

Suggestions for
Preventing Musculoskeletal Disorders

Home healthcare is one of the fastest-growing professions, currently employing more than 1 million workers in the United States. Unfortunately, these workers sustain an exceptionally high rate of musculoskeletal disorders. This is the first article in a two-part series providing information and suggestions for preventing overexertion that can lead to such disorders.

This article is the first of a two-part series.

Overexertion from lifting and moving patients is a common cause of work-related injuries among healthcare personnel. According to the Bureau of Labor Statistics (BLS) (1992), overexertion injuries are those that result from excessive physical effort during activities such as lifting, pulling, pushing, turning, and carrying. For several years, the overexertion injury rate in home healthcare workers has been more than double the national rate for all industries, ranking among the 10 highest reported by the BLS (1994–2001). Among all injuries/illnesses experienced by healthcare workers, overexertion injuries in the back, shoulders, and neck are the most prevalent. Studies reviewed by Galinsky et al. (2001) indicate that home healthcare workers have higher musculoskeletal loads, more frequent stressful postures,

related to equipment and its safe use. For example, some home health agencies have a policy requiring that a physical therapist accompanies the home health aide on the first visit if the lift/transfer device is a part of the patient's plan of care.

Ergonomics

The most effective method for reducing the likelihood of musculoskeletal disorders is suitable ergonomic design. Ergonomics refers to the design of work tasks to best accommodate natural human capabilities. In the context of healthcare, ergonomics can be used to enhance the comfort and safety of both workers and patients. The approach involves the use of assistive devices and strategies that allow the patient's activities of daily living to be accomplished without physical strain or discomfort on the part of the worker or the patient.

Recognizing the success of ergonomics in reducing overexertion injuries, the Occupational Safety and Health Administration (OSHA) issued a document entitled "Guidelines for Nursing Homes: Ergonomics for the Prevention of

Musculoskeletal Disorders," which can be accessed at <http://www.osha.gov/ergonomics/guidelines/nursinghome/index.html> (OSHA, 2003). In addition, the Veterans Administration has developed a series of resource guides, which can be accessed at the Web site www.visn8.med.va.gov/patientsafetycenter (VISN 8 Patient Safety Center, 2006). Both sites place emphasis on hospitals and nursing homes, but they both provide a wealth of information on all aspects of safe patient handling and an extensive listing of equipment and vendors that can have applicability to home care.

General Intervention Measures

The following are simple, relatively inexpensive measures that may reduce the risk of injury for those working in the home healthcare environment.

in Home Healthcare Workers

Part 1: Lift and Transfer Assistance for Partially Weight-Bearing Home Care Patients

and higher rates of injuries and sick leave than do many other occupational groups, including manual laborers, such as construction workers.

The level of exertion required to assist a patient often depends on the patient's physical capabilities. Approaches for assisting patients who can bear very little or none of their own weight will be described in the second article of this series, which will appear in the next issue of this journal. Approaches for assisting patients who have a higher degree of upper body strength or weight-bearing ability are described in the current article. This article also discusses equipment to help prevent musculoskeletal injury. It should be noted that the use of sound ergonomic principles along with suitable equipment is necessary for minimizing the risk of injury. In addition, staff should be aware of their organization's policies

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Figure 1. Transfer sheet. (Copyright SureHands Lift & Care Systems, Pine Island, NY. Reprinted with permission.)

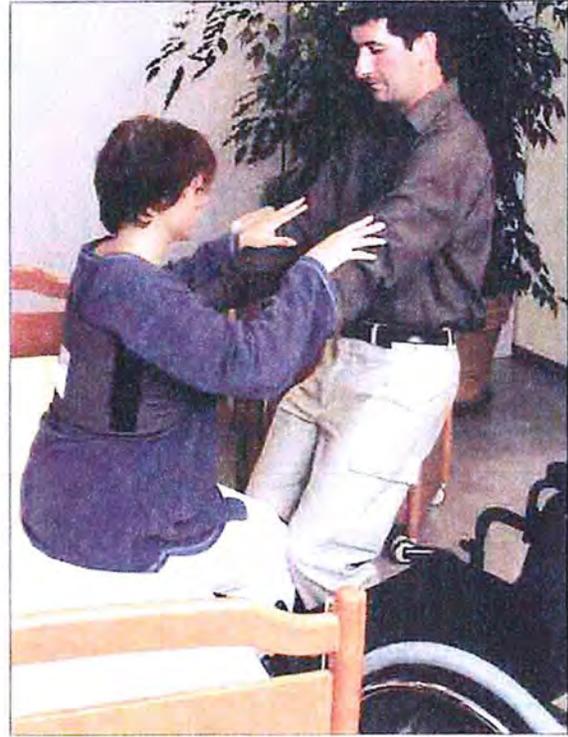


Figure 3. Patient transfer sling. (Copyright SureHands Lift & Care Systems, Pine Island, NY. Reprinted with permission.)



Figure 2. Transfer/slide board. (Copyright SureHands Lift & Care Systems, Pine Island, NY. Reprinted with permission.)

- Take a comprehensive look at all tasks currently provided for the patient. Assess the possibility of creating ways in which the patient can safely perform tasks without assistance. Independence fosters self-esteem, and the more tasks a patient can perform without assistance, the less exertion must be applied by the healthcare worker.
- Consider rearranging the furniture if the patient is agreeable, to maximize open area around the patient's bed, chair, and primary transport paths. Try to remove all obstacles that might hinder one's ability to work safely and comfortably with the patient.
- Examine the patient's walking path to the bathrooms, eating areas, and sitting areas. Remove or securely tape down rugs with double-sided tape, remove cords and any other loose materials in the walking path that could cause the patient or worker to slip, trip, or stumble.
- Review a free publication by the Centers for Disease Control and Prevention (CDC), which can be downloaded from <http://www.cdc.gov/ncipc/pub-res/pubs.htm>. The publication, "What YOU Can Do To Prevent Falls," con-

tains helpful tips on reducing falls at home. If you do not have Internet access, you can call 1-800-35-NIOSH (1-800-356-4674) to request this publication.

- Be proactive! Take the initiative to review available safety materials on lifting and transferring techniques provided by your employer and be aware of agency policies related to safety.
- Discuss with your employer, patients, and your patients' other healthcare team members the possibility of obtaining and using assistive devices. In some cases, the costs for such devices are either fully or partially covered by insurance and require a physician's prescription. Most importantly, once a device is obtained, it is imperative that all individuals who use it are thoroughly trained to use it safely and properly. This training is typically provided by reputable companies once equipment is purchased. Ask the company representative if equipment-specific training will be provided once the equipment is obtained. If the company does not provide training on the equipment, it is recommended that another vendor be identified who does offer the necessary training. Several types of commercially available assistive devices are described here.

Basic Assistive Devices

For the purposes of this article, we are using knowledge gained largely from studies in nursing

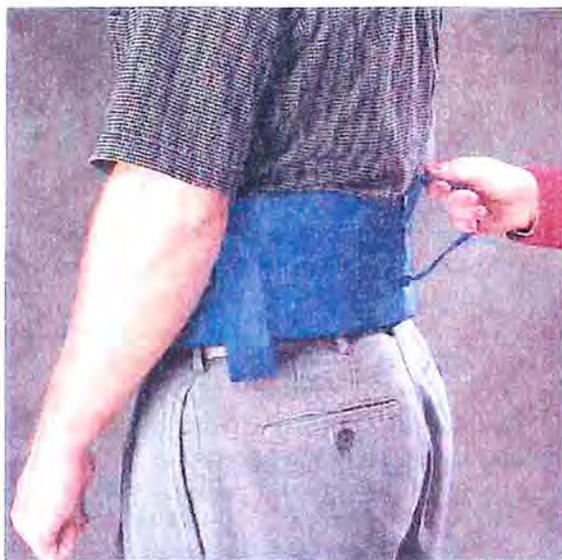


Figure 4. Walking/gait/transfer belt. (Copyright Sammons Preston Rolyan, Bolingbrook, IL. Reprinted with permission.)



Figure 5. Portable seat lift. (Copyright Sammons Preston Rolyan, Bolingbrook, IL. Reprinted with permission.)

homes and hospitals and from examining commercially available assistive devices, to make suggestions regarding basic ergonomic equipment and strategies for home healthcare settings. The appropriate equipment and strategies necessary for safe patient handling vary for every situation. It is best to thoroughly assess the degree of intervention required for each situation and determine the most appropriate assistive devices based upon individual need and level of patient impairment. Know that some devices will not accommodate heavy or obese patients. Weight capacity specifications must be adhered to for the safety of the patient and that of the home healthcare aide or other team members.

The following types of devices are generally small, portable, and reasonably inexpensive yet when used properly can reduce the likelihood of injury (Collins & Owen, 1996; Garg & Owen, 1994).

- A friction-reducing **transfer sheet** (Figure 1) can be used to slide or rotate a patient in bed when repositioning or preparing for transfer. This minimizes awkward postures and reduces the force required to move a patient. If a high-friction/nonslippery draw sheet is all that is available, a large plastic trash bag situated under the draw sheet can serve to reduce friction during repositioning tasks.
- A **transfer/slide board** (Figure 2) can be used when a patient with some upper body strength is moving from one level surface to another, such as from bed to wheelchair. Keep in mind that trunk stability is needed for sitting upright. There are many variations of these boards.
- A **patient transfer sling** (Figure 3) can be used when assisting a patient up in bed or toward the edge of the bed for repositioning or transfer purposes. Use of a sling reduces the amount of bending and pulling required by the worker.

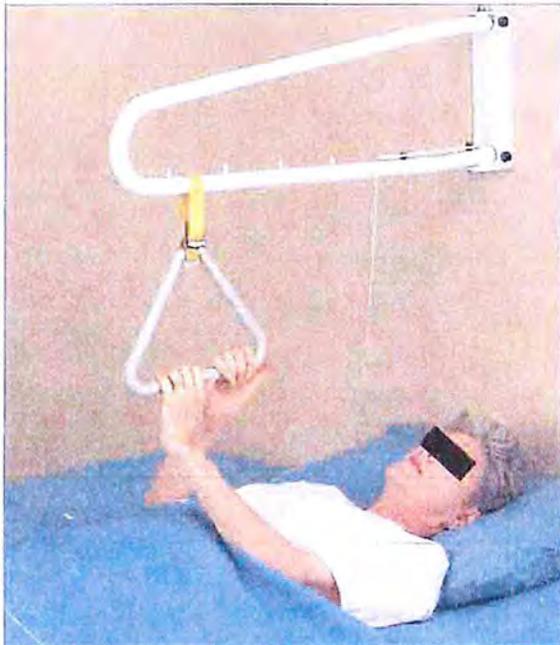


Figure 6. Triangle/trapeze bar. (Copyright Sammons Preston Rolyan, Bolingbrook, IL. Reprinted with permission.)

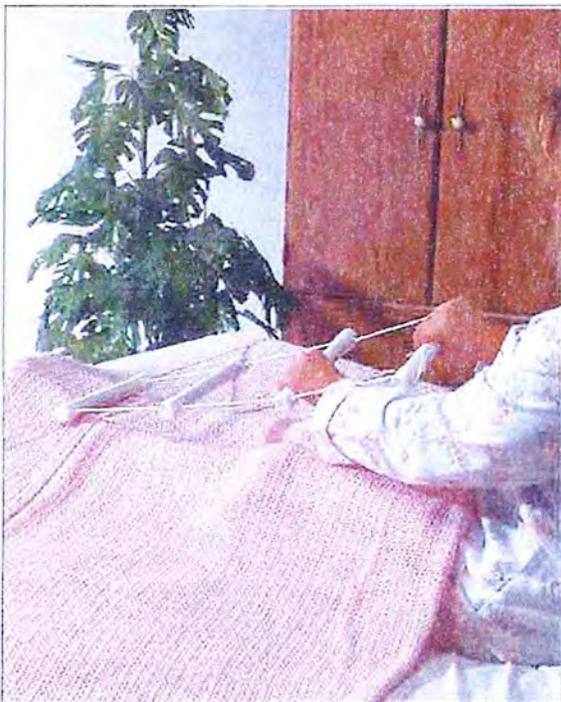


Figure 7. Rope ladder. (Copyright Sammons Preston Rolyan, Bolingbrook, IL. Reprinted with permission.)



Figure 8. Rotation disk. (Copyright SureHands Lift & Care Systems, Pine Island, NY. Reprinted with permission.)

- A **walking/gait/transfer belt** (Figure 4) can be used for any transfer involving an ambulatory patient exhibiting impaired mobility or balance. The belt provides a handle to promote a secure, stable grip when transferring an ambulatory patient to or from a seated position and while assisting a patient in walking.
- A **portable seat lift** (Figure 5) can be used with most types of chairs to assist a weight-bearing individual with standing or sitting. In many instances, the use of a seat lift can eliminate the need for aide assistance. If some degree of assistance is still necessary, these lifts can reduce the amount of bending and pulling required by the aide because many of these mechanical seats can lift as much as 80% of the individual's weight. Similarly, **sit-to-stand** or **lift chairs** containing built-in lift mechanisms are also commercially available. These types of chairs may be more comfortable than portable seat lifts; however, they are nonportable and considerably more expensive.
- A **triangle or trapeze bar** (Figure 6) can be installed directly over the bed for use by a patient with some degree of upper body strength, allowing her/him to assist in repositioning or to do so independently. In addition, these overhead bars can aid in the maintenance of upper body strength. However, concerns have arisen because of anecdotal evidence linking the use of trapeze bars with cumulative trauma disorders, such as rotator cuff and biceps injuries, particularly among



Figure 9. Bathtub-specific swivel seat. (Copyright Sammons Preston Rolyan, Bolingbrook, IL. Reprinted with permission.)

patients with long-term injuries who use the bars on an ongoing basis during wheelchair transfers and repositioning tasks (Lloyd, 2004). Currently, research is being conducted by the Veterans Administration (VA) to further explore that possibility. Preliminary results of this research suggest that the use of overhead triangle/trapeze bars is associated with musculoskeletal injury in patients (A Nelson, personal communication, November 19, 2004). Recently, the VA has discontinued the use of these overhead bars, opting instead to use lateral side-repositioning bars attached to beds. The use of overhead triangle/trapeze bars continues to be prevalent in the home setting and is cited as being useful in reducing the physical demand placed on the aide. However, possible effects on the patient should be kept in mind when considering the use of triangle or trapeze bars in home healthcare.

- A patient with some degree of upper body strength can use a **rope ladder** (Figure 7), secured to the bed's footboard, to pull him or herself up to a seated position and for balance when repositioning.
- A **rotation disk** (Figure 8) can be used for either standing or seated transfers. Use of these rotating disks reduces the amount of twisting required by the aide and by the patient.

- A **bathtub-specific swivel seat** (Figure 9) provides similar benefits as rotation disks and can be installed in a bathtub to reduce the amount of bending and twisting during transfers and bathing tasks.
- **Grab bars** can be installed strategically in and around the bathtub, toilet, sink, and bed to provide a handle for pulling oneself up and to lend stabilizing support for the patient or the worker. Before grab bars are installed, it is necessary to know all specified weight limitations and determine whether the bars will accommodate the intended users.
- **Adjustable and raised toilet seats** can reduce the amount of bending, stooping, and twisting required by the aide and may enable the patient to transfer her/himself by equalizing the heights of the wheelchair and the seat. Some of the newer models provide a self-raising/lowering toilet seat to assist the patient with independently sitting and standing.
- Using **bathtub-specific transfer benches, boards, and chairs** while transferring a patient from wheelchair to bathtub and back to wheelchair can minimize bending and twisting.
- Placement of **nonslip mats** or adhesives in the tub and around the sink and toilet can reduce the risk of slips and falls.
- A **hand-held shower head** can minimize bending and stretching while bathing the patient.

Conclusion

Increased life expectancy, improvements in medicine, and shorter hospital stays all contribute to an ever-increasing demand for home healthcare services. According to the BLS (1997), the home healthcare industry employed 250,000 workers in 1989, 500,000 in 1994, and 1.25 million (projected) in 2005. Home health and personal care aides are expected to remain among the fastest-growing occupations during the next decade, with a much faster than average employment growth rate of at least 36% (BLS, 2003). The need for ergonomics in home healthcare will continue to grow. Without these interventions, more and more workers will experience overexertion injuries. ■

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