The purpose of this case report is to provide an example of how occupational therapists can assist clients with disabilities to become empowered by the Americans With Disabilities Act of 1990 (ADA) (Public Law 101-336) and succeed within a university setting. To accomplish this purpose, we suggest a frame of reference to assess and reassess the margin of physical and psychic energy available to a client for functions of life above subsistence level (e.g., learning), present a short history of a client, identify reasonable accommodations suggested by an occupational therapist to bring the university in compliance with the ADA so that the qualified client can function within the university setting, and provide suggestions for strategies to strengthen the self-advocacy skills of the client.

Frame of Reference: The Power-Load Margin Theory

In helping clients obtain their civil rights in a higher education setting, an occupational therapist may find it useful to select a framework as a perspective for advising students and assisting them in making the many decisions required of university students. Ensuring that an appropriate frame of reference is used in the assessment and treatment of clients is an important component of the occupational therapy process. Several frames of reference are available for examining actions and experiences and helping to establish priorities (Reed, 1984). One such frame of reference is the power-load margin theory, introduced by McClusky (1971), which may be used to help students with disabilities examine their ability to meet the demands imposed by university experiences. The power-load margin theory comprises three components: load, power, and margin (Main, 1979; McClusky, 1971).

The load component of this frame of reference consists of the demands made on a person by two groups of variables: internal (self) and external (society). Internal load factors consist of the standards that the person sets for and imposes on himself or herself, including his or her specific characteristics, such as self-tolerance, goals, ideals, and values. External load factors are the usual requirements of fulfilling occupational roles, such as those related to family, work, and civic responsibilities.

The power component of the formula is the resources that a person can recruit to cope with the load. As with the load component, the power component has two sets of interacting variables: internal factors (i.e., acquired skills and personal characteristics, such as resiliency, coping skills, determination, willpower, and drive) and external factors (i.e., resources such as social contacts and economic wealth).

The margin component of the formula is the relation between the load and the power, that is, what is left...
after the person’s load is subtracted from his or her power. Specifically, the margin is the power available to a person over and beyond that required to handle the person’s specific load. The power-load margin frame of reference posits that one must maintain a surplus, or margin, of power to develop and learn. It provides a method with which to examine a person’s strengths and weaknesses; to identify an imbalance; and to help identify ways of decreasing load, increasing power, or both to obtain a greater margin.

If a person has a smooth and even-paced life with only rare emergencies or crises, then he or she may maintain emotional and physical equilibrium without any residual margin. However, if the level of power is not equal to or greater than the level of the load, the lack of a margin can affect that person’s emotional, mental, and physical state. Not having a margin when unexpected events occur affects a person’s mental health because of the stress that results. It can also affect one’s physical state. For example, university students often deal with excessive loads by taking time from sleeping and eating, which affects their health. It is especially important that this not occur with a student with a disability who may already be susceptible to medical problems. When the margin is negative, a person has far less control over any situation in which he or she must exercise responsibility, such as performing in classes, at work, at home, and in a relationship. Unexpected demands or crises occur in almost everyone’s life; however, the nature of life in a university is that unexpected demands often occur that can lead to crises. To perform well during a crisis, a person must have a reserve, or margin, to respond to the crisis in a positive, proactive way. Too often, especially with university students who may be fulfilling numerous occupational roles, such as working, maintaining relationships, maintaining an apartment, and raising children, loads are assumed to such a degree that little is left, and the margin may be negative.

A margin allows a person to invest in projects and experiences, especially those experiences that require adaptation, and can lead to self-actualization, as defined by Maslow (1962). If the mind and body are totally occupied with trying to break even, there is no power left for mature learning experiences, integration of knowledge and experiences, or adaptation (as described by Ayres [1985]). Because the margin component is the reserve that remains when the load is subtracted from the power, it may be enhanced by reducing the load, increasing the power, or both. When the load continually equals or exceeds power and if both are fixed or beyond the person’s control, then the person becomes highly vulnerable and susceptible to breakdown, without appropriate intervention.

Occupational therapists can use the ADA as a resource to help university students with disabilities increase their margin by decreasing their load and increasing their power. In the following case study, the ADA is used as part of the student’s power component.

**Client History**

Our client is a 20-year-old man who had a bicycle accident in his senior year of high school, which resulted in his spinal cord being severed at T-2. Consistent with this injury, the client has complete use of his upper extremities but only minimal trunk control and no bowel or bladder control. As a result, he has difficulty transferring because he lacks functional abdominal muscles, and he requires some adaptive equipment and architectural alterations to be independent in his personal care. He exhibits decreased endurance secondary to respiratory insufficiency from decreased innervation of his intercostal muscles. Although he is independently mobile in a wheelchair, he requires a board to transfer from wheelchair to bed and from wheelchair to toilet because of his weak abdominal muscles and also a strap in his wheelchair to provide external trunk control.

Before the accident, the client had his own car; however, the car has low-slung bucket seats and insufficient space in the back seat for a wheelchair. Although he participated in driver’s education at the rehabilitation center and was trained by an occupational therapist to drive with hand controls, he does not yet have an automobile appropriate for his needs. Near the end of his rehabilitation, the occupational therapist prescribed a rigid frame wheelchair with pop-off wheels so that the client could transfer himself and be able to place his wheelchair in a car and drive. The occupational therapist also prescribed a door strap and a handle to close his car door, because he cannot reach over the car seat to close the door. He hopes to someday be able to purchase a car and obtain help from vocational rehabilitation to have controls installed.

The occupational therapist conducted an assessment in the rehabilitation facility, in the client’s home, and in the community to determine what would be needed for the client to function at maximum independence. To be independent in personal care, the client requires a bathroom with a roll-in shower (which is preferable) or a standard tub with a transfer bench. For safety, he requires shower grab bars and, of course, regardless of the type of bath arrangement selected, he requires a hand-held shower head. Hooks for towels and garments must be within reach when he is in the shower, and a shower caddy or shelf is needed to hold bathing needs, such as shampoo. He must have a catheter shelf as well, on which to store his catheter supplies. The bathroom door must open out from the bathroom (as opposed to in). The occupational therapist recommended that all storage areas be covered with curtains or sliding or accordion doors. Because he cannot lean to the side and maintain
control of his balance, the client requires an extended time to perform his bowel functions and a raised toilet in order to transfer from his wheelchair to the toilet. Toilet tissue must be conveniently placed because of his poor trunk control. Furthermore, storage areas in the bathroom and bedroom need to be accessible.

When our client was in the third grade, he was diagnosed as having a learning disability, specifically, he exhibited great difficulty in reading and writing. For 2 years he received occupational therapy for his perceptual problems. However, his mathematical skills were excellent. At age 7 years he began playing the piano by ear and plays well. In high school he learned to be proficient in using a computer and had been an excellent basketball player. Because of his good math and computer skills, the client wants to pursue a career in electrical engineering. He has applied to several universities that offer electrical engineering as a major, but none is within commuting distance from his home.

Our client has been living at home with his parents and two younger sisters. His parents can pay half of his college expenses, so he will need a loan or a scholarship for the other half. He also plans to obtain a job as a student worker for 10 hr per week to pay for his personal needs.

Before his accident, he had established a personal sense of identity as an excellent basketball player and as a B student, despite his learning disability. Since his accident, his sense of worth as a human being has diminished. He missed his senior year with his friends because of the accident and was graduated a year later. His high school girlfriend left for college a year before he did and now has other interests. He has been experiencing an identity crisis with his self-image and sexuality since the accident. He continues to feel a sense of loss because of his failed romantic relationship as well as his inability to play basketball.

The client was admitted to one of the universities to which he applied. Realizing that he will need assistance to identify necessary accommodations in the university he has selected, our client's occupational therapist, at the family's request, provided a list of three occupational therapists in the university area. These therapists are knowledgeable about the ADA and are qualified to assess the university environment to determine which accommodations, if any, will be necessary in the residence hall, classroom, transportation services, public accommodations provided by the university, public services, and employment. Soon after being accepted to the university, the client selected one of the occupational therapists to whom he had been referred and traveled to that city to obtain assistance in planning for his freshman year. As with everything in their lives, persons with disabilities are less able to act spontaneously because of constraints imposed by the environment, and many activities, such as going to a university, must be planned out in greater detail to have sufficient time to remove obstacles proactively.

Using the ADA for Empowerment in Higher Education

The margin that may be necessary for a student with a disability to have a successful educational experience in college depends on how well the university attended complies with the requirements of the ADA. The environment within a university includes classrooms, residence halls, recreational facilities, and dining services, which are only a few areas within a university that contribute to the external load of someone with a disability. The extent to which those load factors can be offset by the external power factors provided by the ADA will often determine whether or not a university student with a disability will have a margin to apply toward learning. The ADA can provide empowerment to a student with a disability by reducing the external load factors. In the subsequent details provided, use of the ADA to empower a university student is illustrated.

Our client applied to several universities with electrical engineering departments. He took the Scholastic Aptitude Test (SAT) under alternative conditions and received a score of 1050 (out of a possible 1600). Unfortunately, for some students with a disability, the Educational Testing Service has a policy of identifying those students who require accommodations to those universities receiving the scores. At the time of this writing, therefore, a student who requires accommodations to take the test can be identified as being disabled by the admissions personnel who see his SAT score, although the specific disability is not indicated on the score report. Identification prior to admission places a greater load on students with a disability because they have additional anxiety about whether university personnel will discriminate; furthermore, the potential for unwitting discrimination is present once persons in positions to make decisions are aware of an applicant's disability.

Load Factors

One of the goals of occupational therapy was that the client learn a process to identify areas that might present difficulties and to problem solve proactively in order to decrease the load and maintain a margin. Therefore, the evaluation was conducted in conjunction with the client. Using the power-load margin frame of reference, the occupational therapist helped the client identify internal and external conditions that added to his load. Together, he and his occupational therapist determined that his external load consisted of, among other things, working 10 hr a week to pay for his personal needs, requiring extra time and energy to perform his activities of daily living, taking tests under difficult or impossible conditions, mak-

452

May 1992, Volume 46, Number 5
ing passing grades to remain in the university, being transported to and from classes and social events, having areas of the residence hall inaccessible, obtaining books that are inaccessible in the library stacks, and obtaining financial assistance to pay for part of his tuition and room and board. He also needed to adjust emotionally to being in a university. He has bowel and bladder problems and is on an intermittent catheter program and needs access to a bathroom at regular 4- to 6-hr intervals. Because of decreased sensation, he has potential for his skin breaking down and must be on an up-down schedule (i.e., 4 hr in his wheelchair, 1 hr lying down). Therefore, he requires access to a bed in the vicinity of his classrooms. The times of his classes must be carefully scheduled so as not to impinge on those times. Not knowing anyone at the university also imposes an additional load of developing relationships. Another potential load factor is difficulties secondary to equipment repair or replacement or unexpected health care costs (perhaps as a result of such things as skin breakdown or bladder infections). An unexpected change in health, which is always a possibility with a student with a sensory deficit in the lower trunk and extremities and bowel and bladder dysfunction, can increase the load of a student and remove the margin for educational success in the university. As with all students who experience unexpected health problems, as health returns, assignments can be prepared and tests taken at another time or withdrawal may be in order temporarily.

Among the factors included in his internal load were his desire to make the dean's list, his impatience with people who stared at him, his continued sense of loss over basketball and his girlfriend, feeling lonely due to being away from his family and not having no friends, decreased self-image, and a sense of being different.

Power Factors

Next, the components of his power were determined. Several sources of internal power were his musical ability, his academic strength in mathematics and computers, his having learned to overcome the stigma and disadvantages of having learning disabilities, and his determination to succeed. Among the external factors were the force of the Americans With Disabilities Act of 1990, the Office of Disabled Students at the university, financial aid, his faculty advisor, and his occupational therapist and other rehabilitation specialists (i.e., rehabilitation counselor, physical therapists, and social worker) to whom he had access.

The client's power component can be enhanced through implementation of the ADA in the following ways: (a) allowing him employment for which he is qualified, (b) providing efficient transportation to and from his classrooms and dormitory and other areas of the university, (c) increasing accessibility both into and within his dormitory, (d) having his residence (i.e., his room) barrier free, (e) allowing him access to recreational facilities, (f) obtaining learning resources and accommodations applicable to his learning disability, (g) becoming knowledgeable about the ADA, and (h) using a frame of reference to help him monitor the level of his margin. Several of these are briefly discussed below.

Table 1 summarizes both the internal and external load and power factors of the client. The table provides a visual guide that can be used by the occupational therapist to demonstrate how the ADA can be used to provide external power factors, which outweigh external load factors. By seeking and obtaining the university's compliance with the ADA, the client and his or her occupational therapist reduce the external load (by eliminating many architectural barriers, for example) and increase external power. This reduction in load redistributes the client's physical, mental, and emotional energy sufficiently for him or her to have a margin. It is this margin that allows the client to become a successful university student. As one can envision from Table 1, the ADA can disempower the external load factors for the university student with a disability. The unloading of negative external factors through the university's compliance with the ADA can become an internal power factor for the student with a disability as well. For example, it can provide him or her

<table>
<thead>
<tr>
<th>Load Factor</th>
<th>External</th>
<th>Power Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Architectural Barriers</td>
<td>ADA Title III, Accommodations</td>
<td></td>
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<tr>
<td>Bathroom accessibility</td>
<td></td>
<td></td>
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<tr>
<td>Classroom/laboratory</td>
<td></td>
<td></td>
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<tr>
<td>Dining facilities</td>
<td></td>
<td></td>
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<tr>
<td>Library</td>
<td></td>
<td></td>
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<tr>
<td>Recreational/sports</td>
<td></td>
<td></td>
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<tr>
<td>Residence hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Class schedules/full credit hours</td>
<td>ADA Title III, Accommodations</td>
<td></td>
</tr>
<tr>
<td>3. Financial need</td>
<td>Financial Aid/occupational rehabilitation</td>
<td></td>
</tr>
<tr>
<td>4. Grade point average requirement</td>
<td>Learning resource center</td>
<td></td>
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<tr>
<td>5. Peer group nonacceptance</td>
<td>Disabled students' organization</td>
<td></td>
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<tr>
<td>6. Support system loss</td>
<td>Counseling center</td>
<td></td>
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<tr>
<td>7. Tests</td>
<td>ADA Title III, Accommodations</td>
<td></td>
</tr>
<tr>
<td>8. Time for daily routine</td>
<td>Flexibility in scheduling classes</td>
<td></td>
</tr>
<tr>
<td>9. Transportation</td>
<td>ADA Title II</td>
<td></td>
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<tr>
<td>10. Work 10 hr per week</td>
<td>ADA Title I</td>
<td></td>
</tr>
<tr>
<td>11. Precarious health status</td>
<td>Health Center/rehabilitation specialists</td>
<td></td>
</tr>
<tr>
<td>12. Lost to receive</td>
<td>Motivation/determination</td>
<td></td>
</tr>
<tr>
<td>13. Impatience with self</td>
<td>Ability to learn to cope</td>
<td></td>
</tr>
<tr>
<td>14. Loneliness</td>
<td>Willingness to make new friends</td>
<td></td>
</tr>
<tr>
<td>15. Health concerns</td>
<td>Educated in caring for self</td>
<td></td>
</tr>
<tr>
<td>16. Loss of self-esteem</td>
<td>Strategies learned in counseling and continuation of counseling</td>
<td></td>
</tr>
<tr>
<td>17. Skill in using power-load margin</td>
<td>Skill in using power-load margin</td>
<td></td>
</tr>
</tbody>
</table>

with greater confidence and help to increase his or her sense of worth, because compliance with the ADA can humanize a system.

The effect of internal and external load factors and the internal and external power factors vary for each person. The power-load margin formula would be even more beneficial with a scale to weigh load and power and, thus, to calculate the margin on a numerical scale.

The University’s Compliance With the ADA

There are many areas in the university, as pointed out by Bowman and Marzouk (in press), in which the ADA can be implemented to help a student obtain the same opportunity to succeed that other students have. Because of space limitations in this report, only employment, transportation, lodging accommodations, and academic and curriculum considerations are discussed below.

Employment

The client applied to the financial aid office to be a work-study student, requesting work 10 hr a week in the computer lab. The initial response from the administrator was that the client does not have sufficient experience in computers. It was also noted that a wheelchair cannot get into the office of the computer lab, nor can a person in a wheelchair maneuver from computer to computer to assist other students in the lab. The decision was that he was not qualified for that particular job. Our client asserted that he is qualified for the job and could perform all essential functions if reasonable accommodations were made, as required by the ADA. 

The occupational therapist visited the computer lab and determined that if the environment of the computer lab were restructured, the client would be able to perform the job. The surge protectors for the computers had been incorporated into power strips on the floor, but they could be removed and replaced with control panels under the monitor. This resulted in the facility being more accessible to someone in a wheelchair. The occupational therapist recommended that the room also be rearranged so that a wheelchair could maneuver between the rows of cubicles with computers—a reasonable accommodation because it does not impose undue hardship on the university [ADA, Title I, § 101(9) and (10)]. It was again pointed out by the administrator that our client cannot function in the office, where the telephone, software, and printer are kept. The office is a space 6-ft square, enclosed by a wall 30-in. high, with a swing door. After previous discussions failed to discourage the client, the administrator offered our client an opportunity to try out for the job in the computer lab; however the client was advised by the occupational therapist that under Title I of the ADA, such a tryout would be the equivalent of a preemployment exam, and unless all students hired in the lab are required to demonstrate their skills, it is unlawful for anyone to require him to do so [ADA, Title I, § 102(a) and (a)(6)]. Upon examination of the office, the occupational therapist found it to be cluttered and suggested that materials not necessary for the functioning of the computer lab (e.g., software catalogs, computer magazines) be stored elsewhere and that the swing door be altered to make it larger and swing out, which would allow greater maneuverability for someone in a wheelchair. Both alterations would be classified as reasonable accommodations, because they do not impose undue hardship on the university. In her report, the occupational therapist identified the essential functions of a computer lab assistant and pointed out (referring to the job description) that going from student to student and back to the computer office are not essential functions of the job itself [ADA, Title I, § 101(8)]. In addition, she pointed out that the university, as an employer with more than 25 employees, is required to make such reasonable accommodations under Title I of the ADA. Although the computer lab itself does not employ 25 assistants, the university as a whole does and is thus required to abide by the law by July 26, 1992.

Transportation

The client has applied for assistance to buy a car, but his application has not yet been approved. The university, which is a public entity, contracts for a fixed-route bus system (i.e., a system that operates along a prescribed route with fixed schedules) to operate on its greater campus area. Title II, Public Services and Transportation, requires that new buses ordered on or after August 26, 1990, be accessible to and usable by persons with a disability; however, none of the buses currently available on the route are wheelchair accessible. The university and its contracting agency agreed to provide paratransit services for the client and other disabled students who need these services. Getting to and from class on time is important to the client academically and also for his self-image, because he values promptness. In discussions with the personnel of the university and paratransit company, it was emphasized that according to the law, those services provided to disabled persons must be equal to the level of service provided to nondisabled persons [ADA, Title II, § 223(a)].

Lodging Accommodations

Under the ADA, places of lodging with more than five rooms must comply with the law. The occupational therapist visited the dormitory where the client wishes to live, which has been designated as a male dormitory for freshmen and sophomores. Because of the size of the rooms, two people cannot share the room if one requires a wheelchair, because there would not be sufficient room
for the wheelchair to maneuver. Removing the furniture for the other roommate increases the space available for the wheelchair to maneuver. Although the client would like a roommate, the residence officials agreed that a reasonable accommodation is for him to have a room by himself at the same cost of a double room. Additionally, the client requested that a roll-in shower be installed, because transferring requires too much time from his schedule. The university at first refused to make this architectural alteration, stating that it was an undue hardship. The occupational therapist pointed out that the client's poor trunk control makes transferring difficult, and he is less likely to have an accident in a roll-in shower. The university agreed to the accommodation. A handheld shower head and grab bars were added as well, and the sink was raised so that the client's wheelchair can be pushed under it. The toilet seat was raised, hooks were placed within reach, a shower caddy was added, a shelf for catheter supplies was built within reach, and the door to the bathroom was altered so that it opens out. Storage areas were covered with accordion doors.

It was learned that the piano in the dormitory's recreation room is on a stage, which requires one to go up three steps. Because the client wished to continue to pursue his playing as recreation, it was requested that the piano be placed on the lower level, rather than on the stage, or that a ramp be built to the stage. Because the piano is needed on the stage for various dormitory functions, a ramp was built to the stage. This accommodation is consistent with requirements of the ADA [Title III, § 302, (7)(I) and (L)].

Academic and Curriculum Accommodations

The degree plan for the engineering program requires four semesters of physical education. However, in examining the physical education classes available, we found no current classes appropriate for the client other than swimming, which would require that the dressing room be modified so that a wheelchair can be maneuvered. Under the ADA, Americans with disabilities are entitled to experiences equivalent to those of other students, including those events that occur in gymnasia and recreational facilities [see ADA, § 302, (7)(I) and (L)]. The client really wants to become involved again with sports, such as basketball. After negotiating the issue of what would be equivalent experiences, the physical education department agreed to institute a course in physical education for students in wheelchairs. The course offered in the first semester of college will be wheelchair basketball. Because an insufficient number of students were interested in such a course, wheelchair athletes from the community are invited to participate. Such an accommodation would be considered a reasonable accommodation to an academic program so that a person with a disability can complete a university's requirements.

Consistent with his documented learning disability, our client has difficulty listening to lectures and simultaneously taking notes. Written permission was obtained from individual faculty who will teach his courses for him to tape all of the lectures. The client's engineering program is full-time. Because of the many changes and adjustments he needs to make and the time required to protect his skin by lying down and to perform his self-catheter procedures, the engineering department in which he is enrolled granted him permission to take only 13 semester hours his first semester, as opposed to a full load of 18 semester hours.

Because of the continuing nature of the many barriers and obstacles with which the client will have to deal in the next 4 or 5 years at the university, the occupational therapist works with him to ensure that he develops and uses several strategies to monitor his internal and external load factors as well as his internal and external power factors. Specifically, the occupational therapist works with the client to ensure that he understands how to use the power-load-margin framework to help make decisions and how to use the framework in conjunction with the ADA to serve as his own advocate. The occupational therapist helps the client develop strategies to identify or locate resources within and outside the university to help him deal proactively with potential problems. One strategy is for the client to be provided with opportunities to role-play to develop appropriate assertiveness and skill in identifying areas of noncompliance and in seeking compliance with the ADA. Another strategy is to provide guidance as the client encounters situations, in which he requests accommodations to meet his specific needs. Ability to use the power-load margin frame of reference to increase one's margin can then become an internal power factor itself.

Conclusion

The nature of a university is such that it provides numerous services and performs numerous functions and, indeed, may be responsible for complying with more titles of the ADA than any other type of agency or business. The training of occupational therapists uniquely qualifies them to help implement the ADA. Knowledge of task and activity analysis, training in restructuring environments, and making or helping others to make adaptive equipment to accommodate inconveniences of a disability are only a small part of occupational therapists' professional knowledge base that can be used to assist students with disabilities to seek university compliance with the ADA. In providing treatment to any client, whether indirect or direct, the therapist's selection of a frame of reference for assessing and treating a client provides a focus for the occupational therapy process, which for maximal effectiveness examines the client within his or her environ-
This case report has presented one framework used by an occupational therapist with one student with disabilities to show how students with disabilities can obtain the same benefits provided by an institution of higher education as students without disabilities. A few examples have been provided to demonstrate the nature of reasonable accommodations that a university may be required to make to comply with the ADA. There are many others. In our example, one can see that an occupational therapist can help those within a university setting to identify internal and external load factors and internal and external power factors. After assessing these factors, the occupational therapist proceeds with intervention designed to reduce the external load, increase power, or to do both to increase the margin for successful performance within a university. The ADA becomes an external power factor by which the client, in conjunction with the occupational therapist, reduces the external load and increases the margin to ensure a successful educational experience.

Acknowledgments

We thank Sarah Bates, OTR, Jean Kalscheur, MS, OTR, and Kathryn Reed, PhD, FAOTA, OTR, for reading the prepublication version of this case report and for providing suggestions.

References
