATMENT SESSION
3. EXCESSIVE STIMULATION FOR A HYPOTONIC INDIVIDUAL WITH RESULTANT LOSS OF HEAD CONTROL
4. OTHER (PLEASE SPECIFY)

If you would like to receive a copy of the results of this study after data received is analyzed, feel free to contact me, Yvette Normandin at (701) 777-2831.
REFERENCES


28. Clark-Zanin C. Sensory Integration the Key for our Learning Disabled Riders. Presented at the 17th Annual NARHA Meeting and National Convention. Old Dominion School of Therapeutic Horsemanship, Inc., P. O. Box 104, Great Falls, VA 22066.


