Focus On...

Falls Prevention and Home Modifications

Preventing falls and aging in place—these are two of the biggest concerns for Americans as they age, and occupational therapy researchers, clinicians, and educators are doing a great deal to help, as detailed in the articles and other materials brought together here as part of AOTA’s “Focus On” edition on falls prevention and home modifications.

Along with fact sheets, a how-to guide, and links to evidence supporting occupational therapy’s key role in these areas, the articles and resources here cover the many types of community-based programs that occupational therapy practitioners can help create to help people prevent or reduce falls, provide advice on evaluating homes for poor lighting and other hazards, and offer profiles of occupational therapy practitioners working with other rehabilitation professionals and home contractors to allow residents to engage safely and as conveniently as possibly in valued occupations.

Reducing Fall Risk: A Guide to Community-Based Programs
Elizabeth W. Peterson
*OT Practice*, September 12, 2011

Standing Tall: A Self-Management Approach to Fall Prevention Intervention
Elena Espiritu Wong
*OT Practice*, September 9, 2013

Light the Way: Providing Effective Home Modifications for Clients With Low Vision
Debra Young
*OT Practice*, September 10, 2012

Bathroom Safety: Environmental Modifications to Enhance Bathing and Aging in Place in the Elderly
Tacy Van Oss, Michael Rivers, Brianna Heighton, Cherie Macri, and Bernadette Reid
*OT Practice*, September 10, 2012

Home Modification and the Therapeutic Value of Advocacy
John Hurtado
*OT Practice*, September 26, 2011

Occupational Therapy and Rebuilding Together: Working to Advance the Centennial Vision
Claudia E. Oakes and Cathy Leslie
*OT Practice*, September 10, 2012

Occupational Therapy Gives Rebuilding Together That “Little Sweetness”
Andrew Waite
*OT Practice*, September 9, 2013

Caroline Bartlett Crane’s Everyman’s House: Historical Home Design and Home Modification Today
Carla Chase and Suzanne Roche
*OT Practice*, September 26, 2011

AOTA Official Document: AOTA’s Societal Statement on Livable Communities

AOTA Fact Sheet: Occupational Therapy and the Prevention of Falls

AOTA Fact Sheet: Home Modifications and Occupational Therapy

AOTA Tip Sheet: Remaining in Your Home as You Age

AOTA Tip Sheet: Helping Your Older Parents Remain at Home

Falls Prevention Presentation How-To Guide

For More Information: AOTA Evidence and Research Resources

Note: At the time individual items were published, prices and products were up to date. Please check http://store.aota.org or www.aota.org for current information.
Reducing Fall Risk

A Guide to Community-Based Programs

Elizabeth W. Peterson

Occupational therapy practitioners’ commitment to fall prevention increasingly involves linking older adults to community-based programs designed to reduce fall risk. This trend is fueled by improved availability of these programs as well as high demand. Community-based programs can extend benefits associated with clinical intervention. Many older adults are seen by occupational therapy practitioners in traditional medical or home care settings immediately after a fall-related injury—a time when many clients prioritize managing immediate self-care needs over learning about longer-term fall prevention strategies. Once clients’ medical status and lives have stabilized, however, they are more likely to have the psychological and physical energy needed to begin fall prevention efforts in earnest.

The dynamic nature of occupation requires older adults to routinely make good activity choices to avoid falls. Therefore, community-based programs that draw from participants’ day-to-day experiences to help them create individualized fall prevention strategies are valuable. Programs such as Matter of Balance1,2 and the Stepping On Falls Prevention Program (Stepping On),3 foster participants’ ability to develop and apply fall risk management skills that can be generalized to a variety of situations. These programs address diverse factors contributing to falls and help participants understand how risk factors work together to increase the chance of falling. This is important because although falls can be caused by “stand alone” problems such a heart arrhythmia, most result from interacting risk factors. These risk factors may be physical, environmental, behavioral, or attitudinal, as in the case of an older adult who develops a fear of falling. The

Community-based programs can draw from participants’ everyday experiences to help create individualized fall prevention strategies.
influence of fear of falling on fall risk should not be underestimated. Although some concerns about falling are protective and keep a person from engaging in activities with demands that exceed abilities, research suggests that many people who are afraid of falling enter a debilitating spiral of loss of confidence, restriction of physical activities, physical frailty, falls, and loss of independence.4–5 Further, these studies show that people who limit activity because of fear of falling are at particularly high risk of becoming fallers.4–5

Community-based exercise programs designed to reduce fall risk are increasingly available to older adults in the United States. It is important to recognize that Stepping On and Matter of Balance complement exercise-based interventions because they help participants develop attitudes that support engagement in healthy behaviors, emphasize the importance of exercise to fall risk reduction, and include exercises during most program sessions (see Table 1 on p. 17). The Centers for Disease Control and Prevention (CDC) has undertaken a major initiative to disseminate two exercise programs: the Tai Chi: Moving for Better Balance Program, and the Otago Exercise Programme (Otago), as well as Stepping On.

This article describes falls as a prevalent but preventable problem among community-dwelling older adults and summarizes key features of four programs that have been rigorously evaluated and are available in many states: Matter of Balance, Stepping On, Tai Chi: Moving for Better Balance, and Otago. Because occupational therapists were centrally involved in the development of Matter of Balance and Stepping On, expanded details of those programs are provided.

A GROWING PUBLIC HEALTH PROBLEM

Falls are a serious public health problem in the United States and internationally. Approximately 30% of older adults (i.e., people aged >65 years) living in the community fall each year, and the likelihood of falling increases rapidly with advancing age.7

For healthy and active older adults, a serious fall-related injury can be the introduction to old age. For more vulnerable seniors, falls can be a marker for frailty and the result of a larger geriatric syndrome that ultimately leads to disability, dependence, and death.8 The financial costs associated with falls are staggering, with the direct medical costs of fall injuries totaling more than $26.3 billion annually.9

Both single factor interventions (e.g., exercise programs; withdrawal of drugs for improving sleep, reducing anxiety, treating depression) and interventions with multiple components are effective in preventing falls among community-dwelling older adults.10–11 Individualized evaluation leading to identification of a person’s unique fall risk factors is essential to developing effective treatment plans. The recently updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons12 highlights this point and describes a decision-making process that clinicians (including occupational therapists) can use to evaluate clients’ fall risk and develop effective intervention plans. Occupational therapy practitioners are uniquely prepared to contribute to fall prevention efforts due to their attention to diverse influences on occupational performance13 and ability to use a variety of intervention approaches. These approaches range from prevention and remediation to modification and disability prevention.14

MATTER OF BALANCE

Matter of Balance is a multicomponent, group intervention explicitly aimed at reducing excessive concerns about falling and activity avoidance.5 The program was developed by an interdisciplinary team at Boston University that included an occupational therapist, and has been evaluated through two randomized trials that used health care professionals as interventionists.4–2

Both trials demonstrated the program’s ability to accomplish its primary objective, which is to increase falls self-efficacy (i.e., perceived self-efficacy or confidence at avoiding falls during essential, nonhazardous activities of daily living).15 In the most recent trial, there were significantly fewer recurrent fallers in the intervention group.2

The conceptual model used in Matter of Balance is based on the work of Bandura, a leading social theorist, and cognitive behavioral theory (CBT).16 Matter of Balance addresses attitudes and beliefs about falls, and the ability to manage concerns about falls while fostering adaptive behavioral changes such as engaging in exercise, communicating
assertively, and mitigating fall hazards in the home.\textsuperscript{17} In Matter of Balance, cognitive restructuring techniques are used extensively to help participants identify, evaluate, and change maladaptive beliefs regarding falls and fall risk. Additional intervention strategies, based on CBT, range from generalization (applying lessons learned through CBT to future situations) and self-assessment of behavior, to role playing and training in problem solving.

The group process is very important in Matter of Balance. Program participants model adaptive behavior, persuade each other that steps can be taken to reduce falls, and brainstorm strategies to accomplish goals described in personal action plans. These positive peer experiences are carefully fostered by the program facilitators because they are essential to building participants’ falls self-efficacy. Homework activities include applying the program content and help to bridge one session to the next. Matter of Balance facilitators use a manual to maintain program fidelity. Although the program sessions are highly structured, numerous discussions and activities support participants’ efforts to apply program content to their daily lives.

Evidence demonstrating that low falls self-efficacy is a fall risk factor\textsuperscript{18} has grown tremendously in recent years and has contributed to the popularity of Matter of Balance. The program’s availability across the United States has also improved dramatically over the past 5 years due to the success of a second version of Matter of Balance, the Volunteer Lay-Led (VLL) model. 

**MATTER OF BALANCE VLL MODEL**

With funding from the Administration on Aging, a VLL model of Matter of Balance was developed and subsequently evaluated through a repeated measures study.\textsuperscript{19} Matter of Balance VLL is now a licensed program available through MaineHealth’s Partnership for Healthy Aging, which uses numerous strategies to uphold high standards for program quality and foster participant retention. As part of the Matter of Balance VLL, a guest health care professional is invited to present specific content during one of the eight sessions. Occupational therapists often serve in this role and share their expertise on topics including physical fall risk factors (e.g.,

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<tr>
<th>Key program outcomes</th>
<th>Matter of Balance</th>
<th>Stepping On</th>
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<tr>
<td>• Reduce fear of falling and increase falls self-efficacy</td>
<td>• Increase knowledge of factors that can contribute to falls</td>
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<tr>
<td>• Increase activity levels</td>
<td>• Increase engagement in fall prevention behaviors</td>
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<tr>
<td>• Reduce falls</td>
<td>• Reduce falls</td>
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<th>Who delivers the program?</th>
<th>Matter of Balance</th>
<th>Stepping On</th>
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<tr>
<td>• Original version: health care professionals</td>
<td>• Original version: occupational therapists</td>
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<tr>
<td>• Volunteer Lay-Led Model: trained lay leaders</td>
<td>• U.S. version: a professional who works with older adults.</td>
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<tr>
<th>Number of sessions</th>
<th>Matter of Balance</th>
<th>Stepping On</th>
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<tr>
<td>• Original version: 8 or 9</td>
<td>• 7 sessions plus a home visit (recommended) and a booster session</td>
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<tr>
<td>• Volunteer Lay-Led Model: 8</td>
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<th>Target audience</th>
<th>Matter of Balance</th>
<th>Stepping On</th>
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<tr>
<td>• Community-based older adults who curtail activity due to fear of falling</td>
<td>• Community-based older adults who are at risk of falling, have a fear of falling, or have fallen one or more times.</td>
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<th>Shared features of the interventions\textsuperscript{3}</th>
<th>Matter of Balance</th>
<th>Stepping On</th>
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<td>• Use of manual to maintain fidelity</td>
<td>• Emphasis on diverse fall risk factors</td>
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<td>• Use of groups</td>
<td>• Use of groups</td>
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<td>• Dedication to client-centered practice</td>
<td>• Dedication to client-centered practice</td>
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<tr>
<td>• Use of social cognitive theory</td>
<td>• Use of social cognitive theory</td>
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<td>• Use of diverse content delivery methods</td>
<td>• Use of diverse content delivery methods</td>
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<tr>
<td>• Instruction in exercise</td>
<td>• Instruction in exercise</td>
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<tr>
<td>• Improved falls self-efficacy as an outcome</td>
<td>• Improved falls self-efficacy as an outcome</td>
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orthostatic hypotension, leg weakness, compromised balance) and how to get up from the floor after a fall.

The 2-day master training sessions, which prepare master trainers to train and supervise coaches, cover Matter of Balance VLL content, logistics, and group process skills. Master trainers participate in quarterly conference calls, and the Partnership for Healthy Aging has dedicated staff members who support master trainers as needed. The program is now offered in 36 states and has reached more than 25,000 older adults.

STEPPING ON
Stepping On is a multifaceted, community-based program that uses a small group learning environment to improve falls self-efficacy, encourage behavioral change, and reduce falls.2 Developed by a research team led by Lindy Clemson, PhD, occupational therapist and associate professor at the University of Sydney in Australia, Stepping On was evaluated through a randomized trial that demonstrated a 31% reduction in falls among intervention subjects.2 In that trial, the intervention was delivered by an occupational therapist experienced in group work and with 12 years of experience in geriatrics. The program targets older adults who are at risk of falling, have a fear of falling, or who have fallen one or more times.

Stepping On incorporates Bandura’s social cognitive theory, which emphasizes influences on self-efficacy20, recognizes decision-making processes applicable to adopting behaviors intended to reduce fall risk21, and uses evidence-based strategies to sustain prevention behaviors.22 Program facilitators use their group management skills and apply adult-learning principles to foster participation, mutual support, and problem solving. Together, these skills enhance participants’ falls self-efficacy. The supportive and empowering social environment created by Stepping On facilitators is a key influence on the program’s success.

The topics emphasized in Stepping On are widely recognized priorities in fall prevention: exercise, balance, and mobility; home safety; management of visual impairment; and medication review and management.23 The program’s attention to the interplay between physical abilities and environmental stressors reflects Clemson’s expertise as an occupational therapist.

STEPPING ON IN THE UNITED STATES
With funding primarily from the CDC and with Clemson’s guidance, Stepping On has been adapted for use in the United States. Efforts to adopt and disseminate Stepping On are being led by Jane Mahoney, MD, of the Wisconsin Institute for Healthy Aging (WIHA). Stepping On is now a licensed program available through WIHA. In the United States, program sessions are facilitated by a two-person team: a professional who works with older adults, and an older adult.

Numerous resources and processes have been developed by Mahoney and her team to maintain the program’s fidelity and support the effectiveness of professionals delivering the program. For example, a 3-day training program has been developed for individuals who will be delivering the program to older adults. The Stepping On training for facilitators covers the program content (which includes exercises, a recommended home visit, and a booster session that occurs 3 months after the 7th Stepping On session); program management (e.g., logistical details associated with the delivery of the program); principles of adult learning; and the role of the Stepping On facilitator.

EXERCISE-BASED FALL PREVENTION PROGRAMS: OTAGO AND TAI CHI

The Otago Exercise Programme is a home-based, individualized, exercise program designed to improve balance and increase lower limb strength. The strength training is of moderate intensity, using ankle cuff weights. The balance retraining exercises increase in difficulty and progress from exercises using support to free-standing activities.24 Delivered in participants’ homes, Otago is intended for people who do not want to attend or cannot reach a group exercise program or recreation facility.25 The program consists of four home visits over a 2-month period, telephone calls to maintain motivation, and a booster session.25

Developed and tested by a research team at the University of Otago Medical School, New Zealand, the program is now used worldwide. A meta-analysis of the home-based trials showed an overall fall reduction, and fall-related injury reduction of 35%.26 Eager to increase the availability of Otago in the United States due to its strong evidence base, the CDC is beginning to find program sponsors and to demonstrate Otago’s reimbursement potential. There is also potential for the program to be delivered by home health providers. The CDC is developing a train-the-trainer program to deliver Otago and is currently targeting physical therapists for those training programs.

TAI CHI: MOVING FOR BETTER BALANCE

Tai Chi is an alternative exercise form that emphasizes weight shifting, postural alignment, and coordinated movements with synchronized breathing.27 Tai Chi: Moving for Better Balance is a specific Tai Chi program that has been evaluated through two randomized controlled trials. Those trials demonstrated the efficacy of the program in improving functional balance, strength, and flexibility and, consequently, reducing fear of falling and the risk of falls in sample populations of healthy community-dwelling older adults.28-30

In a 2005 trial, Tai Chi: Moving for Better Balance was provided by experi-
programs that reduce fall risk have a number of resources available to them (see For More Information). The CDC is developing an infrastructure that will give older adults access to evidence-based programs. The CDC has also provided new funding to Oregon, Colorado, and New York to increase their capacity to disseminate Stepping On, Tai Chi: Moving for Better Balance, and Otago. The Partnership for Healthy Aging continues to guide a well-informed community of Matter of Balance trainers and coaches across the country. The National Council on Aging is facilitating a national coalition and a growing state coalition workgroup to promote national awareness of the importance of fall prevention and to support education and training of providers who can deliver effective community interventions. Finally, AOTA is working hard to improve opportunities for reimbursement of community-based programs. The growing dedication to fall prevention among so many has created new opportunities for occupational therapy practitioners to empower older adults to safely live meaningful, occupation-ally rich lives.

**References**


Elizabeth W. Peterson, PhD, OTR/L, FAOTA, is a clinical associate professor and director of professional education at the University of Illinois at Chicago. Peterson has been involved in fall prevention research for more than 2 decades. She has served as AOTA’s representative to the NCOA-led Falls Free Initiative and on the Expert Panel to Update the Fall Prevention Guideline of the American Geriatrics Society and the British Geriatrics Society. Peterson was co-investigator of the Boston University study that led to the development and evaluation of Matter of Balance and is currently an invited member of the CDC’s Fall Prevention Expert Panel.
A Self-Management Approach to Fall Prevention Intervention

ELENA WONG ESPIRITU

By incorporating an evidence-based self-management approach into fall prevention interventions, occupational therapy practitioners can support their clients in taking a more active role in managing fall risk on a daily basis.

A previous fall is one of the strongest risk factors for falling again; therefore, for some older adults, being at risk for falls can be considered a chronic state. Although many adults who have fallen stop participating in valued activities out of fear of doing so again, many others prefer to maintain their regular routines and roles. They accept that fall risk is a reality, but instead of stopping participation in valued activities, they prefer to focus on how to prevent a fall rather than not participate at all. Managing fall risk requires older adults to make daily choices about how they participate in valued occupations.

A self-management approach has been widely implemented with clients with chronic disease (e.g., arthritis, diabetes, asthma, heart failure) as a means of supporting them to become more active in their own care, facilitating better daily management, and mitigating the burden of chronic disease. Evidence supports the effectiveness of this type of self-management. Yet therapists can incorporate a self-management approach into their fall prevention interventions to complement their current practice and enable older adults to safely continue their engagement in valued activities.

SELF-MANAGEMENT: DEFINITION, TASKS, CORE PRINCIPLES, AND SKILL DEVELOPMENT

Self-management includes the attitudes, beliefs, and skills that enable a person to manage the effects of a chronic condition on his or her life. Self-management is also a process that individuals engage in as they collaborate with their health care providers to more actively manage their conditions. It is a continuous process that can change as a person’s situation changes; therefore, learning to self-manage a condition takes time and experience.

To be a successful self-manager, a client must engage in medical management, role management, and emotional management. When clients successfully manage these three things, they are more active in their health care and, overall, experience increased quality of life. See Table 1 on page 15 for definitions of self-management tasks.
Principles are core elements or rules that govern behavior and processes. Core principles that guide self-management efforts include: (1) a focus on wellness as opposed to illness; (2) clients, not health care professionals, accepting responsibility for managing the illness, including making necessary behavior changes; (3) clients taking control of their situation and accepting autonomy to make their own decisions; (4) an individualized approach, with clients defining the problems and interventions tailored to meet their specific needs; and (5) a collaborative relationship in which the health care professional and the client work together in a mutually beneficial, respectful partnership, with each person bringing an expertise to the relationship. The health care professional knows information about the condition and treatment options, and the client is an expert in his or her own life and circumstances.

In a self-management approach, respect for client choice is foundational and overarching. By exploring and developing specific self-management skills, clients can better manage their chronic conditions. Six important self-management skills for chronic disease management are self-monitoring, problem solving, decision making, action planning, finding and using resources, and communicating. By developing and integrating these skills into their daily routines as they approach problems, clients’ abilities and confidence in managing chronic conditions will improve. See Table 2 for definitions of self-management skills.

**SELF-MANAGEMENT SUPPORT**

Self-management support is what health care professionals do to assist clients who are engaged in a self-management process. Professionals do this through educating, sharing information, and supporting skill development. Health care professionals also create situations in which clients can trial, modify, and increase their ability to use self-management skills within the context of their daily lives.

Occupational therapy practitioners are well qualified to support their clients in developing self-management skills because of their expertise in daily occupations. Promoting a person’s health and participation in life through engagement in occupation is core to occupational therapy practice. By collaborating with clients, occupational therapists can help them identify what they both need and want to do. Occupational therapists have the skills and abilities to observe a person participating in a valued activity and help him or her identify objective and subjective supports and barriers to occupational performance.

**CASE EXAMPLE: FRED**

Fred was a 62-year-old widower living in Dallas, Texas. Fred’s medical history included hypertension, diabetes, chronic obstructive pulmonary disease (COPD), coronary artery disease, and gout. During a recent hospitalization for a COPD exacerbation, Fred also experienced a gout flare up that kept him in bed for almost a week due to the pain, which led to pneumonia and a deconditioned state. Since his hospital discharge, Fred had been receiving home health physical and occupational therapy services to help him increase his activity tolerance and overall strength so he could return to his prior level of functioning.

Fred lived in a two-story townhouse. His bedroom and bathroom were located on the second floor. Fred noted that the stairs were more difficult to manage, especially after

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<tr>
<th>Table 1: Self-Management Tasks Definitions</th>
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<tr>
<td><strong>Medical management</strong> Clients are knowledgeable about their conditions, able to monitor signs and symptoms, and understand and engage in their treatments.</td>
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<td><strong>Role management</strong> Clients are able to maintain, change, and create new meaningful behaviors or life roles to maintain quality of life, such as taking on new job responsibilities, delegating household tasks to others in the family, and modifying the way they participate in hobbies.</td>
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<tr>
<td><strong>Emotional management</strong> Clients address the emotional aspects of having a chronic condition, which can alter one’s view of the future, by learning to manage emotions such as anger, fear, frustration, and depression.</td>
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<th>Table 2: Self-Management Skills Definitions</th>
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<td><strong>Skill</strong></td>
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<tr>
<td>Self-monitoring</td>
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<td>Problem solving</td>
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<td>Decision making</td>
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<td>Action planning</td>
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<td>Finding and using resources</td>
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<td>Communicating</td>
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Service Learning in Fall Prevention at TWU–Dallas

Lacy Jackson and Noralyn Pickens

As part of Falls Prevention Awareness Day last year, the Master of Occupational Therapy students at Texas Woman’s University (TWU)–Dallas campus contributed to a local senior living community by facilitating fall prevention screenings.

Edgemere is an independent living community in the heart of Dallas, where residents are able to live independently in apartments while having on-site access to assisted living, skilled nursing, and memory care services and facilities, in anticipation of their changing needs (www.edgeredereallas.com). In keeping with Edgemere’s mission of providing health-and-wellness programs, it has teamed up with the Masterpiece Living program, a lifestyle and wellness resource developed from the McArthur Foundation Study on Aging that promotes independence and healthy lifestyles in residents’ spiritual, physical, intellectual, and social lives (www.masterpieceliving.org). Masterpiece Living works to quantitatively and qualitatively evaluate clients in the aforementioned areas in order to identify those areas where residents might benefit from therapeutic intervention and through involvement in activities already offered at Edgemere.

Through Virginia Chandler-Dykes, a resident of Edgemere, the administration invited the occupational therapy master’s students from TWU to participate in completing part of the Masterpiece Living assessments. Chandler-Dykes, a recipient (along with her husband, Roland) of the 2012 AOTA Certificate of Appreciation for sustained philanthropic service to occupational therapy education, is a retired occupational therapist and health advocate. TWU–Dallas Student Occupational Therapy Association (SOTA) President Katie Springer; and Debbie Buckingham, occupational therapist and health advocate at Edgemere.

Although the physical therapist recommended that Fred use a wheelchair when out in the community because of leg weakness, he had chosen not to do so because he did not want to inconvenience his son with loading and unloading it from the trunk. Two other factors influenced Fred’s decision about the wheelchair: It blocked the aisle in the church sanctuary, and when he used it at the grocery store, he could not reach items off the top shelves. Therefore, he preferred to steady himself while walking in the community by reaching out for external surfaces like furniture, door frames, and rolling grocery carts.

Since his gout flare-up, Fred’s feet had been swollen and tender, so he had primarily worn his house slippers rather than his regular shoes. The slippers were easier for him to slip his feet into, but they made his gait more unsteady. As a result, there were times at church and in the grocery store when people inadvertently bumped into him and he almost lost his balance because of the crowded environment. Fred was concerned about falling in the future.

Fred enjoyed working in his yard—in particular, tending to his small vegetable garden. He stored his gardening tools on a top shelf in his garage and stood on a ladder to access them. Since his hospitalization, Fred’s garden had become overgrown with weeds, which made it difficult for him to maneuver when he went to pick his vegetables.

Fred’s home health occupational therapist, Megan, identified a number of fall risk factors during her initial evaluation of Fred, and she also asked Fred what concerned him about his current physical condition, home environment, and activities.

Fred stated that he was concerned about falling, as he was not as strong or steady as he used to be. He specifically identified walking up and down the stairs to get to his bedroom and being able to continue gardening, which was one of his most valued activities, as two of his top priorities to address during his occupational therapy sessions. Megan decided that incorporating some education, information sharing, and self-management skill development into her treatment sessions with Fred would be a beneficial way of collaborating with him and allowing him to take an active role in decreasing his fall risk.

To address his concerns about gardening, Megan asked Fred to record over a 1-week period the signs, symptoms, and situations that made gardening more difficult. As they reviewed his list, Megan noticed that it was more difficult for him to get up and down from the ground when his blood sugar was low and on the days when he chose (depending on how he felt that day) not to take his Lasix medications, making his breathing more labored because of his COPD (an...
example of self-monitoring). Megan reiterated the importance of Fred taking his prescribed medications, including his Lasix, as ordered by the physician, as his breathing was affecting his ability to participate in gardening. Fred also identified that the current location of his gardening tools were putting him at a higher risk for falls because he had to climb a ladder to reach them. Megan and Fred brainstormed and generated a list of other places he could store his tools that were more accessible and decreased his chances for injury (an example of problem solving). Of the possible options, Fred decided he wanted to buy a rolling garden cart that could serve two purposes: He could store his tools in it, and by rolling instead of carrying his tools, he could conserve energy that could be spent on gardening (an example of decision making). He could also sit on the cart as needed, limiting the number of times he would have to get up and down from the ground. Megan encouraged Fred to try out the rolling garden cart over the next week and monitor his symptoms to see whether things became easier. If Fred was still experiencing difficulty, they could refer back to the list for alternative solutions.

Fred was excited to try out this solution and see whether it helped him feel safer from falling when gardening. He also felt empowered that he had been part of the problem-solving process.

Fred also decided that he would like to start making plans to move his bedroom downstairs. Megan worked with Fred to look up phone numbers of local contractors who could repainting the room and install a walk-in shower (an example of finding and using resources). Fred made a plan to call three of the companies by his next occupational therapy session to schedule appointments for estimates (an example of action planning). When Megan asked how confident he felt that he could accomplish this goal, in order to measure his self-efficacy, he reported having a confidence level of 9 on a 10-point scale. Finally, Fred said that he would inform his children about his plans and specifically talk to his son about helping him move the boxes of paperwork into the garage the next Sunday when he came to pick him up for church (an example of communicating). By breaking down the task into smaller, concrete steps, Fred was not as overwhelmed with the idea of moving his bedroom downstairs, and he felt confident that he could accomplish these tasks over the next week.

Megan actively involved Fred in the process of identifying areas to work on during his occupational therapy sessions. She provided information and created situations for him to trial using his self-management skills and modify his actions, leading to Fred’s increased ability to develop realistic steps to decrease his fall risk. This also increased his emotional management of his fear of falling, which meant a decreased fear of it. The self-management skills that Fred learned could be applied to other aspects of his life as he continued to participate in meaningful activities while effectively managing his fall risk.

CONCLUSION

A self-management approach is highly consistent with the values and core
beliefs of occupational therapy. Occupational therapy practitioners have a great opportunity to truly engage their clients in collaborative relationships, supporting them in continued participation in meaningful activities. By incorporating an evidence-based self-management approach into current fall prevention interventions, occupational therapy practitioners can support their clients in taking a more active role in managing fall risk on a daily basis as they implement specific skills when encountering an issue related to fall prevention.

References
ventions to prevent falls in community-dwelling older people: A meta-analysis of randomized trials.
12. Lake, A. J., & Staiger, P. K. (2010). Seeking the views of health professionals on translating chron-
This article: http://dx.doi.org/10.7189/ot.2013.18162
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As the population continues to age, eye diseases like macular degeneration, glaucoma, and diabetic retinopathy, among many others, continue to affect older adults’ performance of activities of daily living. A recent study completed by Northwestern University’s Department of Medicine reported that although data taken from 1984 to 2010 show visual impairment in those 65 and older is on the decline, 9.7% of older adults continue to report a visual problem that affects everyday life.¹ Age-related macular degeneration is the leading cause of blindness and visual impairment among people aged 65 and older. Macular degeneration affects more than 1.75 million individuals in the United States, and this number is expected to increase to almost 3 million by 2020 due to the rapid aging of the U.S. population.² The rate of visual impairment increases with age, with 15% of individuals aged 45 to 64 years, 17% of those 65 to 74 years, and 26% of those over the age of 75 reporting some form of visual impairment.³⁻⁵

Home modifications cover a large spectrum, meeting the needs of those with illness, injury, and/or disability as well as those who are healthy and desire to age in place safely. Each client, as well as each home environment, has its own set of unique needs that requires a holistic and personalized approach. Home/environmental modifications for low vision are no exception.

CONSIDER THE LIGHT

The first consideration in a home modifications assessment for a person with low vision is lighting. Most of what we know of our world comes to us through our eyes, and we have learned that the way we see things depends on how they are lighted.⁶⁻⁷ There are three main categories of light to consider in a space: task lighting, which illuminates specific areas where work is being performed; accent lighting, which is light added to provide extra attention to a selected area within the space; and ambient or space lighting, which is the overall lighting that defines the whole area. But how do you know there is enough light in the room for safely performing functional tasks?

Appropriate light levels depend on the type of activity and the environment for which the activity is to be completed. According to the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, ambient light levels should be at least 30 footcandles (fc; or 300 lux) and task lighting levels should be at least 100fc (or 1,000 lux).⁸ Along with these two general guidelines, there are specific light level guidelines for different spaces within the home as well. Consider using a light meter when you are completing any home assessment, and definitely use one when completing a home assessment for a person with any vision concerns. Light meters can be purchased at hardware and home supply stores.

Although lighting guidelines are important, always consider your client’s specific needs. Using a light meter combined with the IESNA standards is a good starting point, but lighting needs are unique to each individual and for each space. Providing 100fc of light for one client with low vision may be just right; for another client, it may be too much light and/or cause too much glare. Either insufficient or intense lighting may be problematic depending on the client’s specific type of vision loss.

Also important to consider is the change of the natural lighting throughout the day and how this affects the client’s movement within the home. Providing enough light from one room to the next. Whether the building or house faces north, south, east, or west, and how much sun...
exposure the home receives throughout the day, may change the light levels within the space. Consideration must be given for controlling the changing light levels throughout the home to help the eyes adjust to these transitions by filtering and/or shielding light coming into rooms and into the user’s eyes. These light transitions include changing from dark to very bright and/or for when previously light areas become much darker throughout the day. This can be accomplished using blinds or shades that the client would manually open or close as desired, although this scenario requires that the client actively transition into the space with either low or intense light to adjust the blind or shade accordingly. A high-tech option is a lighting control system that automates the opening and closing of shades and/or turning on and off lights set to a certain light level via a timer or schedule to adjust natural daylight, manage glare, and maintain even light transitions throughout the home. Dimmer switches can also help control the amount of light in each space.

**TYPES OF LIGHT**

Along with determining the amount of light, find out what type of light best meets your client’s needs. This ideal level may not be what the client is currently using within the home. Determining clients’ preferences for incandescent, fluorescent, halogen, LED, etc. is imperative to increasing comfort and safe navigation throughout the home, as well as providing appropriate light to complete functional tasks. In addition, understand the differentiating characteristics of each type of lamp bulb. This knowledge includes the correlated color temperature (a description of the color appearance of a light source, measured on the Kelvin scale) as well as the color-rendering index (a method for describing the effect of a light source on the color appearance of objects being illuminated) for each type of lamp and how these characteristics affect how your clients see in their home environment. Determining the type of light that best meets your clients’ needs is a trial-and-error process and, if feasible, should be done for both ambient as well as task lighting during the completion of a functional activity. Your clients will determine which light source provides the best illumination, most contrast, minimal glare, and overall comfort for their eyes.

The color-rendering index is especially important because many clients with low vision have difficulty distinguishing certain colors. We know that as we age we need more light; it has been estimated that the typical 60 year old needs three times as much light as a 20 year old to properly distinguish color and contrast in a given target. The typical aging process diminishes the pupil size, allowing less light into the eye. There is also a thickening of the lens, which decreases the amount of light that reaches the retina. These age-related changes, combined with a low vision diagnosis (especially macular degeneration, as this affects the cone cells of the eye—the ones that detect detail, color, and contrast) are sure to affect how clients perceive color and contrast and can compromise safety.

**BALANCE LIGHT LEVELS**

After you have determined the amount and type of light, evaluating the uniformity of light is of equal importance. Ensure that the light levels are balanced throughout rooms and the home. As we age, our visual systems cannot completely adapt to dim conditions. Light levels in transitional spaces such as hallways and entrance foyers should be balanced with those of the adjacent spaces. Create intermediate light levels in transitional spaces that lead from bright to dim areas. This will enable your clients with low vision to adapt more completely as they move through the different spaces.

Uniformity of light on stairways increases safety and decreases falls.
risk. Light levels on the stairs should be at least as high as in adjacent areas in the home. The lighting should make the tread nosings (the horizontally projecting edge of a stair tread) visible and not cause any glare or shadows. Light switches at each point of stairway access are also recommended.

Many great new products on the market can help illuminate the not-so-typical spaces within the home. These products include under-cabinet lights, backlit cabinets, LED rope and string pathway lighting, lighted closet rods, lighted toilet seats, and even lighted glass countertops and shelving. Part of the evaluation process is taking the time to analyze available products and then matching their features to clients’ current and potential future needs. There are many variables to consider when recommending a product, including usability, safety, ease of maintenance, aesthetics, and price. Always consider the product’s flexibility of use to ensure that it can be used by clients with their current vision and potential future vision changes.

UNDERSTANDING GLARE

The IESNA defines glare as one of two conditions: too much light and/or excessive contrast, meaning the range of luminance in the field of view is too great. Glare sensitivity is associated with the aging eye as well as with many eye diseases that cause low vision. But what exactly is glare? Glare is a visual sensation caused by excessive and uncontrolled brightness. Glare is caused by stray or scattered light that raises the visual brightness (or luminance) of both the visual target and the background to the same levels. It can cause visual discomfort and/or be disabling. When the eye is exposed to glare, the pupils constrict and limit the amount of light transmitted to the retina, limiting the image that the eye perceives. This forms a veil of luminance, which reduces the contrast and visibility of the target.

It is important to know the different types of glare in order to determine how they can be managed within the home as well as just outside the home environment. According to Ludt, there are three types of glare to consider with regard to clients with low vision.

Discomfort glare occurs when light reaches a level of intensity at which the eye is unable to adapt naturally, resulting in true eye discomfort and reduced ability to see. Discomfort glare is caused by everyday bright light. This can even occur on a cloudy day, causing squinting and eye fatigue, as the ultraviolet light still penetrates through the clouds on the cloudiest of winter days. Veiling glare (or disabling glare) is caused by excessive intense light that blocks vision—the eye’s ability to adapt is exceeded, and the ability to discern detail is significantly compromised. Eye discomfort becomes significant, and vision can be impaired. An example of veiling glare is the shining of headlights or a flashlight in your eyes, or even the bright reflection of the sun off of water or the hood of a car on a sunny day, reflecting into your eyes and temporarily blocking your vision. Dazzling glare is the abnormal visual sensitivity to the intensity of ambient light, typically caused by the dysfunction of the iris and retinal disease. This type of glare occurs even when the client has had an appropriate amount of time to adapt to the ambient lighting.

Using blinds, shades, and/or sheers to help filter light as it comes into the room, as well as rearranging the furniture or sitting with your back to the sun, are always good options to minimize glare coming into a space from outside. Also, for task lighting, positioning the lamp over your shoulder on the side with the better eye, so that the light falls only on what you are doing, helps to reduce glare. However, the goal is to minimize the glare but not decrease the light level in the space. Take care to maintain an appropriate amount of light that meets the needs of your clients. Having more than one lamp in a room to create evenly distributed light throughout the space, versus one source of light in one area of a room, will help decrease glare and provide a more uniform, balanced light level.

CONTRAST AND GLARE FILTERS

If clients continue to have concerns with glare even after minimizing it from outside and inside, contrast and glare filters may help. These filters are available in virtually all colors. Each client will have a specific individual preference for which color filter best minimizes glare and enhances contrast. Therefore, try a range of color tints to assist the client in determining which filter works best for both indoor and outdoor glare conditions. Traditional sunglasses may not provide the correct filtering and will only provide protection from light directly in front of the eye. The filters should wrap around the face, providing glare protection laterally as well as overhead. When outside, a visor or a hat with a wide brim also provides protection from overhead glare. To further minimize glare within the home, forego using materials that create a glossy surface. Opt for matte style paints, carpet, and/or unpolished tiles. Pay attention to the placement of picture frames and mirrors in the home, especially within the bathroom, so lighting does not reflect off of them and create added glare.

According to the American Foundation for the Blind, contrast sensitivity refers to the ability to detect differ-
ences between light and dark areas. Therefore, by increasing the contrast between an object and its background, the object will be more visible. Using contrast is key to maximizing independence within the home for persons with low vision, although it is important to consider what colors create the most amount of contrast for clients, as it may not always be as clear as black and white.

Some ideas for creating contrast within the home include painting door frames in colors that contrast with the colors of the doors, and creating contrast between the floor and the walls and between the furniture and the flooring. This will increase visibility for navigation within the home and decrease falls risk. Providing a contrasting edge on countertops and tables will decrease the chance of clients dropping items on the floor during meal prep and dining as well as accidentally bumping into corners and edges. Also consider using color switches and outlets that contrast with their covers as well as with the adjacent walls to maximize visibility. With stairways, consider marking landings and/or nosings of stair treads with highly contrasting colors, preferably with paint or stain, because tape can pull up and become, a falls risk. Lighting can also be used to enhance contrast.

TEXTURE CHANGES

Contrast is not always in color; it can be in texture changes as well. This can be done by having a change of floor texture when navigating from one room to another. This change should not be so severe as to create a falls risk. As with all recommendations, texture changes should be individual specific; changing floor textures may be contraindicated for some clients if there is a chance it can create a falls risk. Another texture contrast option is placing a tactile cue at the edge of a handrail to alert clients that they have reached the top and bottom steps. Both visual and tactile texture cues can be used to distinguish surfaces on hand rails and any placed grab bars.

Another consideration is what kind of glasses your clients wear. Are they bifocals (including progressives), trifocals, or single vision lenses (near or distance vision only)? Research shows increased falls when wearing bifocals and walking down a stairway, due to looking through the bottom portion (near view) of the lens versus maintaining line of sight through the top (distance) portion. This risk will also occur when clients are looking at their feet while walking down a stairway. One option is to have two pairs of glasses, one for near vision and one for distance, to eliminate this concern on a stairway. However, this recommendation is very client specific. Changing from one set of glasses to two brings a host of potential new issues, including forgetting where the other pair is, having to change glasses throughout the day to manage different tasks (e.g., taking a break from reading to stand up and walk to the bathroom), and paying for two sets of spectacles. Creating a dialogue with clients to increase their awareness of these concerns and determine their preferences is the foundation of client-based practice.

CONSIDER CLIENT ROUTINES

Most of us have a very specific traffic pattern within our homes. “A place for everything, and everything in its place,” as the saying goes, and our clients with low vision are no exception; they rely heavily on the familiar. Reflect on the changes you are recommending to clients’ homes and consider how they may affect navigation and safety. One option, as appropriate, is to place handrails along the hallways and/or frequently used pathways to act as a guide and maximize safety. To maintain clear pathways, remove clutter, unsecured throw rugs, and any other décor or furniture that may interfere with functional mobility. Obstacles include hanging décor, the undersides of open stairways, and other...
tripping hazards such as pet beds or shoes left near doorways. Client involvement throughout the process is key to successful home modification.

References

Debra Young, MEd, OTR/L, is the founder of EmpowerAbility, in Newark, Delaware, which provides accessibility services to builders, remodelers, architects, and designers, as well as other professionals and consumers. She has 17 years of clinical experience, working in hospital, educational, and community settings as an occupational therapy and assistive technology consultant.

Occupational Therapy Interventions for Adults With Low Vision

Occupational Therapy Practice Guidelines for Home Modifications

Occupational Therapy Practice Guidelines for Productive Aging for Community-Dwelling Older Adults

Debra Hanson, PhD, OTR/L, is the academic fieldwork coordinator at the University of North Dakota, which has campuses in Grand Forks, North Dakota; and Casper, Wyoming. Hanson has more than 20 years of experience working with fieldwork educators and students. She is the academic fieldwork coordinator representative for AOTA’s Commission on Education.

FIELDWORK ISSUES
Preparing Students for Ethical Practice continued from page 7
6 years of attending McMaster University in Ontario, Canada. The program of study was based on the pedagogical framework of problem-based learning, incorporating small group and case-based study with substantial development of the ethics content in the coursework. Students completed the DIT within 1 month of entry into the professional occupational therapy or physical therapy program and during the final academic term. In this study, the moral reasoning of students in both the occupational therapy and physical therapy programs significantly improved over time spent in the professional program (P<0.001). No differences were found in scores across gender, program of study, year of entry, or previous education, suggesting that differences were due to the quality of the educational program provided. The findings suggested that directed attention to contextual learning in ethics education, which can be accomplished in both the academic and fieldwork components of the curriculum, can help prepare new practitioners for the ethical dilemmas they may encounter as health care professionals.

References
The Centers for Disease Control and Prevention (CDC) estimated that by 2020, the medical costs for falls for adults 65 years of age and older will be greater than $54.9 billion each year.\(^1\) The chance of falling among older adults increases to 40% after the age of 80.\(^2\) Two thirds of adults over the age of 65 who fall will then have another incident within 6 months of their first fall.\(^3\) Six out of 10 falls will occur in the home environment, most of which involve environmental hazards.\(^4\) Falls occur most commonly in the bathroom, often due to unsuitable toilet height or the absence of grab bars and mats on the floor of the bathtub or shower.\(^5\)–\(^6\)

Occupational therapy practitioners can play a pivotal role in helping older adults age in place, including through recommendations and training in the use of environmental modifications. The authors define environmental modification to include anything that has been added to an environment to assist people with participating in activities and occupations. Environmental modifications can enhance safety for aging persons with or without chronic health conditions to maintain or improve function and increase overall independence.\(^7\) Ahluwalia et al. indicated the need for more client-centered interventions because of the varied attitudes older adults may have toward bathing and the need for individualized bathing interventions specific to preferences of each patient.\(^7\) This client-centered focus in turn can lessen occupational performance disruption by enhancing the performance capabilities through personalized assessment and intervention. Occupational therapy practitioners are uniquely educated to emphasize the appropriate individualized fit between clients’ abilities and the environment in which they live to safely engage in chosen occupations.

**REDUCING PHYSICAL BARRIERS IN THE HOME**

As our population ages, it is important to investigate new strategies to reduce physical barriers in the home environment. Aging in place and preventing relocation from their homes are important goals for most older persons.\(^8\) Goals of aging in place include enhancing the quality of life for older adults in their home environment by making the necessary modifications for them to participate in valued activities.\(^3\)

According to the AARP/Roper Public Affairs and Media Group, in 2005, 91% of adults between the ages of 65 and 74, and 96% of adults over the age of 75, reported that they would prefer to age in place for as long as possible.\(^9\) In addition to aging in place, older adults have expressed that they would like to be as safe, independent, productive, and integrated into the community as possible.\(^10\) However, as people age, limitations in physical and cognitive abilities increase their need for social, medical, and environmental supports. The physical environment directly impacts older adults’ functional abilities, safety, and productivity. Environmental modifications, particularly in the bathroom, are needed to provide physical support to maintain independence in the home.

**PROJECT PURPOSE**

Naik and Gill showed that bathroom modifications were being underutilized and in some cases were absent in older adults’ homes.\(^5\) The purpose of the authors’ graduate capstone project at Quinnipiac University in Hamden, Connecticut, was to evaluate the bathroom environments of four older adults residing in an independent living community, provide free adaptations and modifications to enhance performance and safety, and follow up to determine which modifications were most effective. Students were supervised by an occupational therapist during the home visits, which included training in use of new equipment or modifications.

Between January and March 2012, four older adults volunteered to partici-
pate in a client-centered study to identify potential home modifications that may decrease risk of injury in the home bathroom environment. All participants were 65 years of age or older, able to follow multi-step commands, and able to bathe without assistance. Exclusion criteria included persons already receiving occupational therapy services for the purpose of environmental modification or those who already used more than four pieces of adaptive equipment in the bathroom. One occupational therapy student researcher was paired with one study participant throughout the entire 2-month process in the client’s home.

Data were collected through the use of informal interview; Functional Reach Test\textsuperscript{12}; a modified version of the I-Hope to include sections related to the bathroom\textsuperscript{13}; the TVO bathroom assessment, developed by lead author Tracy Van Oss; the Mini Mental Status Examination (MMSE)\textsuperscript{14}; and follow-up participant surveys. Occupational therapy student researchers developed a 13-item information questionnaire to gather relevant demographic data, daily bathroom routines/occupations, and past medical history. The Functional Reach was used to assess balance, safety, and possible influences on bathroom performance. A modified version of the I-Hope was used to determine areas in the bathroom routine that may have been causing the participant difficulty as well as satisfaction and performance within these noted areas. The TVO bathroom assessment was conducted to determine physical contexts of the bathroom, including accessibility, environmental barriers, and general safety of the space. The MMSE was used to determine cognitive functioning of the participants, including orientation, attention, memory, comprehension, and perception. Follow-up surveys using a 5-point Likert scale were administered to gather information about usefulness, satisfaction, and frequency of use of equipment provided to the participants immediately and 1 month after the modifications were put in place, and training on appropriate and safe usage was provided by the occupational therapy student, to determine whether the modifications created a lasting effect.

The occupational therapy students were teamed with eight senior nursing students from the same institution. This was structured as a secondary purpose to promote understanding of occupational therapy among nursing students. Pre-planning was required for scheduling to provide an interprofessional collaboration. A nine-question survey was administered as a pre- and posttest to evaluate the nursing students’ knowledge of occupational therapy services. Four of the students were randomly selected to participate in the control group and did not experience working with an occupational therapy student on the project, but continued along in their traditional clinical experience. The other four nursing students accompanied the occupational therapy students on their initial home visits with older adults to acquire an understanding of the role of occupational therapy in this context as well as to provide input for comprehensive care. Results from the pre- and posttest surveys of all eight students showed that the four nursing students who interacted with the occupational therapy students on a weekly basis increased their overall perception of the occupational therapy practice domain. A $2,000 grant ($500 for each study participant) from Quinnipiac University’s Center for Interprofessional Healthcare Education funded the project for recommended environmental modifications.
The occupational therapy students collaborated with the nursing students to determine individual client abilities or limitations along with environmental barriers related to safety and optimal performance with activities of daily living in the bathroom. Discussions occurred among the occupational therapy students, the nursing students, and the faculty member to synthesize the information based on the interview, observation, and data collected from the first visit to offer creative and appropriate solutions. The following week a second meeting with the clients in their homes was conducted to discuss and review bathroom modification options to enhance independent bathroom task performance. Researchers presented individualized adaptation and modification options for each client and discussed which modifications would be best for them. Equipment was then ordered and installed using the grant money (and at no cost to participants). After the modifications were put in place during the following visit, the occupational therapy students instructed the participants on how to properly use the equipment and had them perform the tasks, requiring participants to safely demonstrate understanding and safe use of the new modifications. During the fourth and final visit, clients completed satisfaction surveys to measure their perception of how useful the enhancements were, how satisfied they were in the appearance of the equipment, and how often they used the modifications.

RESULTS

The items rated most useful were nonslip bath strips, a suction-bottom foot scrubber, a tub seat, a bath mat for outside the tub, a reacher, a magnified mirror, a pill bottle magnifier, a raised toilet seat, and a jar gripper. The most common rating for the items provided fell between moderately to extremely useful. Participants were most satisfied with the appearance of the nonslip bath strips, foot scrubber, tub seat, bath mat, magnified mirror, bathrobe, cabinet drawers, automatic shampoo dispenser, reacher, raised toilet seat, magnifying glasses, and jar/bottle gripper. The participants initially answered the frequency-of-use question after 1 week. Equipment used three or more times within that week included the magnified mirror, raised toilet seat, magnifying glasses, and jar/bottle gripper. The items that were used two times within the week were the nonslip bath strips, foot scrubber, two-tiered shelf, cabinet drawers, and reacher. The bath mat, tub seat, and nonslip bath strips were used once a week. Results suggested that, overall, participants frequently used the equipment. Follow-up interviews and results of the 1-month survey indicated that participants found their overall safety to be higher in the bathroom postintervention.

CLINICAL IMPLICATIONS

Our study evaluated which bathroom modifications are most effective in reducing the risk of injury and enhancing bathing for older adults aged 65 and older. Results showed that equipment such as nonslip bath strips, padded bath mat, foot scrubber, raised toilet seat, and tub seat were useful, visually satisfactory, and frequently used each week. The majority of the equipment that was individually recommended (client centered) and provided for the participants was being used throughout the week. These findings suggest that if bathroom modifications are client centered as demanded by occupational therapy best practice, and the client is properly instructed in safe use by the occupational therapist, the likelihood of adherence and utilization of equipment is positive.

In addition to funding helpful interventions, this grant allowed students to work together with another discipline to develop attitudes and skills to facilitate effective teamwork and leadership. Furthermore, it helped students learn and understand the roles and responsibilities of each discipline and how those roles can complement one another in client-centered care in the home environment.
CONCLUSION
Environmental barriers increase the risk of injury in the home environment, and these barriers may threaten older adults' abilities to age in place successfully. Home modifications and adaptations, particularly in the bathroom, increase the chances that older adults can continue to reside in their homes independently. Occupational therapy practitioners can facilitate planning, preparing, and evaluating injury prevention projects to remain leaders in this area of practice. Occupational therapy practitioners are trained to view the person, the environment, and the transaction between the two to create and implement client-centered care. The time is now to promote our profession and work toward preventing unintentional injuries and facilitate older persons' ability to age in place.

References

Tracy Van Oss, DHSc, OTR/L, is clinical assistant professor of occupational therapy at Quinnipiac University in Hamden, Connecticut. Michael Rivers, Brianna Heighton, Cherie Macri, and Bernadette Reid are master’s degree students at Quinnipiac University.
It’s a good thing Rick Davis likes his boss.

Rick, who lives in San Antonio, Texas, used to work for himself as a private contractor. But in 2009 he went along with his wife, Lizette’s, vision and started a home remodeling business that specializes in modifications and aging in place. Lizette Davis, OTR, CAPS, who’s worked in all realms of rehabilitation, including inpatient, outpatient, and home health, uses her occupational therapy background to consult with homeowners and develop recommendations, and Rick takes care of the construction.

“Technically, she is my boss. It’s not bad. I like it to a certain degree,” Rick says. “She’s a very good boss. She’s very personable, so it’s pretty easy.”

Turns out, it’s pretty easy for a lot of couples to enter the home modifications and aging-in-place business. Maybe that’s because, whether married to them or not, occupational therapists entering the emerging practice setting must have strong relationships with contractors and the rebuilding community—groups that they don’t typically engage. And although spouses working together can make for a nice story, nuptials are not the only way for occupational therapists to achieve strong collaboration with builders.

**BEFTER FOLLOW THROUGH**

As a practicing occupational therapist in home health, Lizette spent a good chunk of her career traveling around Texas evaluating people’s function and environments. She’d see a client in Floresville with a bilateral lower extremity amputation and another in San Marcos who’d had a stroke. At these visits, Lizette realized that she could make all the right recommendations in the world, but if her clients’ homes were not properly equipped with, say, a ramp or bedrails, what good would the recommendations serve? What kind of lives could her clients actually lead?

“Especially out in the rural areas, you’d see [clients] come back more debilitated a year after their injury, and more depressed and more dependent on their caregiver. So it really became one of these heartfelt situations,” Lizette says.

That’s when it dawned on Lizette: her husband, Rick, was a licensed contractor, and, together, they could implement her home recommendations.

“It just made perfect sense, so I asked him to join me in my mission,” Lizette says. “I really feel that I should
be doing this with him and creating a safer environment for the patients that I really love and care for. It just became, ‘Well, I need to help people, and I know that being blessed with his abilities we can do it.’”

Like Lizette Davis, Carolyn Sithong, OTR/L, CAPS, SCEM, had the same concerns about making recommendations to clients for home improvements that, without the guidance of an occupational therapist, might never get done properly—if at all. About 4 years ago, when Carolyn was working in acute care, she had a client recovering from a stroke who was released from a local hospital. Carolyn realized that her client was going to need a ramp and a few other improvements to make the home accessible, and she suggested that the client ask the hospital to recommend some contractors who could install the ramp.

“The social worker at the hospital said they pretty much just tell patients to look in the phone book for a contractor,” Carolyn recalls. “And I thought, ‘That’s your answer for somebody like this? How could you just feed them to the wolves?’”

So she started her own home modification business in Orlando, Florida.

“I was surprised that there was such a lack of information to help bridge [clients] to home after having a new disability,” she says. “And I don’t fault the hospital; I just think they didn’t know the resources available. I thought, ‘You know what? I can help these people. I can be this liaison and tell a contractor what, medically, this person is going through. And, together, I’m sure we can come up with a great design.'”

If I didn’t have a husband who was able to do the work himself, the business would be very difficult, because it’s so important to have a trustworthy counterpart to handle the clients and the job with TLC.”

Amy McManamay, OTR, works as a clinical specialist at a major rehabilitation center and is trying to start a home remodeling/construction business. Like Lizette, Amy felt distanced from the contracting world and was searching for a way to get her occupational therapy voice heard. So she recruited her husband, Eric, a licensed contractor.

“The contractors are the experts in building. They are proud of their work, as they should be. Oftentimes when I suggest a change, such as an adjustable countertop or a beveled threshold, they question my knowledge or perspective. I need to build my confidence in the industry, and my husband definitely helps support that need,” Amy says.

The key to a good aging-in-place remodeling business, says Lizette, is even if roles are clearly defined, partners must work well as a team.

“The way we figure it, it’s kind of like in our home and in our life: We both have our areas of expertise, and he gets to call the shots in some spots in life, and I get to wear the pants for the other parts.”

Rick says the business would, obviously, be impossible without Lizette’s expertise.

“If she sees something that’s not right, she’s not afraid to voice her opinion or suggestions when it comes to her area of expertise,” Rick says. “But we pretty much have a separation of trades. It’d be like me trying to tell the electrician how to run wiring. I’m not an electrician. And I’m not an OT. So we’ll go back and forth a lot with our communication.”

BUILDING RELATIONSHIPS

Of course, occupational therapy practitioners need not be married to contractors to be successful in home modifications. Take it from Marnie Renda, MEd, OTR/L, CAPS, who lives in Cincinnati, Ohio: “The toilet broke at our house the other day, and I fixed it,” she says with a laugh. Her husband works in sales, and she started her own home modifications business in 2007.

Similar to Lizette Davis and Carolyn Sithong, Marnie, who previously worked in long-term care, saw how recommendations could not always be put into practice without the right environment.

“I had a lot of experience helping people transition, but I always felt that there was a gap. No matter what I did, people still needed help to implement my recommendations,” Marnie says.

Marnie understands that, to be successful, she needs to have a good relationship with contractors.

“So how does she make it happen? An important

DIVISION OF LABOR

Although Lizette says she’s learned more about the actual construction side of things and jokes, “I’m probably the prettiest smelling contractor in the lines at Lowe’s and Home Depot,” she’s happy to have Rick handle the job site and the building crew.

“The contractor stuff was difficult for me at the beginning,” Lizette says. “You have to be strong and establish a rapport with ‘the guys,’ because although it’s not necessarily completely a man’s world anymore, there have been trying times—but nothing I can’t handle.
step is to understand what exactly she’s looking for.

“A lot of it just has to do with communication and spending the time to build a trusting relationship,” Marnie says.

Another step is becoming comfortable. Marnie watched a lot of programs on HGTV and DIY and remodeled her own bathroom before starting her business.

“OTs are predominantly female, so you’re a female who is trying to talk to a man who’s in construction and those two don’t necessarily align very well. So I think you have to be very confident,” Marnie says. “When I start a relationship with a builder, they assume I know nothing, and so I have to be confident and comfortable with what I’m saying.”

Marnie teaches classes to occupational therapists looking to enter the aging-in-place and adaptive equipment realms and always stresses the importance of learning.

“You need to be really familiar with how construction works so you can speak their language and not just be bowled over,” she says.

**Assembling the Team**

**Occupational Therapy and the Building Profession**

DEBRA YOUNG

Home modification is very much a team process, in which each player on the home modification team provides valuable information on the client’s behalf. Increasing our knowledge of each player’s role is integral in successful home modifications. The Certified Aging in Place Specialist (CAPS) program, a designation program through the National Association of Home Builders (NAHB), is one way to become more aware of the building industry perspective. For an occupational therapy practitioner, this 3-day program is a means to network and collaborate with other providers within the building industry as well as be a voice for occupational therapy as an integral player on the home modifications team.1

Networking with other building professionals (e.g., architects, general contractors, interior designers, product vendors) creates a dialogue between the two industries and continues to support the importance of the occupational therapy profession in this venue.

To further develop rapport and increase visibility, consider becoming a member of your local home builder’s association (HBA). Becoming a member of your local HBA simultaneously gives you membership to the NAHB and provides further leverage for practitioners to be seen as team players along side the building industry.

**Building a Community**

Creating a dialogue not only with the building industry, but also with local resources, is essential to spreading the word about the role of occupational therapy in environmental modifications. The National Aging in Place Council (NAIPC) is a “senior support network, founded on the belief that most older Americans want to remain in their homes for as long as possible, but lack awareness of home- and community-based services that make independent living possible.”2 The council’s mission is to be an informational resource to seniors for aging in place.

Through NAIPC, local chapters can be founded. The role of the local chapter is to emulate the mission of NAIPC and to increase awareness and educate the local community about aging in place as well as the resources within the area available to seniors. This grassroots effort would benefit from having more occupational therapy representation. Local chapters are a diverse group of individuals, from general contractors and interior designers to bathroom equipment vendors and reverse mortgage consultants. The local chapter is a community network of aging-in-place professionals and creates an opening for health care professionals to have a voice. Through chapter meetings and networking events, occupational therapy practitioners educate both building professionals and local communities on our role with aging in place and environmental modifications. Occupational therapy involvement on this level not only promotes our profession, but also solidifies our role as a player on the environmental modifications team.

**FOUNDATION OF KNOWLEDGE**

For therapists who are not “do it yourself” inclined, there are plenty of resources available for learning more about the building sector.

Karen Smith, OT, CAPS, an AOTA practice associate and AOTAs Approved Provider Program manager, recommends that practitioners interested in aging in place and home modifications look into the Certified Aging in Place Specialist (CAPS) designation from the National Association of Home Builders as well as AOTAs Specialty Certification.
“[The Homeowner is] an integral part of the team. We may bring the expertise, but it is the client that communicates what activities are meaningful, and/or what areas of the house are a priority or of greatest importance to be accessible and why,” Young says. “We may make the recommendations, but it is the client that makes the final decisions.”

**SHARING BEST PRACTICES**

The building community nationwide seems willing, as evidenced by CAPS training and continued involvement of occupational therapists, to implement aging-in-place recommendations. Perhaps this attitude is buoyed by an aging baby boomer generation who, according to recent AARP surveys, prefer to age in their own homes and are willing to look to technologies to assist with aging in place.1-2

But the practice setting will continue to grow only if occupational therapists continue to cultivate relationships with builders and other relevant players as well as each other, says Van Oss, an assistant clinical professor at Quinnipiac University’s Department of Occupational Therapy in Hamden, Connecticut.

“We do need an open dialogue so that people can share ideas and say, ‘This is working for me, this is how I did it,’ and say, ‘What’s working for you? What are you using that’s great?’, ” Van Oss says, noting that dialogue should also involve occupational therapy students and younger practitioners.

“Although working in this area may not be entry level, it is imperative for students to learn about this emerging practice area,” Van Oss says. “This will ensure future OT practitioners have the skill set and foundational knowledge to remain a vital player in this field.”

Carolyn Sithong, stressing how important it is for occupational therapy practitioners to engage in successful long-term relationships with construction companies, in 2009 started an Orlando chapter of the National Aging in Place Council (NAIPC).

“It’s a network of health care people plus builders and architects, and together we network. We educate them on what aging disabilities look like, and they educate us on what resources are available for the home to help accommodate that,” Carolyn says. “We’re so used to working with social workers and nurses and doctors that contractors and architects are kind of out of our traditional network. But as OTs, the environment is something that we look at all the time, and I think being able to

**[In home modifications], you have to do a lot of things that are outside the **OT** field, and you’re maintaining your scope of practice, but you’re working with people who don’t have any idea about your scope of practice. The CAPS certification falls in line with that because [builders with the CAPS have] already shown the understanding and the respect of why an OT needs to be involved, and they are trying to relay that [to other builders]. So to be in the classroom to support it, [CAPS] is a good thing.”**

Young also emphasizes how important the homeowner is in the remodeling process.

“They are an integral part of the team. We may bring the expertise, but it is the client that communicates what activities are meaningful, and/or what areas of the house are a priority or of greatest importance to be accessible and why,” Young says. “We may make the recommendations, but it is the client that makes the final decisions.”

Smith says occupational therapists should also consider getting involved with the nonprofit Rebuilding Together (www.rebuildingtogether.org) to provide home evaluations and recommendations to and further involve occupational therapy with members of the home-repair community.

“[Being involved with Rebuilding Together] is a way of letting the world know that OTs really do have something to add to helping people stay in their homes. It’s a way of bringing visibility to our skill set. It also gives OTs the opportunity to refine their skills in this area and to be in touch with actual homeowners in their homes, because what a lot of OTs do is make recommendations from an inpatient setting, and they are not always in the person’s home,” Smith says.

“Having exposure to how people actually function in their homes and then being able to see how equipment recommendations and modifications make a difference is really key.”

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use our skills to work with people who design the environment is essential.”

In addition to joining NAIPC chapters, occupational therapy practitioners working in home modifications can also network with others through AOTA’s OT Connections at http://otconnections.aota.org/forums/81.aspx or the Association’s Facebook and Twitter accounts, at www.aota.org/facebook and www.aota.org/twitter, respectively.

**INTANGIBLE BENEFITS**

Kathleen Pauli, MOT, OTR/L, CAPS, is another occupational therapist who happens to be married to her business partner, Chris, who previously ran a home remodeling business with one of his friends. Kathleen says that, back then, she would frequently offer unsolicited aging-in-place advice.

“I would go on jobs with him, and I’d be like, ‘Wow, what about this?’ We’d just kind of talk and problem solve the general things about construction that I’d see—pretty narrow hallways and pretty narrow doors—and I’d say, ‘You know, this isn’t going to work as people get older.’ Then as Chris was building with his partner, they started keeping those things in mind,” Kathleen says.

Chris recognized Kathleen’s suggestions as useful and valid, and they realized that the two of them working together would be more powerful than the two of them working separately.

Fifteen years, at least 10 universally accessible houses built, and countless remodels later, they are still in business together, even though it means they hire babysitters so they can take CAPS training or see clients instead of going to the movies.

Not only are they still in business together, they are still married, Chris notes.

“And you know,” Kathleen points out, “He’s my best working partner.”

**References**


Andrew Waite is the associate editor of *OT Practice*. 
Ms. V, 68 years old, has chronic bronchitis, depression, and painful arthritis. She lives in a two-story row home in Baltimore with her 20-year-old granddaughter, JJ, and her husband. She needs assistance from JJ to get in and out of the tub and wash her back. She has trouble walking more than two blocks due to shortness of breath. She also experiences pain from bending and stooping due to arthritis, which makes it difficult for her to pick up mail that has been delivered through the door slot or get pots and pans from low cabinets. Ms. V is the primary caregiver for her husband, who is recovering from several strokes and is not able to leave their home. She receives little assistance from her family, except for JJ. Ms. V used to walk around a nearby reservoir for daily exercise, but now she rarely walks or goes anywhere, including her church (a place she loves), because she doesn’t have the time due to caregiving responsibilities, is unable to leave her husband alone, and has declining endurance. Her time is consumed by caring for her spouse and doing housework. Most importantly to her, she has no time for herself, especially to take part in organized social or leisure activities, like gardening or going to church.

Ms. V has been in her home for more than 20 years. Her home tour revealed several issues and challenges. There are eight front steps to enter the house, with bilateral railings, and a back turf-covered porch that has seven steps. Ms. V’s living room is tidy and uncluttered, yet there are 13 scatter rugs throughout her home. In the first floor bathroom, the floor is collapsing, the rug slides, there are no grab bars in the tub, and the tub surface has no tread. The basement flooring is loose and torn in many areas. The washer and dryer are too low, and there are no railings on the 14 steps leading to the second floor.

THE PROBLEM
Ms. V’s case is not unlike that of the more than 39 million older adults in the United States. It is estimated that by 2050, the same population will more than double to 88.5 million.

Older adults almost universally report wanting to age in their own homes. However, as the population ages, so do the homes in which they reside. Many older adults live on a fixed income, and they have high fixed costs, such as medical and prescription bills. This can make repairing and maintain-
ing a home difficult. Low-income and minority older adults are also more likely to live in deteriorated housing\(^2\) and to lack the resources necessary to modify their homes to compensate for their declining capabilities.

At the federal, state, and local levels, there are few programs that address both appropriate housing and health needs for seniors, as they usually address one or the other but do not link health needs and housing conditions.\(^3\) Because housing conditions can pose health hazards and functional challenges,\(^4\) both the person and the environment are important considerations when helping older adults stay safe and independent in their own homes. To address this gap in the care of older adults, a team of researchers at the Johns Hopkins Center for Innovative Care in Aging is testing a program that includes occupational therapists, registered nurses, and handymen.

A POSSIBLE SOLUTION
The Johns Hopkins School of Nursing program, called Community Aging in Place, Advancing Better Living for Elders (CAPABLE), uses the three-pronged approach of an occupational therapist, registered nurse, and handyman working in a coordinated fashion to address clients’ self-identified problems in the areas of home safety, fall risk and prevention, and carrying out activities of daily living (ADLs) and instrumental ADLs (IADLs). The occupational therapy component specifically tackles dysfunction in ADLs, IADLs, functional mobility, and leisure and socialization and how the home environment, as described in Ms. V’s case, contributes to daily functional challenges.

Through a $4-million, 5-year grant from the National Institutes of Health, CAPABLE builds on and extends the Advancing Better Living for Elders (ABLE) program, a previous occupational therapy intervention with low-income older adults in Baltimore City that was developed by author Laura N. Gitlin and her colleagues at Thomas Jefferson University (TJU) and is designed to maximize functionality in older adults aging with a disability.\(^5\)\(^-\)\(^7\)

ABLE is currently used by some home care agencies, including Jefferson Elder Care, a home care program at TJU that provides evidence-based services. ABLE involves up to five home visits by an occupational therapist; one home visit by a physical therapist; and recommendations for and training in home modifications to address client-identified functional difficulties, home safety concerns, fear of falling, and fall risks. In a randomized trial of 319 older adults in Philadelphia from 2000 to 2005, ABLE reduced functional difficulties, improved home safety, enhanced efficacy in carrying out everyday activities at 6 and 12 months, and reduced mortality risk up to 3 years from study enrollment.\(^5\)\(^,\)\(^8\) CAPABLE expands ABLE to include two additional components. First, it adds a nurse to help older adults address pain, depression, and medication issues that contribute to functional difficulties, to provide strength and balance training, and to facilitate skills in communicating effectively with primary care clinicians about medical issues.\(^9\)

Second, CAPABLE provides home repairs in addition to home modifications to address housing conditions that pose a risk to daily functioning.

CAPABLE involves up to 10 in-home visits (six occupational therapy visits and four registered nurse visits) over a 4-month period, and the visits are staggered, so that the occupational therapist visits twice before the registered nurse visits for the first time. The first two visits focus on evaluating the participant and the home, and the later visits focus on providing education, identifying barriers to function as directed by the client, making goals, solving problems, and conducting training. All visits are customized to the particular functional needs of the participant. Following a home evaluation conducted by the occupational therapist, the handyman receives instructions on home repairs; modifications; and assistive devices, assistive technology, or durable medical equipment specified by the occupational therapist. The handyman’s organization, CivicWorks, in Baltimore, orders the items, with an average of $1,200 in grant money covering the materials and labor. CivicWorks is also an AmeriCorps site and therefore is able to provide an apprentice plus an experienced handyman for the cost of one handyman.

As in ABLE, an essential feature of CAPABLE is that the areas addressed are driven by the client and his or her self-perceived needs. Also, there is interdisciplinary coordination, as team members consult one another regularly via e-mail, text messages, phone calls, and in-person team meetings. One of the occupational therapists is the central liaison for all issues with the handyman aspect of CAPABLE and receives weekly updates to ensure that the client’s goals are being met in a coordinated fashion.

For more on this process, see Table 1 on page 11.

On the first visit, the occupational therapist issues the participant a folder...
to keep CAPABLE appointment calendars, hard copies of the brainstorming and action plans the participant does with the registered nurse and occupational therapist, and fall prevention pamphlets for reference. To date, all clients have preferred paper copies, but electronic versions are also offered. The participant and occupational therapist use a standardized assessment tool, the Clinician and Client Assessment Protocol (C-CAP), initially developed in ABLE,10 in which the client and occupational therapist work together to identify areas of concern. Specifically, the areas examined include:

1. ADLs: bathing, grooming, eating and drinking, toileting, taking undergarments on and off (hooks, fasteners, buttons, zippers, snaps), taking clothing on and off, donning and doffing socks and shoes (including Velcro and ties), resting and sleeping, and engaging in sexual activity
2. IADLs: housekeeping, bed making, washing dishes by hand, grocery shopping, using the telephone, taking medicines, managing finances, maintaining health, prepping and cleaning for meals, caring for pets, participating in leisure activities, working or volunteering, and participating in organized social activities

The participant works with the occupational therapist to set three goals based on difficulties found in the self-report and observation during the C-CAP. On the next visit, the occupational therapist finalizes goals with the participant and completes a home-risk evaluation, plus introduces fall prevention and recovery strategies.

To address the participant’s chosen goals, the occupational therapist brainstorms and develops an action plan with the client to discover why problems may be occurring, what the possibilities are of fixing them, and two things the client will implement for the upcoming week or two until a strategy that works is established. At the end of all six of the occupational therapy sessions, the client receives a booklet of strategies, initially developed in ABLE and now expanded to include a broader range of tips reflecting the nurse component (given by the registered nurse on the last visit) that is also reviewed by the occupational therapist with the client, focusing on ADLs, falls, and safety.

To complement the occupational therapy work on functional goals, the nurse addresses medical issues that inhibit daily function, such as pain, mood, medication adherence and side effects, and strength and balance. For example, when a client has pain that interferes with his or her ability to cook, the registered nurse reviews current pain medication, tailors an exercise program suited to the individual, and encourages increased communication with the client’s primary care provider to address unresolved pain. The occupational therapist evaluates the need for assistive devices, assistive technology, and/or durable medical equipment;
examiners environmental factors that could exacerbate pain while standing or sitting; and introduces strategies to decrease pain while the client performs IADLs (e.g., recommending weight shifting or sitting vs. standing, ordering a high back chair with arms). Then the occupational therapist gets the handyman involved for any modifications that could be implemented (e.g., lowering or raising a cooking surface, checking for floor stability).

**Whereas traditional occupational therapy and registered nurse home care is client centered, CAPABLE is client directed.**

CAPABLE differs from traditional home care in important ways. In CAPABLE, the attention is directed to the ability of the person to function in his or her home environment versus addressing a specific injury or impairment. The occupational therapist acts as a consultant, observing and discussing with clients the difficulties they encounter performing valued daily activities. Importantly, the condition of the home itself is considered in terms of how it can best support the client. Whereas traditional occupational therapy and registered nurse home care is client centered, CAPABLE is client directed. This is an important difference. The functional areas addressed are those that the client self-identifies as most important. Personal goals such as walking around a nearby lake or getting to church at least twice a month become the focus of treatment.

CAPABLE was initially tested in a Johns Hopkins University Institutional Review Board–approved pilot study in 2010 with 40 low-income adults in Baltimore City, Maryland, and is now being tested in a larger, more rigorous randomized trial funded by the National Institute on Aging (NIA) as well as in a demonstration project funded by the Centers for Medicare & Medicaid Services as part of the Patient Protection and Affordable Care Act.11

Results from this pilot phase are encouraging; participants reported improved ability to perform their ADLs and IADLs. The number of domains they reported difficulties in improved from an average of 2.1 ADL difficulties at baseline to 0.7 ADL difficulties postintervention, and from an average 2.3 different IADL difficulties to 1.2 postintervention, along with a decrease in their fear of falling. Of those who received CAPABLE services, 100% indicated it helped them, and 94% stated that their lives had been made easier, their quality of life had improved, and ADLs and IADLs became easier.12 CAPABLE is now being implemented with 500 people in the CMS demonstration project and 300 people in the NIA randomized trial. Results will be available sometime in 2015 or 2016.

**MS. V, REVISITED**

Here were the three goals Ms. V identified:

- Walk one lap around a reservoir near her home with one rest break (problem addressed: decreased exercise due to caregiving responsibilities and declining endurance).
- Attend church at least once a month (problem addressed: decreased socialization due to lack of family support).
- Safely reach items on the floor and above the shoulder with modified independence using adaptive equipment (problem addressed: difficulty stooping, crouching, bending, reaching overhead).

Besides working on specific functional goals, there are a few safety items CAPABLE offers every participant. In Ms. V’s case, this meant that the handyman installed a grab bar for Ms. V’s tub and fixed the bathroom floor so that it was safe and usable for all members of the household. The occupational therapist added a tub clamp bar, placed nonskid tread tape on the tub surface, and laid nonskid bath rugs on the floor. The occupational therapist also issued a long-handed sponge to make bathing easier for Ms. V and her husband. The handyman added a railing on the back steps, fixed and replaced wood planks on the ramp and deck, and removed the deteriorating turf on the steps for safer mobility. The front top step was re-cemented to increase stability, which also increased safety for others coming and going. Bilateral railings were placed inside to the second level, making it easier and safer for Ms. V to climb the stairs. The basement floor was removed and new linoleum was placed in needed areas to reduce fall risk. The dryer was raised by a 4-inch platform to ensure proper body mechanics during use. Scatter rugs were removed or double-sided taped to reduce fall risk. The occupational therapist also issued Ms. V a reacheder for easier access to overhead and floor items. The nurse readjusted Ms. V’s medications with her primary care provider by using generic forms and re-examining her intake; began an exercise routine using a combination of the Otago Programme (fall prevention exercises for older adults developed in New Zealand)13 and Tai Chi to alleviate her pain; and changed her husband’s insulin to a generic brand to save money, which reduced stress. The occupational therapist and Ms. V addressed each of her goals through the brainstorming and action plan activities during sessions 3 to 5 and gained the following results.

At the end of Ms. V’s 4-month participation in the study, she was walking for pleasure (and exercise) at least once and often twice a day, in the mall, on streets, at the reservoir, and elsewhere. Ms. V stated that she had gained strength, endurance, and the determination to do something good for herself every day, and that she was having less pain because of it. She began ushering at church every other Sunday and felt relief in realizing through the brainstorming process that her husband did not need around-the-clock assistance to be safe. In response to her not attending to all his demands, Mr. V. began doing more for himself, which reduced stress for Ms. V and was also likely healthy for Mr. V. By using the reacher issued by the occupational therapist, there was not much Ms. V could not grab. Ms. V had gained a new spirit by the second

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occupational therapist visit. “You both taught me that it’s okay to take time for myself and that I deserve it!” she said. 

CHALLENGES AND SUCCESSES
Because the work involves a team of three professionals, scheduling conflicts often arise with clients, such as when participants have other appointments or when they do not feel well and need to reschedule. Also, clients need many more housing repairs than can be handled within the CAPABLE approach. There is also a learning curve in transitioning from clinician to consultant and not treating but guiding clients through their journey with us and toward their goals.

Improving safety in homes via strategies and modifications and keeping people in their homes (usually a source of meaning) is a success for older adults, their families, and our society. Because the home is such an intimate setting, a bond can occur between team members and participants that can promote cultural experiences for all parties involved. Observing clients transform into a safer and more efficient people in their homes is very rewarding as well.

If proven efficacious and cost-effective by this larger study, CAPABLE has the potential to change the paradigm of care for older adults with functional difficulties by integrating a home repair and home modification perspective in health care provision and using a client-directed approach.

References
### Whose Safety is it Anyway? Evaluating Outcomes of Home Modifications

**Claudia E. Oakes, PhD, OTR/L**

It is well documented that most members of the aging population want to remain in their homes as long as possible, maintaining both safety and independence (Bayer & Harper, 2000). Home modifications are one way to help older adults do so. Adaptations such as grab bars, improved lighting, and stair rails can promote older adults’ safety, independence, and autonomy (Wahl, Fange, Oswald, Gitlin, & Iwarsson, 2009). Occupational therapy practitioners are well suited to recommend appropriate modifications after completing a careful evaluation of the older adults, the activities they value, and the physical contexts in which they function. However, more information is needed to better understand the effectiveness of home modifications (Cabrera & Chase, 2008; Ivanoff, Iwarsson, & Sonn, 2006). A better understanding of the outcomes of home modification interventions will improve our evidence base, assist with grant-funded projects, and optimize the use of scarce resources.

I propose that the construct of safety be used as an outcome measure for home modifications. Safety is an important feature of the context in which older adults live and has an impact on their ability to function independently in their homes. However, safety is a complex construct that defies easy measurement. This article will explore the challenges in using safety as an outcome measure for home modifications and will provide recommendations on evaluating safety for older adults.

The *Occupational Therapy Practice Framework: Domain and Process, 2nd Edition (Framework-II)*; American Occupational Therapy Association [AOTA], 2008) lists “safety and emergency maintenance” as an instrumental activity of daily living (IADL). It is defined as “Knowing and performing preventive procedures to maintain a safe environment as well as recognizing sudden, unexpected hazardous situations and initiating emergency action to reduce the threat to health and safety” (p. 631). An awareness of safety hazards; a willingness to implement recommendations to improve safety; the financial, physical, and cognitive ability to make the changes; and appropriate use of the modifications after they are completed are all required for modifications to increase the safety of the living context.

The Person-Environment-Occupation Model (PEO; Law et al., 1996) provides a useful framework in which to contextualize home safety. Safety within the home involves a transaction between the person (who may have impairments such as low vision), the environment (which may have low lighting), and the occupation (people may be engaged in a range of meaningful activities within the home, such as reading, preparing meals, or cleaning). In an article discussing bathing disability, Murphy, Gretebeck, and Alexander (2007) identified safety as a component of the environment when using a PEO model but I would counter that safety is a feature of the environment, the occupation, and the person (as demonstrated by safety judgment). While there are some features of an environment that are inherently unsafe for anyone, such as exposed live electrical wires or broken glass, more commonly a safety hazard is a relative risk depending on the person, the environment, and the task in which he or she is engaged. For example, descending a flight of stairs without a handrail poses a greater safety hazard for a person with lower extremity weakness than for a person with intact strength. Likewise, the occupation of climbing a step stool to change a light bulb is a riskier behavior for a person with impaired balance who is wearing flip flops than for someone with intact balance wearing laced-up sneakers. An effective measure of safety needs to include the relative risk that a hazard poses based on the interaction between the person, the occupation, and the environment.

There is often a gulf between objective measures of home safety that may be used by occupational therapy practitioners and occupants’ perceptions of the risks that are present. Overloaded outlets, electrical cords that snake from room to room, inadequate lighting, loose stair rails, and excessive clutter are routinely found in clients’ homes, yet the residents may perceive their homes to be safe. This divide can result in difficulty in evaluating the outcomes of modifications that are intended to improve safety and function. If the occupants of the dwelling did not feel that there were safety hazards before the modifications were installed, how are they going to determine the impact of the modifications? Issues about whether older adults actually follow through with home modification recommendations are also worthy of consideration, but they are beyond the scope of this article.

I will address these issues on two fronts: first, those related to objective safety evaluations that are likely to be used by occupational therapy practitioners; and second, issues involved in asking older homeowners to evaluate the safety of their environments.
Identifying safety hazards present in an environment may seem like a straightforward task, but researchers are at the early stages of understanding how to evaluate environments in concrete, quantifiable ways. Whiteneck and Dijkers (2009) pointed to methodological and conceptual difficulties in measuring the environment for disability research.

In preliminary investigations, they (scientists) might be willing to accept the number of steps taken from wall to wall as a quantification of the length of a room, but sooner or later they note that different people have different stride lengths, and rulers are invented. In disability and rehabilitation research, when it comes to quantifying environments, we are still in the ‘steps taken’ era, with incomplete and unsatisfactory progress to inventing rulers (p. 329).

Their point is certainly relevant to this discussion. The constructs related to safety need to be clearly defined, and effective tools to measure the constructs must be developed and validated.

Gitlin (1998; 2003) reported that there is a risk of collecting invalid data when using environmental checklists that have not been evaluated for reliability or validity. Additionally, it is important that pre–post data collection be completed by a person other than the one who made the home modification recommendations. Also, it is likely that different instruments are needed to assess the safety of private versus congregate housing options.

On a related note, several difficulties in conducting research with the geriatric population were clearly described by Faes, Van Jersel, and Olde Rikkert (2007) and Jacelon (2007). They noted that geriatric research can be made difficult by several broad issues such as recruitment, selection, informed consent, and study design. Particular challenges are inherent because the senior population is heterogeneous, thus creating a need for instruments that can measure at both the high and low ends of the spectrum of whatever construct is being measured. Many instruments were validated in an adult—but not geriatric—population, and therefore these tools may not be valid for the frail elder population. Researchers must be aware of the ethical and practical issues related to older adults with cognitive, hearing, visual, and/or motor impairments. Additionally, older adults may be fearful of instrumentation or assessment procedures that they perceive as risky. For example, Faes et al. (2007) reported that 25% of the inpatient geriatric population they were sampling would not consent to having their height measured because they were afraid of falling or had difficulty standing.

### Issues Related to Objective Measures

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In preliminary investigations, they (scientists) might be willing to accept the number of steps taken from wall to wall as a quantification of the length of a room, but sooner or later they note that different people have different stride lengths, and rulers are invented. In disability and rehabilitation research, when it comes to quantifying environments, we are still in the ‘steps taken’ era, with incomplete and unsatisfactory progress to inventing rulers (p. 329).

Their point is certainly relevant to this discussion. The constructs related to safety need to be clearly defined, and effective tools to measure the constructs must be developed and validated.

Gitlin (1998; 2003) reported that there is a risk of collecting invalid data when using environmental checklists that have not been evaluated for reliability or validity. Additionally, it is important that pre–post data collection be completed by a person other than the one who made the home modification recommendations. Also, it is likely that different instruments are needed to assess the safety of private versus congregate housing options.

On a related note, several difficulties in conducting research with the geriatric population were clearly described by Faes, Van Jersel, and Olde Rikkert (2007) and Jacelon (2007). They noted that geriatric research can be made difficult by several broad issues such as recruitment, selection, informed consent, and study design. Particular challenges are inherent because the senior population is heterogeneous, thus creating a need for instruments that can measure at both the high and low ends of the spectrum of whatever construct is being measured. Many instruments were validated in an adult—but not geriatric—population, and therefore these tools may not be valid for the frail elder population. Researchers must be aware of the ethical and practical issues related to older adults with cognitive, hearing, visual, and/or motor impairments. Additionally, older adults may be fearful of instrumentation or assessment procedures that they perceive as risky. For example, Faes et al. (2007) reported that 25% of the inpatient geriatric population they were sampling would not consent to having their height measured because they were afraid of falling or had difficulty standing.

### Issues Related to Older Adults’ Self-Assessment of How Home Modifications Have Impacted Safety

Asking older adults to evaluate the safety of their living environment is a complicated endeavor. Older adults’ perceptions of the impact of home modifications may be intertwined with their feelings about what their home means to them. Many researchers (e.g., Dahlin-Ivanoff, Haak, Fange, & Iwarsson, 2007; Golant, 2011; Heywood, 2005; Petersson, Lilja & Borell, 2012) have explored the idea that people’s perceptions of their homes is rich with meaning. A home that is a place of longstanding memories and well-established routines may be satisfying to the person who lives there, even if it does not meet the objective criteria of a home that is “functional” or “safe.” In a qualitative study, elderly residents described the meaning of home in two major categories: home means security, and home means freedom (Dahlin-Ivanoff et al., 2007). Interestingly, security was not linked with safety but with familiarity, functionality, and memories. As Gitlin (1998) noted, an intervention may need to first change a person’s perception of their environment and the risk it may pose. The evidence suggests that older adults may not perceive a situation as hazardous, particularly when the environmental condition represents a life-long circumstance and set of habits (p. 213).

This concept was supported by Reid’s (2004) study of how those who survived a stroke perceived their environment. The participants reported that they generally felt that the homes were suitable for completing daily tasks, despite the presence of “noxious physical environments” (p. 207) observed by the researchers, including steep stairs and ramps, poor lighting, and inadequate space to maneuver. Heywood (2005) suggested a resident is less likely to be satisfied with home modifications if the house is altered to the point where it is no longer consistent with the resident’s perception of the home, regardless of the modifications’ impact on function or safety. Individuals may have difficulty objectively evaluating the safety of their homes because they cannot disentangle safety from their other feelings.

Additionally, seniors may experience variability in day-to-day functioning due to disease processes, fatigue, stress, or pain (Johansson, Josephsson, & Lilja, 2009; Porter, 2007). A person’s perception of safety may vary based on the time of day; some hazards may be greater at night when limited lighting impedes visibility. Safety may also vary based on the day of the week based on personal routines. Sunday routines may be less strenuous and therefore involve fewer potentially risky behaviors. Or they might be more strenuous if the person is going to a place of worship and it is the only day he or she is rushing to be somewhere on time.

Safety may also vary based on who is present to give support (Petersson et al., 2012). For instance, an older woman who lives alone may feel safest when her daughter visits. Adults actively engage in their environments in a dynamic, fluid way, and attempts to capture a construct such as safety may be hampered if it is treated as a static concept.

Researchers have described how older adults sometimes frame responses in relative terms. In a study of older adults who lived in assisted living facilities, Warren and Williams (2008) noted that the residents qualified their answers to questions about their happiness and well-being “relative” to living in a private home or “relative” to living in a nursing facility. Additionally, Porter (2007) noted that older women struggled with rating the difficulty that they had with activities of daily living (on a scale of 1 to 5) because difficulty was an ambiguous term to them. For instance, some women reported that tasks took more time or required more work, but because the tasks were highly valued, they did not necessarily perceive them as being more difficult. The concept of safety may be equally challenging for older adults to describe in objective terms. They may characterize their home’s safety relative to the perceived safety of their friends’ or family’s homes, or their current situation compared with how it was in the past; for instance, when the house was littered with children’s toys.
Alternatively, they may be so used to it being a certain way that things like clutter are not seen as safety issues.

Helping older adults to articulate their feelings about the relationship between home modifications and perceptions of safety may be difficult because it encourages them to think about and articulate their strengths and limitations. Gitlin (1998) noted that seniors struggle with their feelings about adaptive devices that on the one hand enhance their physical independence but simultaneously elicit feelings of vulnerability because they are forced to face their frailties. Admitting that they might not be as safe as they had been in the past may force older adults to cross the “threshold” of aging so that they cannot deny the realities of the aging process (Whitbourne & Collins, 1998). This type of thinking may also be reflected in studies that have shown that older adults may not use adaptive bathroom equipment or mobility aides due to denial, embarrassment, or social stigma associated with their use (Aminzadeh & Edwards, 2001). These emotions may also come into play when asking older adults to consider the effect of home modifications on their daily activities.

Finally, practitioners who collect data related to outcomes must also be aware that the older adults may not completely understand the purpose of the questions that are being asked (Wenger, 2001). Despite attempts to explain the purpose of collecting outcomes data, participants may fear that the information will be used to provide evidence that they should move out of their homes.

Recommendations

Occupational therapy practitioners may want to begin with qualitative studies to better understand how older adults give meaning to the term safety. This may be helpful on two counts. First, it may help practitioners to understand the divide between their determination of safety and their client’s. Second, the findings from qualitative studies may provide a useful framework for developing better quantitative measures to use in evaluating the outcomes of home modifications.

Golant (2011) developed a model of residential normalcy that could provide a useful framework for creating open-ended questions suitable for qualitative interviews. Golant’s model, which was developed to help explain why older adults relocate, suggests that when there is a fit between older adults’ mastery (competence and control) and their comfort (pleasurable feelings, freedom from hassle, and good memories), they are unlikely to consider relocation. Alternatively, they may be so used to it being a certain way that things like clutter are not seen as safety issues.

Questions about safety should make reference to the context in which it is being considered. “Tell me about any hassles you experienced when you showered this morning” may yield important insight about the variable nature of safety. Asking about people’s perceptions of safety in their home compared with other homes they have visited may also shed light on perceptions of what makes a home safe and whether their home has those attributes. Additionally, there may be wisdom in asking people to reflect on their perceptions of safety after home modifications have been implemented. A question such as “Now that you have the modifications, do you think differently about what makes a house safe?” may help to bridge the gap between professionals’ and residents’ perceptions of safety.

References


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As a Level II occupational therapy assistant fieldwork student, I recently learned first hand how we as occupational therapy practitioners can facilitate occupational engagement through the use of adaptations, modifications, and advocacy. During the third week of my fieldwork experience with Well Care Home Health, an agency in Wilmington, North Carolina, my clinical instructor, Cindy Evans, COTA/L, and I arrived at the doorstep of a client with a challenging set of life circumstances that were affecting her ability to be fully functional in her activities of daily living (ADLs).

Mrs. Jones kept a very clean and orderly apartment and had a specific home management routine. During our initial meeting with her, my clinical instructor and I assessed her self-care ADL status and her living environment. We noted that her home is a handicap-accessible public housing apartment fitted with extra-wide doorways, a ramp leading to the front door, and a wheelchair-accessible bathroom. However, during the assessment, we learned that Mrs. Jones had significant difficulty transferring into and using her shower due to her large physical size. She reported that, despite owning a tub chair, she was unable to fit into the tub comfortably and sit on the standard chair and, in addition, had difficulty stepping over the side of the tub, a concern that made the simple addition of a bariatric shower chair not feasible. When asked about the possible use of a tub transfer bench, she explained that she did not like the idea of a seat that extended over the bathroom floor, as she feared water would pour onto the floor. Because she was overweight and required a walker for ambulation, it would be difficult for her to clean up spilled water, which presented a safety hazard. In addition, she was unable to independently lift her legs over the side of the tub. As we began to better understand her dilemma, we realized that she was unable to perform the ADL of bathing—which greatly concerned her—because the environment created physical barriers.

Mrs. Jones explained that she had spoken about the problem with the property manager, who had told her that there was nothing the building’s management could do to enable her to bathe successfully. Through consultation with Mrs. Jones, we determined that the best course of action was to take her case to the Wilmington Housing Authority, to which we would explain that she was receiving occupational therapy and that we believed modifications to her bathroom were needed, particularly to the bathtub. We explained to Mrs. Jones that we could not guarantee a successful outcome because she lived in a public housing complex that relied on government funding, but that we would present her case to the Housing Authority and her building’s management and explain the importance of the modifications. Mrs. Jones was very interested and enthusiastic about this as well as the other aspects of the treatment plan we created and demonstrated, including techniques for decreasing arthritic pain in her hands and protecting joints while performing ADLs and instrumental ADLs, a home exercise program to improve bilateral shoulder range of motion.

Within 6 weeks, Mrs. Jones had a completely redesigned walk-in shower, with a long-handled shower head, grab bars, and a bariatric shower chair.
motion and strength, and assistive equipment for independently cleaning herself after bowel movements.

After leaving Ms. Jones’ home, my clinical instructor and I met with our supervising occupational therapist for suggestions on how to move forward regarding the bathroom modifications. Our supervisor’s main recommendation: present our request in a formal letter instead of simply speaking with the agency over the phone. We contacted the Wilmington Housing Authority to pick up a Reasonable Request Form and a Release of Information Form, to explain the nature and purpose of the request and to get permission from Mrs. Jones to allow the Wilmington Housing Authority to speak with us directly concerning her needs. We then drafted a letter explaining our evaluation of Mrs. Jones’ home and her need for a universally designed walk-in shower to bathe safely. Four days later, I received a call from the director of the Wilmington Housing Authority, who scheduled a meeting at Mrs. Jones’ home to discuss the proposed modifications. At the meeting, we provided the director with examples and variations of well-planned walk-in shower designs and discussed Mrs. Jones’ unique needs. The meeting was a success: the director agreed that the need was relevant and would be of benefit to Mrs. Jones and to the dwelling.

It took some time for the paperwork to be completed and the money to be allocated, but within 6 weeks, Ms. Jones had a completely redesigned walk-in shower, complete with a long-handled shower head, grab bars, and a bariatric shower chair, that was now safe and functional and allowed her to meet her bathing goals.

I am so glad to be in a profession that focuses on client-centered care and enhances the quality of life for our clients by addressing and advocating for their needs. From this experience, I learned to not automatically accept financial or bureaucratic barriers that impede my ability to provide for clients. Through advocacy, we can make necessary and unexpected change happen; change that will make a difference in the lives of clients by addressing their needs and concerns. I am proud to be a part of the profession of occupational therapy and to have played a role in helping a client receive adaptations to her home environment that allow her independence with one of her basic ADLs.

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In the clinic

Occupational Therapy and Rebuilding Together

Working to Advance the Centennial Vision

Claudia E. Oakes          Cathy Leslie

When most Americans envision where they will live out their senior years, they usually picture their current home. However, as people age, their homes may no longer support participation in occupations and, in fact, may become barriers that inhibit participation. Making the necessary home repairs and modifications can be expensive and time-consuming. For low-income homeowners, this burden can be overwhelming.

Fortunately, nonprofit organizations such as Rebuilding Together work to help low-income, disabled, and intergenerational families age in place by providing free repairs and home modifications. Occupational therapy practitioners and students can contribute knowledge and insight because of their appreciation of the relationship between a person, the environment, and the occupations in which the person engages. By volunteering, practitioners and students directly help people in their communities while also promoting the role of occupational therapy to the public. This presents a unique opportunity to enact the Centennial Vision by linking education, research, and practice and making the role of occupational therapy visible to the public.1

WHAT IS REBUILDING TOGETHER?

Rebuilding Together (RT) is a nonprofit organization that provides free home repairs and home modifications to low-income homeowners. There are nearly 200 affiliates of RT across the country. Although many affiliates do year-round projects, the cornerstone of the organization has been National Rebuilding Day, a 1-day event, typically held on the last Saturday in April, in which volunteers come together to perform home modifications and repairs on multiple houses. Although National Rebuilding Day receives the most media attention, the behind-the-scenes work occurs all year. From selecting the houses to evaluating the needs of each homeowner, ordering supplies, and coordinating skilled and unskilled workers, a tremendous amount of effort goes into ensuring a successful National Rebuilding Day.

RT’s Safe at Home Initiative strives to improve the safety and accessibility of homes, making the organization a natural fit for involvement by occupational therapy practitioners. Currently, there are occupational therapy practitioners working with approximately 50 affiliates.

HOW CAN PRACTITIONERS CONTRIBUTE TO RT?

Occupational therapy practitioners can be involved with RT in a variety of ways. First, practitioners can complete home assessments and make recommendations for modifications that will enhance the safety and function of homeowners. Additionally, they can assist with the house selection process. House selection refers to the steps involved in determining which applicants will be chosen for National Rebuilding Day or other projects throughout the year. Members of RT’s House Selection committee take into consideration a prioritized list of recommendations that practitioners believe will support homeowners’ safety and function.

After houses have been selected, practitioners can work with the house captains (the project managers assigned to each home) to clarify the occupational therapy recommendations. At some affiliates, practitioners participate in training groups of house captains to ensure that they adequately understand the role of occupational therapy and the recommendations that are provided.
In other affiliates, practitioners work one on one with house captains to address the needs of specific homeowners. Practitioners may be instrumental in negotiating reduced rates on adaptive equipment that is provided for projects. On the actual National Rebuilding Day, practitioners fulfill a variety of roles, from assisting with clutter management to troubleshooting when issues arise regarding grab bar installation or other recommendations.

Practitioners can also play an important role in collecting data related to the outcome of interventions.

**WHY ASSESS OUTCOMES?**

Outcomes are important to measure not just to ensure that homeowners are getting the best possible interventions, but also to ensure that RT is spending resources on interventions that are most beneficial to the homeowners. Nonprofit organizations have limited resources and must ensure that they are providing the most cost-effective and valuable services possible.

Additionally, nonprofit organizations such as RT depend on funding from foundations and charitable-giving organizations. Many grant funders demand evidence that interventions are effective, and outcome studies are a requirement for grant reporting. Additionally, having established outcome processes can open the door for new funding opportunities.

Assessing outcomes is also necessary for the profession of occupational therapy. Although there is emerging research related to the effectiveness of home modifications, there is still much to learn. Outcomes research provides the evidence so that the best practices related to home modifications can be operationalized and disseminated.

**MEASUREMENT ISSUES**

A critical issue regarding home modifications for older adults is what to measure in order to show the effectiveness of the modifications. There is no single answer to this question and many factors must be taken into consideration. One potential starting place is to learn about the frequency with which the homeowners use the modifications, and their satisfaction with them. Additionally, an assessment of homeowners’ perceptions of safety, independence, or function may be useful.

Because most of the homeowners are functioning relatively independently at home, a standardized assessment of activities of daily living (ADL) may lack the sensitivity to detect change. Assessments of higher-demand instrumental ADL (IADL) function may more accurately reflect improvements.

Because many RT efforts are geared at fall prevention, falls are a potential area of exploration. Collecting data about actual incidence of falls is notoriously difficult. Data about fear of falling before and after intervention could prove useful. The Modified Falls Efficacy Scale is a 14-item tool that asks clients to rate their fear of falling while completing everyday activities on a 1 to 10 Likert scale.

Additionally, there are logistical issues to consider when completing outcomes research. These include:

- Who should measure the outcome? Should it be an occupational therapist or a volunteer or staff member of RT? The expectation of what can reasonably be assessed differs considerably depending on who is collecting the data.
- How long after modifications are installed should the outcomes be assessed? What is a reasonable amount of time for homeowners to get a sense of how the modifications are having an impact on their performance?
- Will the data be collected during a face-to-face interview with the homeowner or through a mail-in survey or phone interview?
- Does the assessment need to include observation of occupational performance or can it rely on self-report?

**CASE EXAMPLE**

Cathy Leslie, MOTR/L, completed a research study while she was a graduate student in the occupational therapy program at Bay Path College in Longmeadow, Massachusetts. She worked with the Hartford affiliate of RT to complete her research, under the supervision of Claudia Oakes, PhD, OTR/L, and Karen Sladky, PhD, OTR/L. Her study attempted to answer the following questions: Does the provision of home modifications in the bathrooms of older adults improve their occupational performance during the ADLs of toileting and bathing? In what ways did the provisions of home modifications improve homeowners’ occupational performance during toileting and bathing? To answer these questions, Leslie completed face-to-face interviews in the homes of nine of the 11 homeowners who received grab bars in April 2009. (Two of the recipients were unavailable by mail or phone.) Interviews were conducted between 8 and 9 months after the installation.

Of the eight participants who received grab bars in or around the shower area, 75% said they used the grab bars “all of the time.”

**FOR MORE INFORMATION**

To locate a Rebuilding Together affiliate in your area, search the RT Web site at [www.rebuildingtogether.org](http://www.rebuildingtogether.org) or call the Rebuilding Together National Office at 800-473-4229. Additional information, including detailed information about setting up a Level I Fieldwork experience for students, is available in the Rebuilding Together section of the AOTA Web site at [www.aota.org/practitioners/awareness](http://www.aota.org/practitioners/awareness).
the time” when bathing, and the remaining 25% reported that they used them “sometimes.” All participants felt that bathing was easier with the grab bars and that they were safer and more independent in bathing with the addition of the grab bars.

Six of the nine respondents received grab bars around the toilet. Five of the six recipients reported that they used the grab bars “every time” they used the commode; the other participant reported “sometimes” using the grab bars. All respondents felt safer and more independent in toileting while using the grab bars.

Interestingly, one third of the respondents reported feeling less fearful of falling since the grab bars were installed, despite the fact that no question specifically addressed fear of falling. Several respondents also reported that they used the grab bars “more than they thought they would,” with one respondent noting, “The grab bars have been a pleasant surprise for me because I had not used them before.”

Finally, Leslie noted that the occupational therapy recommendations were not consistently implemented. Some grab bars were not installed while others were installed in a different location from what had been recommended. Further research is required to understand the discrepancy.

FUTURE DIRECTIONS
Practitioners are encouraged to think about ways in which they may collaborate with RT to advance its Safe at Home Initiative. Partnerships with RT can benefit homeowners in need, occupational therapy practitioners, students, and educators, and the profession as a whole. This opportunity to bridge practice, education, and research allows practitioners to enact the Centennial Vision and make a difference in the lives of older adults in our communities.

References

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Cathy Leslie, MOTR/L, is a 2010 graduate of Bay Path College in Longmeadow, Massachusetts. She is currently working as an occupational therapist at the Child Guidance Clinic’s Early Intervention Program in Springfield, Massachusetts.
Occupational Therapy Gives
Rebuilding Together
That “Little Sweetness”

Andrew Waite

“Little sweetness.”
That’s what Dollie Courtney says Julee Leipprandt Lockard, MS, OTR/L, CAPS, brought to her home.

Lockard was introduced to Courtney through the local chapter of Rebuilding Together, which provides critical repairs and renovations for low-income homeowners across the United States. Each year, occupational therapy practitioners and students are active in many of the nearly 200 Rebuilding Together local affiliates.

Occupational therapy practitioners bring a special expertise in home safety and modification to these projects that is frequently needed by older adults, family members, and remodelers. The primary goal of occupational therapy practitioners is to provide safer, more accessible home environments for residents. Recommending the appropriate location for grab bars, calculating optimal lighting levels or the most suitable ramp incline, and providing other helpful suggestions are some of the ways that occupational therapy practitioners share their skills on project teams.

Lockard has taken on a big role in the Aurora, Illinois, chapter.

“It’s a great way to showcase what occupational therapists can do, from assessing family members’ daily function to recommending the home modifications to training clients,” Lockard says.

Lockard started her work with Rebuilding Together by reaching out to her local affiliate 3 years ago to work as a member of the scoping team. That meant she visited applicants’ homes to evaluate what repairs would need to be made. She has since become a house co-captain, so she displays even more leadership in specific home builds. It’s in this role that she met Courtney during the 2013 build week, which occurs in the final week of April each year.

“Julee is good. She is really good,” Courtney says.
Lockard made sure important construction details, what Courtney calls “little sweetness,” were completed during the remodel. Per Lockard’s suggestions, the construction team modified an existing ramp to enter the home, installed grab bars, brought in a bathtub seat, widened doorways, and made many other smaller touches to improve accessibility, including lowering the toilet paper holder and installing lever handles on doors instead of round knobs. Lockard even worked with Courtney to show her how to best navigate the home modifications.

Courtney wasn’t the only one impressed with Lockard.

“She is essential to the success of the project,” says Brian Stupay, who leads a group called Hammer Heads, which volunteers with Rebuilding Together. “She takes the time to talk to people and find out what is really going on in their lives and how we can help. My group of handy-men and women comes in almost like a SWAT team to try to fix stuff that needs fixing, and Lockard brings the warmth and interaction to the project.”

Erin Carlisle, program manager at Rebuilding Together Aurora, says Lockard’s occupational therapy background keeps rebuild projects focused on the homeowner.

PHOTOGRAPHS COURTESY OF JULEE LEIPPRANDT LOCKARD
“I think most of us can serve in some way. Whether we have worked in home health or are preparing our clients to return home, we evaluate the needs for home all the time.”

“Julee [Lockard] brings so much technical knowledge and ideas that no one else here in the office or construction company can provide for us. She helps us ensure that the work we are providing for our homeowners truly changes and impacts the homeowner's daily life,” says Carlisle. “There is so much involved in trying to truly impact a homeowner who may have mobility issues. We can install a walk-in shower, but do they have the right equipment and placement of grab bars to use that shower? This is [Lockard’s] part with Rebuilding Together, to ensure homeowners can use and benefit from the repairs we do.”

Lockard encourages other occupational therapy practitioners to reach out to their local Rebuilding Together chapters and volunteer, because she sees it as a natural fit.

“I think most of us can serve in some way,” Lockard says. “Whether we have worked in home health or are preparing our clients to return home, we evaluate the needs for home all the time. They are so obvious to us, but other evaluators don’t think about the individual’s functional level, how they use their home space, and what is really important to them in their home.”

To learn more about how you can get involved, visit http://rebuildingtogether.org and www.promoteot.org/ai_rebuildingtogether.html.

Lockard says the effort is worth it when she meets people like Courtney, who now safely lives in a house she is proud to call home.

“I love staying in my own place,” Courtney says. “I have my own garden and flowers, and I put in what I want to have.”

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Andrew Waite is the associate editor of OT Practice. He can be reached at awaite@aota.org.
Inspiration and ideas can come from anywhere and often catch us by surprise. While visiting our local history museum in Kalamazoo, Michigan, in an attempt to learn more about my new community, I (first author Carla Chase) noticed a large model of a home sitting on a tabletop. As an occupational therapist working in home modifications, I am always interested in home design ideas. I was intrigued by the museum plaque that read that this was a model of “Everyman’s House,” designed by Caroline Bartlett Crane. I learned it was the winner of the 1924 Better Homes of America Award and that the real home was built in a nearby neighborhood. Further exploration and research led me to Everyman’s House— the book that Crane wrote about her design ideas and her motivation behind them—and to boxes of this local historical figure’s plans and notes held in the archives at Western Michigan University, in Kalamazoo.

Caroline Bartlett Crane on the household task of washing dishes:
“Dishwashing is warm and pleasantly sudsy and has this advantage, that you can think of something else meanwhile.” (p. 104)

“I would take a seat unashamed on that kitchen stool, from which everything needful for the operation is in easy reach, on the walls, or in the drawers.” (p. 105)

Caroline Bartlett Crane on the household task of washing dishes:
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THE WORK OF CAROLINE BARTLETT CRANE
Caroline Bartlett Crane was very well educated as a young woman and, with her father’s encouragement, she graduated from an elite university, which was unusual for a woman in her day. She had several roles during her early adult life, including Unitarian minister, supporter of the women’s suffrage movement, advocate for clean streets and sanitary butcher shops, and various other roles supporting a healthy community. These experiences appeared to give her the confidence and skills to make a difference in the lives of many and led to her creation of Everyman’s House.

Crane reported that she originally designed Everyman’s House to meet her needs as a busy homemaker and mother of young children, unlike many of the homes built during that time period. Houses back then were designed by men who often did not regularly use rooms such as the kitchen and laundry areas. A typical kitchen in new homes did not provide proper ventilation or lighting and was not conveniently arranged within the home layout for ease of use.

When making design decisions to meet the needs of a homemaker, Crane found that she was able to incorporate elements that met the needs of the older children and her husband as well. She also pointed out that even those without children would find her home design efficient and attractive. In fact, she included two chapters in her book that describe the adaptable design of the home and how the space can be used in a variety of ways. Her home design concepts, which focused on the comfort and convenience of the occupants, were revolutionary. Although her primary focus was on the homemaker—who actually spent the most time and did most of the work within the space—and her young children, she also made choices based on workflow patterns, efficiency, and the overall physical and emotional health needs of each family member.

WORKFLOW PATTERNS AND EFFICIENCY IN EVERYMAN’S HOUSE
From the beginning of the design process, Crane chose the basic pathway and layout of the home to support efficiency. It was possible for the mother to walk in a circle around the main level of the home—stopping at the front door to pick up any packages received, then into...
the living room/common area, where she could stoke the fire and check on the children sitting at the table doing their studies. From there she could enter the kitchen area, drop off items as needed or check on what was on the stove, and then walk through to the nursery area to check on the littlest child—ending up again at the front of the house, thus completing the circuit.

Smaller elements support working smarter rather than harder as well. Her kitchen was organized by task so someone could be standing in one area to make biscuits while another area was used to clean and chop vegetables (see Figure 1). One ingenious solution to a common problem of a busy new mother was the creation of a small bed on wheels that was elevated and placed across the foot of her bed (see Figure 2 on p. 16). When her infant woke in the night, the mother could sit up, pull the small bed on wheels up to her to nurse and change a diaper as needed, then place the baby back on the bed and push it slowly away—thus never having to leave the warmth of her own bed.

Crane’s practical, thoughtful consideration of all aspects of the home and its impact on its occupants was a very early application of UD as well as an indication of her creative problem-solving skills.

MEETING THE PHYSICAL AND EMOTIONAL NEEDS OF EACH FAMILY MEMBER
Crane seemed to have a balance of common sense, the confidence to express her ideas, and the resources to see them through to creation. She recognized that she and her husband were fortunate to be able to pay for the construction of her home; however, she was extremely aware of every cent spent. Throughout the process, she attempted to make decisions that were fiscally responsible—not just in the initial outlay, but also with choices that would require less maintenance and remodeling in the future.
She wasn’t afraid to instruct those building her house to make sure that shelves, counters, and window seats were of the proper height to support good posture and comfortable use by a variety of family members (see Figure 3 on p. 16). She even designed her own multipurpose stool and stepladder that had the two front legs cut lower than the back in order to encourage an anterior pelvic tilt, thus minimizing fatigue and discomfort while sitting to do dishes.

The emotional needs of her family were analyzed and met through some of her design elements as well. When she writes about the man of the house, Crane shares her realization that he needed a way to get directly from the front door down to the basement to “enjoy to the full that delightful, refreshing basement shower” (p. 157) after work, before greeting any visitors his wife may have in the family living area. Furniture was chosen to encourage her husband to rest when needed, so quality time with the family could be more pleasant because he felt more refreshed. Crane felt that all family members should feel comfortable and welcome so they would want to return home to get refreshed and nourished after a busy, stressful day.

Crane’s Better Homes of America winning design of Everyman’s House was a part of a larger, national movement to provide housing for working-class people. Although it isn’t clear how her work specifically influenced future homes, her work has encouraged discussions about how design affects people and their functions within the home. The home in Kalamazoo she had built and then lived in with her family is still being used today, and the only addition has been an attached garage. It recently sold—quickly, even in today’s market—and the selling point listed in the description stated that the original Crane design was still intact in this historic home.

**Comparisons to Universal Design Concepts**

Crane was ahead of her time. Even the title of her book, *Everyman’s House*, has tones of universal design concepts. Universal design (UD), as coined by architect Ronald Mace 60 years after Crane had her home built, is a term used to describe the design of products and environments that can be used by all people and as much as possible without the need for specialized or individualized design. This concept is used by many occupational therapy practitioners who work in home modifications and design.

Environments designed to be usable by a variety of people with a variety of skills, abilities, and needs were the primary goal of Crane’s work as well as Mace’s. Design that does not need specialized or individualized modification, but instead has flexibility and ease of use and is also attractive, is a part of both Crane’s home design and general UD concepts. Crane’s practical
The focus of our home modifications practice should not be just meeting the needs of those with a new physical or emotional challenge through medical-looking modifications, but to incorporate ideas that are more easily used by all and are as attractive as possible.

thoughtful consideration of all aspects of the home and its impact on its occupants was a very early application of UD as well as an indication of her creative problem-solving skills.

APPLICATION TO OT PRACTICE
What does all this mean to occupational therapy practitioners who work in the area of home modifications or who do home evaluations? According to a review of the literature by Wahl et al. in 2009, consideration of and planning for a good person–environment fit supports better functional outcomes. This approach supports the role of the occupational therapy practitioner in home modifications and home design planning, as our background includes the skills and training to analyze occupations and to evaluate the person and the environment. As lifelong learners, we gather ideas from a broad range of sources to add to our idea toolbox. When we make recommendations for our clients who need to make changes to their home, we pull pieces and parts from what we’ve learned, what we’ve seen, and what we’ve experienced, and then creatively apply them in a client-focused approach.

Recommending home modifications with Caroline Bartlett Crane’s work and general UD concepts in mind can help create suggestions that are more appealing and more likely to be accepted by our clients. Crane’s work, in particular, is a reminder that the analysis of each occupation as well as the role of each household member can lead to better and more supportive design decisions. The focus of our home modifications practice should not be just meeting the needs of those with a new physical or emotional challenge through medical-looking modifications, but to incorporate ideas that are more easily used by all and are as attractive as possible. Staying open to new ideas (new to us, at least) can expose solutions that better meet the needs of our clients. Perhaps visiting your local museum can invigorate your practice and provide a few surprises. Museums that have displays about furniture design, architectural milestones, or urban planning, or that organize tours of historic buildings, can lead to a deeper understanding of the use and power of space within and around buildings. Home designs and styles can also vary across the country depending on climate, terrain, and local history.

We were fortunate in the serendipitous discovery of Crane’s work to have Western Michigan University’s regional archives to visit to gather information and study her home-designing journey. In the book chronicling her home design and building experiences, Crane provided recommendations and lessons sprinkled with humor and kindness—an another important lesson from her work.

The authors wish to thank Shannin VanArk, who, when she was a student at Western Michigan University, spent hours going through boxes in the archives and then got us started on this project with her enthusiasm and energy.

References

Carla Chase, EdD, OTR/L, CAPS, is an associate professor of Western Michigan University’s Occupational Therapy Program. Chase’s work as a gerontologist and occupational therapist at Western Michigan University centers on meeting the needs of elders in the community by researching the impact of environmental modifications to support participation and promote safety.

Suzanne Roche is a student at Western Michigan University’s Occupational Therapy Program. Roche will begin her Level II Fieldwork soon and is excited about exploring a variety of occupational therapy practice settings.
AOTA’s Societal Statement on Livable Communities

The demographic profile of the United States is rapidly changing with an increasing number of older adults and persons with disabilities who desire to remain in their homes and communities as they grow older, a concept referred to as aging-in-place. According to the United Nations (2007), persons with disabilities have the same right as all other members of society to live in the community with opportunities to choose their place of residence, and to have equal access to support services that promote full participation in all aspects of community living. To support these rights, society must create communities that enable all residents to live, work, play, and participate in locations of their choice (National Council on Disability, 2004; AARP, 2005). “A livable community is one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and engagement of the residents in civic and social life” (AARP, 2005, p. 4).

The American Occupational Therapy Association’s (AOTA’s) Core Values and Attitudes of Occupational Therapy Practice and Occupational Therapy Code of Ethics support equality for all individuals (AOTA, 1993, 2005), and are congruent with the goals of livable communities. Occupational therapy practitioners plan and implement strategies that promote their client’s participation in community life by creating opportunities to establish, restore, or maintain the skills used in activities of daily living and other meaningful occupations, and by supporting clients’ who are advocating for their own and others’ rights. Further, occupational therapy practitioners advocate for universal design and environmental modifications that remove barriers in homes and communities to ensure access to supportive community services, including transportation, personal care, health care, education, employment, and other services, and to facilitate engagement in social and civic activities. Occupational therapy promotes public health and civic engagement by advocating for and assisting in the creation of more livable communities through effective partnerships with individuals, private organizations, and government agencies. Supporting health and participation through active engagement in meaningful activities in the home and community contributes to health, wellness, and quality of life for all individuals (AOTA Ad Hoc Committee on Health and Wellness, 2006).

References


Continued on next page.
AOTA’s Societal Statement on Livable Communities


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Adopted by the Representative Assembly 2008CS85
Slips, trips, and falls in and around the home are frequently the cause of injuries to older adults. In 2009, 2.2 million older adults visited the emergency room for injuries related to falls, with many of these injuries resulting in decreased independence, a need for long-term-care support, and increased risk for early death. Falls remain the leading cause of injury or death among older adults, with a 2010 estimated total medical cost for fatal and nonfatal fall injuries of $28.2 billion (Centers for Disease Control and Prevention, 2011).

Occupational therapy practitioners are uniquely suited to address fall prevention with older adults. Research has shown the cause of falls to be multi-factorial in nature, influenced by conditions within the individual, within the environment, and as a result of the interaction between the two. The most successfully proven falls prevention initiatives are those that use a multi-faceted approach. Occupational therapy practitioners are skilled at evaluating and addressing both the person and the environment to maximize independence for older adults. Linking clients’ goals and priorities with modifications and adaptations that support their ability to participate in meaningful activities are hallmarks of occupational therapy.

The Role of Occupational Therapy

Occupational therapy practitioners work with the client and his or her caregivers to scan the home environment for hazards and evaluate the individual for limitations that contribute to falls. Recommendations often include a combination of interventions that target improving physical abilities to safely perform daily tasks, modifying the home, and changing activity patterns and behaviors. Occupational therapy services regularly include training clients, families, and interdisciplinary team members on strategies to support these fall prevention initiatives.

In addition to direct care for older adults, occupational therapy practitioners can assist in falls prevention on a larger scale through consultation to staff of community centers, nursing homes, and assisted living environments. Identifying environmental factors that contribute to falls and implementing the occupational therapy recommendations to remove these elements can improve safety and reduce health care costs while enhancing the participation of older adults in those communities.

Addressing Broader Ramifications

Fear of falling can be both a risk factor for falls and a consequence of falling. Defined as a lasting concern about falling that leads to an individual avoiding activities that he or she remains capable of doing, fear of falling often leads to self-limitation in performing activities and tasks that people need to complete in order to remain as independent as possible. As a consequence of these self-limiting behaviors, older adults experience decreased physical functioning which then contributes to an increased risk for falls. Occupational therapy practitioners assist older adults in recognizing and addressing fear of falling through focusing on the client’s individual, specific concerns. For example, a client may avoid sleeping in bed after falling at night while attempting to walk to the bathroom. The intervention then focuses on strategies designed to reduce falls risk, such as bed mobility, nighttime bathroom needs, and safety, which enhances the client’s confidence in his or her ability to go from the bed to the bathroom during the night.
Occupational therapy practitioners assist in breaking the cycle of inactivity and sedentary lifestyle that increases the risk of falling. Staying active and safe are common goals of older adults. By helping them reach these goals, occupational therapy practitioners empower older adults to maximize their ability to live life to its fullest.

**Conclusion**

Preventing falls and alleviating the fear of falling are cost-effective interventions that promote the safety and well-being of older adults. Many payers, including Medicare, will pay for these services as part of a covered occupational therapy benefit.

The profession of occupational therapy focuses on a person’s ability to participate in desired daily life activities or “occupations.” Aging can affect this ability, whether we continue to live in familiar surroundings or transition to new ones. As people age, occupational therapy practitioners use their expertise to help them prepare for and perform important activities and to fulfill their roles as community dwellers, family members, friends, workers, leisure devotees, or volunteers.

<table>
<thead>
<tr>
<th>Examples of Fall Risk Factors Addressed by Occupational Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrinsic</strong></td>
</tr>
<tr>
<td>• Lower-extremity weakness</td>
</tr>
<tr>
<td>• Impaired balance</td>
</tr>
<tr>
<td>• Cognitive impairment</td>
</tr>
<tr>
<td>• Urinary incontinence</td>
</tr>
<tr>
<td>• Sensory impairment</td>
</tr>
<tr>
<td>• Fear of falling</td>
</tr>
<tr>
<td><strong>Extrinsic</strong></td>
</tr>
<tr>
<td>• Throw rugs and loose carpets</td>
</tr>
<tr>
<td>• Lighting glare</td>
</tr>
<tr>
<td>• Pets</td>
</tr>
<tr>
<td>• Clutter</td>
</tr>
<tr>
<td>• Uneven sidewalks</td>
</tr>
<tr>
<td>• Thresholds</td>
</tr>
<tr>
<td>• Unstable handrails</td>
</tr>
</tbody>
</table>

**Reference**

Home Modifications and Occupational Therapy

Occupational therapy provides clients with the tools to optimize their home environments relative to individual abilities and promote full participation in daily life activities. As the population of older adults continues to grow, home modifications are a key factor in enabling individuals to “age in place,” or live in the place or home of choice. An AARP study found that more than 80% of people older than age 50 want to age in their own homes.\(^1\) Home modifications also can benefit clients of all ages with health conditions, sensory or movement impairments, or cognitive disorders by supporting the performance of necessary and desired daily activities (occupations), safety, and well-being.

Home modifications are “adaptations to living environments intended to increase usage, safety, security, and independence for the user. Home modifications are used in conjunction with assistive devices and home repairs” (p. 28).\(^2\) The home modification process includes evaluating needs, identifying and implementing solutions, training, and evaluating outcomes that contribute to the home modification product.\(^2\) The results of this process may be recommendations for alterations, adjustments, or additions to the home environment through the use of specialized, customized, off-the-shelf, or universally designed technologies; low- or high-tech equipment, products, hardware controls and cues, finishes, furnishings, and other features that affect the layout and structure of the home.\(^3\)

The Role of Occupational Therapy in Home Modifications

Occupational therapy plays a key role in identifying strategies that enable individuals to modify their homes, thereby maximizing their ability to participate in daily tasks/activities. Occupational therapy practitioners are skilled at recognizing how the environment affects the ability to perform desired occupations. An occupational therapist evaluates balance, coordination, endurance, safety awareness, strength, attention, problem solving, vision, communication, and many other functions while the individual performs daily tasks. In addition to the individual’s performance abilities, occupational therapists also evaluate the home environment to identify barriers to performance. For instance, features can be identified that increase the risk of falls (e.g., loose banisters) or present other hazards (e.g., overloaded electrical outlets). Occupational therapists also review aspects of the home that may require modification to facilitate performance. For example, secure upper-body supports such as handrails or grab bars can assist someone who has difficulty balancing during functional mobility and self-care activities. As part of the evaluation, occupational therapists analyze how a person interacts with his or her environment to complete a task or activity. Through this process, modifications and intervention strategies are selected to improve the fit between these elements, with a goal of maximizing safety and independence in the home. The intervention plan may include but is not limited to strategies such as adaptive equipment, lighting, family caregiver training, or remodeling.
Occupational therapy enables people of all ages to live life to its fullest by helping them to promote health, make lifestyle or environmental changes, and prevent—or live better with—injury, illness, or disability. By looking at the whole picture—a client’s psychological, physical, emotional, and social make-up—occupational therapy assists people to achieve their goals, function at the highest possible level, maintain or rebuild their independence, and participate in the everyday activities of life.

Occupational therapy services can be provided directly to clients who are experiencing a decline in safety or independence, or are planning for future needs. Occupational therapy practitioners provide client-focused intervention to adapt the environment in order to increase independence, promote health, and prevent further decline or injury. For example, falls often result from home hazards in combination with declining physical abilities. One strategy to reduce the incidence of falls is to have an environmental assessment and recommendations for modifications completed by an occupational therapist. In this type of situation, an occupational therapist performing an environmental assessment can observe and evaluate all occupations (activities) occurring at and around the home, from activities of daily living (ADLs; bathing, dressing, other self-care activities) to instrumental activities of daily living (IADLs; preparing meals, doing laundry, and performing home maintenance chores) to play and/or leisure activities (playing cards, exercising, playing a musical instrument, entertaining friends, enjoying hobbies). Based on that evaluation, recommendations can be made for modifications or client training to promote safety in the home.

Occupational therapy services are available in many places in the community: hospitals, home health agencies, clinics, rehabilitation or community agencies, or through private practice. They may be reimbursable under Medicare and some private health insurance plans when coverage criteria are met, including a physician referral.

Occupational therapy practitioners provide a valuable perspective to a team of professionals (e.g., other health care workers, builders, architects), caregivers, and the client during the home modification process.

References

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**TIPS**

**REMAINING IN YOUR HOME AS YOU AGE**

**Are you planning to remain in your own home** as you grow older? Are you finding it more difficult to manage some daily tasks in your home? Do you or your family and friends have safety concerns about you living alone?

As abilities diminish as part of the normal aging process, assistance or changes might be needed to maintain your independence and age safely at home. An occupational therapist will work with you to ensure that recommendations to increase independence and safety are specific to your wants and needs, skills, environment, budget, and other criteria. The following tips come from occupational therapy practitioners who work with older adults to help them stay in their homes.

### If you want to:

- **Be safe and independent in your home.**
- **Get to the grocery store, doctor’s appointments, and social events.**
- **Make changes that will help you live independently and safely.**

### Consider these activity tips:

- Think honestly about those things your are having trouble with, and ask for assistance when possible. You may be able to do a “swap” with neighbors (e.g., offer to sign for packages if they work during the day in exchange for help changing light bulbs in hard-to-reach places).
- Hire professionals for regular cleaning and lawn care, arrange for Meals on Wheels, etc.

- If you’re concerned about your driving skills, consider asking a friend or neighbor to provide a ride whenever possible; offering gas money or a service in return can make this easier. If you haven’t taken public transportation in the past, you may be surprised at the number of options available. Many communities offer a free bus or van to shopping centers or even medical appointments.

- If you are still driving, attend a CarFit event in your community to be sure your vehicle’s adjustments are best for you (www.car-fit.org). Avoid driving during rush hour, at night, on busy roads, or in inclement weather.

- Remove unnecessary throw rugs to reduce the risk of falling; decrease clutter; repair furniture that isn’t sturdy; reduce electrical cords, keep them away from walking paths, and be sure all outlets are grounded; and purchase “universal design” products to improve their ease of use.

- Watch you as you do the things you want and need to do, and recommend changes to increase safety, ease, and ability now and in the future. Suggestions may include adding adaptive equipment such as grab bars or stair lifts, lowering counter heights, adding railings, replacing door knobs with lever style handles, widening doorways, etc.

### An occupational therapy practitioner offers expertise to:

- Provide an evaluation in your home to assess your skills, abilities, and safety, and make recommendations that meet your needs and reassure your family members.

- Consider all the options to help you get around in the community. These may include conducting a driving evaluation with the goal of addressing problem areas so you can drive safely, providing non-driving options for you to get around the community, helping you become comfortable with the public transportation system, etc.

- Share your schedule with friends and neighbors, and/or set up a regular social event so others will be alerted if something has happened to you.
### Need More Information?

If you are interested in having an occupational therapist help you stay in your home, ask your physician for a referral. You can also contact an occupational therapist in private practice who specializes in home modifications (these individuals may have CAPS or SCEM among their credentials).

If you have had a recent medical change and qualify for home health services, a home health agency will be able to provide an occupational therapist. Some Area Agencies on Aging also employ occupational therapists to address aging in one’s home.

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**If you want to:** Modify your home on a limited budget.

**Consider these activity tips:** Explore community-based groups, such as Rebuilding Together, whose volunteers help repair and modify homes for those who can’t afford to do so.

**An occupational therapy practitioner offers expertise to:** Suggest low-cost equipment and other changes, such as increasing wattage for better lighting, using a reacher to avoid bending over or standing on a stool, using the microwave and not the stove to reduce fire hazards, etc. An occupational therapist will also provide training on adaptive equipment to be sure the recommendations are right for you and will be used.

Occupational therapy is a skilled health, rehabilitation, and educational service that helps people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations).

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ARE ONE OR BOTH OF YOUR PARENTS finding it more difficult to manage daily tasks in the home? Do you worry about the health and safety of a parent living alone?

As abilities diminish as part of the normal aging process, families and other caregivers must often help the older person obtain the assistance needed to maintain independence and live safely at home. An occupational therapist works with the person and family to ensure that recommendations to increase independence and safety are specific to their wants and needs, skills, environment, budget, and other criteria. The following tips come from occupational therapy practitioners who work with families to help older adults stay in their homes.

If you want to:

Determine whether your parent is safe living at home.

Consider these activity tips:

Ideally, talk about living arrangements before safety issues become paramount, and encourage your parent to share concerns. Emphasize that having difficulties does not have to mean leaving one’s home. Watch for clues that certain daily activities have become too difficult because of physical or mental changes. Are bills going unpaid? Is your parent neglecting grooming or skipping meals? Does the home appear neglected?

Determine whether your parent is safe living at home.

Provide an evaluation in your parent’s home to assess skills, abilities, and safety, and make recommendations that meet the needs of your parent and other family members. An occupational therapist will also evaluate your parent’s ability to get around in the community to get groceries, go to doctor appointments, attend religious services, participate in social activities, etc., and provide options for doing so.

Focus on your concerns, not on your parent’s possible deficits (“I worry about you falling on those dark basement stairs. As a birthday gift, we are going to make sure your stairs are safe and well lit”). Introduce small modifications as gifts or services when you notice a need (e.g., when replacing hard-to-reach light bulbs, upgrade the wattage for improved visibility, hire professionals for regular cleaning and lawn care, arrange to have a weekly meal delivered from your parent’s favorite restaurant, etc.). Emphasize that helping your parent is not a chore, but that you are happy to be able to assist.

Suggest ways to approach this topic while respecting your parent’s autonomy. Occupational therapists can recommend simple to complex home modifications, community support groups, options for getting around in the community, and other services that will help your parent continue to do valued activities safely and easily. Evaluate how well your parent is able to do the things he or she wants and needs to do, and provide personalized recommendations to increase safety, ease, and ability now and in the future. Suggestions may include adding adaptive equipment such as grab bars or stair lifts, lowering counter heights, adding railings, replacing door knobs with lever style handles, widening doorways, etc.

Modify your parent’s home on a limited budget.

Explore community-based groups, such as Rebuilding Together, whose volunteers help repair and modify homes for those who can’t afford to do so.

Suggest low-cost equipment and other changes (e.g., increase wattage or change the type of fixture for better lighting or reduced glare, use a reacher to avoid bending over or standing on a stool, use the microwave and not the stove to reduce fire hazards, etc.). An occupational therapist will also provide training on adaptive equipment and address any concerns to be sure it will be used.

An occupational therapy practitioner offers expertise to:

Provide an evaluation in your parent’s home to assess skills, abilities, and safety, and make recommendations that meet the needs of your parent and other family members. An occupational therapist will also evaluate your parent’s ability to get around in the community to get groceries, go to doctor appointments, attend religious services, participate in social activities, etc., and provide options for doing so.

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Need More Information?
If you are interested in having an occupational therapist help your parents stay in their home, ask the physician for a referral. You can also contact an occupational therapist in private practice who specializes in home modifications (these individuals may have CAPS or SCEM among their credentials).

If your parent has had a recent medical change and qualifies for home health services, a home health agency will be able to provide an occupational therapist. Some Area Agencies on Aging also employ occupational therapy practitioners to address aging in one’s home.

Occupational therapy is a skilled health, rehabilitation, and educational service that helps people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations).

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Falls Prevention Presentation How-To Guide

Introduction and Acknowledgements

This toolkit will help you prepare and deliver a presentation on falls prevention. It is intended to be used by occupational therapy practitioners to educate the public on strategies and resources to reduce fall risk, and on the role of occupational therapy in falls prevention. The presentation can be given to a variety of groups and populations in health care and community settings in conjunction with Falls Prevention Awareness Day and throughout the year. Content includes two different versions of a PowerPoint presentation, with scripts, handouts, a resource list, and a flyer to help promote your presentation. The toolkit also provides helpful suggestions about arranging, preparing, and delivering a presentation. This presentation should be used for general educational purposes only. For all other purposes, including reprints, please contact epeterso@uic.edu.

This Falls Prevention Toolkit was developed by Elizabeth Peterson, PhD, OTR/L, FAOTA, Clinical Professor, University of Illinois at Chicago; and Bonita Lynn Beattie, PT, MPT, MHA, Vice President, Injury Prevention & Lead, Falls Free® Initiative, Center for Healthy Aging, National Council on Aging. A special thanks to AOTA staff Karen Smith, Laura Collins, and Chris Metzler and AOTA student Melissa Stutzbach for their contributions.

Falls Prevention Awareness Day

September 22nd, the first day of fall, is also National Falls Prevention Awareness Day, sponsored annually by the National Council on Aging (NCOA). This national initiative seeks to unite professionals, older adults, caregivers, and family members to play a part in raising awareness and preventing falls in the older adult population. More than 40 states have participated in Falls Prevention Awareness Day, joining more than 70 national organizations, including the American Occupational Therapy Association as well as other professional associations and federal agencies that comprise the Falls Free© Initiative. If your organization participates in a falls prevention activity, please contact your State Falls Prevention Coalition to make sure you are counted in your state’s inventory of events. For more information on Falls Prevention Awareness Day, visit the NCOA Web site and the AOTA Web site.
Scheduling a Presentation

You may already have a venue in mind for your presentation. If not, there are likely many options available to you. Many communities have local senior and community centers, nonprofit organizations, senior housing facilities, retirement communities, faith-based organizations, local area Agencies on Aging, recreation programs, public health departments, health care facilities and organizations, and other community organizations such as the YMCA of the USA, the Lions Club, Elks, or Veterans’ groups that are interested in educational opportunities for older adults. If you have difficulty finding a site that is well suited for the purpose of the presentation, utilize the Eldercare Locator, a public service provided by the U.S. Administration on Aging that can help you connect with services for older adults in your community, or contact your local Agency on Aging to see if someone might be able to help you with your search.

Once you have determined a site or multiple sites that you feel would benefit from a presentation, follow these helpful suggestions to schedule your event:

- E-mail, call, or visit the site to inquire about scheduling a presentation at least a month prior to when you anticipate presenting. Visiting the site in person is often the most effective method of getting the attention of those who might be interested in helping you schedule a presentation. Many sites schedule programming months ahead of time.
- Keep in mind that persistence is key. Follow up on your inquiries if you have not received a response from a site after a few days. Have multiple sites in mind in case your first choice is not available.
- Provide information about the purpose of the presentation, time required, and equipment and facilities needed (e.g., laptop, projector, projector screen, comfortable seating for the audience).
- Schedule a date that works for you and the site.
- Inquire about how the presentation will be advertised at the facility (e.g., newsletters, listserv, social media, announcements, calendar posting, flyers, etc.). Assist with the promotion of the presentation as needed, such as by filling out the AOTA Falls Prevention Presentation Flyer and posting it at the site.
- Ensure that there are accessibility options (e.g., wheelchair ramps, restrooms, etc.) at the site to accommodate all populations.
- Contact the site a week prior to remind them of your presentation and confirm any last minute details.
Preparing Materials

Materials provided include:

- A 15-minute PowerPoint presentation
- A script for the 15-minute PowerPoint presentation
- A 30-minute PowerPoint presentation
- A script for the 30-minute PowerPoint presentation

As a presenter, you can decide which version of the presentation you prefer to use. Both presentations have similar content but vary in the time required, length and detail of descriptions, examples given, and topics covered. Feel free to make minor modifications in the presentation as needed.

Note: if your presentation varies too far from the themes and suggestions outlined in the Falls Prevention Toolkit, please create your own presentation and do not use the UIC, AOTA, and NCOA logos and credits.

The two handouts listed below should be provided to everyone in the audience. Make sure you print enough copies for your anticipated audience and a few extras in case more people attend. You can download resources through the following links on the AOTA Web site:

- Falls Prevention Resources
  - Learn about falls prevention-related services offered by the site and in the local community that you might add to this resource list.
- Tips for Living Life to its Fullest: Fall Prevention for Older Adults

Other handouts that you might consider providing include:

- A copy of the PowerPoint presentation
- Tips for Living Life to its Fullest: Remaining in Your Home as You Age
- CDC Fall Prevention Materials, including Check for Safety: A Home Fall Prevention Checklist for Older Adults and the brochure What You Can Do to Prevent Falls
Delivering the Presentation

Follow these helpful suggestions to ensure that you have an effective presentation:

- Practice the presentation by yourself and in front of others.
- Dress professionally.
- Visit the site prior to the presentation to troubleshoot the PowerPoint and room set up.
- Bring more than one copy of the presentation in an additional format (e.g., flash drive, CD, computer desktop, etc.) in case one of the versions does not work. Keep in mind that not all sites have Internet access.
- Do not read directly off of the script or the slides. Become familiar with the content and talk based on your own experience and knowledge.
- Be aware of literacy levels. Keep it simple and avoid jargon and technical terms that the audience might not be familiar with.
- Project your voice and talk slowly and clearly.
- Face the audience and maintain eye contact.
- Keep an eye on the time to avoid going too far over or under the allotted time.
- Keep the audience engaged through interactive discussions and questions about their own experiences. Suggestions for audience involvement are provided throughout the script.
- Recommend site and community programs and services to your participants.
- Thank the audience for their participation and interest in preventing falls.

Presentation Follow up

Be sure to thank the site for hosting the presentation. Maintaining a relationship with the site may be valuable when scheduling future presentations or utilizing resources and opportunities the site may offer for older adults.

Let AOTA know how your presentation went by contacting Karen Smith at ksmith@aota.org or share your experience on the Gerontology Special Interest Forum on OT Connections. We welcome any questions or feedback you may have about the Falls Prevention Toolkit. Thank you for reaching out to your community and helping to fulfill the need for falls prevention education!
Unprecedented Opportunities in Fall Prevention for Occupational Therapy Practitioners
Elizabeth W. Peterson, Marcia Finlayson, Sharon J. Elliott, Jane A. Painter, and Lindy Clemson
*American Journal of Occupational Therapy*, March/April 2012

Occupational Therapy in Fall Prevention: Current Evidence and Future Directions
Natalie E. Leland, Sharon J. Elliott, Lisa O’Malley, and Susan L. Murphy
*American Journal of Occupational Therapy*, March/April 2012

Resources for Evidence-Based Practice & Research may also be found at www.aota.org/practice/researchers

For additional articles on home accessibility and environmental modification, visit http://ajot.aota.org/solr/topicResults.aspx?-fl_Categories=Home+Accessibility%2fEnvironmental+Modification&resourceid=31056&fd_JournalID=167.