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Teaching Self-Care Skills

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One of the first glimpses of personal independence comes when children start to participate in dressing and eating routines. When children learn to complete self-care routines, like using the toilet or getting dressed "all by themselves," there is often family celebration. For children and young adults with severe disabilities, the ability to manage personal care is also of paramount significance, even if there continues to be some reliance on others. A range of challenges, such as intellectual, physical, or behavioral disabilities, may slow, limit, or indefinitely postpone the development of basic adaptive skills. Sometimes lowered environmental expectations or poor instruction contribute to a lack of competence in self-care skills. Self-care skills can be more difficult to teach when students are older because of

privacy concerns, social expectations, and competition with other learning objectives. Still, learning to be independent, or simply less dependent, in the basic daily routines is a priority for all individuals with severe disabilities whether children or adults. There is clear evidence that, with instruction, students with disabilities can make progress in self-care skills and learn to demonstrate some level of independence from parents and other support providers. This chapter builds on Chapters 4 through 6, but more specifically describes proven and socially acceptable methods specific to assessing and teaching the basic tasks of maintaining personal hygiene—dressing, eating, toileting, and grooming.

Before we begin, we'd like to introduce three students: Adrian, a kindergartener with autism; Toby, a third grader with an intellectual disability; and Patrick, a young adult with cerebral palsy who attends high school. Within the chapter sections on dressing, mealtime, toileting, and grooming, we will share the related issues faced by these three students and their educational teams.

Adrian

Adrian is a five-year-old active kindergartner who has a love for computers and a diagnosis of autism. His early history of being a "failure-to-thrive" baby meant that he often refused to eat much and was overly picky with his foods through last year. Last summer, his parents enrolled him in an intensive feeding program that greatly improved the amount and variety of foods he now eats. Adrian uses a daily schedule to structure his day and has learned to follow lists of steps that guide him through activities. He now participates actively in kindergarten activities, spending more than half of the day there. Like some of his peers, he struggles with handwriting. His special education teacher made a video to help him learn to sit on the rug with his peers during circle in kindergarten; he has now learned this skill. He used to be anxious about changes in the daily schedule until his team began posting pictures of who will be there that day (e.g., the occupational therapist, the physical therapist, the speech language therapist) and what the lunch menu will be. Adrian checks this schedule several times a day, saying out loud who will be there and what is for lunch. He also eats lunch and attends library and P.E. with his classmates. Adrian spends part of each day in a resource classroom learning academic skills through a structured work procedure before using them in kindergarten. He is making progress in handwashing; following the kindergarten schedule; and using crayons and pencils to color, draw, and print. Toilet training is targeted for summer school.

Toby

Toby is a bright-eyed, active third grader. At nine years old, Toby is diagnosed with an intellectual disability that resulted from seizures early in his life. He also has a primary diagnosis of autism and speech and language impairment. This is Toby's third year in an elementary school, where he spends a lot of his day in a classroom with other children who have severe disabilities. Toby uses the cafeteria line with peers, but all special activities (P.E., art, and music) are taught separately from his peers. He is included with his peers without disabilities during recess, field trips, and assemblies. His weekly T'ai Chi classes include peers without disabilities as well. Toby independently uses an object schedule to guide his day. He rides a bike around the school for daily exercise and gets and eats his lunch with minimal assistance. He does not communicate vocally, but he is learning to choose tangible symbols to request preferred activities and to complete academic work using a structured work approach. He is making gradual progress toileting, washing his hands with sanitizer, and removing and hanging up his coat. Once a week, Toby walks with another classmate and a teacher to a local grocery store for community-based instruction. He has learned to walk to and from the store without sitting down on the way and to help push a cart. His mother now takes him shopping at the same store because she feels accepted there and the employees are accustomed to Toby. Toby will be moving in the summer and will attend another school in a different state. His educational team is working to make this transition smooth.

Patrick

Patrick is in his second year in a post–high school program located on a university campus. At age 20, Patrick is tall with long arms and a big interest in others his age. Due to his cerebral palsy, he uses a wheelchair and communicates through a laptop computer with PixWriter™ and Speaking Dynamically™ Pro. Patrick attends several college classes, has a job delivering the college newspaper, and loves sports. He uses an adapted spoon and bowl at mealtimes and is learning to use a microwave oven to prepare his lunch. Patrick is in the maintenance stage of learning for several self-care skills, including washing his hands, washing his face, and using a napkin. He lets his teachers know when he needs to use the toilet and does the transfer with assistance. His jacket hangs on a hook that he can reach and he is able to put his arms through the sleeves and flip the jacket over his head to get it on independently. His instructors support the maintenance of these skills by observing Patrick from a distance, providing him with natural opportunities to perform the skills, and using non-specific verbal prompts as necessary.

GENERAL TEACHING CONSIDERATIONS

This chapter is organized into five main sections: general teaching considerations and teaching the skills of toileting, eating, dressing, and grooming. In this first section, we briefly address basic practices for identifying what to teach across all skill areas. In the remaining sections, we address special considerations specific to toileting, eating and mealtimes, and dressing and grooming including (a) identifying what to teach, (b) planning how to teach, and (c) evaluating learning.

Identifying What to Teach

Self-care routines are part of all individuals' daily activities, and they have strong, life-long influences on health and positive self-image. Family members often designate the activities of daily living as priorities for their children. If not performed by the student, these routines must be completed by someone else or medically managed if the person is to remain healthy. Progress in self-care skills provides a sense of self-control and accomplishment for students with disabilities. The attainment of proficiency in basic self-care skills (even with some necessary accommodation) allows students to be more independent and to meet their own personal needs.

Starting during the adolescent years, appropriate dressing and grooming skills are often necessary for acceptance in a peer group. The accommodations that are allowed and available during the school years often change when students leave school. Young adults who lack a high degree of independence in their daily hygiene may be excluded from many community, work, and living environments as a result. All of these facts point to teaching basic self-care skills during the early years. Identifying what to teach is the first step.

Team Input and Consensus

If you were Toby's new teacher, how would you identify what he needed to learn? His team members (including, of course, his family) and his current individualized education program (IEP) are the logical places to start. If his IEP happens to be one that the current team did not develop but instead "inherited" from another team or school, then its goals and objectives may need to be revisited by the current team. Skill selection is based on an inventory of the student's daily environments to determine which self-care routines and skills are the most important for the student to master and what the best schedule and settings are for instruction. The ecological inventory, described in Chapter 3, is the basic tool that teachers, in collaboration with family members, related service personnel, general educators, paraprofessionals, and the student, use to identify needed skills and to select teaching methods. The

collaborative team must pay close attention to the social, cultural, and age characteristics of the teaching procedures and the perspective of peers. The team makes many decisions about what to teach, how to teach, and how to improve teaching (Snell & Janney, 2005). A section of Toby's ecological inventory for self-care skills is shown in Figure 10–1.

Toby's teacher reviewed his ecological inventory with the team to identify priority skills. They discussed and then reached agreement on several self-care skills. Because toilet training had not been successful in the prior year and Toby would be moving at the end of the school year, the team was intent on achieving this skill, along with pulling his pants up and down (Figure 10–2), and making progress on handwashing. These skills met the team's criteria for being high-priority skills (bottom of Figure 10–1).

Teachers. Special educators typically take the lead contacting parents and other team members to collaborate with them on the student's self-care priorities and current performance, writing task analyses, and measuring and keeping records of student progress on IEP objectives. Special education teachers also play a dominant role in providing training and oversight of the paraprofessionals who help implement self-care instruction. General education teachers must be involved as core members, too, because (a) their classroom activities and teaching schedule provide the context for assessment and teaching, and (b) classmates may be included as informal or formal models for engaging in self-care routines.

Family Members. Family members can give the team perspectives that professional members typically do not have, especially in the self-care domain. Involvement of the family or other support providers in instructional plans can encourage the student's use of the self-care routines where they are especially needed—in the home and the community—and thus facilitate skill generalization from the school to the home environment. Listening to the family as valued team members gives others on the team an opportunity to learn about cultural preferences that the family may have, methods that have worked or failed, and difficulties that the family has experienced. Skills selected for teaching should meet *culturally appropriate criteria* (i.e., skills that family members value that are related to heritage, religious practices, and beliefs). These family preferences may influence the selection and performance of some self-care skills, particularly dressing and diet.

Adrian's parents were particularly concerned about his limited food choices. In preschool, he would eat only a narrow range of foods that his mother prepared or bought (e.g., Chicken McNuggets®); he refused to eat the snacks or lunches served at school. When the team understood the extent of the problem and its potential impact on his health, they identified an intensive feeding program at an area university outpatient clinic that he could attend to expand his food options. After two weeks at the clinic during the summer, Adrian made significant progress. Teachers followed the clinic's suggestions for expanding the foods that he would eat at school. By November, he was eating school lunches.

Related Support Providers. When self-care skills are a priority, related services professionals make essential contributions for many students. Occupational therapists (OTs) have expertise in the activities of daily living and the fine motor movements required. OTs also can provide helpful assessment and input when students exhibit increased sensitivity to tactile or oral stimuli. Physical therapists (PTs) are sources of knowledge on adaptive equipment and positioning, which both influence skill performance. Speech and language therapists (SLTs) have expertise in oral musculature that may be useful in the evaluation of eating and oral hygiene activities. School nurses may confer with families or directly assess nutrition, bowel and bladder characteristics, and health concerns (e.g., seizure disorders, urinary tract infections, sensory limitations); they also may consult with the student's physician.

FIGURE 10–1
Dressing and Toileting Sections of Toby's Environmental Inventory

Student: Toby
Environment: School
Date: October 2014
Informants: Mother, teacher, teaching assistant
Methods: Interview and observation

Directions: First, interview informants on the student's current skills in the domain and various environments. Then observe student, work with the team to target priority skills, and assess them against the criteria.

Domain: Self Management Environment: School	**Performance Level**			**Component Skills**					**Comments**
Subenvironment/Activity	Assist on most steps	Assist on some steps	Independent	Initiates	Has related social skill	Makes choices	Terminates	Communicates	
Enter classroom									
Enters			X	X					Often with others
Takes off jacket		X					X		Accepts help from peer (Caitlin)
Hangs up jacket	X						X		Mom: This would be a useful skill.
Greets peers/adults	X								Smiles when greeted by some; does not initiate greeting
Bathroom									
Toilets	X						X		Parents: We really want to target this skill.
Pulls up pants		X					X		Parents: Would help if he could do this completely
Washes hands	X					X	X		Chooses hand sanitizer instead of soap
Brushes teeth (after lunch)	X					X	X		Hand-over-hand assistance; chooses brush and toothpaste Parents: Worried about cavities

Criteria Ratings on Target Skills

Criteria	Activity				Y = Yes N = No
	Takes jacket off and hangs it up	Toilets	Washes hands	Brushes teeth	Greets
Does the objective reflect the student's chronological age, culture, and preferences?	Y	Y	Y	Y	Y
Is the skill one that the student needs now and in the future across settings?	Y	Y	Y	Y	Y
Will this skill increase the student's independence?	Y	Y	Y	Y	Y
Do team members have consensus on the value of this skill?	Y	Y	Y	Y	Y

FIGURE 10–2
When Toby hooks his thumbs inside his waistband, he successfully pushes down and pulls up his pants.

(a)

(b)

Photos: Martha Snell

Most teams agree that related support services are best provided within the context of an integrated, transdisciplinary model. Transdisciplinary services mean that decision-making and teaching roles are shared across a variety of relevant team members, instead of having just one team member (e.g., speech therapist) take on these roles. An integrated approach supports the assessment and implementation of therapy during natural self-care opportunities throughout the day (Cloninger, 2004). The integrated therapy model (a) has been shown to be effective for student learning, (b) may facilitate better skill generalization, and (c) is preferred by teachers and related services staff (Paul-Brown & Caperton, 2001; Scott, McWilliam, & Mayhew, 1999).

Patrick's OT, PT, and family work together to determine the best way for him to use the restroom within community environments, including his job site, the football stadium, and the two restaurants on campus that he frequents. They have advised building owners of ways to modify the bathrooms so that Patrick and other wheelchair users can access the toilets and sinks.

Paraprofessionals. Paraprofessionals, also referred to as teaching assistants, are crucial members of the student's educational team. Their role as instructors has continued to increase. Students who are not independent in self-care routines require assistance during the day that often is provided by paraprofessionals. While paraprofessionals with instructional experience can contribute to student progress, problems can also result from relying too much on them for instruction. For example, some studies have found that (a) paraprofessionals often lack the skills needed to be effective instructors; (b) students may become too reliant on paraprofessionals; and (c) students may be separated from their peers, have fewer opportunities to make choices, and have reduced personal control (Giangreco, Edelman, Luiselli, & MacFarland, 1997; Giangreco, Suter, & Doyle, 2010). These difficulties are perhaps more likely when self-care skills are being taught than when academic, communication, or social skills are being taught because so many self-care skills must be taught in private. Thus, paraprofessionals are less easily supervised. There is agreement that the use of several team practices can reduce these problems (Giangreco et al., 2010). First, paraprofessionals need training in order to be effective instructors, including in such areas as general instructional principles, how to teach and support specific students, how to work on the team, and confidentiality (Doyle, 2008). Second, paraprofessionals can benefit from learning to respect students' preferences and to maximize students' personal control during self-care routines. This means teaching self-care routines while being mindful of the individual student rather than "doing" self-care for the student. Improving paraprofessionals' involvement as team members allows them to contribute to program development, may improve their motivation for using teaching plans, and can provide information that is meaningful for team decisions (Doyle, 2008; Giangreco et al., 2010; Riggs, 2004). Finally, paraprofessionals

need and deserve regular supervision and feedback from teachers on their work with students; because self-care skill instruction does not take place in the open classroom, observation times must be arranged. Sometimes, as a supplement to less frequent direct supervision, teachers can rotate their schedules so that they cycle through the schedules of their teaching assistants; this practice allows teachers to get another perspective on the teaching assistant's work, but does not create the scheduling difficulties caused by direct instruction.

Criteria for Selecting Self-Care Skills

Like all other domains of learning, the self-care skills that the team selects as IEP objectives for students must meet five criteria. Targeted self-care skills should be (a) judged as functional for a student; (b) valued by the team; (c) suited to the teaching setting; (d) appropriate for the student's chronological age, peer standards, and culture; and (e) possible to acquire within a year.

Select Self-Help Skills That Are Functional for the Student. It is important that the assessment process (see Chapter 4) identifies those skills that a student needs. For example, the scope and sequence charts in the Syracuse Curriculum break down self-care skills by typical age and location of performance, with shaded sections of the curriculum listing skills performed during non-school hours (Ford, Schnorr, Meyer, Davern, Black, & Dempsey, 1989, pp. 324–340); this organizational approach helps pinpoint relevant self-care skill clusters. (The charts for hygiene and toileting are shown in Figure 10–3.) *Needed skills* are further defined through an ecological inventory as being important for a student to learn now or soon (see Figure 10–1). If too many skills are identified by the team as being needed, then team members must work together to prioritize them by necessity, asking a series of questions about each skill under consideration and then selecting those ranked more highly. Questions can include the following: Is this skill needed now? Will this skill be needed in the future? Can this skill be used across environments and activities? Will having this skill contribute to independence? Will this skill contribute to acceptance by peers? Will the absence of this skill contribute to being less accepted by peers? Is this a skill that the family rates as a top priority? Does this skill meet a medical need? Does the student have a positive attitude toward learning this skill?

> *Adrian's team discussed and together completed a set of five questions on self-care skills that they thought would be functional to teach at school. His profile gave the team confidence that these skills were crucial.*

Select Self-Help Skills That Are Valued by the Team. The self-care priorities that are written into a student's IEP are those that are valued by all members, including the family; team members agree that the student would benefit from learning a particular skill over another. Anderson and his colleagues developed a self-help skills inventory that provides a useful structure for teams to survey students' current performance of self-care skills (Anderson, Jablonski, Thomeer, & Knapp, 2007). A version of this inventory was used by Adrian's team (see Figure 10–4).

Select Self-Help Skills That Are Suited to the Teaching Setting. Teams should select skills that are *suited to the teaching setting* so that there will be adequate opportunities for instruction. Sometimes teaching opportunities can be expanded, or created, so that teaching is more frequent and is integrated into ongoing routines. For example, Sewell and her colleagues taught preschoolers to dress and undress in the context of natural opportunities such as putting on and taking off smocks for painting, jackets for recess and arrival, and dress-up clothes at centers time (Sewell, Collins, Hemmeter, & Schuster, 1998). Dressing, showering, and hair care, if priority skills, can be taught in middle or high school following P.E. Certain self-care skills,

FIGURE 10–3
Scope and Sequence for the Self-Management Home/Living Goal Area, Section on Hygiene and Toileting

Goal Areas	Kindergarten (Age 5)	Elementary School		Middle School (Ages 12–14)	High School (Ages 15–18)	Transition (Ages 19–21)
		Primary Grades (Ages 6–8)	Intermediate Grades (Ages 9–11)			
Hygiene and toileting (Instruction during school hours)	Use private and public toilets Wash hands and face with reminders Blow nose and dispose of tissue with reminders	Use private and public toilets Wash hands and face: routine time (e.g., after toilet, before eating) Blow nose and dispose of tissue as needed	Use private and public toilets Wash hands and face: routine times and for specific activities (e.g., food preparation) Follow acceptable hygiene practices	Use private and public toilets Wash hands and face: routine times and for specific activities (e.g., food preparation) Follow acceptable hygiene practices	Use private and public toilets Wash hands and face: routine times and for specific activities (e.g., food preparation) Follow acceptable hygiene practices	Use private and public toilets Wash hands and face Follow acceptable hygiene practices
(Instruction during non-school hours)	Brush teeth Bathe Shampoo hair	Brush teeth Shower/bathe Shampoo hair	Brush and floss teeth Shower/bathe Shampoo hair Clean and clip nails	Manage menstrual care Brush and floss teeth Shower/bathe Shampoo hair Clean and clip nails Wear deodorant Shave	Manage menstrual care Brush and floss teeth Shower/bathe Shampoo hair Clean and clip nails Wear deodorant Shave	Manage menstrual care Brush and floss teeth Shower/bathe Shampoo hair Clean and clip nails Wear deodorant Shave

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such as toileting and brushing teeth, are best taught during the preschool years when natural teaching opportunities are easily arranged.

Select Self-Help Skills That Are Chronologically Age Appropriate. Self-care routines targeted for instruction, as well as the procedures for instruction and monitoring progress, should be age and culturally appropriate. Skills are *chronologically age appropriate* for a student if they are performed by others of the same age. The specific ways that skills are accomplished, as well as the materials and settings used, also can be influenced by a student's age. Using the flip-over-the-head method to put on a jacket might be appropriate for preschoolers but is less so for older students; thus, teams need to decide if an "age-bound" method should be selected temporarily or simply avoided. Whether a particular skill becomes a priority may also be determined by a student's chronological age. For example, *completely independent* toileting is not an appropriate goal for a preschool or kindergarten-aged child since typical children

FIGURE 10–4
Questions That Help Teams Identify Functional Skills to Be Taught

Identifying Functional Skills for Adrian to Learn Now	Coat on and off	Pants up and down	Blow Nose	Toileting	Brush Teeth
1. Does the absence of the skill prevent Adrian from fully participating in activities with peers or siblings (e.g., inability to swim in public because not toilet trained)?	YES	YES	YES	YES	NO
2. Does not doing the skill for Adrian underscore his weaknesses and lead to his being less accepted by peers (e.g., requires help in the bathroom)?	YES	YES	YES	YES	NO
3. Is the skill necessary or important for teaching another skill (e.g., pulling pants up and down is important for toilet training)?	YES	YES	NO	NO	YES
4. Is this a skill that must be performed independently in public (e.g., when Adrian becomes too old to accompany his mother into a public bathroom)?	YES	YES	YES	YES	NO
5. Is this a skill that, when absent, may create embarrassment for Adrian or his family?	YES	YES	YES	YES	YES
6. Is this a skill that, when absent, may result in noticeable messiness, unsanitary conditions, or create health concerns (e.g., not knowing how to blow nose)?	YES	YES	YES	YES	YES

(Figure used with permission from *Self-help skills for people with autism,* 2007; Woodbine House.)

of this age receive assistance from parents or siblings in public toilets, with soap and towel dispensers, and even with getting on and off the toilet and manipulating doors because of the height, size, and novelty of the equipment. However, when students in elementary and middle school are still dependent on others for toileting, eating, and grooming assistance, their differences may isolate them from their peers.

Select Self-Help Skills That Can Be Acquired in One Year. Predicting how long it will take for a student to learn a target skill relates both to the student's learning history and the student's current level of performance or stage of learning (see Chapter 5). Thus, to select skills that are *possible for a student to learn* within a year, the team will identify IEP objectives that build on the student's present level of academic and functional performance (PLAFP) and then adjust the criteria so that the objectives are feasible to attain before the next IEP is written.

Sometimes priority self-care skills are age appropriate but are too difficult for a student to learn, such as shoe tying for many younger elementary school students. In such cases, the team may choose a goal of *partial participation* (Baumgart et al., 1982) instead of total participation in an ordinary manner. Partial participation refers to the process of teaching the student to do as much of a task as he or she can independently, while getting support for some steps through adapted materials, automated devices, changed sequences, or personal assistance. Partial participation goals should take less time to master, but still address active participation. For example, wearing shoes with VELCRO® fasteners instead of shoe strings allows a student to learn part of the task (putting on and taking off his or her shoes) without the need to learn shoe tying. Occupational and physical therapists often play an important role in the design of adaptations for partial participation. Common variations in partial participation include the following:

- Modified or adapted materials (e.g., toothbrushes, combs, forks, and cups that are designed for easier gripping; VELCRO® fasteners in place of buttons, hooks, or snaps)

- Adaptive switches or automated appliances (e.g., hair dryers activated by a pressure switch; battery-powered toothbrushes that provide scrubbing action automatically)
- Changed sequences within an activity (e.g., allowing a student to put her bathing suit on under her clothes before going to a public pool; sitting on the toilet for balance and then scooting underwear down)
- Personal assistance (e.g., giving a student with limited hand movement an electric brush with toothpaste already applied and letting her do the lateral motion up front, while the teacher completes the molars)

Brown, Evans, Weed, and Owen (1987) point out that if a student is participating partially in a routine, those steps chosen for participation should provide the student with as much control over the routine as possible. For example, a student has more control over having her hair brushed if she can initiate the routine (e.g., ask sometime to brush her hair at the time she wants), and choose a preferred hairstyle (e.g., choose to have a pony tail, versus pig tails), than if she partially participates in combing her hair. When a team decides to use partial participation with a student on a given task, any adaptations should be individually designed. Adaptations should be "only as special as necessary" (Janney & Snell, 2004) and should meet the criteria of being age appropriate, non-stigmatizing, and practical (Ferguson & Baumgart, 1991). The team should take care that student participation is active and is meaningful to the function of the activity. As with all instructional strategies, ongoing evaluation of partial participation is needed to determine whether assistance can be faded and to ensure that modifications result in satisfactory outcomes. The goal is to get the task done while also empowering students.

SPECIAL CONSIDERATIONS FOR TOILETING

Learning to use the toilet is one of the most difficult self-care skills to teach because it requires a functional bladder (normal capacity, intact urethral sphincter, and mature nervous system), an awareness of internal stimuli (e.g., bladder fullness, bowel tension), and a lengthy sequence of related skills (e.g., pulling up pants, flushing toilet) that must be learned in part or in its entirety for the skills to be useful. Although it varies by culture, studies of large samples of children in western countries found that attainment of daytime continence ("always dry") increased with age: age two (44%) and age three (86%) (Bax, Hart, & Jenkins, 1990). In the United States and in Great Britain, the expectation is that "a child will begin toilet training at 12–18 months and will become clean and dry by the age of 3 years" (Harris, 2004, p. 773). But these norms for western cultures are later than those for some African, Iranian, and Bengali cultures, where babies may master daytime dryness by or even before a year old (Harris, 2004)! In western countries, boys tend to learn later (mean age 2.56 years) than girls (2.25 years) (Bloom, Seeley, Rathcey, & McGuire, 1993), while bowel control is typically mastered first for most children regardless of gender or age. Most children master daytime before nighttime control. This general pattern is also typically true for individuals with disabilities.

These facts, along with developmental sequences, can serve as general guides for teaching toileting to most students with disabilities. However, intellectual disability may delay learning and neurological involvement (from cerebral palsy, brain injury, seizures, paralysis) may make daytime and nighttime control more difficult to attain. In a review of the toilet-training literature, Harris (2004) reported two frequent reasons for incontinence: bladder capacity that was too small for a child's age and dysfunctional voiding (i.e., an interrupted flow of urine that results from overactive pelvic floor muscles). Medical research informs us that "normal acquisition" of toileting skills by ages three to four years can be expanded to age five and beyond for children with disabilities of these types. At the same time, incontinence can have a damaging effect

on the individual and lead to more personal stress and inconvenience in families (Macias, Roberts, Saylor, & Fussell, 2006). (See Chapter 8 for information on students who require specialized elimination procedures.)

If the student is ready for toilet training, instructional plans should be balanced with the student's age and teaching setting. Ideally, students are taught these skills during the preschool years or at home. Toilet training gets more problematic when students move into the upper elementary grades and beyond. Teams should emphasize toilet training at younger ages when schedules are more flexible and social stigma is less likely. However, when older students still lack bladder control, teachers will want to work closely with team members to explore solutions for training the student using systematic methods and perhaps a more intensive approach. On the practical side, both time and money are saved when students are independent or, at the very least, when they are regulated in their bowel and bladder elimination. In this section, we discuss the process for (a) identifying what toileting skills to teach, (b) planning how to teach them, and (c) monitoring learning progress.

Identify What to Teach

For students who have toileting priorities, teams are likely to select objectives for elimination and related skills (e.g., getting to the toilet, pants up and down, handwashing). Elimination objectives span from (a) bowel or bladder regulation (habit trained: student goes when taken and remains dry), to (b) self-initiated bowel/bladder, to (c) independent bowel/bladder. Objectives are selected based on elimination records and related skill performance data.

Record Keeping on Elimination

The first step in identifying what toileting skills to teach involves assessment. Team members need to determine if the student meets *three prerequisites* for toilet training: (a) a stable pattern of elimination, (b) daily one- to two-hour period of dryness, and (c) a chronological age of two years or older. These characteristics are interdependent and are related to the maturity of the central nervous system and the muscle sphincters involved in elimination. Generally, students who are ready for training have one bowel movement daily and urinate three to five times per day occurring within predictable time periods, but many will differ from this pattern. Bowel responses and some urination responses should occur within predictable daily time periods, not randomly.

> *Efforts to teach Toby over the past six years had not been successful. His parents were hopeful that he could learn, but they worried that his brain damage at infancy from seizures was the explanation for his lack of progress. Toby also has a history of learning skills "slowly but eventually" when systematic teaching methods are used. His team decided that they would work together to carry out an extended baseline on his elimination patterns to confirm whether he met the first and second prerequisites. The OT, SLT, teacher, teaching assistants, and practicum students all worked in tandem to collect data on his elimination every 30 minutes throughout the school day.*

A toileting record should be kept on a grid of days by time intervals. We recommend the use of 15- or 30-minute intervals. While these shorter intervals demand more staff time, they provide a more accurate picture of the student's elimination pattern. This information helps determine if students have prerequisites 1 and 2, and is crucial if a traditional toileting method is selected. Other considerations for the assessment of toileting include whether data will be collected across environments (e.g., at home, in the community, school environments), the length of the day (e.g., an interval of the school day, the whole school day, all waking hours), and who collects the data.

To determine the natural pattern of elimination, check the student at the end of each time interval and record dryness, urination, or bowel movement. Figure 10–5

FIGURE 10–5
One of Eight Daily Data Sheets Used to Track Adrian's Daily Bowel and Bladder Eliminations

Adrian was checked every 15 minutes and prompted to the toilet every hour.

Student: Adrian **Date:** 5/6/15 (Week 2 of baseline: 4/27–5/8)

Procedure: Dry-pants check every 15 minutes, prompt to the toilet every hour; he helps to change when wet, no comment

Key: U = Urination **B** = Bowel movement **N** = nothing

Time	**Dry-pants check** (dry or accident)	Student was **prompted** to the toilet (success or non-elimination).	Student **self-initiated** sitting on toilet (success or non-elimination).
8:30	(U) B N	U B (N)	U B N
8:45	U B (N)	U B N	U B N
9:00	U B (N)	U B N	U B N
9:15	U B (N)	U B N	U B N
9:30	U B (N)	(U) B N	U B N
9:45	U B (N)	U B N	U B N
10:00	U B (N)	U B N	U B N
10:15	(U) B N	U B N	U B N
10:30	U B (N)	U B (N)	U B N
10:45	U B (N)	U B N	U B N
11:00	(U) B N	U B N	U B N
11:15	U B (N)	U B N	U B N
11:30	U B (N)	U B (N)	U B N
11:45	U B (N)	U B N	U B N
12:00	U B (N)	U B N	U B N
12:15	U B (N)	U B N	U B N
12:30	(U) B N	U B (N)	U B N
12:45	U B (N)	U B N	U B N
1:00	U B (N)	U B N	U B N
1:15	U B (N)	U B N	U B N
1:30	(U) B N	U B (N)	U B N
1:45	U B (N)	U B N	U B N
2:00	U B (N)	U B N	U B N
2:15	U B (N)	U B N	U B N
2:30	(U) B N	U B (N)	U B N

(Figure used with permission from *Self-help skills for people with autism,* 2007; Woodbine House.)

shows the data sheet used to track Adrian's eliminations during the baseline phase and one day of baseline data gathered during the two weeks of the baseline phase; one sheet was completed daily and the team studied these daily elimination records to determine his pattern.

During baseline, Adrian was checked every 15 minutes and prompted to the toilet every hour. Adrian was dressed in underpants with disposable pull-up diaper over them, so he and the staff could feel any wetness, but his outer pants would remain dry. When wet, he was changed without comment, but cooperated by disposing of the wet pants in the appropriate location. When he was outside the resource room, dry-pants checks were made in the kindergarten room toilet. A look at eight days' of data indicated that Adrian seemed to be wet a lot when given the 15-minute dry-pants checks (approximately once every hour). He did not self-initiate. Five times over the eight days, he urinated in the toilet when taken and seemed pleased when he did. He showed displeasure with having wet pants. When at the toilet, he often self-initiated, pulling his pants up and down without physical prompts. Despite his rather frequent urination pattern, there were no medical reasons for not initiating toilet training and his participation in general education made toilet training very important. Thus, his team planned an individualized intensive program that they used during summer school when the class was small and there were no peers without disabilities in attendance.

Dry-pants checks are done in private unless the child is very young or the setting is isolated. The following steps can be used during the baseline phase and the intervention phase, as well as to help the team gather reliable elimination data:

1. Tell the student that you are going to check to see if he or she has dry pants.
2. Place the student's hand in yours and together gently check the outside and then the inside of the pants to assess their condition (Anderson et al., 2007, p. 131). With small children, it may be helpful to use the toddler-training diapers with wetness sensors (pictures on the front that disappear when the diaper is wet) in place of feeling the pants.
3. When the pants are wet, use a neutral tone of voice to indicate to the student that he or she is wet and record this performance. Immediately change the student, then return to the previous activity. Having dry pants ensures that adults don't confuse recent accidents with earlier accidents and it is healthier for the student.
4. If the student is dry, reinforce him or her for being dry and record the performance on the data sheet.

To discover whether reliable toileting patterns exist and what those patterns are, most researchers recommend that baseline charting continue for a minimum of 2 weeks, with a possible extension to 30 days, if necessary (Anderson et al., 2007; Baker & Brightman, 1997; Fredericks, Baldwin, Grove, & Moore, 1975; Giles & Wolf, 1966). The longer elimination record is important (a) when a pattern is not quickly identified, and (b) to determine specific toilet-training times if a traditional method is used. (The traditional method, explained later, relies on taking students to the toilet when their bladder is likely to be full, thus baseline data help identify those times.) This same record-keeping approach will be used initially to determine whether the student meets the prerequisites and finally to measure the student's elimination progress after toilet training begins. Record any eliminations in the toilet (e.g., U for urination and B for bowel movement) as correct (e.g., +U or +B), but indicate if the student was prompted or not (e.g., +U prompt, +B unprompted); record eliminations off the toilet as accidents (e.g., –U or –B) (see Figure 10–6 as an example of an elimination record over multiple days).

In the general education classroom, peers may become aware that a classmate is being assessed or toilet trained because of the frequency of removing the child to a nearby bathroom to check for dryness. If such issues arise, the team should handle them with care and perhaps as part of peer support efforts (Snell & Janney, 2005).

FIGURE 10–6
Toby's Elimination Record over a Seven-Day Intervention Phase Following Changes in His Toileting Program

Record in Pants or Toilet Column: U = Urination, **B** = Bowel movement, **N** = Nothing (dry).
Circle the code for any self-initiated toilet trips with U or without (N).

	Monday 5/11		Tuesday 5/12		Wednesday 5/13		Thursday 5/14		Friday 5/15		Monday 5/18		Tuesday 5/19	
Time	in Pants	**in Toilet**	in Pants	**in Toilet**	in Pants	**in Toilet**	in Pants	**in Toilet**	in Pants	**in Toilet**	in Pants	**in Toilet**	in Pants	**in Toilet**
8:30	Ⓤ	N	Ⓤ	N	N	N	N	N	Ⓤ	N	Ⓤ	N	N	N
9:00	N	N	N	N	N	N	N	N	N	N	N	N	N	N
9:30	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10:00	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10:30	N	N	N	N	N	N	N	N	N	N	N	N	N	N
11:00	N	N	N	N	N	N	N	N	N	N	N	N	N	N
11:30	U	N	N	N	N	N	N	N	N	N	N	N	N	N
12:00–1:00	Ⓤ	Ⓤ	N	(U,U)	N	Ⓤ	N	(UB)	N	Ⓤ	N	Ⓤ	N	(UB)
INTENSIVE TRAINING 12:00–1:00: Record all urinations. [5/18: If successful 12–1, then end training day.]														
1:30	N	N	N	N	N	N	N	N	N	N				
2:00	U	N	N	N	N	N	N	N	N	N				
2:30	N	N	N	N	N	N	N	N	N	N				

The team must be sensitive to the student's right to privacy when selecting the location for baseline assessment and training. We suggest that records be easily accessible by team members who will be recording information, but still be kept secure and private. (Never secure toileting records to the bathroom wall or in any place where others can see them.)

Task Analytic Assessment

Task analysis will guide assessment (see Chapters 4 and 5) and later instruction. Teams need to develop a task analysis that reflects day-to-day conditions and the sequence of toileting skills that are likely to be targeted for a student.

Developing the Task Analysis. Tasks analyses should be individually designed to suit the student (e.g., age, ability, disability, preference, stage of learning) and the natural performance of the skill in the locations that are most often used. The goal is to develop a task analysis that is generic enough to be used with the variety of toilets that a particular student uses during the training period. This will require some discussion and an examination of the toileting locations the student will use at school and possibly in the community and at home. It is a good idea to develop the task analysis with team members, try it out with the focus student, and revise it as needed. (Refer to Chapter 5 for procedures for writing task analyses.) As Patrick's case illustrates, the toileting components, instructional cues, and student behaviors listed in the task analysis must be individualized.

> *At home and at school, Patrick's parents and staff now use a one-person supported transfer, which involves Patrick being pulled to a standing position (he can bear weight), pivoted in place, having his pants lowered (by family/male staff member), and being lowered onto the toilet seat. Patrick is being taught this sequence and will use the grab bars for balance. School staff worked with the OT, PT, and family to modify their two-person transfer so that it can be safely executed by one person, making toileting at home and in job settings more manageable.*

In addition to the elimination goal, the team will want to target skills in the toileting routine, such as getting to the toilet, lowering pants, wiping, or flushing; thus, these skills need to be added to the task analysis. The task analysis should be written so that it suits the bathrooms that the student typically uses; however, if the home bathroom is very different from the school bathroom(s) and instruction starts at school, the task analysis should reflect the school bathroom. For some students, teams may decide to postpone instruction on wiping or going to and leaving the toilet and instead prompt them through these steps without the goal of independence; these steps can still be a part of the task analysis but are simply performed by the adult and recorded that way. Putting all of the steps, including any "teacher steps," on the task analysis data sheet helps keep staff consistent. Depending on the student's current level of performance, more difficult skills can be added to the task analysis after the student is successful with the basic steps; these later skills can include latching a stall door, undoing and redoing pants fasteners, wiping, and handwashing.

Other considerations include adaptations made in the order of the steps in the task or in the way that a task is performed. For example, with younger children, a better method of teaching wiping requires the child to stand up and then wipe rather than to remain seated, while older students will sit and may learn to use premoistened wipes for easier cleansing (Stokes, Cameron, Dorsey, & Fleming, 2004). In addition, if skirts or dresses are worn, the "pants up and down" sequence obviously must be changed. Some students with physical disabilities will be more independent if they sit or lean on the toilet to lower their pants. The architectural characteristics of the bathroom (e.g., narrow doorways, sink access) and any adaptive improvements (e.g., grab bars, toilet height) in the bathrooms at school or at home will influence the way that the task can be performed and thus the task analysis. Simple or major bathroom modifications can make it possible for some students to attain independence (Schwab, 2006). Another consideration is the position for toileting for boys. The most typical urination position for boys is to stand and face the toilet. However, initially, boys usually are taught to use the toilet while sitting; later, boys who have adequate motor control will be taught to urinate while standing.

Selecting Learning Goals. When a student has the prerequisite skills or seems close, the team will examine both the student's elimination data and the task analytic assessment to identify reasonable objectives for elimination and for the related toileting skills (e.g., pants up and down, handwashing). Elimination objectives (and related skill objectives) will build directly on the skills that the student demonstrates in the baseline phase. Student objectives will align with one of three levels of performance, each requiring increasing ability:

- *Regulated Toileting:* In regulated toileting, students learn to eliminate on a predictable schedule. These students acquire reliable patterns of bowel movements and urination and remain dry if someone else reminds them or assists them with going to the toilet at scheduled times. School staff can use a regular toileting schedule, as well as being alert to the student's signals that elimination is imminent and then prompt the student to use the toilet. Keeping a predictable schedule with fairly stable eating and drinking patterns, paired with reinforcement for correct toileting behavior, helps students maintain regulated toileting, once acquired. *Traditional methods* rely on toileting students at the time that they are likely to experience bowel or bladder tension (when the bowel or bladder is naturally full). These times are identified from elimination records.
- *Self-Initiated Toileting:* This level of toileting performance involves learning to determine the natural cues of bladder fullness (for bladder control) and pressure in the lower bowel (for bowel control) and to either request to toilet or simply to go to the toilet. During this stage, we want students to make a connection between these internal stimuli and the response of eliminating in the toilet. Noticing students' signals that elimination is imminent and prompting them to the toilet (or

requesting to go to the toilet), as well as giving positive feedback immediately upon elimination in the toilet, helps them make this connection. Once a student is sitting on the toilet, teachers may make regular checks and (depending on its appropriateness) listen or look for urination or defecation so that they can provide reinforcement with little delay. Whenever students signal a need to use the bathroom or simply initiate toileting on their own, staff must give enthusiastic praise and get them to a bathroom quickly with as little help as necessary.

- *Toileting Independence:* The final level of toileting performance is to attain generalized self-sufficiency. Independent students not only are aware of the need to toilet but also know how to manage clothing and have related cleanup skills (e.g., wiping, flushing, washing hands). Trainers will fade themselves out of the bathroom during routine toileting and shift the focus to skill generalization, fluency, and proficiency issues (e.g., speed, elimination of all accidents, social awareness), and routine performance.

Instruction on elimination and toileting skill objectives generally will be combined so that students are taught the targeted related skills at every toileting opportunity.

Identify Teaching Strategies

There are several approaches to teaching toileting: traditional, systematic schedule training, and intensive. The emphasis with all methods is on reinforcing students for eliminations in the toilet and for remaining clean and dry. The primary differences between traditional and intensive methods are toileting schedule and the intensity of training:

- *Traditional methods* rely on toileting students at the time that they are likely to experience bowel or bladder tension (when the bowel or bladder is naturally full). These times are identified from elimination records.
- *Systematic schedule training* involves the addition of one or more procedures associated with intensive methods (e.g., access to fluids, underpants not diapers, dry-pants checks) and increased regular toileting.
- *Intensive methods* require (a) access to fluids in order to create more frequent bladder tension; (b) dry-pants checks; (c) increased training time each day; (d) long periods in the bathroom; and (e) may include accident interruption, moisture-signaling devices, and request training. Consequences for accidents vary from neutral to negative.

Before describing these approaches, the team must address two issues, regardless of which approach they choose:

Diapers or Underpants. First, teams need to discuss whether diapers or underpants will be worn by the student during training. Clothing students in training pants or ordinary underwear rather than diapers is recommended because it can facilitate detection of accidents during baseline and training phases (Dunlap, Koegel, & Koegel, 1986). This approach also allows learners to experience the naturally unpleasant feedback from wet or soiled clothing that modern disposable diapers have virtually eliminated; these naturally occurring, uncomfortable consequences of accidents can contribute to faster learning. Wearing diapers may lead to substantially more urinary accidents and fewer successful voids even when taken to the toilet regularly (Tarbox, Williams, & Friman, 2004) because they are more difficult to pull down or remove than underpants. However, without diapers, students' toileting accidents can be noticed by peers and be stigmatizing, especially beyond the preschool years.

Teams (including family members) must decide the appropriateness of having students wear diapers; teams may make exceptions to the no-diapers guideline with older students to avoid noticeable accidents. Training pants with disposable diapers over them may allow the student both privacy and feedback, although removal for

toileting will likely require assistance. Anderson and colleagues (2005) recommend that when using more intensive methods, teachers and parents must "get rid of the diapers" (p. 137) and use underpants. Thus, it is best to remove diapers with intensive or isolated instruction or if training occurs at home during summer vacation. Teams may decide that wearing diapers in school, even when training is underway, is the appropriate choice.

Communication and Visual Cues. Second, teams need to use communication modes that the student understands (e.g., gestures, photos, picture symbols, signs, words) and augment their spoken communication with the student's modes (e.g., show/point to the picture symbol for a toilet whenever the word "toilet" is spoken). For scheduled trips to the toilet, it may be appropriate to start with the student's picture or word schedule. For some students, now–next visual cues (first toilet, then computer), social narratives or Social Stories™ about toileting, and success charts can be valuable accompaniments to the toileting approach that the team selects. Others have reported better success when students viewed short toileting videos before every toileting opportunity, coupled with systematic instruction, than when only systematic instruction was given (Keen, Brannigan, & Cuskelly, 2007).

Traditional Toilet-Training Methods

Traditional toilet training begins with taking a child to the toilet at regular intervals throughout the day or when the student demonstrates the need to toilet (e.g., grabbing their crotch, increased movement). Students are praised for elimination in the toilet and remaining clean and dry. While these simple steps are successful for most typical students when they meet the prerequisites, this approach may need to be adapted to increase its success when students have disabilities (Anderson, Jablonski, Thomeer, & Knapp, 2007; Baker & Brightman, 1997; Fredericks, Baldwin, Grove, & Moore, 1975; Linford, Hipsher, & Silikovitz, 1972; Schaefer & DiGeronimo, 1997):

1. Toileting times are selected based on the student's baseline elimination pattern. Identify all of the typical times when the student tended to eliminate on or off the toilet; this is likely to be two or three times during a full school day. Add other logical times, such as immediately upon arrival, following lunch, and before departure for home. The target times become the scheduled occasions when students are taken to the toilet. Some teams start with a few of the most likely target times and add more times with success.
2. When students are neither bladder nor bowel trained, continue the use of diapers and focus on bowel training first because it is easier to learn. Wet pants are changed in the bathroom without a fuss. When bladder training, training pants are better than diapers; however, the team needs to make that decision depending on the circumstances described previously.
3. Learn how the student signals the need to eliminate. Signals for bowel movements are more obvious (e.g., gets quiet, squats, strains, turns red in the face). Parents typically are very helpful in identifying these signals. Whenever these signals occur, even if it is not a scheduled time, take the student immediately to the bathroom urging speed and restraint ("Quick, let's go to the toilet!"), and then document these times on the record.
4. Establish a toileting schedule that includes the times identified in the baseline phase when elimination is most likely; follow it consistently. Adjust times only if the program is unsuccessful; make adjustments based on an analysis of the student's elimination pattern.
5. Use the regular toilet, with adaptations added only as necessary to (a) keep the student's feet flat on the floor or on a non-slip support, and (b) keep the student sitting securely (e.g., toilet seat inset). As in Patrick's case, specialized toilet chairs and support bars are sometimes needed, including toilet seat inserts if the child is

younger than age five and very small. If students are unstable while sitting, they will have trouble relaxing the sphincters that control elimination. When needed, team members should pool their talents to generate appropriate adaptations that are non-stigmatizing and practical.

6. Keep the toileting time positive but not distracting. Any rewarding activities beyond praise or brief reinforcers, such as stickers or food (if edibles are the only effective reinforcers), should take place after toileting and out of the bathroom. Unneeded conversation (e.g., social talk, singing, rhymes) is kept to a minimum, although talking about the toileting task in ways suited to the student is appropriate.
7. Take the student to the toilet according to a consistent schedule (and whenever a need is signaled), approximately (a) 15 minutes before the scheduled time for bowel training, and (b) 5 to 10 minutes before the scheduled time(s) for bladder training. The specific length of time for sitting on the toilet should be determined on the basis of individual student characteristics. The student should be placed on the toilet long enough to have the opportunity to eliminate, but not for so long that toileting becomes aversive. Of course, the student should never be left unsupervised.
8. Reinforce the student when elimination occurs. If elimination does not occur, return the student to the classroom for a 5- to 10-minute interval and then return to the toilet. Continue the alternating intervals until elimination occurs. Record any extra toileting times and the outcomes.
9. Continue elimination records so that the team can evaluate progress and adjust toileting times as needed.
10. Consider extending goals as the student is successful (e.g., add more times or more related skills, shift to self-initiation and then independence).

Systematic Schedule Training

When more traditional approaches are insufficient, teachers may consider a combination of several procedures: (a) increased reinforcement for successes, (b) more frequent scheduled toileting with underpants instead of diapers, (c) dry-pants checks, (d) natural consequences for accidents, (e) free access to fluids, (f) use of moisture-signaling devices, or (g) transfer of stimulus control. Teams also might simply begin by adding the first three procedures (a, b, and c) to a traditional method. Others recommend that teams make the traditional approach more systematic by scheduling toileting opportunities based on a student's elimination patterns (part of the traditional approach), getting rid of diapers, using dry-pants checks, and lengthening the time gradually between scheduled toileting opportunities (Anderson et al., 2007).

Regular Toileting. Without giving extra fluids, the number of times students are taken to the toilet can be increased using a regular interval across the day (e.g., every hour, every half hour). This approach may help when a student's baseline did not yield reliable periods of dryness over time and when the student is not showing progress with fewer target times. When the team decides to increase toileting trips, this means less time for instruction in other areas and plays havoc with time scheduled in general education classrooms. If regular toileting is the only change made to a traditional program that is not working, it may be inadequate.

Regular Toileting Without Diapers for Older Learners. As previously discussed, removal of diapers and replacement with training pants is recommended for younger students when intensive and even traditional methods are used. While there is limited testing for this approach to regular toileting without diapers for adults, its simplicity and limited success make it worth describing. It is likely that regular toileting without diapers is more appropriate for older students who have learned the basic toileting routine but continue to have accidents and wear diapers as a matter of convenience.

Tarbox and colleagues (2004) tested this simple method with a 29-year-old adult with developmental disabilities who routinely wore adult diapers to his work setting. Two conditions were compared within a withdrawal design. First, the man's diaper was removed upon arrival at work and he was asked to use the toilet every 30 minutes, which he did independently and received praise for successful voiding. After six days, the man used adult diapers while at work and was still asked to use the toilet every 30 minutes. These two treatments (no diaper and diaper) were alternated several times for four to seven days each. Data were gathered on his daily occurrences of urinary accidents and his successful voids in the toilet. The findings showed that when the man did not wear a diaper, his urinary accidents decreased an average of 0.1 per day and his successful voids increased 1.8 per day; but when he wore a diaper, his accidents increased an average of 1.5 per day and his successful voids decreased an average of 0.5 per day. The findings suggest that wearing a diaper may increase accidents and that negative reinforcement is involved: Disposable diapers decrease the unpleasant sensation of wetness, others' awareness of accidents, and the need to use the toilet. Additionally, the extra social reinforcement for successful voiding may have helped increase his use of the toilet.

This approach is fairly straightforward, but it requires more supervision than simply having adults or students wear diapers. Additional replication of these findings will strengthen it as an option for reducing adult incontinence.

Dry-Pants Checks and Reinforcement. Somewhat like what was done during the baseline phase, dry-pants checks consist of assessing whether a student is wet or dry; however, during training, appropriate feedback (reinforcement for continence or signaling a need to change if wet) is provided. During the first two levels of toileting performance (regulation and self-initiation), pants checks serve to increase student awareness of being wet or dry. When using this approach, we recommend several changes from its original use (Azrin & Foxx, 1971; Foxx & Azrin, 1973). First, except for very young students or when training is conducted at home or in isolation, pants checks should be done in private, ideally in the bathroom. Before checking, teachers should approach the student and, using a tone that is non-judgmental and a communication form that the student will understand (gestures, a picture, words), say "We are going to check to see if you have dry pants" (Anderson et al., 2007, p. 141). Place the student's hand in yours and together gently check the outside then the inside of the pants to assess their condition. If the student is dry, provide enthusiastic praise acknowledging the dry pants in simple language that he or she understands. A choice of a short preferred activity or a tangible item may be given as well. When students are wet or soiled, Anderson and colleagues recommend assisting the student to feel their pants again and saying in a firm, but non-punitive voice, "You have wet pants." Using a neutral teacher–student interaction (neither punishing nor reinforcing) and no social interaction, immediately change students who are wet or soiled and return them to their prior activity. Teachers will record wetness or dryness after every check by the date and time. If a student is wet for most dry-pants checks, then the checking time needs to be more frequent (Anderson et al., 2007).

First, his team got rid of the diapers and Adrian was dressed with regular pants and underpants (with a large supply of dry clothes to change into after accidents). While this approach meant that his accidents would become more apparent, the team viewed this as less of a problem during summer school because none of his peers without disabilities would be in attendance. Adrian tended to urinate every hour, so he was prompted to the toilet five minutes before the hour using his visual schedule (remove the toilet symbol from the schedule, take it to the bathroom door, and match/affix the toilet symbol to the symbol on the door). Once there, the teacher drew his attention to a within-task sequence of four pictures on the wall (pants down, sit, pee, pants up) as she prompted him with the symbol to carry out each step. Toilet flushing was added later. Handwashing was at the sink located outside the toilet where there was another set of six pictures (water on, wet hands,

soap, wet hands, water off, dry hands) used to prompt him through each step. Team members added to the bottom of his picture schedule several toilet symbols for him to get (or be prompted to get) whenever he self-initiated or showed signs of needing to eliminate.

Dry-pants checks with several added steps continued during this teaching program: (a) Staff prompted Adrian to feel his pants and asked him, "Are you dry?"; (b) if his pants were dry, staff smiled and said enthusiastically, "You are dry!" and praised him; (c) if his pants were wet, staff said, without smiling, "You are wet, you need to pee in the toilet" and pointed and took him there and then changed his pants. Soon during dry-pants checks, they could just ask him: "Are you dry?" He would shake his head and was accurate after several days of teaching. During summer school, staff intentionally used whatever bathroom in the school they were closest to in order to encourage generalization; he had no difficulty using different bathrooms. Every bathroom had the picture cues posted along with a supply of clean clothes and a disposal bag. Instruction was started on the first day of summer school and by the end of the four weeks Adrian eliminated 80% of the time when taken to the bathroom, reduced his accidents from three to five times a day to none, and had self-initiated several times during his last two weeks His parents began using the same procedures at home during the second week of summer school with similar success.

As was done by Adrian's team, teams need to individualize their strategies: the specific length of time between dry-pants checks, their communication mode and vocabulary, the feedback given for wetness and dryness, and the reinforcement for continence. Feedback should always be directed toward increasing student awareness of being dry or wet; when wet, pants should be changed with little comment (simply, "You're wet," said in a neutral tone). Obviously, dry-pants checks are less accurate with disposable diapers than with training pants.

Consequences for Accidents. When students are learning elimination control and are purposefully taken out of diapers, some accidents must be expected. Thus, a regular procedure for responding to accidents should be planned by the team. In most cases, extinction (planned ignoring) is an appropriate strategy; however, the team may consider several options:

1. *Extinction:* Following an accident, change the student's pants and clean the student in a neutral manner, with little socialization. Be careful not to provide any reinforcing activity too soon after an accident (Hobbs & Peck, 1985).
2. *Mild disapproval:* As soon as an accident is discovered, approach the student in a manner that respects his or her privacy, have the student feel and look at the pants, and express some age-appropriate form of disapproval in your words and facial expressions ("Oh-oh, you have wet pants."). Change the student's pants as with the extinction procedure.
3. *Cleanup:* Use mild disapproval, but require the student to participate in washing him or herself with a damp cloth and changing clothes. Student cleanup should be implemented as a natural consequence, with little socializing and with no punitive talk or handling. *Requiring the student to participate in an overcorrection procedure, that is, repeatedly practicing going to the toilet or doing more than required (e.g., mopping the entire floor where the accident occurred instead of just cleaning the soiled area) is aversive and should not be used.* Use the cleanup participation strategy cautiously, as students who require prompting to clean themselves may be reinforced by the extra attention for the accident or may become upset emotionally. In addition, some who clean themselves independently may find it reinforcing to leave classroom demands.

The approaches for handling accidents must be carefully matched to a given student. Note that if extinction is selected, neither disapproval nor student cleaning up of accidents should be used. However, disapproval and cleanup consequences may be used together, or disapproval may be used alone. Cleanup typically involves mild

disapproval. Most experts and practitioners agree that it is the positive aspects of teaching that lead to learning new skills, not the negative consequences.

Moisture-Signaling Devices. One possible reason that students may not learn toileting is delayed feedback. Students who wear modern disposable diapers often feel little discomfort when they are wet, and teachers may be unable to identify if they are wet or exactly when elimination occurred. Learning to associate bowel or bladder tension with elimination (e.g., sphincter relaxation) is facilitated when students are quickly taken to the toilet during urination or bowel movement and receive reinforcement for eliminating there. Moisture-signaling devices are used to signal the moment of elimination, either on or off the toilet. Two types of moisture-detection or urine-signaling devices have been used, along with other teaching methods: (a) *toilet alert* is a device that can be built into a special toileting chair (for young students) or into a small toilet bowl that fits under the regular toilet seat and catches eliminations, triggering an auditory signal and (b) *pants alert* is a special underpants or clip-on device that detects moisture when students eliminate in their clothing. Pants alerts involve a circuit and switch plan, somewhat similar to the toilet signal; the signaling device is attached to the pants, shirt, or vest pocket.

Both devices involve a low-voltage circuit being completed when moisture activates the switch for the auditory signal. The signal allows staff to provide students with appropriate feedback the moment that elimination occurs. Moisture-detecting switches connected to a toileting chair or toilet inset signal the moment of elimination and the time for positive reinforcement; moisture-detecting underpants signal the moment that an accident occurs and, thus, when the teacher should rush the student to the bathroom, urging that the student hold back (Cicero & Pfadt, 2002). These devices are available through the Sears™ and JCPenney™ catalogs (Mercer, 2003) and are carried by many local pharmacies; pediatricians also can direct parents or teachers to suppliers. Other quick ways to access these devices are to conduct an internet search for various brand names (e.g., Wet-Stop®).

> *Toby's initial intervention consisted of a dry-pants check every 30 minutes and being taken to the toilet upon arrival and on the hour. Wet pants were changed without comment; Toby put them into the laundry basket in the bathroom. A moisture-signaling device was put into his pants to alert staff to accidents in between dry-pants checks; when it was activated, he was quickly taken to the toilet.*

Despite the efficiency of signaling the moment of elimination, the disadvantages of moisture-signaling equipment in a toileting program are many. The equipment, which is noisy and fairly obvious (especially when it signals), can be quite stigmatizing to students who use it. If students spend time in regular education classes and in activities in the school and community, this equipment is not appropriate. Other problems with the device include expense, breakdown, or failure (Mahoney, Van Wagenen, & Meyerson, 1971; Smith, 1979), although newer devices are better. Teams should view moisture-signaling devices as an option for use in unusual situations in which toileting progress has been minimal; bladder control is relatively important for the individual; and training is conducted under more isolated conditions, such as during a summer program or at home.

Video Modeling. Several studies have applied video modeling with or without systematic instruction. Bainbridge and Myles (1999) demonstrated the use of "priming" to toilet train a child with autism. The student watched a five-minute video that showed children learning to use the toilet, along with accompanying songs. After each viewing of the video, the student was prompted to use the toilet. This approach, without additional training, resulted in increased self-initiations for toileting and dry diapers during checks, but not bladder control. (The video, *It's Potty Time* (Howard, 1991) is available at **www.youtube.com.**) Keen, Brannigan, and Cuskelly (2007) found

that students with autism who received intensive training and viewed video models made more progress than those receiving intensive training alone. Video modeling appears to be a promising strategy for students who respond to visual cues and has been designated by some to be an evidence-based practice for individuals with autism (National Professional Development Center on Autism Spectrum Disorders, 2009).

Intensive Training Programs

Intensive toilet-training methods are rather complex training packages based primarily on the research of Azrin and Foxx (Azrin & Foxx, 1971; Foxx & Azrin, 1973, 1974) or of Van Wagenen, Mahoney, and colleagues (Mahoney, Van Wagenen, & Meyerson,1971; Van Wagenen, Meyerson, Kerr, & Mahoney, 1969; Van Wagenen & Murdock, 1966). Some components of the packages (e.g., dry-pants checks, moisture-detection devices) have already been discussed and can be used separately. Intensive training has been described as "rapid" because the program usually is delivered with high intensity and rapid changes in student performance have been reported. However, some of these older methods and their intensities conflict with today's emphasis on positive interventions. In addition, the speedy results have not been consistently replicated by researchers (see also Cicero & Pfadt, 2002). Typically, intensive approaches have been used with students in non-school or institutional settings and have employed one or more of the following questionable practices: (a) fluid increases that may be dangerous, (b) removal of the student from all or most instruction other than toileting, (c) removal of the student from opportunities to participate with peers without disabilities, and (d) the likelihood of excessive punishment (i.e., see LeBlanc, Carr, Crossett, Bennett, & Detweiler, 2005, as a recent example of these negative characteristics).

In the past decade, several modified versions of Azrin and Foxx's intensive approaches have been tested. Some of these approaches continue the use of excessively long training periods in the bathroom and "positive practice" overcorrection for accidents, which is anything but positive! Some approaches have added new punitive methods: movement and response restriction (Averink, Melein, & Duker, 2005; Didden, Sikkema, Bosman, Duker, & Curfs, 2001; Duker, Averink, & Melein, 2001), the requirement for a three-year-old to sit for 20 minutes on the toilet (Post & Kirkpatrick, 2004), and keeping students on the toilet until urination occurs (Luiselli, 2007).

Other versions of intensive approaches that do not use aversive methods also have been evaluated: (a) Richmond, 1983; (b) Cicero & Pfadt, 2002; Keen, Brannigan, & Cuskelly, 2007; and (c) Anderson, Jablonski, Thomeer, & Knapp, 2007; Chung, 2007. Intensive toileting approaches should be used only with total team support and if other less intrusive methods do not work after being implemented accurately and for a long enough period. Fortunately, if intensive methods are needed, there are enough effective, positive strategies from which teams can select; punitive intensive approaches should not be used.

Increasing or Regulating Fluids. Increasing the fluids that a student consumes will increase opportunities to urinate and thus to be taught and to obtain reinforcement. However, increasing fluids to boost the quantity of bladder-training sessions must be accompanied by certain precautions. When the intake of water or other liquids is forced or encouraged over an extended period, the balance of electrolytes in the body may be seriously endangered. Hyponatremia, or a low serum sodium level, while rare, may result and is associated with nausea, vomiting, muscular twitching, grand mal seizures, and coma (Thompson & Hanson, 1983). This condition "constitutes a serious medical emergency requiring prompt sodium replacement therapy and other medical support" (p. 140).

The decision to increase fluids requires approval by the family physician and should not be used with students on medications that increase urinary retention or those who have seizure disorders or hydrocephaly. If extra fluids are approved, the amount allowed throughout the day varies according to the size of the student.

Children between 60 and 100 pounds can have *at most* a small serving every hour (one-third to one-half cup) during the school day; while adolescents and adults between 100 and 150 pounds can have *at most* up to two thirds of a cup of liquid every hour during the school day (Thompson & Hanson, 1983). These maximum limits allow increased opportunities for instruction without putting the students' health at risk. It is best to use water or non-caffeinated, low-sugar drinks (diluted fruit juice). Students should be offered drinks or given free access to drinks, but must not be pressured to take fluids. Pressuring a student to drink when they express strong refusal will likely end up in a power struggle, which would be an obstacle to successful toilet training. Reinforcement should not be made contingent on drinking extra fluids.

This approach of using increased liquids plus a 30-minute toileting schedule and reinforcement for urinating in the toilet was successful when used with a 19-year-old woman with significant intellectual disability after 17 school days of training (Sells-Love, Rinaldi, & McLaughlin, 2002). In this study, the woman was "allowed to consume" 16 ounces of water (2 cups) in the morning and in the afternoon; however, because no information on seizure conditions or weight was reported, it is difficult to determine if this quantity was excessive, but the rate of consumption exceeded what is recommended.

Whenever an intensive approach is used, it must be individually designed to suit the student and the team members who will be using it. Ongoing elimination data will serve to guide the team's evaluation of outcomes and any necessary program modifications.

After several months with little success, Toby's records (see Figure 10–6) showed that he either did not eliminate at all during school or he did so after noon. Several changes were initiated in May. First, Toby stayed in the bathroom between noon and 1:00 for intensive training. Second, during this hour, the staff set a timer and instituted (a) four minutes on the toilet with no interactions, and (b) four minutes off the toilet, sitting on a beanbag chair with a choice of a toy to play with or a book, and teacher interaction. These steps were repeated during the hour. Accidents were uncommon, but when they occurred, staff cleaned up with no comment; pull-up diapers were changed if wet. During this time, the moisture-signaling device was removed and Toby was dressed in a long T-shirt for privacy and his outer pants and underpants were removed. Initially, he wore a pull-up diaper with a hole cut in it for urination, which meant that the diaper could stay on so that getting on and off the toilet was faster, the beanbag chair was cleaner, he was less able to self-stimulate, and staff could see when he was starting to urinate. Once he eliminated in the toilet (or when it was 1:00), his pants were put back on and he returned to classroom activities. As shown in Figure 10–6, starting May 18, if he eliminated, training was discontinued for the rest of day, as he typically stayed dry. In late May, Toby was consistently urinating between noon and 1:00 and usually shortly after being taken to the toilet. At this point, the hour-long intensive toileting procedure was stopped and the pull-up diaper was replaced with underpants.

All three of these intensive methods are demanding on staff. Richmond's approach requires less time in the bathroom, but it has not been replicated. The training intensity and student's limited clothing in all three methods make instruction in school settings challenging. Staff involved in training and students spend little time outside of the bathroom. Teams must seriously evaluate if intensive methods are necessary before deciding to use them.

SPECIAL CONSIDERATIONS FOR EATING AND MEALTIMES

Eating is perhaps the most functional and frequently used of all self-care skills. In addition to filling our primary needs for nutrition, mealtimes are often a time for socializing. Mealtimes mean conversation, getting together with friends and family,

sharing, and enjoying food. This should be true for students with disabilities, too. Pleasant and gratifying mealtimes can enhance the use of eating skills and the social and communication skills embedded in eating routines. Teams should structure mealtime and eating instruction so that learning and enjoyment result.

When developing individualized plans for teaching eating and mealtime behavior, teams focus on the general goals of healthy eating (e.g., meeting nutritional needs, eating without choking) and eating as independently as possible. This section addresses the elements of assessing and teaching basic mealtime skills to learners whose objectives are primarily independent eating. (See also Chapter 8 regarding nutritional monitoring and supplementation and non-oral feeding procedures; refer to Chapter 9 for specific positioning considerations for students with motor disabilities.)

Identify What to Teach

The educational team has several issues to consider in the process of selecting mealtime skills for instruction. First, does the child have the necessary prerequisites for instruction in eating independently? Next, the team reviews the family's preferences regarding eating routines and any cultural traditions related to mealtimes. The team will also gather information about the student's food preferences (specific foods and textures), dietary needs, food allergies, and any challenging behaviors that may impede instruction. Then the team reviews the developmental sequence of core eating skills and related mealtime skills. Finally, the team identifies priority skills, develops a task analysis, and collects baseline data.

Prerequisites for Instruction in Eating Independently

For students to be successful in learning to eat independently, they need an active gag reflex and the skills of sucking, maintaining closed lips, swallowing, biting, and chewing. Mastery of these basic skills greatly reduces the risk of choking. Before beginning assessment or instruction, students should be in the proper position for eating, even when they do not have extensive or obvious motor disabilities or high or low tone in their muscles. Proper position has a big impact not only on learning and success with eating, but also on the prevention of choking and the aspiration of food. The student's head must be stable, in midline, and with the chin and jaw as near to parallel with the floor as possible.

Family Interview

It is helpful to interview the student (when possible) and caregivers to learn about family routines and student needs (e.g., food preferences, allergies, dietary restrictions). Interviews also help the teacher identify situations that may require expanding the educational team to include medical input or additional assessments. An informal observation in the home setting can also provide useful information regarding the student's mealtime skills (e.g., eating finger foods, drinking from a cup, using utensils, and displaying appropriate table manners).

Adrian's special education teacher visited his home and conducted a family interview. She learned that prior to this school year, Adrian ate a limited number of foods and rarely ate more than a few bites at one time. After participating in an intensive feeding program at a university hospital clinic, Adrian now eats a variety of foods. At home, Adrian's mother gives him an opportunity to eat every two hours during the day and tries to provide a preferred activity after each snack or meal. Adrian selects a picture of the activity that he would like to do when he is finished eating. He keeps the picture on the table during the meal. Adrian's teacher will use the same strategy and schedule a morning and afternoon snack for Adrian, in addition to his lunch.

Sequence for Teaching Mealtime Skills

Core eating skills typically are taught in a general developmental sequence, beginning with various aspects of dependent feeding (e.g., anticipates spoon, uses lips to remove food from utensils), eating finger foods, eating with a spoon, drinking from a cup, using a fork, spreading and cutting with a knife, serving food, using condiments, and displaying good table manners. In general, targets should be both realistic in relationship to the current performance of students and immediately or subsequently relevant. Eating skill targets will be those that are prioritized by the family or teacher as being needed on a regular basis. Additionally, students must learn to eat a variety of foods because food refusal and food over-selectivity can put students at risk nutritionally with regard to growth and health problems.

Not all eating skills, however, should be taught in a developmental sequence. Instead, teachers should tap extension skills (initiation, preparation, termination, problem solving) and enrichment skills (communication, choice, and social) that are relevant to the mealtime routine (Brown, Evans, Weed, & Owen, 1987).

> *When Patrick was very young and dependent on others to feed him, his parents and teachers taught him to initiate eating by vocalizing "Eeee" and to look away when he was finished eating. Patrick's parents used graduated guidance to assist Patrick in bringing a spoon to his mouth.*

Likewise, teaching skills in a functional order, even if not in the developmental order, may be the best option.

> *Toby, who is nine, spears food with a fork but does not use a spoon or knife or napkin unless prompted. He eats mainly with his fingers. Developmentally, he "should" master these first, but his team has decided that using a napkin and going through the lunch line are more functional, even if he bypasses spoon and knife use for now.*

The team will review the family interview data and identify priority skills. The teacher will then develop a task analysis for each skill and collect baseline data.

Identify Teaching Strategies for Eating and Mealtimes

A variety of methods have been successful in teaching mealtime skills. Specifically, shaping and physical prompting procedures (including physical prompts, time delay, and graduated guidance) have been shown to promote the acquisition of eating skills. Sometimes, these strategies have been combined with error correction, but positive procedures alone have proven to be adequate in other cases. Generally, graduated guidance and shaping are the recommended procedures for building basic eating skills and promoting independent eating during the acquisition stage.

Once students have learned the basic core eating skills (e.g., pick up spoon, scoop food), other teaching methods have been demonstrated as being more effective during the advanced stages. For example, skills can be maintained and made more fluent with simple reinforcement (e.g., praise and confirmation: "That's right!") and error correction. Procedures for correcting errors in these later stages may include teachers' or peers' verbal statements and models.

Eating Finger Foods

The first sign of independence in eating is the predictably messy stage of consuming finger foods. If the team's initial observations emphasize the need for utensil use *and* coordinating grasp, lift, and placement of finger foods in the mouth, finger food instruction should have priority over utensil use. At this early stage, students use pincer grasps and hand-to-mouth movements to pick up food in combination with the sucking, gumming, chewing, and swallowing of many soft foods, such as bananas and saliva-softened toast. Eating finger foods provides essential opportunities to improve the movements needed for later utensil use. Eating finger foods also allows

FIGURE 10–7
Toby drinks from a straw, but eats mainly finger foods.

Photo: Martha Snell

opportunities for continued instruction in chewing. Working with the occupational therapist on the team, teachers can use mealtimes and snack times to introduce students to a variety of textures and tastes (Orelove, Sobsey, & Silberman, 2004).

Toby primarily eats with his fingers and still is messy. He often stuffs his mouth and does not use a napkin. Teaching him to use a spoon will be postponed until he makes more progress on eating more neatly with his fingers (see Figure 10–7).

Drinking from a Cup or Glass

The earliest stage of learning involves students helping their parents or teachers hold the cup or glass and lift it to their mouth. At this early stage and when individuals first drink from a cup independently, they use both hands. When students have the potential to master drinking from a cup without assistance, straw use also may be taught, but typically this is not taught until after drinking from a cup is learned. For students who cannot learn independence in cup drinking, drinking liquids from stabilized, but age-appropriate, cups through straws is a good alternative means for becoming independent. Others can ask peers to assist on the steps that are too difficult to learn independently. Use of a straw also may be a functional skill for students in restaurants and cafeterias, where most people use them. As with eating with the fingers, the learning process is often messy.

Patrick asks a peer to help open his milk carton by touching the peer's arm and then pushing the milk carton toward the peer. He uses the same strategy to ask for help with putting a straw into the carton. The peer places the carton near Patrick's plate and he independently drinks from the carton.

The type of cup chosen for training may influence the initial success of students. Short, squat cups that do not turn over easily and can be held without difficulty are best to begin with. With preschool-age students, a weighted cup may be appropriate, although most cups of this style have a clear association with infants and are not age appropriate. Similarly, whereas double-handled cups are easier to hold, they also are not age appropriate in their design. However, plastic-handled coffee mugs (with or without the top) may be a good substitute. Durable plastic cups are obviously safer to use than are containers made of glass, brittle plastic, or paper. Spouted or nipple cups should never be used because they stimulate abnormal sucking and do not allow students to master the correct drinking response; however, sports cups with built-in straws are easily available and are often used by teens and adults. To reduce spilling, the amount of liquid in the cup should not be excessive, but also should not be so little that students need to tip their heads too much to drink, increasing the difficulty of

the task. Adapted cups that are cut out on the upper side (to make room for the nose) can allow students with physical disabilities to drink all of the fluid without tilting their heads at all.

After students learn to drink holding handled cups or small glasses with both hands, teachers can begin to emphasize a reduction in spilling. Spilling may occur while drinking, but may also happen when a cup or glass is grasped, lifted, or placed on the table. As drinking from a glass improves, students should be reminded to lift glasses with only the dominant hand.

Using Utensils

Once students are able to grasp finger foods and move food from the table to the mouth with their fingers, along with the basic oral-motor responses (i.e., lip closure, chewing, and successful swallowing), teams can plan instruction on using utensils. At this time, observations should be made to assess the student's ability to pick up and eat from a spoon. Using utensils can be taught at the same time that drinking from a cup is taught.

Typically, utensil use is taught sequentially, from the easiest skill to the most difficult. Spoon use may be the simplest, followed in order of difficulty by eating with a fork, transferring spreads with a knife, spreading with a knife, cutting finger-grasped bread with a knife, and cutting meat with a knife and fork. The typical sequence is (a) spoon (with thicker foods, not thin liquids), (b) fork for spearing, (c) knife for spreading, and (d) knife and fork for cutting. Children may be able to eat using utensils in a palm-down finger or fist position. Teachers may use this grasp for initial instruction and teach the more mature, palm-up position after students have attained independence.

Progress Monitoring

The instructional team will select the teaching schedule, setting, method, and progress-monitoring procedure based on the characteristics of the student and the nature of the target skill. For example, a student who demonstrates food selectivity may be learning to accept new food items. During this learning process, the student may exhibit challenging behaviors during meals that include non-preferred foods. Initially, the team may choose a private setting (e.g., resource classroom) to implement a feeding program. During instructional sessions, the teacher may collect data on the number of bites eaten of non-preferred foods, the number of new foods accepted, and the rate of inappropriate behavior. After instructional sessions, the child may eat a preferred food item in the cafeteria with peers. For students with extensive support needs, mealtime instruction may require long mealtimes that interfere with instruction in other priority skill areas. In these cases, teachers may decide to teach and collect data for part of the meal and provide more assistance during the remainder of the meal. Task analytic data is useful for monitoring progress on skills that involve several steps (e.g., using a fork) and duration data may be useful for monitoring the pace of eating. Related and embedded skills may also be a focus for monitoring instruction. Chapter 4 describes measurement methods in detail and this information can assist the team in selecting a progress-monitoring procedure that is appropriate for the target skill.

Addressing Problem Behaviors During Mealtime

Students with severe disabilities sometimes exhibit inappropriate behaviors related to mealtimes and eating. Often young, typically developing children are picky eaters and resist eating a variety of foods. Usually, with repeated exposure to a varied diet, children's diets become more diverse over time without intervention. However, children with severe disabilities may be highly selective in the foods that they will eat and this problem may persist for years. For example, a child may eat only foods in a particular food group or with a certain texture. Schreck, Williams, and Smith (2004)

reported that children with autism ate a more restricted range of foods and had higher rates of food refusal than their peers. Medically fragile children sometimes receive treatments (e.g., suctioning, oral and nasal gastric tubes) that can lead to tactile defensiveness and oral hypersensitivity (Bailey & Angell, 2005; Comrie & Helm, 1997), which may play a part in the development of a resistance to eating and a restricted diet. Food selectivity can cause nutritional deficiencies and impede development. A systematic intervention may be necessary to ameliorate such problems.

Much of the research on eating problems in children with disabilities has addressed food selectivity and food refusal (e.g., Ahearn, 2003; Levin & Carr, 2001; Wood, Wolery, & Kaiser, 2009). In this section, we describe approaches for addressing these challenges and supporting appropriate mealtime behavior. Eating problems, such as pica (i.e., eating non-edible substances) and excessive weight gain are not addressed here. Teams who are facing these problems may need to broaden the team membership to include medical input and to use additional assessment tools (e.g., functional behavior assessment to study the conditions that seem to be maintaining the behavior, medical assessments, and health monitoring). (Chapter 7 addresses functional behavioral assessment; Chapter 8 discusses health monitoring.)

Food Selectivity and Refusal

Food refusal refers to the behavior of declining to eat a sufficient amount of food to maintain one's health. Food selectivity refers to eating a very narrow range of foods, often only a few foods and no others. Recent research describes several intervention procedures that may address these issues, including (a) antecedent strategies, (b) reinforcement, and (c) multicomponent treatment packages. A majority of research studies involve testing these intervention procedures in clinic or hospital settings (Williams, Field, & Seiverling, 2010), likely due to the extreme nature of the food refusal behavior. However, interventions may be implemented at school, at home, or both, depending on the child's needs and the family's preferences.

Antecedent Strategies. Antecedent strategies are those that concern the teaching arrangement, location, materials, teacher's directions, methods used to elicit student attention, and also prompt procedures used to get students to respond with few errors. In a teaching opportunity, antecedent methods occur before the student's response and thus influence how students respond to a teaching task. Ahearn (2003) illustrated the use of an antecedent strategy to address food selectivity in a child with autism in a multiple baseline design across different foods (vegetables). The results of an assessment of eating habits revealed that the child refused to eat vegetables but accepted at least one item from the fruit, protein, and starch food groups. He refused vegetables even when access to additional food was contingent on doing so. He preferred condiments (e.g., ketchup, barbecue sauce, salad dressing) and sometimes ate them without other food. Thus, the antecedent intervention consisted of presenting vegetables paired with a preferred condiment. This led to an increase in the variety and amount of vegetables that the child consumed. After the conclusion of the study, the child learned to use pictures to request specific condiments before meals and continued to eat vegetables.

Luiselli, Ricciardi, and Gilligan (2005) described a liquid-fading procedure implemented by classroom staff to increase milk consumption by a child with autism. The child refused milk, but would drink a blend of 50% PediaSure® (a nutritional supplement) and 50% whole milk. Gradually, classroom staff increased the milk to PediaSure ratio across successive lunch sessions. When staff started the fading procedure, they reduced the amount of PediaSure by one tablespoon and increased the quantity of milk by the same amount. When the student consumed at least 90% of this mixture during consecutive sessions, the ratio of milk to PediaSure was increased again. When the fading procedure was completed, the child drank whole milk without PediaSure. Together, these studies demonstrate that relatively simple strategies can help children overcome some forms of food selectivity and refusal.

Reinforcement Procedures. Food selectivity has been successfully treated in some children by simple reinforcement of new choices (Najdowski, Wallace, Doney, & Ghezzi, 2003). Researchers determined student food preferences by observing their responses when presented with a variety of foods. The foods that students accepted were identified as preferred foods, and the foods that were refused were identified as non-preferred foods. Children increased the variety and amount of food consumed when bites of non-preferred foods were followed by bites of preferred foods, a method that is known as the Premack Principle. When implementing this intervention, it is important to make reinforcement contingent on swallowing rather than accepting food (Najdowski et al., 2003). Although reinforcement procedures may be useful in addressing food refusal, often these procedures must be combined with antecedent procedures such as response prompts or visual supports in order to facilitate progress (Gentry & Luiselli, 2008). Reinforcement procedures may also be useful in supporting the maintenance of eating behavior after a more intensive intervention has been withdrawn.

As an infant, Adrian had a history of being a "failure-to-thrive" baby; this resulted in frequent refusals to eat and being highly selective with what he did eat. During the summer before kindergarten, his parents enrolled him in an intensive feeding program that greatly improved the amount and variety of foods he now eats. Over a six-week period, he was given meals with three foods and a drink twice a day and taught to take a bite of each food, followed by a drink (using a bite, bite, bite, drink pattern) in order to briefly watch a favorite DVD. When he returned to school, the classroom staff used a simplified version of this procedure, requiring that he eat his whole tray of food (at breakfast and at lunch) in a designated period of time and then was allowed to select and watch a DVD if he had eaten enough food and finished his drink. The program was highly successful and Adrian now eats almost everything in his school lunch alongside his peers (see Figure 10–8).

Multicomponent Treatment Packages. Treatment approaches that address several variables (e.g., antecedents and consequences) are very effective in improving children's eating behaviors. Although researchers have investigated multicomponent treatment packages in home settings, the strategies employed in these studies may have useful applications in school settings as well. For example, Gentry and Luiselli (2008) combined antecedent and positive reinforcement procedures to increase the food consumption of a four-year-old boy with pervasive developmental disorder. The child ate a limited number of foods and only certain brands of some foods. Researchers interviewed the child's mother and identified a list of preferred and non-preferred foods. The first intervention utilized a game spinner that was divided into eight sections, seven with a number and one with a question mark. The adult prompted the child to spin the arrow and when it stopped, to write the number on a chart that read, "I need to eat N bites of food." Then the adult presented a plate of food that was divided into three sections, two contained preferred foods and one contained a non-preferred food. The adult said, "You have spun the number 2, that means you can eat 2 bites from this section, 2 bites from this section, and 2 bites from this section; then you can eat whatever you like." The child was also shown a reward chart with symbols representing preferred activities from which he chose an activity that he could do after he finished the meal. The adult prompted the child to take bites from the two preferred items first and then from the non-preferred item. When the child ate the required number of bites of each food, he received verbal praise and was given the opportunity to eat the rest of the food on his plate, request additional food, or play. If he did not eat the required number of bites, he remained at the table for five minutes and then was asked to leave the table. If the arrow stopped on the question mark, the child received a toy from a gift box and was given only preferred food during the meal. Gradually, over time, the numbers on the spinner were increased to require the child to consume more food. During the second intervention phase, the game spinner was

Photos: Martha Snell

FIGURE 10–8
Adrian has learned to line up with his peers, go to the cafeteria, use the lunch line, carry his tray, and sit down and eat. His teacher gives him word/picture cues when he forgets a step and provides a model for him to enter his lunch payment code.

removed and the child was given a plate with a specific number of bites of non-preferred food. If the child consumed everything on the plate and refrained from inappropriate behavior, he was given access to a preferred activity. The number of bites of non-preferred food was gradually increased. There was a steady increase in the amount of non-preferred food consumed by the child. This procedure may need to be adapted as the negative consequence of staying for five minutes at the table when enough bites were not consumed may not be acceptable to team members.

Wood, Wolery, and Kaiser (2009) designed a treatment package that consisted of task direction, contingent reinforcement, physical prompts, and a procedure to

introduce food gradually. Prior to intervention, researchers conducted an assessment of the child's eating habits and identified five food categories. Categories were defined based on the child's response to the foods in each category. For example, food items in Category I were accepted 100% of the time when offered, while food items in Category III were rejected 50% of the time during the assessment. During intervention sessions, food was presented from selected categories. Foods from Category I were introduced in the initial sessions. These foods were eaten 100% of the time when offered. Category I bites were used as a reinforcer for consuming bites from the other categories. During intervention, a five-year-old boy with autism was presented with 10 bites of food. He was presented with a bite and was prompted to "take a bite." He received verbal praise if he put the bite in his mouth. If the child did not pick up the spoon within five seconds, the adult used hand-over-hand physical assistance to put the spoon in the child's hand. After a five-second latency period, if the child did not bring the spoon to his mouth, hand-over-hand assistance was provided. The food was left at the child's lips for five seconds. If the child did not consume the bite, the same steps were repeated with a half bite of food and then a quarter bite of food. If the child did not eat the quarter bite, he was prompted to use his tongue to touch the bite. This treatment resulted in an increase in the number and variety of food items that the child consumed. It should be noted that hand-over-hand assistance might be aversive to some children. When a child is resistant to this level of assistance, the team should consider other strategies that promote a positive learning experience for the child.

Binnendyk and Lucyshyn (2009) evaluated the effects of a family-centered positive behavior support approach to addressing food refusal in a child with autism. The results of a functional assessment suggested that the child engaged in food refusal, self-injury, screaming, and aggression to escape the demands to eat non-preferred foods and to sit at the table and eat preferred foods. A multicomponent positive behavior support (PBS) plan was designed with the assistance of the child's mother. The plan consisted of 10 strategies, including initiating a daily eating schedule, use of general case programming, gradually increasing the amount of non-preferred food presented, visual supports to illustrate the eating routine, reinforcement contingency, prompting and prompt fading, contingent praise, contingent access to preferred activity, escape extinction procedures, and de-escalation procedures. It is important to note that the escape extinction procedure involved holding a spoon of food up to the child's lips and repeating the prompt "take a bite" every 30 seconds until the food was accepted. Some teams may find this strategy unacceptable, as some children may find this highly intrusive method to be aversive; however, it was coupled with many highly positive teaching approaches. Initially, the therapist conducted training sessions with the child. Then the therapist trained the child's mother using behavioral procedures such as modeling, coaching, feedback, and self-monitoring. The child's mother then taught the child's father to implement the procedures. Following implementation of the behavior support plan, the child demonstrated high levels of food acceptance that were maintained over time. The child's eating behavior also generalized to new foods and to his father's supporting him during snack time.

Sira and Fryling (2012) paired peer modeling with differential reinforcement to address food selectivity of a nine-year-old boy with autism. Intervention sessions were held at the child's dining table during mealtimes with the child's younger sibling serving as a peer model. Prior to intervention, a preference assessment was conducted to identify several highly preferred items to be used as rewards for the differential reinforcement component. During intervention sessions, the sibling first modeled appropriate food consumption while the target child observed. The researcher instructed the sibling to "take a bite" of the targeted food. When the sibling consumed the food within 30 seconds, she received verbal praise and access to a highly preferred item. Identical procedures were used with the target child with both prompted and unprompted bites reinforced. However, if the target child did not consume the food within 30 seconds, the food was removed and inappropriate behavior

was ignored. Eventually, the child's mother implemented these procedures during mealtimes. Following implementation of the peer modeling and differential reinforcement intervention package, the child demonstrated high levels of food consumption that were maintained when the mother implemented procedures and one month following the conclusion of the study.

Together, these studies suggest that multicomponent, but highly individualized PBS treatment packages are effective in treating food selectivity and these more comprehensive approaches may be necessary when less intensive interventions have failed.

Rapid Eating

Instruction aimed at pacing may be needed for some students in the fluency stage of learning, such as students who eat finger foods, use utensils, or drink from cups but do so either too quickly or too slowly. Pacing prompts have been used to slow down or speed up a student's rate of eating and to establish an appropriate eating speed. Assistive technology provides a means for students to learn to eat at an appropriate pace without the use of intrusive procedures. For example, Anglesea, Hoch, and Taylor (2008) used a vibrating pager to increase the duration of meal consumption in three teenagers with autism. Students were taught to take a bite only when the pager vibrated at predetermined intervals. The use of a vibrating pager enabled students to consume a meal at a pace that is comparable to that of a typical adult. Excessively rapid eating can be a serious problem because of social acceptability and potential health problems (e.g., vomiting, aspiration, poor digestion). It is critical for teams to address rapid eating, but it is important that the intervention selected fosters independence.

SPECIAL CONSIDERATIONS FOR DRESSING AND GROOMING

Participating fully or partially in dressing and grooming activities provides many opportunities for communicating preferences, interacting socially, making choices, and exercising self-determination. Selecting colors and types of clothing, hairstyle, and accessories enable students to convey their individual style (Browder, 2001). Expressing fashion preferences may be especially important during adolescence when appearance and peer acceptance are often high priorities. Therefore, instruction should incorporate both skills (e.g., snapping, buttoning, brushing teeth) and personal preferences.

> *During the past year, Patrick has become more interested in his appearance. When he needs a haircut or wishes to buy clothing, he invites Caitlin, a friend from his history class, to go to the mall with him. She gives him advice and Patrick selects clothes and styles that appeal to him. His mother reports that Patrick has become more active in choosing his clothes each day. Like other parents of young adults, she sometimes does not like his fashion choices, but she is glad to see him developing his personal style.*

There are several challenges in providing this kind of instruction. First, teaching dressing and grooming skills in school settings is difficult because other students do not typically learn these skills at school. Nonetheless, instructional opportunities are available at school. For example, preschool and kindergarten children use dressing skills in playing dress-up (Sewell, Collins, Hemmeter, & Schuster, 1998), while older students dress for P.E. classes and students in job training often need to change into uniforms. Arrival and departure routines often involve taking off and putting on jackets, sweaters, hats, or gloves. High school students often engage in a variety of grooming activities between classes (e.g., brushing hair, applying lipstick). Learning tasks under these natural conditions (e.g., time of day, location) is likely to increase the rate of learning (Freagon & Rotatori, 1982) and promote skill transfer and retention (Reese & Snell, 1991; Snell, Lewis, & Houghton, 1989). Teaching in natural settings and at natural times also allows peers to serve as models. When students with

disabilities have friends of the same age and gender who are able to perform the skills that they are trying to master, learning by observing them and by getting their assistance may be a viable supplement or alternative to teacher-directed trials.

A second challenge in teaching dressing and grooming skills in school settings is that some students may require more intensive instruction than is possible during natural opportunities. Incorporating additional instructional opportunities may require scheduling longer and/or additional instructional sessions. These sessions may conflict with the activities scheduled in the child's classroom. In such cases, the instructional team must make decisions by balancing the individual student's need for intensive instruction in these areas with other instructional needs. It is important that all team members participate in this decision-making process and make adjustments to the child's schedule as needed. If time away from class is needed for a student to work on a dressing or grooming task, the classroom teacher needs both to understand why and also to give ideas on scheduling.

Finally, selecting target skills can be a challenging activity for the educational team. Typically, students perform certain skills (e.g., showering, shaving, shampooing) in the home environment. Yet, the student's family may identify these as priority skills. The team will need to decide how to support the student's development in such areas. For example, the team may develop strategies to assist the caregivers in teaching these skills during typical home routines. If the skills are a high priority, the team may consider artificial times and places for instruction. Collaboration throughout the school year will enable the team to address each of these challenges.

In this section, we discuss identifying and teaching dressing skills. Our focus is primarily on learners who will become actively involved or independent in their dressing. For more coverage of teaching tactics for students with motor disabilities, refer to Chapter 9 (see also Christiansen & Matuska, 2004, and Orelove et al., 2004).

Identify What to Teach

The dressing and grooming curriculum for students with severe disabilities encompasses routines that almost everyone engages in daily, from brushing teeth to evaluating one's appearance and making adjustments if necessary. The more difficult tasks in dressing and undressing include shoe tying and fastening and unfastening buttons, snaps, hooks, zippers, ties, and belts. Grooming skills such as bathing, showering, handwashing, brushing teeth, and menstrual care are critical for maintaining good hygiene. Grooming routines that are performed less frequently include clipping, filing, or painting fingernails; shaving face, under arms, or legs; and applying makeup. Shaving and makeup routines are specific to the student's gender, culture, and personal preference.

Preference Assessment

Identifying what dressing and grooming skills to teach involves several activities. First, a systematic preference assessment will help the teacher design instruction to support the student in developing his or her individual style (Browder, 2001; Lohrmann-O'Rourke, Browder, & Brown, 2000). (See also Chapter 3.) The preference assessment will vary depending on whether a student uses symbols to communicate or not. For students who communicate with pictures, signs, or words, teachers can use catalogs, magazines, and the internet to examine preferences in clothing style, colors, accessories, haircut, and makeup; and for those who use non-symbolic communication, the teacher may create opportunities for the student to try various options (Browder, 2001). For example, the teacher may provide grooming material options (e.g., toothbrushes, toothpaste, combs, barrettes) and observe which items the student prefers. Peer participation in preference assessment activities will ensure that the choices are age appropriate and consistent with peer standards. Because self-care instruction is most effective when there is coordination between home and school, it

is also important for teachers to involve caregivers. A conversation with caregivers will help the teacher understand current home routines and identify dressing and grooming skills that the family values.

Family Participation

It is always important to start with the caregiver to learn about the student's performance at home and to understand the family's preferences for instruction.

> *When Toby's mother was asked what dressing or grooming skills she would like to see Toby learn next, this was her response: "Like I said, putting on his jacket would be great. We'd also really like some help with tooth brushing so that he would start to do it. Being more consistent with handwashing would be helpful, too. Any progress that we can make in toileting would be wonderful, because he still wears diapers." (See Figure 10–9.)*

In addition to specific dressing or grooming skills, the teacher will work with the team to identify possible extension skills (Brown, Evans, Weed, & Owen, 1987). Particularly relevant to dressing and grooming skills are the extension skills of making choices, initiating tasks, persisting through completion, and monitoring the speed

FIGURE 10–9
Results of an Interview with Toby's Mother on Dressing and Grooming Skills

Student: Toby
Source: Ms. Kessler (Mother)
Domain: Dressing and Grooming Skills
Teacher: Ms. Gentry
Date: October 1, 2015

1. **Describe Toby's morning routine:** The morning is somewhat hectic at our house. My husband leaves for work before Toby gets up. I need to help Toby with dressing, breakfast, brushing his teeth, and getting to the bus stop. Toby can help on some steps—in putting on his pants and shirt—but I often just get him dressed because we're pressed for time. If I give him enough time, he puts his feet into his shoes, but I need to tell him to fasten the VELCRO. He is usually hungry in the morning so breakfast goes well. Because he is pretty slow with a spoon, I give him mostly finger foods. When the weather gets cold, it takes time to put on his jacket and gloves. I'm usually so rushed by then that I do it for him. He helps put his arms in the sleeves.
2. **What part of Toby's morning routine could he start to do independently? What could he do to help in the morning?** If he could just put on his jacket, then I could gather my papers for work and we would be set to leave. This would be very helpful to me.
3. **Does Toby choose his clothing for the day? Does he have any preferences related to color or style of clothing?** I try to select Toby's clothes in the evening to save time in the morning. I give him a choice of two shirts and he will touch one. I don't know if it's important to him, but he seems to like this. I have noticed that he prefers shirts without buttons and he does not like sweaters.
4. **Describe Toby's evening routine:** I have more time in the evening and Toby's dad often helps him bathe and get ready for bed. Toby does not really brush his teeth; he does not like to have them brushed. Given encouragement, he will briefly open his mouth and let us help him brush. If we stay with him and show him what he needs to do next, he'll wash himself in the bath. He needs help drying. He'll sometimes pull up his pajama bottoms and will help pull the top over his head, but he needs help getting them on.
5. **Describe Toby's toileting skills:** He has made a great deal of progress recently in that he willingly goes when taken and he usually pulls down his pants if you lift his shirt. He sits on the toilet by himself. He usually pulls up his pants at least part way before leaving the bathroom. He doesn't flush the toilet. I don't think he likes the sound. He needs to be reminded to wash his hands and then he just partially does some of the steps. We keep hand sanitizer at all of the sinks—it is easier that way because then he doesn't need to dry his hands.
6. **What dressing or grooming skills would you like to see Toby learn next?** Like I said, putting on his jacket would be great. We'd also really like some help with tooth brushing so he would start to do it. Being more consistent with handwashing would be helpful, too. Any progress we can make in toileting would be wonderful, because he still wears diapers.

and quality of the performance. Mastering problem-solving extension skills, such as identifying back and front and right and left in the context of dressing and grooming routines, are relevant for students in elementary school.

Adrian's grandmother mentioned that he sometimes puts his shirt on backwards. He is learning to use the tag to identify front and back.

The educational team will review the results of the preference assessment and caregiver interview. These data will assist the team in identifying priority dressing and grooming skills. The four criteria for target skills that were discussed earlier in this chapter can be used to ensure that the target skills are appropriate: (a) Does the objective reflect the student's chronological age, culture, and preferences? (b) Is the skill one that the student needs now and in the future across settings? (c) Will this skill increase the student's independence? (d) Have team members reached consensus on the value of this skill? As much as possible, the student should participate in the team's conversation and the list of priority skills should be skills that the student values and would like to improve. Adrian's team reviewed assessment data and identified priority skills for him.

Adrian is unable to blow his nose, but he can wipe it when given a model prompt. When the teacher makes a blowing sound, he will hold the tissue to his nose and make the same sound! He can remove and hang up his jacket, as well as put it on when it is time for recess, but he needs instruction on how to use fasteners on his clothes. His team agrees that nose blowing and using fasteners are priorities.

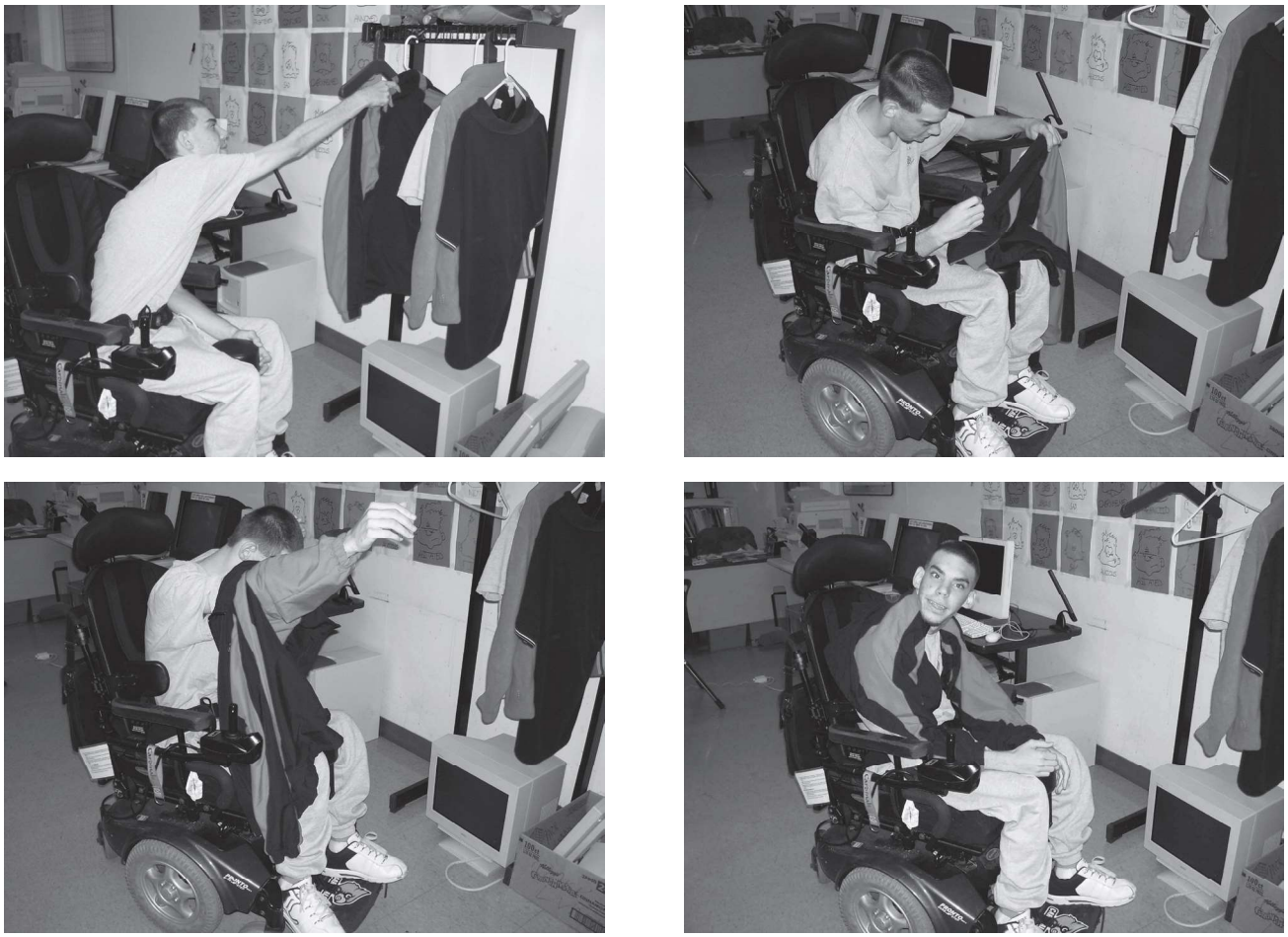
Baseline Assessment

After priority dressing and grooming skills are identified by the educational team, the teacher will develop a task analysis for each target skill (see Chapter 5). The teacher will collect baseline data while observing the student perform each step of the task analysis (see Chapter 4). Baseline data serve several purposes. First, baseline data assist the teacher in identifying the specific steps of the task analysis that the student performs independently, as well as steps in which the student needs instruction and thus it is necessary to write relevant goals and objectives. Baseline data also enable the teacher to identify the steps of the task analysis that may be appropriate for partial participation.

Baseline observations of Patrick's skills in putting on, taking off, and hanging up his jacket were valuable in designing a practical task analysis that avoided continued use of partial participation (see Figure 10–10).

Finally, baseline data help the teacher to identify the student's stage of learning for each task and consider whether the student demonstrates an acquisition deficit or a performance deficit. An acquisition deficit occurs when a student does not have a skill in his or her repertoire (e.g., a student has not mastered the steps involved in washing his or her face). A performance deficit refers to a skill that is in the student's repertoire, but not performed at the appropriate times (e.g., a student is able to wash his or her face, but fails to do so when his or her face is dirty). Knowledge of the student's stage of learning guides the teacher in the selection of teaching strategies. Specific teaching strategies are described in the next section.

When the team looked at Adrian's baseline probe data for putting his coat with a zipper on, they were clear on the specific steps that he could not perform on his own. The data showed, without a doubt, that he was in the acquisition stage of learning with regard to this task. While Adrian never completed five of the nine steps during the baseline phase, he did perform four of the nine steps on his own at least once. Adrian had performance deficits on most of the dressing tasks. This helped the team agree that a systematic teaching approach was needed for all natural opportunities and that they might also create a few additional teaching opportunities each day.



Photos: Monica Delano

FIGURE 10–10
With some changes in the height of the coat rack and a lot of practice, Patrick has mastered taking off and hanging up his coat, and putting it back on.

Identify Teaching Strategies for Dressing and Grooming Skills

Specific instructional strategies, as well as materials to support instruction in grooming and dressing, will be described in this section. All instructional strategies discussed earlier in this chapter have been used successfully to teach grooming and dressing skills. Graduated guidance, time delay, simultaneous prompting, and system of least prompts are effective in the acquisition stage of learning dressing and grooming skills. (See Chapter 5 for directions on how to implement each of these teaching strategies.) Strategies such as observation learning, video modeling, self-management, and social narratives or Social Stories™ are especially useful in enhancing performance, but may also support acquisition. These strategies, along with simultaneous prompting and forward chaining, are discussed in more detail in the next section of this chapter.

Observation Learning or Modeling

Several studies lend support to the practice of learning by watching others perform competently or by watching others being taught. This ordinary teaching approach has been called by different names: (a) observation learning (Shoen & Sivil, 1989; Wolery, Ault, & Doyle, 1992), and (b) passive modeling (Biederman, Fairhall, Raven, & Davey, 1998). Biederman and colleagues (1998) demonstrated that for teaching handwashing and dressing skills, passive modeling was more effective than both interactive

modeling (i.e., hand-over-hand instruction with ongoing verbal prompts and praise) and less rigorous verbal prompting.

Wolery et al. (1992) described an approach for using observation learning in small groups:

- Students who are addressing similar skills are taught in small groups of two or three.
- Students are asked or prompted to watch the individual who is being taught as he or she performs the skill.
- Students in the group take turns performing the target skill while others observe.
- One student can be taught half of the task, while others watch; instruction is then given to another student in the group for the other half of the task. Typically, students will learn some or all of the task steps that they have only observed.

Video Modeling

Video modeling is an evidence-based intervention that utilizes brief videos for instruction and is effective with students in early childhood through adolescence (Delano, 2007). Video modeling capitalizes on the potency of observational learning and can be implemented to teach a variety of skills (e.g., daily living, communication, academic). It may be used alone or in combination with other teaching methods. There is some evidence that video modeling may promote generalization and enable children with autism, in particular, to acquire skills faster than in vivo modeling (Charlop-Christy, Le, & Freeman, 2000).

There are four basic types of video modeling: (a) basic video modeling, (b) video self-modeling, (c) point-of-view video modeling, and (d) video prompting (Cox, Delano, Sturgill, Franzone, & Collet-Klingenberg, 2009). *Basic video modeling* is the most common form of video modeling and the one that teachers report as being the easiest to implement. The teacher films a peer or an adult performing the target skill (e.g., dressing or grooming). Typically, these films are brief and have little or no narration. Then the student watches the video prior to the teaching session. After watching the video, the student is prompted to perform the target skill. Most of the research on the use of video modeling with children on the autism spectrum has used this approach (e.g., D'Ateno, Mangiapanello, & Taylor, 2003; Nikopoulous & Keenan, 2003, 2004).

Self-modeling differs from basic video modeling in that a student observes him or herself performing the target skill. This form of video modeling may be very motivating for some students. There are two basic methods used to create self-modeling videos: role-playing and imitation (Buggey, 2009). Role-playing is useful for students who can follow directions and act out a script. In these cases, the student is prompted with the script while being videotaped. When using imitation, the camera is focused on the child and an adult provides prompts to help the child demonstrate the target behavior. During the editing process for either method, the prompts are removed so that the video shows the child performing the behavior "independently." If a child has difficulty with role-playing and imitation, self-modeling videos may be created by filming the child over a period of time and capturing examples of the target behavior (Buggey, 2009). However, creating these videos may require more time for filming and more skill in video editing to piece together an example of a mastery performance. Bellini and Akullian (2007) conducted a literature review to examine the effectiveness of basic video modeling and video self-modeling for children and adolescents with autism. The results suggested that there was no difference in skill acquisition, maintenance, and generalization between the two approaches. Although more research is needed to determine which approach is most effective for which skills and which type of learners, using a model other than the focus student may be more efficient for some teachers because this approach typically involves less time filming and editing than the other approaches.

During the winter, Adrian had difficulty negotiating the end-of-the-day routine. He needed to put his chair on his desk; put on his coat, hat, and gloves; get his backpack; and get in line. He could perform each of these skills, but had difficulty completing the tasks in the appropriate sequence and required prompts to transition between tasks. Because he had mastered other skills through video modeling, his teacher decided to make a video of a peer completing this routine. She observed Adrian's peer, Juan, in the routine with his classmates, wrote a task analysis that also fit Adrian, and then taped the peer moving through the end-of-the-day routine. The tape needed no editing because Juan could complete all of the steps that Adrian needed to learn. The video, "Juan Gets Ready to Go Home," was made available for Adrian to watch. Adrian seemed to like the tape and chose this as one that he watched several times a day. The teacher also played it right before the routine at the end of the day. Adrian quickly made progress. His mother reported that Adrian was more independent in getting ready to leave the house in the mornings.

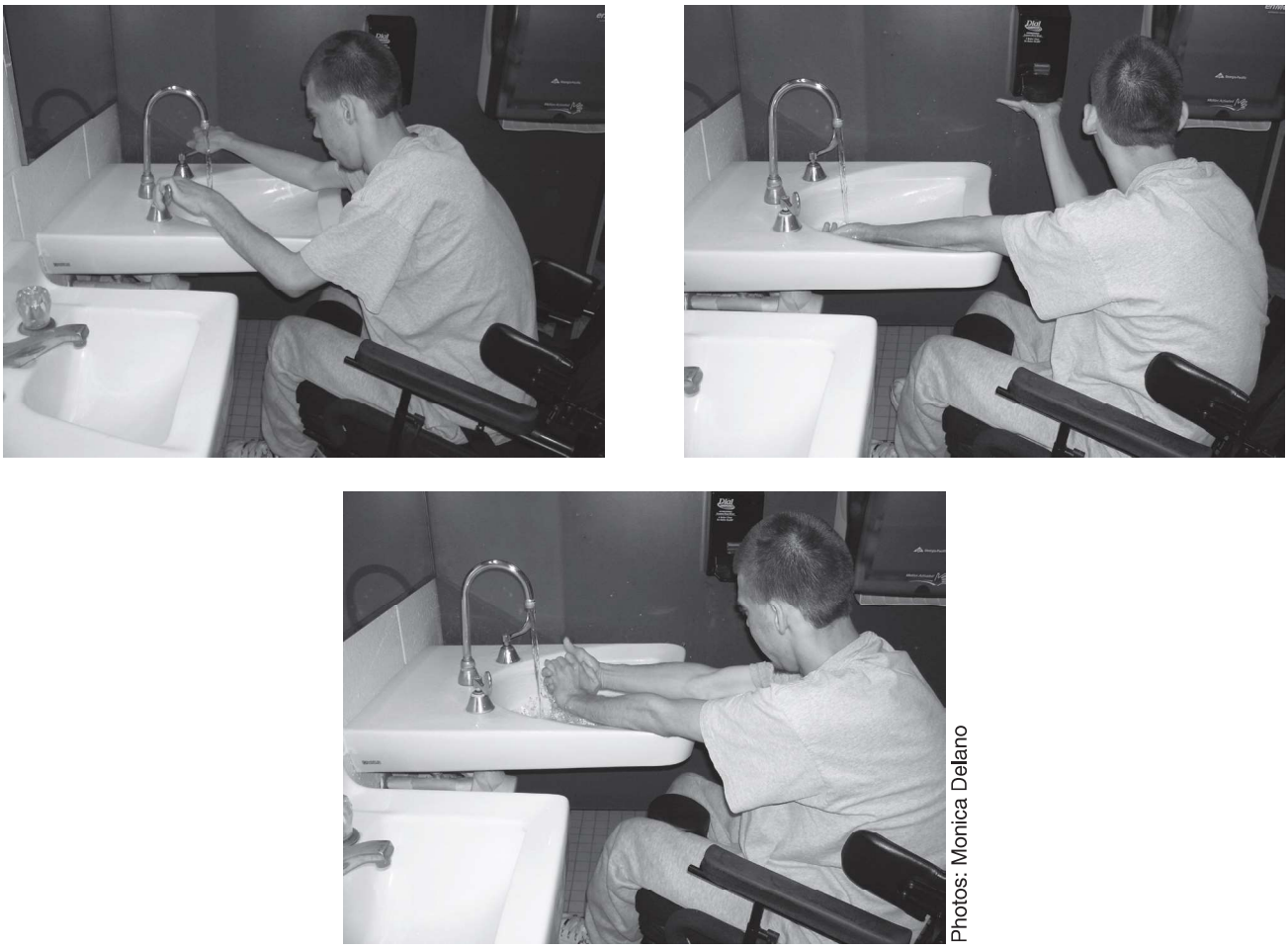
Point-of-view video modeling (Hine & Wolery, 2006) involves creating videos that demonstrate the task from the learner's perspective. In other words, the tape illustrates exactly what the child will see when successfully performing the task. Because the target student is not actually shown, another person performing the skill can be taped in point-of-view video modeling. *Video prompting* is similar to other forms of prompting, except that the task and the taping is broken down into steps. Thus, each step of a task is filmed and later shown as a sequence of short video clips. The student watches the first step of the task and then performs the behavior. This process is continued until the student has finished the task. Although recent research suggests that point-of-view video prompting may be more effective than point-of-view video modeling (e.g., Mason, Davis, Boles, & Goodwyn, 2013), additional research is needed to determine whether one approach is more effective than the other across different skills and types of learners. Rai (2008) used video prompting to teach three elementary school students with disabilities to clean sunglasses, put on a wristwatch, and zip a jacket. Cannella-Malone and colleagues (2006) compared the effectiveness of video prompting with video modeling to teach six adults with developmental disabilities daily living skills. Video prompting consisted of 10 separate video clips, one for each step of the task analysis. The video-modeling tape showed all of the steps of the task analysis in one film. Video prompting resulted in rapid acquisition and video modeling was not effective. Interestingly, the video prompts were filmed from the perspective of the performer, much like point-of-view video modeling, but the video-modeling tapes were filmed from the perspective of the spectator. Thus, the perspective from which the videos are filmed may impact the effectiveness of the intervention.

When Patrick goes to the restroom, a teaching assistant helps him transfer to the toilet. His teacher feels that Patrick has become dependent on verbal prompts to wash and dry his hands after toileting. Because Patrick enjoys watching videos, she decided to use video modeling to increase his independence. She filmed each step of the handwashing routine (e.g., turning on the water, getting soap from the dispenser, washing hands) from Patrick's perspective. After just a few trials, Patrick was completing the routine without prompts (see Figure 10–11).

These versions of video modeling can be useful strategies for teaching self-care and grooming skills. After teachers become comfortable creating videos, they report that video modeling is effective and implementation requires just a few minutes each day.

Social Narratives

A social narrative is a short story that describes the salient aspects of a specific situation that a child may find challenging; many variations of this approach are reported in the literature (e.g., Mirenda, MacGregor, & Kelly-Keough, 2002). Social narratives have been used to teach a variety of social, behavioral, and communication skills.



Photos: Monica Delano

FIGURE 10–11
Patrick is independently washing his hands when there is an accessible sink and the soap and towel dispenser are within reach.

There is some initial evidence that a specific type of social narrative, called Social Stories™, may be useful in teaching self-care skills (Bledsoe, Myles, & Simpson, 2003; Hagiwara & Myles, 1999). For example, Hagiwara and Myles (1999) taught two children with autism spectrum disorders a handwashing task using computer-based Social Stories™. The computer-based stories contained the text of the stories, videos of the participants performing the task, and an audio player to present the story. Participants were taught to view the story, and did so once each day. Although the children demonstrated gains, the results were somewhat variable. Thus, practitioners should consider combining social narratives with additional interventions and strong reinforcement contingencies.

Self-Management

Teaching students to self-manage their dressing or grooming performances is a well-documented maintenance strategy. Several types of stimuli (e.g., pictures, picture checklists, audio-recorded messages, videos, and word lists) can be used to teach students to prompt and monitor their own performance of a series of self-care tasks that they already know how to accomplish in part. Material prompts like these may or may not be faded, depending on the student, but such prompts are designed by the team to be non-stigmatizing, easily carried, and independently used.

Prompts That Are Effective with Dressing and Grooming Skills

A variety of systematic prompting approaches have been successful in teaching dressing and grooming skills. These general approaches are described in Chapter 5; here, we provide more detail on one method—simultaneous instruction. Simultaneous instruction or prompting of self-care skills involves ongoing physical prompting, with fading determined by student performance on regularly conducted probe trials. During probe trials, students are asked to perform the entire task without assistance, errors are ignored, and these steps are completed for the student without comment. Training trials involve cuing the student to look at task materials, giving a task request, and prompting and praising the student on each step of the task, with a choice of activity reinforcer offered at the end.

For example, Batu (2008) used simultaneous prompting to teach four children with developmental disabilities a variety of home skills, including dressing (e.g., tying shoes). Different materials were provided for each session in a multiple-exemplar format. The prompting procedures for teaching wearing socks and tying shoes were modified to include modeling and verbal plus partial physical prompting. This procedure was effective in promoting acquisition and maintenance of skills. Participants could also generalize skills across trainers.

Parrott, Schuster, Collins, and Gassaway (2000) used simultaneous prompting to teach five school-aged children with intellectual disabilities to wash their hands. The researcher assessed student performance in a probe trial each afternoon and completed one-to-one instruction twice daily. The researcher first provided an attentional cue (i.e., "Are you ready to work?") and then delivered the task direction (i.e., "Walk to the sink and wash your hands."). Following the task direction, the child received full physical assistance throughout the task. The child received continuous verbal reinforcement contingent on correct and compliant responding and, if applicable, instructive feedback (e.g., "This is cold water and this is the hot water."). The child also received a reward after each intervention session. A variety of trainers (e.g., classroom teacher, paraprofessionals) implemented simultaneous prompting to encourage generalization.

Toby's team members used simultaneous prompting to teach him to remove and hang up his jacket several times a day. Team members found this method easy to use. Figure 10–12 shows his mother withholding her help in order to probe his performance and assess how much he has learned. Once he gets the steps correct on a probe, he is not prompted on those steps again during training sessions.

Chaining

As explained in Chapter 5, teachers may use three different chaining approaches to teach multiple-step tasks: (a) forward chaining, (b) backward chaining, and (c) total task. Forward chaining and total task are often used to teach dressing and grooming skills. In forward chaining, the instructor teaches the first step of the task analysis and helps the student through the remaining steps on each trial. When the student masters the first step, instruction shifts to the second step. The student is expected to complete the first step, receive instruction on the second step, and receive assistance on the remaining steps. This process continues until the student has mastered each step of the task analysis. Forward chaining has been used to teach menstrual care (Epps, Stern, & Horner, 1990; Richman, Reiss, Bauman, & Bailey, 1984). Epps et al. (1990) faded prompts by requiring students to return to the beginning of the task after errors until they performed without a prompt. Thus, whenever students made an error, they practiced the appropriate response with the prompt until they performed it correctly. Then, the students were taught to begin the task again, and no prompt was given. Richman and colleagues (1984) used an alternate forward-chaining approach to teach feminine hygiene. On the first trial, the women were prompted through the entire task. Then they were allowed to perform independently on the

FIGURE 10–12
Toby has learned to remove and hang up his jacket when he arrives at school.

task until their first error. Errors were followed by having the women practice the missed step with verbal assistance until they could complete the step independently. Next, they were asked to begin the task again from the beginning. These forward-chaining strategies can be applied to a variety of grooming skills. Both forward chaining and backward chaining have been used to teach dressing skills. Lee, Muccio, and Osborne (2009) investigated the effects of using forward- and backward-chaining procedures to teach dressing skills to six school-aged children with intellectual disabilities. Both approaches resulted in improved performance across all children, suggesting that these methods are equally effective in teaching dressing skills. However, as Muccio and Osborne point out, other factors may have contributed to the success of the intervention procedures, including the use of one-on-one instruction, varying prompt levels, and positive reinforcement.

Dressing and Grooming Materials

In addition to specific teaching strategies, selecting dressing and grooming materials is an important aspect of instruction. When selecting materials for instruction, teachers should use real materials (e.g., clothing, toothbrushes, and deodorant) as much as possible. However, the use of larger clothing for initial instruction, faded over time to appropriate clothing sizes, has been demonstrated as a potent strategy (Diorio & Konarski, 1984; Reese & Snell, 1991). This may be best with students who are not as attuned to fashion or situations in which oversized clothes is the fashion or goes unnoticed (i.e., during dress-up in preschool or kindergarten).

To promote generalization of dressing and grooming skills to new materials and settings, students must learn to use a variety of materials and settings. Teams should

decide what materials and what settings are most appropriate (e.g., non-stigmatizing, preferred, private) and most feasible (e.g., nearby, fits daily schedule). Sometimes in grooming instruction, teachers cannot use real materials and may supplement with artificial or simulated materials. For example, menstrual hygiene instruction for young women with severe disabilities takes longer than a single menstrual cycle. Epps et al. (1990) compared two instructional approaches, both of which involved simulation: (a) changing artificially stained underwear or a pad on oneself, and (b) using a doll and materials to practice these same maneuvers. Women taught using the dolls did not demonstrate generalization of their skills to themselves, but once they were given instruction on themselves, they were able to perform these same skills during their menses. When using task simulations to teach, match the simulation to the actual task as much as possible. The authors in this study agreed with this general practice. They noted that changing pads on dolls differs greatly from performing the same task on oneself. In addition, they found that when the simulated menstrual amount and stain was dissimilar from the woman's actual menses onset, generalization was worse than when the similarity was close. Their materials included examples of different colors and styles of underwear, underwear with stains in different locations, and underwear with no stains.

Team members have many proven teaching strategies to select from when addressing grooming and dressing IEP objectives. When planning how to teach, teams again must select methods that meet the principle of parsimony (Etzel & LeBlanc, 1979)—procedures that are both relatively easy to use and have been demonstrated to be effective with students who have severe disabilities.

LEARNING OUTCOME SUMMARIES

10.01 General Teaching Considerations

Learning Outcome

Describe general strategies that can be used to identify what to teach across multiple self-care skill areas.

Basic self-care skills, which include toileting, eating, dressing, and grooming skills, are areas where most students with severe disabilities will require some instruction. Selection of self-care skills is based on an inventory of the student's daily environments (i.e., ecological inventory) to identify the most important routines and skills for the student to master and the most ideal schedule and settings for instruction. IEP teams will rely heavily on family members and information from related support providers as they work to identify needed skills and write appropriate goals and objectives for the students' IEPs. To determine whether targeted self-care skills are appropriate for instruction, teams should ensure that skills are (a) functional for a student; (b) valued by all team members; (c) suited to the instructional setting; (d) appropriate for the student's chronological age, peer standards, and culture; and (e) possible to acquire within a year.

10.02 Special Considerations for Toileting

Learning Outcome

Describe specific strategies that can be used to identify what to teach, plan how to teach, and evaluate learning in the area of toileting skills.

Initially, the team will need to determine whether the student has a stable pattern of elimination, daily one- to two-hour period of dryness, and is two years of age or older. After the team establishes that the student has these prerequisites, elimination data and task analytic assessment can be used to identify appropriate objectives for elimination and related toileting skills. Elimination data are collected to determine the natural pattern of elimination and involves checking the student at the end of predetermined time intervals and recording dryness, urination, or bowel movement. To measure student performance of toileting skills prior to and during instruction, the team will develop a task analytic assessment generic enough

to be used across different learning environments (e.g., different bathrooms) and materials (e.g., different styles of toilets).

Three general approaches have been effective in teaching toileting skills, each of which emphasizes reinforcement of elimination in the toilet and remaining clean and dry. Traditional methods involve toileting students when the bowel or bladder is naturally full. Systematic schedule training differs in that one or more procedures associated with intensive methods (listed below) are included and regular toileting is increased. Finally, intensive methods include (a) access to fluids in order to create more frequent bladder tension; (b) dry-pants checks; (c) increased training time each day; (d) long periods in the bathroom; and (e) may include accident interruption, moisture-signaling devices, and request training. Teams should carefully consider the appropriateness and effectiveness of different consequence strategies when using any of these methods. Ongoing collection of elimination data will serve to guide the team's evaluation of student performance and inform any necessary program modifications.

10.03 Special Considerations for Eating and Mealtimes

Learning Outcome

Describe specific strategies that can be used to identify what to teach, plan how to teach, and evaluate learning in the area of eating and mealtime skills.

Before assessment or instruction occurs, the team will need to determine whether the student has the necessary prerequisites to receive instruction in independent eating. These include an active gag reflex and other basic skills such as sucking, maintaining closed lips, swallowing, biting, and chewing. Additionally, the team will need to ensure that the student is positioned properly to promote safety and success during assessment and instructional sessions. When these conditions are met, the team will conduct a family interview, home visit, or both to gather information about the student's food preferences, dietary needs, food allergies, and any behaviors that may interfere with instruction along with family preferences about mealtime routines and relevant cultural traditions. The team then will consider the student's present level of performance and information gathered through the family interview and/or home visit to develop eating and mealtime objectives.

Several different teaching strategies have been successful in teaching eating and mealtime skills. Specifically, graduated guidance and shaping procedures are recommended for teaching core eating skills (e.g., pick up soon, scoop food) and promoting independent eating during the acquisition stage of learning whereas other strategies (e.g., reinforcement alone, error correction, peer modeling) may be more appropriate for advanced stages of learning. Task analyses may be used to guide instruction and progress monitoring when appropriate. Highly individualized, multicomponent instructional packages are effective in addressing challenging mealtime behaviors (e.g., food selectivity). However, when a student engages in highly dangerous mealtime behaviors (e.g., extreme weight loss, pica), teams may need to seek out the expertise of medical professionals and behavior analysts to address these behaviors. As with other self-care skills, continuous data collection of student performance and outcomes will be necessary so that the team can make informed decisions regarding instruction and program modifications.

10.04 Special Considerations for Dressing and Grooming

Learning Outcome

Describe specific strategies that can be used to identify what to teach, plan how to teach, and evaluate learning in the area of dressing and grooming skills.

Teams will use several strategies to select appropriate dressing and grooming skills for instruction. A systematic preference assessment will aid in designing instruction that promotes the development of a student's individual style. The preference assessment can be improved when same-aged peers participate to ensure that choices are age appropriate and consistent with peer standards. The team may wish to interview family members to understand home dressing and grooming routines and family preferences regarding these skills and routines. After this information has been gathered, appropriate skills can be selected for

instruction. Several strategies have been effective in teaching dressing and grooming skills. For example, graduate guidance, time delay, simultaneous prompting, and system of least prompts are all effective in the acquisition stage of learning. Dressing and grooming skills may be enhanced with observational learning, video modeling, self-management, and social narratives or Social Stories™. It should be noted that these enhancement strategies may also support skill acquisition. Whenever possible, team members should plan instruction within natural environments and under natural conditions as doing so increases the learning rate of dressing and grooming skills.

SUGGESTED ACTIVITIES

1. To become more aware of peer and cultural norms, pick an age level (e.g., elementary, middle, or high school) and interview three students about their preferred style of dress and grooming. Then conduct a systematic preference assessment with a same-age student who does not use speech and gather the same information. You may need to use photos or actual objects to supplement your questions. How alike and different are the students' preferences and personal styles? What did you learn that surprised you? How would you use the information that you gathered to assist you in teaching dressing and grooming skills?
2. Select a student who may benefit from video modeling (e.g., attends to video, is able to imitate). Identify a self-care skill from this student's IEP and collect baseline data. Write a task analysis for this skill. Select a type of video modeling (basic video modeling, video self-modeling, point-of-view video modeling, or video prompting) and create a video-modeling tape to teach the skill. Use the video to teach the student and collect data on the student's skill performance. Describe the process that you used to create the video. Did the student's performance change after you implemented video modeling? What other self-care skills would you consider teaching through video modeling?
3. Search the internet for sites that sell adaptive materials for self-care tasks (e.g., adaptive eating utensils, drinking devices, clothing, toileting, and hygiene). Create a resource list for families that indicates the sites and the types of products available.

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