

Feasibility of Horseback Riding as a Therapeutic and Integrative Program for Handicapped Children

LYDIA WINGATE

The passage of Public Law 94-142, to alleviate the educational isolation of handicapped children, has resulted in some integration of handicapped children into community activities.¹ Unfortunately, this integration is usually characterized by groups of handicapped people enjoying an activity together rather than with nonhandicapped persons. Developing activities that can realistically effect integration is a challenge both to lay and professional people concerned with the quality of life for handicapped persons. Horseback riding is one activity that has been identified as possibly serving this purpose, and which has the additional benefit of being therapeutic.

Reports from England, Australia, and the United States have demonstrated that in a well-planned and carefully controlled program, horseback riding for the handicapped can provide a safe means of facilitating physical improvement in both minimally and extensively handicapped individuals.²⁻⁴ Riding has been shown to improve posture; facilitate equilibrium reactions, thereby improving sitting balance and, in some cases, standing balance and walking; decrease lower extremity adductor spasticity; and improve body image and self concept.²⁻⁷

This report is of a pilot project that attempted to demonstrate the feasibility of developing an integrative and therapeutic program of horseback riding for handicapped persons. A program that could demonstrate the effectiveness of horseback riding in promoting both socially integrative and physically therapeutic benefits requires 1) objective evaluation of the participants' physical function both before and after the program's implementation and 2) a measure of the participant's eventual activity in a riding program with nonhandicapped children. This project did not have the breadth to provide the physical evaluation component, but rather was an attempt to test the feasibility of implementing a horseback riding program for handicapped children that would be accept-

able to them, while in the process, developing family support and using volunteers. If a horseback riding program could be shown to attain these objectives, a broader study involving more subjects and a carefully conducted evaluation would be undertaken.

PROGRAM DESIGN

The pilot project was developed for seven patients. Participants met twice a week for a total of five weeks. Horses chosen for the riding session had to be both quiet and well schooled. The stable we selected had four such mounts and the children rode, in two separate groups, four riding together for the first hour and three for the second hour. Although none of the participants had ridden before on a regular basis, all had had prior contact with horses.

Six of the seven program participants were between 6 and 9 years of age, and one was 16 years of age; five of the seven were female. All seven patients had cerebral palsy. Three had spastic quadriplegia (one of these also had athetosis), three had spastic diplegia, and one had a left hemiparesis with a moderate to severe articulation disorder. Of the patients, two walked independently, four required assistive devices, and one was nonambulatory.

Parent Group. To minimize costs, parents transported their child to and from the stable. While the children were having their therapeutic riding sessions, parents and other family members were invited to participate in group discussions. The discussions, organized by a social worker, allowed the parents to develop mutual supports, share ideas, and discuss topics of common concern.

Volunteers. Approximately 15 volunteers who were not required to have had experience handling horses were needed at each riding session. The majority came from a local church youth group. All volunteers received two orientation sessions at which their role and the signs and symptoms of cerebral palsy were discussed, and lifting and transfer techniques were demonstrated and practiced.

Special Equipment. To maximize safety, each child was fitted with a hard hat for head protection and a web belt (the kind used to assist ambulation) that could be held by volunteers on either side to minimize the chance of any rider's falling. A set of steps with a platform was used as a mounting block.

Mrs. Wingate was Director of Physical Therapy, Children's Hospital of Buffalo and Children's Rehabilitation Center, Buffalo, NY, when this article was written. She is now Assistant Professor and Associate Chairman, Department of Physical Therapy, State University of New York at Buffalo, 3435 Main St, Buffalo, NY 14214 (USA).

This article was submitted March 9, 1981, and accepted April 29, 1981.

Riding Sessions. English saddles were used because they were smaller and flatter than western saddles and, therefore, created fewer problems for the patient with adductor muscle spasticity. If adductor muscle hypertonus was excessive, no attempt was made to place the child's feet in the stirrups. Each horse was led by one volunteer while two other volunteers walked, one on each side of the horse, and held onto the child's webbed belt.

The children were encouraged to hold the reins and, whenever possible, to assist in guiding the horse. Exercises were performed while the horse walked and trotted. The children either sat on the saddle or were encouraged to try to stand up in the stirrups. Those children who wore lower extremity orthoses kept them on while riding, because they needed the orthotic assistance to stand in the stirrups. For patients who did not wear orthoses, standing in the stirrups was a very effective method of providing a maintained stretch to the gastrocnemius-soleus muscle group. Other mounted exercise activities included 1) trunk rotational exercises (to promote dissociation of pelvis from trunk), 2) lying back on the horse while sitting in the saddle and slowly returning to an upright sitting position (to facilitate strengthening of midline musculature), and 3) a variety of other exercises (to promote good posture and balance).

The variety of motions in a horse's gait provided a constant challenge to the child's sitting and standing equilibrium. The horse's trotting motions provided the child proprioceptive stimulation and facilitated the child's trunk extension. Only one child had poor head and trunk control, and she required the additional assistance of a rider sitting on the horse's back behind the saddle to give her support. Because the children had perceptual motor dysfunction, activities emphasizing laterality and body and spatial awareness were included in the riding session.

Each exercise session was directed by the riding instructor from the stable in consultation with the physical therapist, so that the exercises could be modified to the individual child's needs. Volunteers were shown how to stabilize the lower portion of the child's lower extremities during facilitation of midline muscle strengthening. The riding program was structured so that all participants achieved some degree of success at each session. Volunteers were instructed to withdraw their support gradually as the children progressed toward independent riding.

RESULTS

Physical. During the program period, the families of four patients commented on a number of physical improvements they had observed in the children at home. Among these were improved posture, less falling when walking, improved sitting posture, gaining

independence in taking a shower in an upright kneeling standing position, improved head control, some decrease in lower extremity hypertonus, and improved gait (less knee and hip flexion).

Psychosocial. Written comments of the family members confirmed the impressions of the therapists that all of the children enjoyed the program immensely, were unaware that they were receiving therapy, and had an improved self-image. In all of the parents' written evaluations were comments that they believed the program was beneficial and should be continued. The parents also noted the program enabled the children to participate in an activity in which their peers and siblings could not participate. The parents expressed the desire for both a longer program and a longer riding time as well as for more input from the therapist into the parent group.

Parent Group. The attendance records of parents and children during the 10 sessions were almost perfect. Two of the fathers accompanied their wives and children, but preferred to watch the riding rather than participate in the parent discussion group.

DISCUSSION

The success of the program, as measured in terms of the enjoyment of participants, the attendance, and the satisfactory volunteer participation could be considered evidence of the feasibility of the project. Additionally, the horseback riding program was used as a therapeutic modality on both an individual and group basis. The specific model developed and used could form the basis of a broader study in which therapeutic outcomes might be measured more objectively. For example, by the end of our program, two children had progressed to the same level of riding ability as nonhandicapped beginner riders. In a broader study than the one reported on, the results might allow anticipation of the children's ability to participate in a riding program involving nonhandicapped children.

A subsequent study of the physically therapeutic and socially integrative value of horseback riding for handicapped children is being planned. It will include a kinesiological analysis of gait before, during, and after the program as well as at a two-month follow-up time. Through the use of surface EMG electrodes, the electrical potentials of various lower extremity muscle groups will be assessed during gait. The use of videotapes will provide the therapists with a visual record, the patients and their parents with feedback, and the medical and allied health students with a clinical demonstration. By specifically quantifying assessments and documenting findings in this manner, physical therapists will achieve scientific credibility for new treatment interventions.

REFERENCES

1. Education for All Handicapped Children Act of 1975, Public Law 94-142, 20 USC 1401 *et seq* (1977)
2. Mayberry RP: The mystique of the horse is strong medicine: Riding as therapeutic recreation. *Rehabil Lit* 39(6): 192-196, June-July 1978
3. Menelaus M: Who's for riding? *Med J Aust* 1(26):943-944, June 1977
4. Walker GM: Riding for the disabled. *Physiotherapy* 64(10): 297-298, 1978
5. Tauffkirchen E: Reittherapie: Eine erweiterte Behandlung bei nenlinealen Bewegungsgestorten. *Pediatre und Pathologie* 13:405-411, 1978
6. Reiger C: Wissenschaftliche Grundlagen der Hippo—und Reittherapie: Eine Zusammenstellung von Untersuchungsergebnissen. *Rehabilitation (Stuttg)* 14(3):142-149, August 1975
7. Satten L: Reiten als Therapie bei Bewegungsgestorten Kindern mit besonderer Berücksichtigung der Cerebral Parese. *Pediatric und Pathologie* 13:337-344, 1978