

Adaptations for Managing Daily Activities with Hemiparesis

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Key Terms

Adaptive Clothing	Environmental Modifications
Adaptive Devices	Instrumental Activities of
Activities of Daily Living (ADLs)	Daily Living (IADLs)
Energy Conservation	Work Simplification

Chapter Objectives

After completing this chapter, the reader will be able to accomplish the following:

1. Identify adaptive equipment and techniques that enable participation in activities of daily living (ADLs).
2. Explain how energy conservation and work simplification techniques can improve participation in ADLs.
3. Describe environmental modifications to improve safety and ease of mobility during ADL performance.

INTRODUCTION

Occupational therapy (OT) intervention in stroke rehabilitation is focused on increasing functional independence and participation and can vary greatly from one patient to the next. Limited return of upper and lower extremity function can make participation in activities of daily living (ADLs) quite challenging, and interventions must be tailored to meet the unique needs of each person. One study found that even 4 years following a stroke, stroke survivors continued to report high levels of activity limitation and participation restriction.⁶ Loss of function and disuse of the paretic limb are common, and these upper extremity impairments have been shown to have a negative impact on activity and participation.³ Evidence suggests that OT intervention can lead to significant improvements in ADL performance and participation (Box 6.1). Additionally, recent stroke guidelines recommend that individualized ADL training should be given to all individuals with stroke, according to each person's unique needs and goals.²² While functional recovery of the affected upper extremity is often a priority in therapy, patients with severe hemiparesis may need to rely on compensatory one-handed techniques to be able to perform

daily activities independently.¹³ The occupational therapist must collaborate with each patient to set meaningful and achievable goals, which often involves creative problem solving.

ASSESSMENT

The World Health Organization's 2001 International Classification of Functioning, Disability, and Health²³ provides a useful framework for assessment of health and disability at individual and population levels. Additionally, in order to maintain our "distinct perspective and contribution to promoting the health and participation of persons, groups, and populations through engagement in occupation" (p. S2), the Occupational Therapy Practice Framework¹ should be consulted in assessment, both formal and informal, standardized and unstandardized.

Many assessments have been used in research as well as in clinical practice to assess functional outcomes in patients who have survived a stroke (see Table 6.1). Assessment can be performed at an impairment level, activity level, or participation level. When assessing occupational performance, a therapist must consider both the barriers and strengths for the client. Physical factors such as tone, postural control, balance, sensation, vision, etc., all affect occupational performance. Cognition and perception skills such as insight, safety awareness, problem-solving ability, and neurobehavioral deficits also need to be assessed in relation to functional participation. Additionally, psychosocial factors such as adjustment, motivation, and culture should be considered during all OT evaluations.

The environment in which occupations will take place should also be evaluated in order to optimize participation. This includes the client's home, worksite, classroom, or any other place where he or she regularly participates in meaningful activity. In inpatient rehab settings, the therapist may need to speak with family to obtain information about home and environmental barriers. Family may be able to provide pictures and measurements so that therapists can set up simulations for practice and provide appropriate equipment recommendations. See Chapter 30 for additional information on home modification in order to facilitate participation in daily activities after stroke.

BOX 6.1 Evidence Briefs: Activity of Daily Living Retraining after Stroke

- In a randomized trial, Sahebalzamani et al.¹⁴ found that stroke patients who received self-care education performed significantly better than those who did not following discharge from the hospital.
- Legg et al.¹¹ completed a systematic review and meta-analysis to determine if OT focused specifically on personal ADLs improves recovery for patients after stroke. Nine RCTs with 1258 participants were included in the analysis. The authors found that this intervention significantly improved ADL performance scores and reduced the risk of a poor outcome.
- Steultjens et al.¹⁶ conducted a systematic review to determine the effectiveness of OT interventions in improving outcomes for stroke patients. The authors reviewed 32 studies, including 18 RCTs. They found that comprehensive OT had a significant impact on primary ADLs, extended ADLs, and social participation.
- Trombly and Ma¹⁷ reviewed 15 studies that included 895 participants; 11 of these studies, including 7 RCTs, found that training led to a significant improvement in role participation and ADL performance. The authors concluded that “occupational therapy effectively improves participation and activity after stroke and recommend that therapists use structured instruction in specific, client-identified activities, appropriate adaptations to enable performance, practice within a familiar context, and feedback to improve client performance.”

ADL, Activity of daily living; OT, occupational therapy; RCT, randomized controlled trial.

Additionally, caregivers and other social support should factor into assessment in order for a therapist to appropriately address management of daily activity after stroke. Various levels of assistance may be required, and the type of support needed can vary. Some clients will require physical assistance, while other clients may need supervision for safe performance of ADLs. Additionally, financial resources should be a consideration with regard to home modifications as well as hiring private attendant support. For example, if a client will be living at home with no family present to assist in self-care, that client will need to be able to perform his or her ADLs independently. If a client will have caregiver assistance, techniques used to perform ADLs can be altered to utilize caregiver assistance. Client and caregiver goals and priorities should factor into ADL training after a stroke. For example, if a client is receiving assistance for self-care but has a personal goal to toilet unassisted, the therapist should factor the client’s goals into the intervention.

MODIFYING THE ENVIRONMENT FOR SUCCESS

Before initiating training in ADLs, the therapist should consider positioning and environmental modifications that can help set the patient up for success and increase

safety. In settings where treatment is provided outside of the patient’s home, such as inpatient or outpatient rehabilitation, the therapist should ascertain details of the patient’s home environment in order to ensure that intervention carries over to the patient’s natural context. Room setup that enables safe positioning and mobility performance in the bedroom is a priority for ADL performance. The patient should be able to sit comfortably on the bed with both feet flat on the floor to provide a good base of support. If the bed is too high, the bed frame may need to be removed, adjusted, or replaced. If the bed is too low, bed risers can be used to achieve an optimal height. A firm mattress can improve balance and postural stability when sitting on edge of bed. A bed transfer handle that is positioned on the patient’s stronger side can improve ease and safety of transfers in and out of bed (Fig. 6.1).

Bedroom furniture should be arranged to give the patient a clear path from the bed to the door and bathroom. Obstacles and clutter should be removed, and changes in the floor surface should be avoided if possible. Throw rugs and small carpets may be removed to reduce the risk of falls. Room lighting and temperature are other important factors to consider. Adequate lighting is crucial for both ADL participation and safe navigation of the environment. Temperature can also affect participation as colder temperatures may increase spasticity, making movement more difficult during self-care tasks. See Chapter 30 for detailed review of home modifications.

ENERGY CONSERVATION AND WORK SIMPLIFICATION TECHNIQUES

The therapist may use energy conservation and work simplification techniques to teach the patient ways to prioritize, organize, and limit work in order to save time and energy. The following techniques should be considered:

1. Organize your space. Excess space forces a patient to travel greater distances, draining personal energy resources. For example, if the bathroom is down a long hallway or on another level of the house, a bedside commode and sitting table with a mirror can be set up in the bedroom to enable easier performance of toileting and grooming.
2. Arrange for easy access of supplies by eliminating excess reaching and bending. Shelves are easier to access than drawers. If drawers are used, they are easier to open with a central knob than handles. Closet rods can be lowered to eliminate excess reaching. Heavier items should be stored at counter level to minimize lifting.
3. Place appliances and controls where they can be accessed easily. Lamps, alarm clocks, and telephones should be conveniently positioned. The use of environmental control units such as Amazon’s Echo and Alexa devices can be considered along with apps that help

TABLE 6.1 Examples of Functional ADL Assessments for Stroke Survivors*

Instrument	Brief Description
American Heart Association Stroke Outcome Classification ⁹	The purpose of this instrument is to serve as a standardized and comprehensive classification system to document the impairments and disability resulting from a stroke. The scale considers the number of neurologic domains involved, severity of impairment, and level of function.
Activity Measure for Post-Acute Care (AM-PAC) ²	Measures function in three domains: basic mobility, daily activities, and applied cognitive
A-ONE (Arnadottir, this volume) (see Chapter 25)	Documents level of functional independence in basic ADLs and mobility and underlying neurobehavioral impairments (see Chapter 25)
Assessment of Motor and Process Skills (AMPS) ⁵	Evaluates a person's quality of performance of personal or instrumental activities of daily living (see Chapter 5)
Barthel ADL Index ¹²	Scores for activities are weighted so that the final item scores range from 0 for dependent performance to 15 for independent performance. Total score ranges from 0 to 100. Activities include feeding, bathing, grooming, transfers, dressing, bowel, bladder, toileting, walking, wheelchair use, and stair climbing.
Canadian Occupational Performance Measure ¹⁰	Measures clients' perceptions about performance and satisfaction with self-care, productivity, and leisure. After identifying occupational performance issues, the clients rate their perception of performance and satisfaction with performance on a 1–10 scale. The same scale is used for reassessment.
Functional Independence Measure (FIM) ⁸	Administered by members of the rehabilitation team by direct observation. A detailed scoring system is used, and therapists are trained to administer the FIM in a standardized manner. Items scored on a 1–7 scale include self-care, sphincter control, mobility, locomotion, communication, social skill, and cognition.
Inpatient Rehabilitation Facility–Patient Assessment Instrument (IRF-PAI) ¹⁸	The IRF-PAI is an assessment used by the U.S. Centers for Medicare and Medicaid Services to collect patient data from inpatient rehabilitation facilities and to determine reimbursement for Medicare services.
Modified Barthel Index (MBI) ¹⁵	The MBI is a measure of ADLs that shows the degree of independence of a patient from any assistance. It covers 10 domains of functioning (activities): bowel control and bladder control, as well as help with grooming, toilet use, feeding, transfers, walking, dressing, climbing stairs, and bathing. It uses a 10-item scale where each activity is given one of five levels of dependency ranging from 0 (unable to perform task) to a maximum of 5, 10, or 15 (fully independent).
Modified Rankin Scale ²⁰	A 5-point scale used to rate disability and need for assistance

*See Chapter 5 for other examples.
ADL, Activity of daily living.

manage environmental control (<https://www.amazon.com/Amazon-Echo-And-Alexa-Devices/b?ie=UTF8&node=9818047011>).

4. Eliminate clutter. Thorough cleaning and organization are essential to allow for easy retrieval of commonly needed items.

GENERAL CONSIDERATIONS

Generally speaking, there are various approaches a therapist can employ to increase functional participation. Some clients will improve participation through remediation of their impairments. Other clients will need to rely on compensatory techniques to achieve independence in ADLs. In addition to hemiparesis after stroke, any neurobehavioral deficits (see Chapter 25) that might be present will affect treatment choice and intervention method. A client with intact safety judgment will likely have different options during bathing as compared to a client with poor insight and awareness. Tone and motor ability might also

affect the hemiparetic technique used. For example, flaccid hemiparesis is very different from a hemiparetic limb with hypertonicity (see Chapter 20), and upper extremity dressing techniques may need to be modified based on the presentation of the hemiparesis. Finally, the psychosocial aspects of managing daily activities (see Chapter 15) will affect choice in treatment approach. Resources such as social and emotional support, physical support, financial support as well as personal preferences should be considered in determining best fit for intervention methods.

PERFORMANCE OF BADLs

ADLs retraining for people with limited use of one arm can present challenges to the patient and the therapist. The therapist must consider the following deficits in order to provide appropriate intervention:

1. Impaired postural stability and balance
2. Decreased dexterity and work speed
3. Impaired ability to stabilize task items and body parts



Figure 6.1 Bed transfer handle. (Courtesy North Coast Medical, San Jose, CA, [https://www.ncmedical.com/item_72.html#!prettyPhoto\[pp_gal\]/0/.](https://www.ncmedical.com/item_72.html#!prettyPhoto[pp_gal]/0/))

4. Decreased endurance and increased energy demands on the body
5. Impaired sensory capability such as reduced vision
6. Possible cognitive and perceptual impairments

Eating

The patient should be positioned with feet stabilized on the floor to offer the necessary support and maintain comfortable upright posture when eating. Aspiration precautions (see [Chapter 29](#)) should always be observed to ensure safety with meals. The weaker arm should be positioned on the table with good alignment to promote proper posture as well as attention to the arm. The following adaptive equipment can be considered to increase ease and efficiency during feeding.

- Dycem or nonslip mats can prevent plates and bowls from slipping during use.
- Plate guards and high-low scoop dishes help prevent food from getting pushed off the dish when scooping food or buttering bread with one hand. Scooper plates with a nonskid base are also available to prevent sliding ([Fig. 6.2](#)).
- A rocker knife or pizza wheel can be used to cut food if safety awareness is intact.
- Utensils with built-up handles are useful when engaging the weaker arm in feeding. Foam tubes can be applied to regular utensils to increase grip size.
- Spill-proof cups with lids, such as the Kennedy cup ([Fig. 6.3](#)) (<http://www.kcup.com/kcup.htm>) or cups with a spout lid can encourage the use of the weaker arm during feeding and reduce risk of spills. Depending on



Figure 6.2 Scooper plate. (Courtesy North Coast Medical, San Jose, CA, [https://www.ncmedical.com/item_2475.html#!prettyPhoto\[pp_gal\]/0/.](https://www.ncmedical.com/item_2475.html#!prettyPhoto[pp_gal]/0/))



Figure 6.3 Kennedy Cup. (<http://www.kcup.com/kcup.htm>.)

the patient's ability, two hands may be needed to stabilize the cup when drinking. The Independence Flow Cup is designed to release small amounts of liquid to prevent aspiration.

Showering and Bathing

Safety is an important consideration during bathing, and factors such as transfer techniques, seating and positioning, amount of assistance required, and control of water temperature should all be evaluated. Nonslip mats or adhesive decals should be placed inside and outside the tub or shower. A tub transfer bench and grab bars can



A



B

Figure 6.4 A, Flexible sponge. (Courtesy AliMed®, www.alimed.com/etac-back-washer.html.) B, Wash mitt. (<http://www.alimed.com/etac-back-washer.html>.)

increase safety with transfers and stability during bathing (see [Chapter 7](#)). The patient should be seated with back support and feet stabilized. Plenty of time should be allowed for bathing to avoid rushing, which can lead to accidents. Many patients require supervision or assistance during shower transfers and bathing, and the therapist should help the patient and caregivers determine the appropriate amount of assistance needed to bathe safely.

- A handheld shower head with control of water flow (https://www.ncmedical.com/item_386.html#!prettyPhoto) can help prevent scalding and make it easier to rinse soap and shampoo.
- Place toiletries within easy reach so that they can be safely accessed. Hooks can be installed so that the shower head and other supplies can be accessed without difficulty.
- Pump bottles can be used for liquid soap and shampoo to make it easier to use one hand.
- Long-handled sponges or loofahs can increase ease and safety with washing. A sponge with a curved or flexible handle ([Fig. 6.4A](#)) (<https://www.alimed.com/etac-back-washer.html>) can bend in any direction to wash difficult to reach areas such as the back, stronger arm, axilla, and shoulder.

- A bar of soap can be placed inside of a soaper sponge to enable washing without needing to hold a slippery bar of soap. “Soap on a rope” can be made by using a corkscrew to form a hole in the bar of soap and then rope can be threaded through the hole. Alternatively, soap can be placed in knee-high pantyhose and tied to the shower seat.⁷ A wash mitt with a pocket to hold soap can encourage the use of the weaker arm during bathing ([Fig. 6.4B](#)).
- A lightweight towel or terry cloth bathrobe can be used to save energy when drying. To dry the back and stronger arm, the patient can place the towel over the shoulder and reach behind the back to grasp the other end. The towel can then be pulled across the back.

Washing at the Sink or in Bed

- If the patient is unable to access the bath or shower due to impaired mobility or other safety concerns, bathing can be performed seated at the sink. The weaker arm and axilla can be placed in the sink basin for easier access and washed with the stronger side. The unaffected arm can be washed by placing a soapy washcloth over the edge of the sink and rubbing the stronger arm over it. As mentioned above, an adaptive sponge can be used to wash the rest of the body.
- Toenails and feet can be cleaned with a footbrush ([Fig. 6.5A](#)) (<https://www.alimed.com/alimed-deluxe-foot-brushes.html>) or The Footmate System ([Fig. 6.5B](#)).
- If the patient does not have the ability to wash up at the sink due to poor postural control or endurance, bathing can be performed in bed. A total-body, pH-balanced cleanser can be used for bathing and incontinence care. A no-rinse shampoo cap may be helpful for washing hair.

Grooming

Oral Care

- Aspiration precautions (see [Chapter 29](#)) should be considered when performing oral care, and modified techniques should be used if the patient is unable to safely use water when brushing teeth. A suction toothbrush can be used with a suction unit in order to prevent aspiration.
- To apply toothpaste, the toothbrush can be stabilized with the weaker arm if possible or it can be stabilized between the teeth. A built-up grip, such as a foam tube, can make it easier to hold the toothbrush with the weaker hand. Flip-top toothpaste bottles or a toothpaste dispenser may make toothpaste application more efficient.
- An electric toothbrush can improve ease and effectiveness when brushing teeth, and dental floss picks can make one-handed flossing easier. A Waterpik water flosser can also be considered.



Figure 6.5 A, Foot brush. (Courtesy AliMed®, www.alimed.com/alimed-deluxe-foot-brushes.html.) B, Footmate system. (Courtesy North Coast Medical, San Jose, CA, <https://www.maxiaids.com/footmate-complete-foot-care-system>)

- Dentures can be soaked overnight in a mild denture cleaning solution, as recommended by the patient's dentist. A suction denture brush may help with one-handed cleaning. A towel can be placed on the counter or in the sink so that the dentures do not break if dropped.

Deodorant

- To protect the weaker shoulder when applying deodorant, the patient should bend forward at the hips to allow the arm to passively move away from the trunk.
- If the patient has difficulty applying stick or roll-on deodorant to the unaffected axilla, a deodorant spray may be easier to use.

Hair Care

- Hairstyle is a personal and individualized choice. Some individuals with hemiparesis may find shorter, low-maintenance hairstyles easier to manage.
- Long-handled hair brushes or combs may help some patients use their weaker arm when styling hair. Lightweight splinting material or foam tubes can also be used to increase grip size and extend handles of favorite grooming tools.
- Hands-free hair dryer stands or wall mounts are commercially available and can leave the unaffected arm free to style hair. A position-adjustable hair dryer can also be devised using a lightweight blow dryer, a desk lamp with spring-balanced arms, a tension control knob at each joint, and a mounting bracket.⁴ Hair dryer attachments can also help with hair styling.

Shaving

- An electric razor may increase safety during shaving and should be considered for patients who are taking

blood thinners or who have limited motor control or safety awareness.

- High-quality razors and shaving cream may also help prevent nicks and cuts.

Makeup

- Bright lighting and makeup mirrors may make makeup application easier.
- Pump bottles can make liquid foundation application simpler as makeup can be applied directly to the face and then blended with brushes.
- Makeup holders or small containers can be used to stabilize supplies. Dycem or nonslip rubber mats can be used to prevent slippage. Suction cups can also be considered to help stabilize products.

Nail Care

- Nail care should be performed regularly for hygiene and skin integrity and must also be completed with caution. The individual's sensory, motor, visual, cognitive, and perceptual abilities as well as the condition of the nails should all be considered to ensure safety and prevent injury. All nail care should be performed with good lighting and postural support with the upper extremities in a supported position.
- Nail care of the weaker hand can be performed with the hand supported on a table. If the weaker hand has significant spasticity that causes the fingers to curl in, a resting hand splint or other positioning device may be needed to keep the hand open.
- Fingernails of the unaffected hand can be cleaned using a nail brush with suction cups.
- Press-On One Handed Nail Clipper can help individuals clip the nails of the unaffected hand. With this



Figure 6.6 A, Press-On One Handed Nail Clipper. B, ClipDifferent Automatic One-handed Nail Clipper. C, Nail clipper with suction base. (<http://www.maddak.com/presson%20one-handed-nail-clipper-p-27960.html>. Courtesy © ClipDifferent, GBC. www.clipdifferent.com, https://www.ncmedical.com/item_432.html.)

- device, fingernails are inserted into the clipper, and the jaws of the clipper close when the lever is pressed (Fig. 6.6A).
- The ClipDifferent Nail clipper is an automatic fingernail clipper that gently trims fingernails via one-handed push-button operation (Fig. 6.6B).
- If the individual has some use of the weaker hand, a nail clipper board with suction feet can be attached to the table and used to clip the nails of the unaffected hand (Fig. 6.6C).
- A suction emery board can be helpful for filing the nails of the unaffected hand. A normal emery board or sandpaper can also be glued to a piece of wood or taped to a table to stabilize it.
- Nail polish can be applied to the unaffected hand by mounting a clothespin on a piece of wood with a C-clamp to hold the polish brush. The polish is applied when the nail is moved in relation to the brush.
- Some patients will need a caregiver or podiatrist to clip their toenails due to a variety of safety concerns. Toenails are most easily accessed with the foot crossed over the knee or with the feet supported in bed. For patients with difficult lifting their legs or bending, a pistol-grip toenail clipper may be helpful if vision and safety awareness are intact and there are no sensory deficits in the feet. An emery board can be attached to splinting material to create a long handle that can be used to file toenails.



Figure 6.7 The Feminal. (Courtesy A+ Products.)

Toileting

- A toilet paper dispenser should be mounted within easy reach of the unaffected side to allow for one-handed retrieval with minimal reaching or twisting. Moist wipes can be used in place of toilet paper and might be preferable for patients with incontinence.
- Another option for hygiene is a bidet. Attachments can affix to the toilet seat to assist with cleaning and drying after toileting. These items are both commercially available and can be found through medical supply companies.
- The Feminal is another option for women who require adapted toileting. It is designed so that a woman can urinate in a reclined, seated, or standing position. When gently pressed against the body, the shape creates a leak-proof seal (Fig. 6.7).
- For female patients who require catheterization after a stroke, self-catheterization mirrors are useful in keeping the legs spread apart as well as providing a better viewing angle.

DRESSING

There are a number of different techniques and approaches for dressing with hemiparesis. The individual needs of each patient should be considered as well as the presence of caregivers who may be assisting the patient. Regular practice with dressing during OT intervention has been shown to lead to significant improvements in performance.²¹ Resources such as the Occupational Therapy Toolkit^{TM7} provide handouts for one-handed dressing techniques that can be helpful for patients and caregivers to carryover techniques learned in therapy.

General Principles

- Allow for adequate time and rest breaks.
- Set up the task to allow for success without excessive effort.
- Use loose-fitting clothing with limited fasteners, such as elastic pants or shorts, during initial training.

- Personal style is important. Gaining techniques and successes can help the person find out what types of adaptations will be needed to wear styles that they enjoy.
- Hemiparetic clothing management can be challenging and awkward at first. Ensure safety by setting up the task with correct positioning from the beginning.
- Focus on the benefits of practice over time to encourage the patient to build new routines.

Positioning

- Before starting training in hemiparetic dressing techniques, optimal positioning should be considered. The patient should be seated in a stable chair with both feet placed firmly on the floor to create a solid base of support and improve postural stability.
- In hospital settings, dressing may be initiated in the hospital bed with the head of the bed elevated or with the bed in a chair position.
- If the patient has poor trunk control or impaired sitting balance, the trunk should be firmly supported against the backrest of a chair to ensure stability.

Fasteners

- Try larger buttons or hooks. A ring or loop can be added to the zipper tab to make it easier to pull zippers up and down.
- A favorite shirt with buttons can be altered by removing the buttons and sewing them onto the outside button holes. Velcro can then be sewn over the inside button holes so that the shirt can be easily closed.
- Regular zippers are quite difficult to fasten with one hand. To wear this type of clothing, the zipper can be kept fastened at the bottom, and the garment can be donned overhead, provided that it is big enough. A large safety pin can be placed at the bottom of the zipper to prevent the zipper from detaching.
- Magnetic fasteners used in adaptive clothing can make dressing much easier. Patients with implanted medical devices such as pacemakers should consult with their doctors before using these garments as magnets can interfere with such devices.

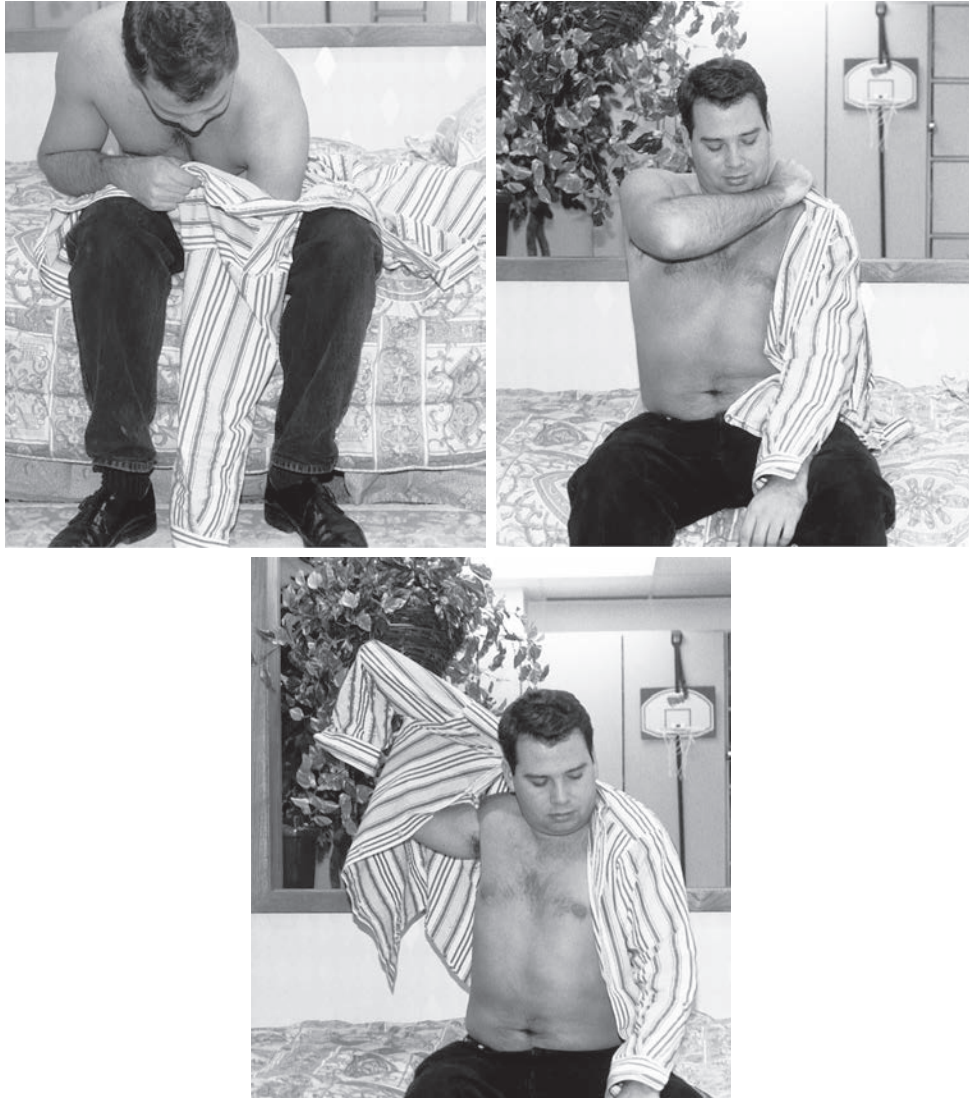


Figure 6.8 Sequence for upper extremity dressing for a patient with left hemiplegia.

- Adaptive garments from online retailers use hidden magnetic and Velcro closures with decorative buttons on the outside to maintain a normal appearance. Clothing with magnetic zippers allows for one-handed fastening and can now be purchased from brands such as Tommy Hilfiger's Tommy Adaptive clothing line (<https://usa.tommy.com/en/tommy-adaptive>).

Upper Body Dressing

Pullover Garment

1. Use the shirt tags to identify the front and back of the shirt. Place the shirt face down on the lap with the top of the shirt towards the knees.
2. Use the unaffected arm to open the shirt sleeve of the weaker side and place the weaker arm through the opening. Pull the sleeve up the arm and over the elbow.
3. The stronger arm can then be placed through the other sleeve and the shirt can be pulled over the head.
4. The stronger arm can then push the shirt over the weaker shoulder and pull the shirt down over the trunk.

Garment with Front Fasteners (Fig. 6.8)

1. Position the weaker arm between the legs and pull the sleeve onto the arm and over the shoulder using the stronger arm.
2. Pull or swing the shirt around the back as much as possible. Grab the collar of the shirt on the other side and pull the shirt forward over the stronger arm. This arm can then be placed in the other sleeve.
3. As previously described, Adaptive fasteners can make it easier to close the shirt in the front. Shirt sleeves can be expanded by sewing a piece of elastic into the shirt cuff to eliminate the need to manage the cuff button.¹⁹ The top button of a shirt collar can be replaced with Velcro, or adaptive clothing from commercial retailers can be considered.

Bras

- Bras should be donned by putting the affected arm in first. Elastic pullover bras, such as sports bras, or front-fastening bras are easier to manage than bras that fasten in the back.
- Depending on the elasticity of the bra, back-fastening bras may be clasped first and then pulled on overhead. Bra extenders can be purchased to make donning easier by increasing the circumference. Bra fasteners can be substituted with larger hooks or a Velcro strap with a D-ring.
- A back-fastening bra can be donned by clipping the back strap of the bra to the front of the underwear using a clothes pin. The bra is moved around the torso to fasten it in the front. The bra can then be twisted around the waist into the correct position. Place the weaker arm in the strap first and then the stronger arm.¹⁹
- A Buckingham Bra-Angel (Fig. 6.9) may be helpful for some patients and uses a technique similar to the one described earlier.

Ties

- Neck ties that are permanently tied or clip-on ties may be a good alternative to conventional ties, which are difficult to manage with one hand. Adaptive styles are available for purchase, such as a Zip Tie, which fastens with a zipper closure (<https://www.buckandbuck.com/mens-zip-tie.html>).

Lower Body Dressing

Pants and Underwear in Bed

1. Bend the weaker leg toward the body using the stronger arm or leg to bring the foot within reach. Pull the underwear or pants over the weaker leg and allow the leg to straighten into the clothing.
2. Place the stronger leg into the clothing and pull the pants up as far as possible. Place one or, if possible, both feet on the bed and bridge to lift the pelvis. Pull the pants up over the hip of the stronger side using the stronger arm. Then, while lifting the hips again, reach across to pull up the pants over the weaker hip. It may take several attempts to move the pants up to the waist. If the person is unable to bridge, pull the pants up over the hips by rolling side to side.
3. Elastic pants or pants with adaptive fasteners may make donning and doffing pants easier.

Pants and Underwear in a Seated Position (Fig. 6.10)

1. While seated on a stable surface with feet on the floor, cross the weaker leg over the stronger leg using clasped hands to lift the leg. Nonslip drawer liner can be placed between the legs if needed to keep them crossed.⁷
2. Place the pant leg over the weaker foot and continue to pull it on the leg until the foot can be seen. Then place the stronger leg into the pants and pull both pant legs up as far as possible.



Figure 6.9 Buckingham Bra-Angel. (Courtesy © BUCKINGHAM HEALTHCARE, www.buckinghamhealthcare.co.uk/.)

3. If able to stand safely, the person can stand and use the stronger hand to pull the pants up over the hips. To prevent the pants from falling down once standing, a pant clip can be used. A pant clip can be made from two small clips with holes in the tabs. The clips can be tied together with a string, with one clip attached to the shirt and the other attached to the pants (Fig. 6.11) (<https://www.performancehealth.com/pant-clip>). This prevents the pants from falling down around the ankles once the person stands up.
4. If unable to stand safely, the person can remain seated and shift side to side to work the pants up over the hips. Looser pants with stretchy fabric, such as workout clothes, will work better for this technique.

Skirts

- Skirts can be donned using a technique similar to the one described above for pants. Stretchy skirts with elastic waistbands or skirts with larger openings may be donned overhead provided that they fit over the trunk.

Socks (Fig. 6.12)

- To don socks while seated in a chair, cross the weaker leg over the stronger leg using clasped hands to lift the

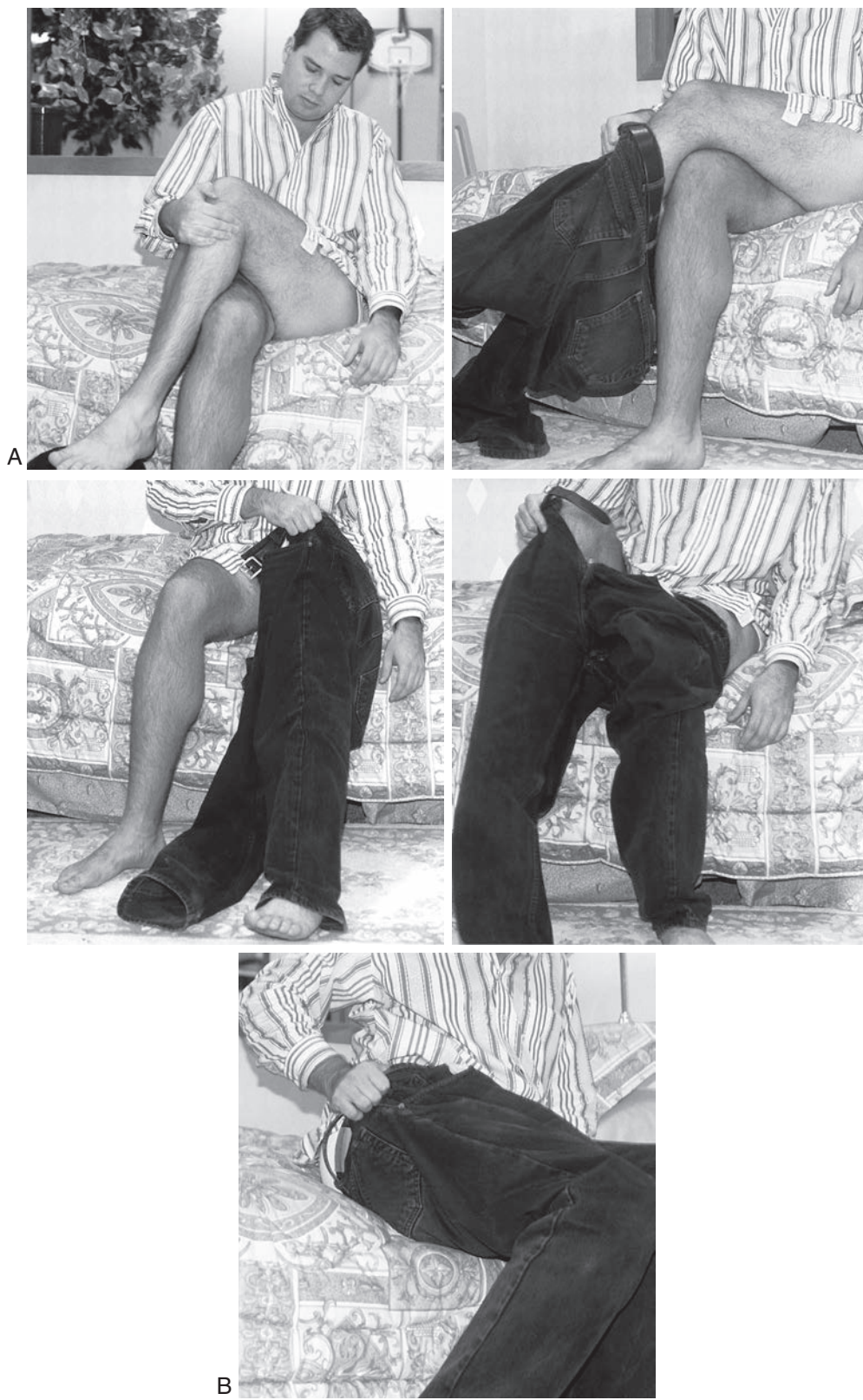


Figure 6.10 Sequence for donning pants and underwear for a patient with left hemiplegia.