Horseback Riding for Individuals With Disabilities: Programs, Philosophy, and Research

Karen P. DePauw
Washington State University

Although historical mention of horseback riding for individuals with disabilities can be traced through the centuries, programs of therapeutic riding were not established until the mid-1900s. Since its inception, horseback riding for the disabled has become diversified and increasingly sophisticated. As a result, the programs have a varying emphasis on riding as sport, recreation, education, or therapy. The literature contains articles describing therapeutic riding programs that include claims of medical and educational benefits for participants. Although the programs have existed for 30 years, interest in research on the benefits of horseback riding for the disabled is relatively new. Despite the progress made, it is critical that professionals in horseback riding for individuals with disabilities (a) collect empirical evidence supporting the claimed benefits, (b) develop appropriate evaluation instruments/tools, (c) identify effective intervention techniques, (d) provide for accessibility of publications/information from Europe, and (e) develop printed materials and audiovisuals for the health professional community.

Reference to the use of horseback riding for individuals with disabilities has appeared in the literature for centuries. It was reported that the early Greeks gave horseback rides to individuals who were considered untreatable or incurable in order to improve their spirits (Mayberry, 1978). The medical literature of the 18th and 19th centuries contained several references to the use and benefits of horseback riding. In 1777, Tissot recommended riding for the prevention and treatment of pulmonary tuberculosis (Bain, 1965). According to Riede (1982b), the "newly discovered" type of movement—the three-dimensional motion of a horse—was purported to be appropriate for medical treatment in the 1800s.

The first reported study of the value of horseback riding was undertaken by Chassigne in Paris in 1875 (Bain, 1965). Chassigne wrote that riding was beneficial in the treatment of hemiplegia, paraplegia, and other neurological disorders. He hypothesized that posture, balance, joint movement, and muscle control were improved by the active movement as well as the passive movement provided by the horse.

Request reprints from Dr. Karen P. DePauw, Dept. of Physical Education, Sport, & Leisure Studies, Washington State University, Pullman, WA 99164-1410.
Programs of Therapeutic Riding

Although historical mention of horseback riding can be traced through the centuries, programs of therapeutic riding were not established until the 1950s, when therapy on a horse was begun. As a result, the horse became a partner in the treatment and rehabilitation of those with disabilities (Heipertz, 1981).

The initial interest in programs of therapeutic horseback riding was sparked by two individuals, Liz Hartel of Denmark and Elsbet Bodtker of Norway. Hartel, an avid horsewoman, contracted polio in 1943 and became confined to a wheelchair. Despite her impairment, she won a silver medal in dressage at the 1952 Olympic Games in Helsinki. It was then that the medical profession began to show a new interest in the therapeutic value of riding. Upon the recommendation of a physician, Bodtker initiated riding for individuals with postpolio and cerebral palsy on her own ponies. Thus she was the first to provide “therapy riding” in Norway (Boysen, 1982).

England quickly took the lead in this new field, followed closely by other European countries (Heipertz, 1981). Since the 1950s, programs have spread throughout Europe and beyond. The first programs in North America were started in Canada in 1965; in 1970 the Cheff Center in Augusta, Michigan, became the largest facility for therapeutic riding in the United States. Today, programs can be found in many countries around the world: Australia, Austria, Belgium, Canada, Denmark, East Germany, France, Great Britain, Italy, New Zealand, Norway, Sweden, Switzerland, the United States, and West Germany.

Divisions of Horseback Riding for the Disabled

Although horseback riding for the disabled is a common term in the equestrian world as well as in medicine, education, and psychology, much diversity exists (Glasow, 1984). Under the general title of “horseback riding for the disabled” can be found programs of developmental vaulting, driving, hippotherapy, remedial riding, recreational riding, riding as sport, and so on.

In conjunction with the diversification and sophistication of horseback riding for individuals with disabilities, three main divisions have been identified: medicine, education, and sport (Glasow, 1984; Heipertz, 1981). Although schematic representations may vary, the essence of the diversification does not. The schematic representation adapted from the Swiss Group for Hippotherapie (1978) is depicted in Figure 1.

Hippotherapy refers to the mainly passive form of therapeutic riding wherein the individual sits on the horse or is placed in different positions on the horse, and accommodates himself or herself to the swinging motions of the horse (Heipertz, 1981). The movements of the horse’s back are transferred to the rider’s body and serve to relax the rider, strengthen muscles, and improve circulation. According to Heipertz, hippotherapy is a distinct medical procedure that should be employed only by a physician and/or trained therapist.

Riding Therapy refers to individually prescribed, active physiotherapeutic exercise on horseback. The rider is not only passively influenced by the movement of the horse but also actively performs exercises. Examples of exercises
include those for relaxation, stretching, and strengthening, as well as those for equilibrium, reflex integration, and coordination. Riding therapy usually complements other physical therapy treatment (Heipertz, 1981).

**Remedial Riding and Vaulting** includes educational methodology that involves the horse as the medium through which to exert positive changes in the behavior of children and youth with behavioral disorders. Recent emphasis has been placed upon the development of and/or changes in language and sensory-motor function.

**Vaulting** refers to the performance of gymnastic exercises on horseback. This may take the form of balance and movement activities on top of the horse. According to Heipertz (1981), vaulting’s main objective is to correct the child’s behavior problems. Other perceived values include diminishing anxieties, building trust, improving self-esteem, building concentration, providing sensory-motor stimulation, increasing social interaction, and so on.

**Riding as Therapy** refers to riding for its preventative or rehabilitative value. This type of riding is used as a form of controlled aerobic exercise under medical supervision and is sometimes recommended for patients with heart, circulatory, or respiratory diseases (Glasow, 1984).

**Riding for the Disabled**, or riding as a sport for those with disabilities, serves to train and strengthen physical functioning as well as to help create positive mental attitudes. Riding can enhance one’s integration into the community. In partnership with a horse, the individual with a disability can attempt to achieve and perform in the sport of riding as would an able-bodied person. Sport riding includes recreational riding, driving, riding holidays, and competitive riding. Although the intention of sport riding is not necessarily a therapeutic one, therapeutic benefits are often realized as a result.

### Research

The literature contains many articles describing therapeutic riding programs and the benefits thereof, including claims of improved balance and posture, decreased
spasticity, improvement in self-esteem, and increased strength, flexibility, and range of motion (Wingate, 1982). Prior to the 1980s, there were virtually no scientific investigations to support these long-claimed benefits of horseback riding as being therapeutic. Although programs of therapeutic horseback riding have existed since the 1950s, interest in research on horseback riding for individuals with disabilities is relatively new. Because much of the recent research has been undertaken in Europe, access to these findings is limited to translated proceedings from recent International Congresses on Therapeutic Horseback Riding (DePauw, 1984).

Medical Benefits

Treatment on horseback is unique because it transfers a very definite series of motions to the rider (Renaud, 1982). It was reported by Baumann (n.d.) that physical therapy on horseback produces exactly the defined pattern of movement of a physiological amplitude that can be repeated for a prolonged period in a rhythm similar to that occurring in normal gait. Utilizing film analysis, Baumann reported the following:

1. Vertical displacement of the center of gravity during walking and riding was about 5 cm;
2. Lateral displacement of the center of gravity during walking and riding was about 5 cm;
3. Pelvic rotation was about 8 degrees toward each side from midposition during riding, which is less than walking;
4. Lateral inclination of the pelvis was about 4 degrees;
5. Lumbar lordosis “planed out” (more so in an English saddle), thus placing a minimum amount of stress on the spinal column; and
6. Hip abductors were exercised.

Several investigators studied acceleration and three-dimensional movements on horseback and their effect upon the spine. Riede (1982a) measured the acceleration and swinging motions (three-dimensional movements) on horseback during the walk and trot. The data were collected via electrodes attached to the lower back, over the C5/T1 vertebrae. Based upon his findings, he concluded that walking and trotting on horseback have no harmful effect upon the spine.

Film analysis was also utilized in a study conducted by Gottwald and Biewald (1982) to document changes in the vertical and horizontal displacements of selected body parts after a year of hippotherapy. Four subjects with spinal problems served as subjects in the study. It was found that the displacement curves were more regular after hippotherapy, indicative of an increase in the coordination and rhythmical movements of the upper body parts of persons with spinal problems.

Eltze, Pieck, and Clement (1982) found that hippotherapy can be a useful supplement to conventional physical therapy in the treatment of scoliosis. Although the results are dependent upon the type of scoliosis and the length of treatment, it was reported that most effective therapeutic results in the treatment of postural problems were reached with light trotting.
Electromyography was utilized to document the effects of horseback riding among individuals with cerebral palsy. It was concluded that riding leads to similar normalization of muscle tone and improvement in coordination as found with traditional physical therapy methods. The lessening of spasticity in adductors was found to be greater after riding than when utilizing comparable physical therapy equipment.

Fox, Lawlor, and Luttges (1984) undertook a significant investigation. They designed a novel test instrument to objectively quantify the progress of individuals who participated in therapeutic horseback riding programs. Utilizing a pre/post experimental design, the investigators noted marked improvements for measures of sitting balance and coordination, and hand, hip, knee, and ankle strength of 19 handicapped children, ages 7 to 14 years. The results of this pilot study investigation supported the use of the apparatus in a field setting.

At the 1985 Annual Conference on Interactions of People, Animals and the Environment, Tebay and Schlesinger (1985) spoke on riding therapy as a contraindication for Down's Syndrome individuals with Atlantoaxial instability. Because there is the possibility of subluxation or dislocation due to instability of the Atlantoaxial or upper area of the cervical spine in 15 to 20% of the Down's Syndrome individuals (Cooke, 1984), Tebay and Schlesinger advised that diagnostic x-rays be conducted prior to participation in riding programs.

Educational Benefits

For this aspect of research, the horse serves as a medium in the education of those with disabilities. Educational benefits are derived from horseback riding by stimulating the person's interest and motivation to learn as well as building self-confidence and self-esteem (Douglas, 1982).

Evaluation of the riding therapy program for the physically and mentally handicapped in Washington, D.C., was conducted through the use of skill checklists for teachers, evaluation forms for parents, and self-reports for participating students. The results of yearly evaluations since 1975 are summarized here:

1. Average gain in motor skills ranged between 7% and 31%.
2. A majority, 88%, of participating children were found to have improved language skills, with the average gain between 9% and 29%.
3. Average gains of 6% to 19% were found in emotional control, social awareness, peer relations, and self-concept.
4. Some 70% of the children showed notable improvement in work skills, with an average gain of 17%.
5. A majority, 87%, of parents commented upon their child's improved self-confidence. They also noted a 52% decrease in the number of negative statements by the children.
6. Teachers' overall evaluation of the effectiveness of the program was rated as "very good" or "excellent" (Douglas, 1982).

Therapeutic riding is purported to have an effect upon self-awareness, self-confidence, and self-esteem. Von der Muhlen (1982) found success in treating 12 schizophrenic patients using therapeutic riding when compared to other
traditional methods. Kluwer (1982) modified vaulting exercises, which led to the “loosening up” of the child’s psyche (emotions) and had a very positive effect upon self-awareness. Ringbeck (1982) also reported on the positive effects of vaulting. Much of the data have been collected through questionnaires, sociograms, and observation.

Reports are found in the literature of changes in behavior after riding programs. Ringbeck (1982) described “exercises and games with and on top of the horse” through which social behavior can be trained. Use of the horse in daily life was thought to improve equilibrium, lateralization, and physical functioning as well as improving the behavior of mentally handicapped and autistic individuals. Relaxation, occupational training, and improved social relations, along with increased independence and successful integration (Deringe, 1982), are results that have also been reported although not well documented.

Several investigators have examined, either directly or indirectly, the influence of riding and improvement of language skills. Periodic and systematic observations showed evidence of increased verbal communication in individuals who participated in a riding program in Italy (Accorsi, 1982). Douglas (1982) reported improvements in language in each of 8 years of evaluating the effects of therapeutic riding programs in Washington, D.C. An important empirical study by Dismuke (1981) examined the influence of a horseback riding program on the development of language skills in children with communication disorders. After 12 weeks of communication therapy within a structured riding program, significantly greater improvement in phrase and clause combination was found among the riding program participants compared to a nonriding control group. Improvement in self-esteem, though not significant, was also reported.

A study of the effects of a therapeutic weekly riding program was undertaken by Hall, Hulac, and Myers (1983) at Washington State University. The study was designed to evaluate changes in certain riding and physical abilities of the 16 participants, ages 5 to 76 years, who had a variety of handicapping conditions. A comprehensive evaluation form was completed on each participant early in the program and again after a 3-month interval. All evaluations were conducted by the therapeutic riding instructor. A Wilcoxon Matched Pairs Signed-Rank Analysis was performed for each of the 28 components of the evaluation. Significant improvement among the subjects was indicated for riding posture ($p < .01$), balance ($p < .05$), general confidence level ($p < .01$), and comprehension of instructions ($p < .05$).

Dismuke (1984) investigated the effects of a rehabilitative horseback riding program upon the speech and language development of 26 children with language disorders. All subjects received speech and language intervention from a certified speech and language pathologist, 11 receiving it in a public school setting and 15 in a structured horseback riding setting. Each child received 30 hours of treatment. Pre-, mid-, and posttest batteries of speech and language skills, muscle strength, sensorimotor integration, and self-esteem were administered by an independent diagnostic team. Results indicated significant gains in all areas for those subjects who received treatment in the horseback riding setting when compared to those who received treatment in the public school setting.
Benefits From Riding as Sport

Equestrian therapy was reported successful when used as an integral part of the rehabilitation of traumatic head injury patients (Stanford, 1982). In another report, Cucchi, Papi, and Albertori (1982) described the benefits of riding programs for two types of patients in a hospital setting: those who need the equestrian physiotherapy and those who wish to ride for the sheer enjoyment of it. Twelve children were involved in the preliminary stages of the equestrian rehabilitation program, and based upon case studies, results were reported as remarkable.

Most of the literature on riding as a sport for individuals with disabilities reports successful integration into riding groups and competitive events for those with visual impairment (Nitsch, 1982), hearing impairment (Bauer, 1982), and amputation (Korfer, 1982). Riding camps and vacation rides have also been reported as a means for successful integration with able-bodied riders.

Riding for the Disabled in the United States

When horseback riding first began in the United States, a fairly homogeneous approach was used in teaching riders with disabilities. The emphasis was placed upon the teaching of functional riding skills with recognition of possible recreational and therapeutic benefits (Glasow, 1984). This approach reflected the influence of the philosophy and practice of riding programs for individuals with disabilities in Great Britain.

Horseback riding for individuals with disabilities is currently undergoing dynamic changes and expansion in the United States (Bieber, 1985). The diversification and sophistication of riding for the disabled as it exists on the international level is now being incorporated in the United States. Currently there are over 350 private, nonprofit groups providing horse-related services to an estimated 22,000 handicapped children and adults. Although most are affiliated with the North American Riding for the Handicapped Association, Inc., or the National Foundation for Happy Horsemanship for the Handicapped, some operate independently. For a list of individuals who can provide more information on riding for the disabled, see the Appendix.

Currently the programs have a varying emphasis on riding as sport, recreation, education, or therapy. As such, the continuum of interaction between horse and disabled person extends from enjoyment of the horse as an end in itself through riding for behavioral change, therapeutic recreation, physical therapy, cognitive development, and competitive sport (Bieber, 1985).

Although much progress has been made in the last 15 years in increasing the competence of instructors and the safety and effectiveness of programs, important progress is still lacking in several critical areas (Hines, 1985). It is important to the continued existence and progress of horseback riding for individuals with disabilities in the United States that the following be addressed: (a) systematic collection of empirical evidence in support of the benefits of horseback riding for individuals with disabilities, (b) development and assessment of appropriate...
evaluation instruments/tools to measure the effects of riding, (c) identification of effective intervention techniques, (d) accessibility to research publications and program information from Europe, and (e) development of printed materials and audiovisuals for the health professional community.

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Acknowledgements

The author wishes to acknowledge the efforts of three individuals without whom this paper would not be nearly as accurate or complete: Christa Timms, Joan Myers, and Linda Hines. Christa Timms is acknowledged for her translation from German to English of the *4th International Congress Proceedings*.

Appendix

**Horseback Riding for the Disabled Directory**

Natalie Bieber, 78 Town Woods Road, Lyme, CT 06371

The Delta Society, Linda Hines, Executive Director, Century Bldg., Suite 303, 321 Burnett Ave. South, Renton, WA 98055

Barbara Glasow, RPT, Winslow Therapeutic Riding Unlimited, Inc., 304 A South Rt. 94, Warwick, NY 10990

Fran Joswick, Orange County Riding Center, Inc. 26282 Oso Road, San Juan Capistrano, CA 92675

Dr. Marvin Luttges, Dept. of Aerospace Engineering Studies, University of Colorado, Campus Box 429, Boulder, CO 80309

Lida McCowan, Executive Director, The Cheff Center, RR1, Box 171, Augusta, MI 49012

National Association of Sport for Cerebral Palsy, United Cerebral Palsy Association, Inc., 66 East 34th Street, New York, NY 10016

National Center for Therapeutic Riding, c/o Jean Tebay, Box 42501, Rock Creek Park, Washington, DC 20015

National Foundation for Happy Horsemanship for the Handicapped, Inc. c/o Maudie Hunter-Warfel, Box 482, Malvern, PA 19355

North American Riding for the Handicapped Association, Inc. c/o Raymond Davis, President, 4501 Maryland Ave. Apt. 701, St. Louis, MO 63108

Special Olympics, Inc. c/o Octavia Brown, Director of Equestrian Sports, Crossroads Farm, Bedminster, NJ 07921

Jan Spink, EFT Services, 18124 Wild Horse Creek Rd., Chesterfield, MO 63017