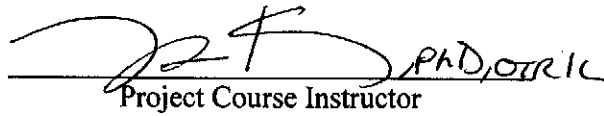


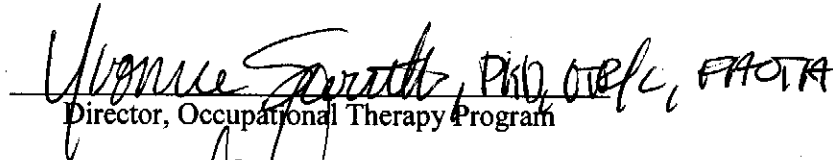
Promoting Safety and Aging in Place in Tacoma and the Surrounding Area

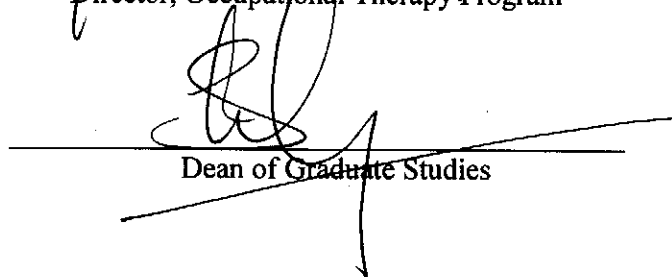
May, 2013

This project, submitted by Amanda Fischels, has been approved and accepted in partial fulfillment of the requirements for the degree of Master of Occupational Therapy from the University of Puget Sound.

  
Project Chair

  
Project Course Instructor

  
Director, Occupational Therapy Program

  
Dean of Graduate Studies

### Abstract

The majority of older adults would like to “age in place” by continuing to live in their homes as long as possible. Barriers that can prevent aging in place include normal age-related changes and falls, which can result in injury requiring hospitalization or long-term care. However, fall risk can be reduced with home modifications that increase the safety and accessibility of the home. Unfortunately, these modifications can be costly and often are paid out of pocket. Older adults do not always have the financial means to pay for home modifications, even when they could increase the safety within their home. The purpose of this project was to provide an educational manual for staff at Rebuilding Together South Sound (RTSS), an organization that provides free home modifications and repairs to individuals in need within the local community. The manual serves as a tool by providing staff information from safety evaluations completed on homes previously served by RTSS. This manual includes sections on age-related changes, common safety hazards discovered in the home, and recommendations for adapting the home to promote aging in place. Brochures are included to be distributed to homeowners and expand their knowledge on the ability to age in place through improved home safety. RTSS staff found the manual to be an effective resource for information to better serve clientele and to identify ways to improve the safety within their homes.

## Introduction

The baby boomer population and the desire to age in place are expanding at a rapid pace. By 2030, one in five older adults will be 65 years or older (Brown, 2011) and 85 % of this population believe that services allowing for aging in place are either extremely or very important to them (AARP, 2011). In order to stay in the home, modifications are often needed to adapt to normal age-related changes and related limitations. Modifications can support an extended length of stay in the home (Hwang, Cummings, A. Sixsmith, & J. Sixsmith, 2011) and increase safety with reduced fall rates (Clemson, Mackenzie, Ballinger, Close, & Cumming, 2008). Many older adults are unable to afford home modifications, partly because Medicare does not pay for modification services (Fagan, 2007). This lack of funding requires 80% of modifications and repairs to be paid out of pocket (Mutschler, 1997), which limits the type of modifications older adults can make in their homes. Rebuilding Together South Sound (RTSS) is a local non-profit organization in the Tacoma community that helps low-income individuals, including older adults, age in place by providing clients' homes with free modifications and emergency repairs (Rebuilding Together South Sound, 2012).

Representatives of the organization, Amy Hoyte and Kristina Santwan, identified the need for a continued follow-up evaluation process within the home to supplement the evaluation follow-up questions mailed to clients after initial home modification (personal communication, February 17, 2012). At this time, data are collected from surveys, but no direct hands-on assistance or monitoring is provided in response to problems or concerns with modifications. Additionally, more detail is needed for follow-up to identify any sources of unmet need for homeowners with regard to previous services delivered. Addressing this problem could help resolve safety hazards within the home environment and improve clients' ability to age in place.

## **Background /Literature Review**

### **Aging in place significance**

Aging in place is a prominent and important concept within the twenty-first century. It refers to older adults' desire to stay in the home as they age rather than relocating to an institutional care facility (Pynoos, Nishita, Cicero, & Caraviello, 2008). Aging in place has gained momentum since the 1999 Supreme Court Decision, *Olmstead vs. L.C.*, which stated that individuals with disabilities should be provided services that best integrate them in the community (Pynoos et al., 2008). The decision was supported by the Americans with Disabilities Act (ADA), which was established in 1990 (Hammel, Charlton, Jones, Kramer, & Wilson, 2009). The ADA protects individuals with physical and mental disabilities from various types of discrimination, including fair housing (Brown, 2011).

In addition to the ADA and *Olmstead vs. L.C.* decision, the expanding elderly population has helped shape the trend of aging in place. By the year 2030, older adults are expected to make up one in five Americans (Brown, 2011), which corresponds to 20% of the population (Kaminsky, 2010). The aging population has openly demonstrated they favor aging in place. According to a 2011 AARP survey, 85% of those over 50 years of age reported services that promote aging in the home are extremely or very important to them.

Multiple factors help explain the importance of aging in place for individuals. The home environment contains a wealth of memories and is a foundation for enjoyment of important occupations, or meaningful activities (Stevens-Ratchford & Diaz, 2003). Older adults who have lived in one setting for any length of time have built physical, psychological, and emotional ties to their environment (Stevens-Ratchford & Diaz, 2003). Disrupting this balance could negatively impact the older adult's life and impair successful aging by leading to functional and

psychological problems. This result could be detrimental to a population that is already at risk for psychological illness, with 12 to 20% of older adults having depression (Painter et al., 2012).

The ability to engage in occupations within their own home allows the individual to feel purposeful and successful within daily routine activities, thus supporting overall health (Stevens-Ratchford & Diaz, 2003).

The home environment also supports health by allowing continued participation within the community as one ages. Performing ongoing, or habitual, occupations provides the older adult with a link to the community and connection to the outside world (Vrkljan, Leuty, & Law, 2011). For example, volunteering after retirement or involvement at the local fitness facility can provide the individual with a source of meaning. Vrkljan et al. (2011) interviewed 10 older adults living in the community and found that the home allowed the opportunity to connect with others through social interactions, which was reported as being particularly important for participants living alone. Individuals perceived their environment as providing a sense of belonging that came from “doing, being, and living-in-place” (Vrkljan et al., 2011, p. 156). These same participants described a common fear of being forced out of the home and into institutional care where they would lose meaningful social interactions (Vrkljan et al., 2011). Therefore, the home has a wealth of meaning that shapes the individual through the aging process; it is vastly more complex than simply a physical structure where one lives.

### **Barriers to aging in place**

In spite of older adults' strong desire to age in place, numerous barriers can prevent some older adults from accomplishing this goal. Individuals are living longer but can face challenges resulting from chronic conditions, which are more prevalent in older adults. They have increased risk of stroke, heart related problems, dementia, diabetes, and Parkinson's disease (Kaminsky, 2010). Macular degeneration and glaucoma are two common chronic visual conditions impacting older adults (Tideiksaar, 2009). Additionally, older adults experience normal age-related changes as they age that present barriers to aging in place. Seniors experience decreased visual function involving acuity, contrast sensitivity, depth perception, and glare sensitivity (Tideiksaar, 2009). Balance can also be affected, specifically if there are also problems with the individual's vestibular, visual, or proprioceptive systems (Tideiksaar, 2009). Older adults lose some proximal strength, in addition to hip extensor and flexor strength influencing gait length and stability. The musculoskeletal system also faces changes that result in the head and trunk flexing forward, instead of being in straight alignment (Tideiksaar, 2009). A senior's cardiovascular system responds poorly to postural changes, resulting in increased chance of hypoxia due to the diminished increase in heart rate and systemic blood pressure functioning (Tideiksaar, 2009). Chronic illness and age-related changes put older adults at risk for impaired mobility, leading to increased rates of falls (Tideiksaar, 2009). In fact, 55% of falls occur directly inside the home and 23% occur near the home, including curbs and sidewalks (Pynoos, Steinman, & Nguyen, 2010).

Falls are a common barrier to aging in place because they can result in death or injury. Depending on the severity of the fall, hospital care could immediately result and lead to admission into institutional care (Pighills, Torgenson, Sheldon, Drummond, & Bland, 2011).

According to the Centers for Disease Control and Prevention [CDC] (2010), falls are the leading cause of accidental death in the older adult population. In 2008, 82% of fall deaths were among those individuals over 65 years of age (CDC, 2010). Falls also have emotional and psychological implications resulting in a cascading effect. Falls can produce anxiety about future occurrences, which leads to diminished confidence in performing activities in the home and increased risk of fall due to physical deconditioning (Pighillis et al., 2011).

Overall, a fall can lead to either short-term or long-term placement in institutional care. Injuries sustained in a fall may be so severe that they may prevent independent living in the home (Nikolaus & Bach, 2003). Older adults over the age of 75 are especially prone to be admitted to long-term care for one year or longer (CDC, 2010). Relocation into an institutional facility, such as a nursing home, may not be the best option for all older adults, particularly those without severe limitations. A qualitative study by Vrkljan et al. (2011), discovered that older adults are concerned about being forced out of their homes and into institutions, which was not viewed as meeting the participants' expectations for successful aging. Furthermore, long-term care facilities are very expensive and rates continue to steadily rise. According to a Cost of Care Survey completed by Genworth Financial, Americans paid about \$15,330 more dollars annually for nursing home care in 2012 compared to 2007. This study reported that the median annual cost of a private nursing home room in 2012 would be approximately \$81,030. Institutional care was reported to be primarily covered by Medicaid. While Medicaid covers long-term care, it provides minimal consistent support for home-based services that would enable older adults to return home (AARP Public Policy Institute, 2010). This Medicaid bias conflicts with 59% percent of American older adults who strongly support broadening the use of nursing home funding to include long-term services that promote aging in place (AARP, 2011).

Even with the public desire to age in the home, older adults do not currently have the financial support from the government to stay in their homes even if this assistance is needed.

Most falls occur due the combination of individual, environmental, and behavioral influences (Pynoos et al., 2010). Environmental factors cause 35-40% of falls (Pynoos et al., 2010). Falls can result from home hazards such as rugs that can be tripped on and lack of mobility support including handrails. Other environmental factors include loose carpets, clutter, and poorly designed bathroom appliances (Pynoos et al., 2010). As a result, it is important to identify potential hazards in the home and then modify them to reduce incidence of falls, in order to support aging in place (Nikolaus & Bach, 2003). Individual factors, including weakness, cognitive impairment, and medication use all can increase the rate of falls. Medication classes including diuretics, antidepressants, psychotropics, and anti-hypertensives influence the rate of falls most often (Tideiksaar, 2002). These drugs can compromise the individual's gait and balance leading to a fall. The interaction between individual and environmental factors can be problematic for older adults due to normal age-related changes. For instance, older adults have increased curvature of the spine resulting in a stooped posture, which could impact that individual's ability to visually scan and identify safety hazards within the home (Tideiksaar, 2002). Older adults experience a change in the gait cycle influencing the speed, step length, and step height which could be unsafe in a home with a flight of stairs and no handrails. An additional complication that can influence and increase fall risk is behavioral factors. Examples include not turning on a light when walking to the bathroom at night and choosing inappropriate clothing and footwear, such as pant length that does not correspond to that person's height (Pynoos et al., 2010).



## **Home modifications**

Fortunately, many falls can be prevented if the individual's home environment is modified to minimize their occurrence. Modifications can be used to make an environment accessible for people with a chronic condition or mobility limitation. For example, walkers can be used within the home environment to support the stability and balance of the individual during ambulation (Tideiksaar, 2002). Modifications help to improve efficiency of home set-up and reduce fall incidences resulting in injury (Pynoos et al., 2010). Problems in the structural design can include steps at entrances and thresholds over one-half of an inch, while problems with set-up include clutter and throw rugs leading to safety issues. Potential modifications include removing the problematic threat in the environment, recommending assistive devices, and adding structural assistance to home space such as a ramp or grab bars. A recent study by Stark, Landsbaum, Palmar, Somerville, and Morris (2010) found that the most commonly provided modifications included grab bars, hand rails, additional lighting, and reacher devices. Home modifications can provide direct changes to the physical environment, but they can also include providing education to the client in order to use environmental space more efficiently or social support to compensate for environmental barriers (Rigby, Stark, Letts, & Ringaert, 2009).

Modifications can support aging in place through increased length of stay in the home. A study by Hwang et al. (2011) found that older adults with home modifications were more likely to stay in their home longer than those who did not. Modifications can help reduce the impact of environmental barriers on the individual and improve the individual's ability to be independent at home. This concept is important to older adults, with many willing to make environmental accommodations to stay in the home longer. An older adult's perspective demonstrates this outlook by stating:

I would think that we would have to look at adjustments to the home. For example, if you're using a wheeled aid all the time, you'd have to look at the doorway, and with steps in the front, the back entrance would be where we could adapt. (Vrklijan et al., 2011, p. 156)

### **Adherence and success of home modifications**

Adherence to modifications by older adults can significantly determine how beneficial the modifications will be in improving the individual's safety within the home. In a previous study, those individuals who believed that home modifications helped prevent falls were twice as likely to adhere to recommended modifications compared to non-adherers (Cumming, Thomas, Szonyi, Salkeld, & Clemson, 2001). This same study found adherence to be high when older adults received help from relatives, who can reinforce the use of the modifications. Reinforcement might be needed for individuals who are reluctant to use them (Cumming et al., 2001). There is a stigma attached to the use of assisted devices and modifications such as ramps, which impacts their use. The addition of modifications can change the home's appearance and diminish the desire to permit their use (Cumming et al., 2001). The appeal can be further diminished with bulky and inconveniently placed items.

Research has suggested that adherence may be higher in high-risk individuals who have a previous history of falls. In a study by Nikolaus and Bach (2003), individuals who complied with at least one of the recommendations in the home had a significant reduction in incidence of falls. Participants with two or more falls in the previous year had significantly fewer falls after follow-up than those in the control group who were not provided home modifications. However, those individuals within the intervention group without a history of falls had a similar rate of falls in comparison to the control group during follow-up period. These authors suggest that the

individuals with previous fall experiences make the advice more of a priority with regard to preventing future falls. Similarly, a meta-analysis concluded that a multi-factorial intervention strategy targeted to a high-risk population can lead to fall prevention (Tse, 2005). This strategy should address multiple risk factors including environmental hazards, medication use, balance impairment, and muscle weakness (Tinetti et al., 1994).

Home modification interventions are most successfully completed with a client-centered and high-intensity focus. Stark et al. (2010) provided a team oriented intervention where the client identified personal problems within the home and was offered solutions to reduce the barriers. The older adult was given multiple solutions regarding modifications and ultimately had the decision in accepting or refusing them. After a 2 year follow-up, 80% of recommended modifications were adhered to and reported participation and satisfaction regarding occupational performance significantly increased within the home (Stark et al., 2010). A meta-analysis completed by Clemson et al. (2008) used four distinct criteria to evaluate intervention intensity: a comprehensive evaluation process, the use of an assessment tool, evaluation inclusion of the individual's physical and psychological capabilities in relation to their environment, and adequate follow-up. This study found a 39% reduction of falls in high risk individuals and suggested that the above criteria provide positive results in fall prevention.

### **Barriers to home modifications**

Home modifications are not always accessible to older adults even when they desire them and are willing to use them. Most federal and state assistance programs do not pay for these services, requiring older adults to pay out of pocket. Medicare and Medicaid will pay for some assistive devices that are deemed medically necessary, but home modifications are not considered to be medically necessary and are typically not covered, so older adults often are

forced to pay for modifications independently (Pynoos et al., 2008). There is quite a range to the costs associated with home modifications. Grab bars and shower seats are less expensive, with a range of \$50 to \$250 (Pynoos et al., 2010). On the other end, walk-in showers or ramp installation can cost a minimum of \$600 to \$1500, respectively (Pynoos et al., 2010). Grants and waivers are available to homeowners, but eligibility requirements in addition to tight budgets can lead to older adults being forced to pay for modifications independently (Pynoos et al., 2008).

Factors within the individual can impact older adult's ability to access home modifications and repairs. Lack of resources for professional recommendations and inability to trust contractors who complete structural work can also prevent older adults from accessing needed home modifications (Pynoos et al., 2008). An older adult may be hesitant to change the interior of the home due to memories previously experienced there (Pynoos et al., 2008). It is important to educate individuals on the benefits of modifications and also to thoroughly identify whether or not the modifications will truly improve their limitations. Assessment should evaluate whether modifications will solve the underlying problem, because otherwise adherence to the recommendation may not be followed (Pynoos et al., 2008).

### **Home modification success**

Home modification interventions are most successfully completed with a comprehensive and client-centered focus. Stark et al. (2010) provided a team oriented intervention where the client identified personal problems within the home and was offered solutions to reduce the barriers. The older adult was given multiple solutions regarding modifications and ultimately had the decision in accepting or refusing them. After a 2 year follow-up, 80% of recommended modifications were adhered to and reported participation and satisfaction regarding occupational performance significantly increased within the home (Stark et al., 2010). A meta-analysis

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### **The home modification process**

The home modification process should be “dynamic” to address future adaptations that may need to be provided to support the natural aging process (Pynoos et al., 2010). Previously implemented modifications need to be monitored over time to address chronic illness and physiological changes that older adults encounter as they age. Follow up visits can determine if more training is needed and if additional modifications are necessary to prevent further safety hazards for the individual (Pynoos, Steinman, & Nguyen, 2010). Overall, follow up is important in responding and intervening with ongoing changes in overall functioning as one ages (Pynoos et al., 2010). A study by Gitlin, Mann, Machiko, and Marcus (2001) recommends an ongoing assessment process to be routine for community living adults. The home should be structured so that future impairments can be accommodated as the individual ages (Brown, 2011). Contractors have certain parameters that are now automatically considered due to the most recent ADA minimum requirements (Brown, 2011). ADA supports aging in place by enforcing guidelines that are required when new construction is completed within public living spaces, such as businesses and non-profit organizations (New England ADA Center, 2011). These guidelines, although not enforced within single family homes, can be used as a standard of accessibility for older adults. For example, countertop height should be about 36 inches off the floor (Brown, 2011). Bathroom space should be set at 60 inches in diameter to assist mobility for wheel chair

users. Shower stalls are built with reinforced walls to allow for secure installation of grab bars possibly needed for future use. Additionally, universal design principles utilize products and environments that increase accessibility for anyone living in the home (Rigby et al., 2009). Providing a step-free entrance and wide hallways can help accommodate a variety of age and functional levels. Even with these specific adjustments and considerations to newer homes, older homes may require structural modifications in order to adapt to possible functional limitations.

Once home modifications are implemented, continued attention to the client's needs should be addressed. Follow-up contact, including home visits and phone calls, can help clients further understand the equipment or modification and allow professionals to determine if further training or if additional modifications may be helpful (Pynoos et al., 2010). Ongoing follow-up by experienced staff can help increase the success of the process by monitoring adherence to home modification recommendations and making sure older adults receive ongoing support to fit their changing needs.

### **Rebuilding Together collaboration**

Rebuilding Together, an organization serving low income and elderly homeowners, needs a more detailed evaluation plan and process to be used during follow-up assessment of previously provided home modifications and repairs (A. Hoyte & K. Santwan, personal communication, February 17, 2012). Follow-up visits can help facilitate the modification process (Pynoos et al., 2010), and provide clients the necessary support they may need directly in the home. An evaluation form will be utilized to help provide a holistic perspective regarding individual difficulties within the client's home environment and will be used during collaborative follow-up evaluations with Rebuilding Together staff. This evaluation form will focus on elements within the home from an occupational therapy perspective with less emphasis on

structural components that RTSS addresses. There is a need for an educational manual to be given to Rebuilding Together staff to facilitate a better understanding of barriers and identify the current level of effectiveness to the delivery of services. Therefore, a manual will be designed to present the staff with solutions to observed barriers within the implementation process. As well as preventative strategies to improve clients' safety in the home and promote their ability to age in place.

### **Purpose Statement**

The purpose of this project was to collaborate with Rebuilding Together South Sound staff during follow-up home visits and provide them an educational manual consisting of common safety hazards discovered in the homes and simple solutions, including preventative strategies, to improve the homeowner's safety and ability to age in place.

### **Procedure for Project**

- 1) Completed a needs assessment related to aging in place in the local community.
- 2) Completed an interview with RTSS representatives, Amy Hoyte and Kristina Santwan, to collaborate on specific needs of the organization.
- 3) Researched aging in place, home modifications, and fall risk information.
- 4) Researched age-related changes, specifically those changes that impact rate of falls more commonly.
- 5) Participated in the Rebuilding Day program, to better understand the organization's mission and goals for working with older adults in the community.
- 6) Drafted proposal and received feedback from peers and faculty, particularly Dr. Tatiana Kaminsky.

- 7) Completed nine home visits with Kristina Santwan, evaluating the safety of client's homes. With permission, used evaluation form crafted by Dawn Yoshimura-Smith, OTR/L, to identify safety hazards in the homes.
- 8) Met with a reference librarian student to better understand Publisher programming.
- 9) Thoroughly evaluated results from nine home visits to identify common safety hazards, solutions to improve them, and ways to prevent future falls in the home.
- 10) Completed three sections of the manual (aging in place information, home safety hazards, and recommendations).
- 11) Created two brochures for homeowners to be distributed by RTSS staff, explaining aging in place information and home recommendations separated by area of the home.
- 11) Completed in-service training for RTSS staff, explaining the manual and project outcomes in detail.
- 12) Modified material, upon recommendations from RTSS staff and project chair.

### **Skills and Knowledge**

- Skilled observation to evaluate home safety
- Knowledge of age-related changes and barriers to aging in place
- Occupational therapy evaluation and intervention knowledge
- Skilled analysis of common safety hazards discovered in the homes
- Time management skills
- Understanding of publisher software for editing and artistic design needed to create manual and brochures
- Information on home modifications including level of effectiveness and adherence
- Information on interventions used to prevent falls



- Effective communications skills, including active listening skills
- Understanding of Rebuilding Together South Sounds mission and programs offered, including Rebuilding Day and Year Round programs

### **Materials/Supplies/Equipment Needed**

- Manual binding services
- Evaluation form
- Copying services
- Publisher software
- Paper for brochure and manual

### **Description of Final Project**

This educational manual provides Rebuilding Together South Sound staff a greater understanding of ways they can adapt and implement future home modifications and repairs to compensate for age-related changes. Information provided in the manual allows staff to be more knowledgeable about safety hazards and provided informative brochures with resources to homeowners to help increase safety and ability to age in place.

An in-service training was completed to explain the three sections of the manual and to answer questions related to the project. It was offered to both volunteers and staff involved with Rebuilding Day and Year Round programs. The evaluation form and brochures were distributed to explain the occupational therapy assessment protocol used during home visits and what information would be useful to the older adults in the home environment. The manual and in-service training helped Rebuilding Together staff understand project outcomes and consider suggestions about recommendations to personalize future improvements, especially for older adults needing additional assistance.

The first manual section discusses normal age-related changes that older adults experience and how these increase the risk of falls within the home. It describes normal changes in different body systems including vision, balance, musculoskeletal, and cardiovascular functioning. This information is necessary because older adults are a majority of the clientele that this organization serves and these changes influence this population, so it is essential for the staff and volunteers at RTSS to understand how aging can impact safety in the home.

The second section provides background information regarding the home visit follow-up process. This section discusses how many homes were visited and demographic information to give staff a contextual understanding of the homes that were evaluated. The background information provides knowledge of the modifications commonly provided and demonstrates what the majority of clients need further assistance with during individual assessment in the home. This section includes common safety hazards that were discovered during the home evaluation to help staff identify clients' needs. This section includes the evaluation form created by a licensed occupational therapist, Dawn Yoshimura-Smith, used for this project with her permission. RTSS can choose to use this resource in forthcoming home visits or use portions of it to modify their own initial evaluation and follow-up forms.

The third section provides strategies and solutions to help improve the level of satisfaction with the services provided, in addition to increasing safety for homeowners. Recommendations included adjustment of structural design or modifications that have previously been provided. For situations where RTSS cannot directly assist the homeowner in resolving their unmet need, referral information is included for additional services with occupational therapy and home repair services.

In addition, two brochures were created for the homeowners. Refer to the Appendix for representation of the two brochures. One educational brochure outlined aging in place information with basic facts and methods to enable living in the home. An additional educational brochure was created for homeowners to discuss common safety hazards and solutions to remove them. The brochure includes recommendations to prevent falls and maintain a safe home environment for older adults. Moreover, it includes simple and relatively inexpensive options that home owners can use to eliminate home hazards. For example, one recommendation was to ensure that adequate lighting is present in the home to support the changes in vision that accompany aging (Nikolaus & Bach, 2003). These brochures were designed to be distributed to clients at future initial or follow-up visits to educate older adults on various ways to improve their safety and ability to age in place.

### **Outcome of Project**

The desired outcome of this project was to provide RTSS staff an educational manual with valuable information for better understanding clients' unmet needs regarding previous home modifications or repairs. In addition, the manual delivered simple solutions and preventative strategies to improve services that are provided by RTSS to homeowners in the community. An in-service provided a method to clarify questions regarding the manual, and to discuss and identify improvements within the home to be recommended to clients. Rebuilding Together's clients will be offered specific recommendations that fit their needs.

The evaluation form used during home evaluation could potentially be integrated into sustainable use. If desired, this evaluation form could be used during the assessment process to identify barriers in the home environment before modifications and repairs are implemented.

This form could be beneficial in completing a comprehensive home assessment that considers multiple problems that the individual could experience from different contexts within the home.

A survey was completed with RTSS staff in order to measure the ease and usefulness of the manual and brochures. Both open-ended and close-ended questions were included to provide a more thorough understanding of the effectiveness of the manual and brochure. It allowed staff to provide feedback about the manual and offer suggestions for improvement and also enabled determination of whether or not objectives were met.

**Goal 1:** Upon reading through the manual and completion of an in-service training, Rebuilding Together staff will be educated on the unmet needs of previous homeowners who have received home modifications and repairs. *Goal was met.*

**Objective 1:** After reading the first section of the manual and completing in-service training, staff will identify four age-related changes that increase older adults' fall risk and impede seniors' safety within the home. *Objective was met.*

**Objective 2:** After reading the second section of the manual and completing in-service training, staff will identify the three most common safety hazards within the home environment to support safety of older adults. *Objective was met.*

**Objective 3:** After reading the second section of the manual and completing in-service training, staff will identify three common areas within the home environment that homeowners need further assistance with in order to support aging in place. *Objective was met.*

**Goal 2:** Upon reading through the manual and completion of an in-service training, Rebuilding Together staff will identify preventative strategies and simple solutions to improve clients' safety and ability to age in place. *Goal was met.*

**Objective 1:** After reading section three of the manual and completing in-service training, Rebuilding Together staff will identify three preventative safety hazard removal strategies to improve clients' safety in the home. *Objective was met.*

**Objective 2:** After reading section three of the manual and completing in-service training, staff will be able to administer and explain the safety brochure to homeowners needing further assistance within the home. *Objective was met.*

**Objective 3:** After reading section three of the manual and completing in-service training, staff will be able direct clients to additional resources for continued assistance with the home modification process, including referral for occupational therapy services. *Objective was met.*

**Objective 4:** After reading section three of the manual and completing in-service training, staff will identify two strategies to improve services provided in order to meet clients' needs with past and future home modifications and/or repairs. *Objective was met.*

### **Implications for Occupational Therapy**

This project is important to the occupational therapy profession because it may help support older adults' ability to age in place successfully within the local community. Occupational therapy's foundational base is that an individual's ability to perform an activity revolves around the appropriate fit between the person's strengths and limitations, the requirements of the task, and the demands of the environment that surrounds the task (Brown, 2009). Occupational therapists are knowledgeable about how the aging process can impact daily performance and are able to evaluate the person to identify if normal age-related changes have impacted that person's functional capacity and safety within the home. Occupational therapists have skilled knowledge on how to modify the environment to meet clients' needs, including

providing appropriate home modifications to allow clients to interact more successfully in their home environments (Oss, Rivers, Heighton, Mecri, & Reid, 2012). An educational manual was provided to Rebuilding Together staff members to assist them in considering a more holistic perspective during the home modification process. This holistic consideration will allow staff to fit an individual's skills and abilities to an appropriate home modification or repair.

### **The Ecology of Human Performance Model**

The Ecology of Human Performance Model (EHP) helps describe how the person, context, and task all play a role in shaping occupational performance. A task is described as an activity completed by an individual in order to achieve a goal (Brown, 2009). Context is composed of physical, cultural, social, and temporal environmental factors that vary depending on each individual. The EHP describes the person holistically with consideration of values, interests, skills and abilities, and life experience (Brown, 2009).

Occupational performance depends on the goodness of fit among these three factors. Occupational performance can be altered by changes in environmental supports, activity demands, and the person's skills, abilities, and previous experiences (Brown, 2009). This model also includes five intervention strategies that specifically focus on the person, task, context, or level of fit. These intervention strategies include establish/restore, adapt/modify, alter, prevent, or create (Brown, 2009). Both adapt/modify and prevention strategies will be considered within this project to provide homeowners with appropriate modifications that consider their needs and skills in order to engage in meaningful occupations within the home. As a result, follow-up of previously provided home modifications will identify if further modification of the environment is needed. During this process, it will also be determined if preventative strategies are needed to

remove hazards in the home to improve occupational performance. For instance, removal of throw rugs or electrical cords within the walking path to avoid any fall occurrences.

### **Application of Theoretical Model**

The EHP applies to my project because it demonstrates that the homeowners' occupational performance can be improved by creating a good fit between the person, context, and task completion. This project will help improve the ability to age in place for older adults associated with Rebuilding Together South Sound by providing an appropriate fit among these three factors. The educational manual will provide the organization with information on common problems, simple solutions, and preventative strategies with regard to home modification implementation in order to improve future services provided. The manual will give staff information in order to improve the delivery of services, specifically by considering holistic factors including the person, relevant tasks, and the environment. Recommended intervention strategies will be provided to staff through a client-centered approach in order to improve the older adult's ability to participate in meaningful activities within the home. Consideration of age-related changes, physical limitations, and environmental barriers will promote a client centered approach. For example, preventative education provided to older adults can help them understand that proper lighting decreases fall occurrence while moving to various areas within the home.

### **Application of Occupational Therapy Framework**

The Occupational Therapy Practice Framework is a guide that details occupational therapy's focus on supporting the health and participation of individuals through completion of meaningful occupations (American Occupational Therapy Association, 2008). This project addresses contexts and environmental conditions including cultural, personal, physical, social,

and temporal factors. It indirectly addresses several occupations including activities of daily living, instrumental activities of daily living, leisure involvement, and social participation within the home. Modification of hazards in the home helps promote engagement in activities through increased safety and adaptation of the environment to fit the individuals' needs. It also involves performance skills with regard to the client's ability to perform the occupations they choose to engage in. Performance skills are clients' ability to demonstrate specific actions of the skill they are trying to accomplish (American Occupational Therapy Association, 2008). Relevant performance skills include motor and praxis skills, sensory-perceptual skills, and cognitive skills. For example, homeowners must use motor and praxis skills to maintain balance while stepping into a bathtub. Sensory-perceptual skills are utilized by being able to visualize a safety hazard in the environment and effectively respond to it. Cognitive skills are used by homeowners when making safe decisions such as selecting clothing or shoe support that will not be tripped on and result in a fall.

The educational manual will help staff members address the homeowner's context/environment, performance skills, and occupational needs, consequently providing home modifications in the safest manner. This tool will help staff focus on providing modifications that will serve to improve occupational performance in activities chosen by the client. Therefore, the manual will help facilitate focus on providing an appropriate level of support to certain individuals who may need additional assistance due to disability, age-related changes, or environmental barriers. For instance, RTSS could help the older adult ensure that adequate lighting is present in the home to support the changes in vision that accompany aging. Staff could also recommend further repair on a previously provided handrail that is broken.



### **Project Limitations**

There were certain limitations of the project that should be noted, in order to prevent them from reoccurring if the project is repeated in the future. First, only nine home visits were completed with RTSS. The majority of the individuals lived in the Tacoma area and were relatively young individuals. The age ranges were between 52-89, with a mean age of 72; the homeowners mostly reported their homes as safe to live in. Completing additional home evaluations with older adults with more profound health problems and more diverse demographic population, may have provided additional ideas of recommendations needed for the older population with more significant health problems. Additionally, some of the home visits were shortened from an hour-long duration to forty-five minutes, due to back-to-back scheduling and time constraints. Closer attention to scheduling evaluation visit times could have provided a consistent process for all homeowners. Lastly, the in-service was completed during RTSS work hours, therefore the volunteers involved with the organization were unable to attend the meeting and get hands-on instruction with the manual materials. In the future, it might be helpful to schedule the in-service training early or later in the day, and find a way to notify the volunteers directly, in order to encourage more participation in the event.

### **Future Steps and Sustainability**

The next step for RTSS is to distribute the brochures such that they are correctly delivered to the right individuals. This organization serves a variety of individuals, including younger clientele with limited financial resources, however aging in place information may not be appropriate for their needs at this time. RTSS should also decide how the evaluation form used by the student may be utilized in the future. Permission from the occupational therapist who created the form has been granted in order for the organization to use the form.

Material in the manual will be electronically distributed to RTSS, so that they can update the information in the future. Electronic data will provide RTSS ongoing access to the documents, including the manual, brochures, and evaluation forms so that information can consistently be given to homeowners and so that the process can persist. Sustainability of the project will rely on RTSS staff to use the resources as they deem appropriate. Additionally, it is possible that future OT students could repeat the project process with more diverse homeowner population to determine additional recommendations that support aging in place. For instance, expanding visits to homes in other areas of Pierce County with different clientele of the organization may provide useful information that could be incorporated into future revision of the project materials.

## References

- AARP Public Policy Institute. (2010, June). Health care reform improves access to Medicaid home and community-based services. Retrieved from <http://assets.aarp.org/rgcenter/ppi/ltc/fs192-hcbs.pdf>
- AARP Research & Strategic Analysis. (2011). Voices of 50+ America dreams and challenges. Retrieved from <http://assets.aarp.org/rgcenter/general/voices-america-dreams-challenges-national.pdf>
- American Occupational Therapy Association. (2008). Occupational therapy practice framework: Domain and process (2<sup>nd</sup> ed.). *American Journal of Occupational Therapy*, 62, 625-683.
- Brown, A. (2011). Plan for aging in place right here, right now. *Rehab Management*, 24, 16-19.
- Brown, C. (2009). Ecological models in occupational therapy. In E. B. Crepeau, E. S. Cohn, & B. A. B. Schell (Eds.). *Willard and Spackman's occupational therapy* (11<sup>th</sup> ed., pp. 435-445). Philadelphia, PA: Lippincott Williams & Wilkins.
- Centers for Disease Control and Prevention. (2010). Falls among older adults: An overview. Retrieved from [www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html](http://www.cdc.gov/HomeandRecreationalSafety/Falls/adultfalls.html)
- Clemson, L., Mackenzie, L., Cumming, R. G., Ballinger, C., & Close, J. C. T. (2008). Environmental interventions to prevent falls in community-dwelling older people: A meta-analysis of randomized trials. *Journal of Aging and Health*, 20, 954-971. doi:10.1177/0898264308324672
- Cumming, R. G., Thomas, M., Szonyi, G., Salkeld, G., & Clemson, L. (2001). Adherence to occupational therapist recommendations for home modifications for falls prevention. *American Journal of Occupational Therapy*, 55, 641-648.

- Fagan, L. A. (2007). Funding sources for home modification services. *Home and Community Health Special Interest Section Quarterly*, 14(3), 1-3.
- Genworth Financial. (2012). Executive summary: Genworth 2012 cost of care survey. Retrieved from <http://www.genworth.com/content/home.html>
- Gitlin, L. N., Mann, W., Machiko, T., & Marcus, S. M. (2001). Factors associated with home environmental problems among community-living older people. *Disability and Rehabilitation*, 23, 777-787. doi:10.1080/09638280110062167
- Hammel, J., Charlton, J., Jones, R., Kramer, J. M., & Wilson, T. (2009). From disability rights to empowered consciousness. In E. B. Crepeau, E. S. Cohn, & B. A. B. Schell (Eds.), *Willard and Spackman's occupational therapy* (11<sup>th</sup> ed., pp. 868-887). Philadelphia, PA: Lippincott Williams & Wilkins.
- Hwang, E., Cummings, L., Sixsmith, A., & Sixsmith, J. (2011). Impacts of home modifications on aging-in-place. *Journal of Housing for the Elderly*, 25(3), 246-257. doi:10.1080/02763893.2011.595611
- Kaminsky, T. (2010, April 5). The role of occupational therapy in successful aging. *OT Practice*, 15(6), 11-14.
- Mutschler, H. M. (1997). The effect of income on home modification: Can they afford to stay put? In S. Lanspery & J. Hyde (Eds.) *Staying put: Adapting the places instead of the people* (pp. 149-168). Amityville, NY: Baywood.
- New England ADA Center. (2011). ADA checklist for readily achievable barrier removal. Retrieved from [www.ADAchecklist.org](http://www.ADAchecklist.org)
- Nikolaus, T., & Bach, M. (2003). Preventing falls in community-dwelling frail older people using a home intervention team (HIT): Results from the Randomized Falls-HIT Trial.

- Journal of the American Geriatrics Society*, 51(3), 300-305. doi:10.1046/j.1532-5415.2003.51102.x
- Oss, T. V., Rivers, M., Heighton, B., Macri, C., & Reid, B. (2012, September 10). Bathroom safety: Environmental modifications to enhance bathing and aging in place in the elderly. *OT Practice*, 17(16), 14-16.
- Painter, J. A., Allison, L., Dhingra, P., Daughtery, J., Cogdill, K., & Trujillo, L. G. (2012). Fear of falling and its relationship with anxiety, depression, and activity engagement among community-dwelling older adults. *American Journal of Occupational Therapy*, 66(2), 169-176. doi:10.5014/ajot.2012.002535
- Pighills, A. C., Torgerson, D. J., Sheldon, T. A., Drummond, A. E., & Bland, J. M. (2011). Environmental assessment and modification to prevent falls in older people. *Journal of the American Geriatrics Society*, 59(1), 26-33. doi:10.1111/j.1532-5415.2010.03221.x
- Pynoos, J., Nishita, C., Cicero, C., & Caraviello, R. (2008). Aging in place, housing, and the law. *The Elder Law Journal*, 16(1), 77-105.
- Pynoos, J., Steinman, B. A., & Nguyen, A. Q. D. (2010). Environmental assessment and modification as fall prevention strategies for older adults. *Clinics in Geriatric Medicine*, 26, 633-634. doi:10.1016/j.cger.2010.07.001
- Rebuilding Together South Sound (2012). About us. Retrieved from <http://www.rebuildingtogether.org/aboutus.htm>
- Rigby, P., Stark, S., Letts, L., & Ringaert, L. (2009). Physical environments. In E. B. Crepeau, E. S. Cohn, & B. A. B. Schell (Eds.), *Willard and Spackman's occupational therapy* (11<sup>th</sup> ed., pp. 820-849). Philadelphia, PA: Lippincott Williams & Wilkins.

Stark, S., Landsbaum, A., Palmer, J., Somerville, E. K., & Morris, J. C. (2010). Client-centered home modifications improve daily activity performance of older adults. *Canadian Journal of Occupational Therapy, 76*, 235-245.

Stevens-Ratchford, R., & Diaz, T. (2003). Promoting successful aging through occupation. An examination of engagement in life: A look at aging in place, occupation and successful aging. *Activities, Adaptation, & Aging, 27*(3-4), 19-37.

Tideiksaar, R. (2002). *Falls in older people: Prevention and management*. Baltimore, MD: Health Professions Press.

Tideiksaar, R. (2009). Falls. In B. R. Bonder & V. D. Bello-Haas (Eds.), *Functional performance in older adults* (pp. 193-214). Philadelphia, PA: F. A. Davis.

Tinetti, M. E., Baker, D. I., McAvay, G., Claus, E. B., Garrett, P., Gottschalk, M., . . . Horwitz, R. I. (1994). A multifactorial intervention to reduce the risk of falling among elderly people living in the community. *The New England Journal of Medicine, 331*, 821-827.

Tse, T. (2005). The environment and falls prevention: Do environmental modifications make a difference? *Australian Occupational Therapy Journal, 52*, 271-281. doi:10.1111/j.1440-1630.2005.00525.x

Vrkljan, B. H., Leuty, V., & Law, M. (2011). Aging-in-place: Exploring the transactional relationship between habits and participation in a community context. *Occupational Therapy Journal of Research, 31*(3), 151-159.

## **Human Resources**

Hoyte, A., personal communication. Rebuilding Together South Sound, 1423 East 29<sup>th</sup> Street, Tacoma, WA 98404, 253.238.8144, ahoyte@rebuildingtogetherss.org

Santwan, K., personal communication. Rebuilding Together South Sound, 1423 East 29<sup>th</sup> Street,  
Tacoma, WA 98404, 253.238.0977, ksantwan@rebuildingtogethess.org

Appendix



## Local Certified Aging in Place Specialists (CAPS):

These professionals help older adults remodel their homes by providing modifications that promote aging-in-place. Refer to the National Association of Home Builders at [www.nahb.com](http://www.nahb.com) in order to find up-to-date information about Certified Aging in Place Specialists to assist with home modification services.

- **Rebuilding Together South Sound**  
Amy Hoyte  
1423 E. 29th Street  
Tacoma, WA 98404  
235-238-0977
- **Frank and Sons Construction**  
Mark Egner  
8204 Portland Ave. East  
Tacoma, WA 98404  
253-476-8042
- **Renewal Remodels & Additions**  
George Eide  
14110 Canyon Road East  
Puyallup, WA 98373  
253-682-1990
- **Neu Construction Inc.**  
Gordon Neu  
P.O. Box 39194  
Lakewood, WA 98496  
253-229-3189



## Occupational Therapy Services

Occupational therapists holistically consider people's skills, their environment, and the daily activities that they choose to engage in. Ask your primary care physician for a referral to an occupational therapist, who is able to provide thorough instruction on home modification services and customize them to fit your needs.

If you do not have a primary care physician, please contact Pierce County Aging & Disability Resource Center (ADR) for more information. 1305 Tacoma Ave., Suite 104 Tacoma, WA 98402

253-798-4600 or 800-562-0332



## Promoting Aging In Place



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2013

**This handout describes information on aging in place and resources to help achieve it**

## What is aging in place?

Aging in place is the concept of staying in the home and community as long as possible, rather than relocating to a residential facility, such as a nursing home or assisted living facility. Eighty-five percent of older adults believe that services allowing for aging in place are either extremely or very important to them.<sup>7</sup>



## Importance of Aging in Place

The home environment contains a wealth of memories. It is a foundation for enjoyment of important occupations, or meaningful activities, such as self-care tasks. The ability to en-



gage in occupations within the home allows for feelings of purpose and success within routine daily activities, thus supporting overall health.<sup>8</sup> The home environment sup-

ports health by allowing continued participation within the community as one grows older.



## Home Modifications

In order to stay in the home, modifications are often needed to adapt to normal age-related changes and limitations that can result. Home modifications can help improve your home safety through reduced fall rates. Fifty-five percent of falls occur directly inside the home and 23% occur near the home, including on curbs and sidewalks.<sup>9</sup> Home modifications can also help allow an older adult to stay in the home for a longer duration of time.<sup>10</sup>

Modifications can be as simple as removing or securing throw rugs with double sided tape. They can also be more complex and costly, such as installing an outside ramp leading into the home for an individual who uses a wheelchair. Grab bars can be installed in the bathroom to assist with standing from the toilet and stepping into the tub.

## MISCELLANEOUS:

-Check carbon monoxide and smoke detector batteries twice a year to ensure they are working properly

-Consider buying a recent model of a carbon monoxide or smoke detector with a sensor light to easily identify if the batteries are functioning properly

-Keep laundry products at waist-level or stored on top of dryer surface to avoid bending to the floor to pick them up

-Mark edges of stairs with contrasting colored tape to increase visibility (see picture below)

-Remove clutter to clear pathways and improve safe access to all areas of the home

-Remove throw rugs or secure them with double-sided tape to avoid being tripped over

-Durable and close-toed shoes in good repair to prevent tripping over loose material

-Add night lights or increase illumination on stairways, especially top and bottom of stairs, to help in seeing the ground when walking to the bathroom or kitchen at night

-Keep electrical cords out of walking path to reduce the likelihood of tripping

-Railing on both sides of the stairs within the home to aid in navigating steps safely

-Use cellular shades or thermal blackout curtains on windows to filter outside glare



## Pierce County Resources

### ⇒ Home Modification Services:

- Rebuilding Together South Sound  
1423 E. 29th Street  
Tacoma, WA 98404  
235-238-0977
- Metropolitan Developmental Council  
721 S. Fawcett, Suite 201  
Tacoma, WA 98402  
253-591-7020
- Tacoma Major Home Repair  
747 Market Street  
Tacoma, WA 98402  
253-591-5230
- Lakewood Major Home Repair  
6000 Main Street SW  
Lakewood, WA 98499  
253-983-7785

### ⇒ Certified Aging in Place Specialists:

- Frank and Sons Construction  
Mark Egner  
8204 Portland Ave. East  
Tacoma, WA 98404  
253-476-8042
- Renewal Remodels & Additions  
George Eide  
14110 Canyon Road East  
Puyallup, WA 98373  
253-682-1990
- Neu Construction Inc.  
Gordon Neu  
P.O. Box 39194  
Lakewood, WA 98496  
253-229-3189

### ⇒ Home Improvement (basic repairs):

- Walgreens
- Walmart
- Target

### ⇒ Hardware Stores:

- Ace Hardware
- Lowe's Home Improvement
- The Home Depot

## Recommendations To Increase Home Safety



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Program  
2013

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*This handout provides recommendations to improve the safety within each area of the home through fall prevention strategies. Please refer to your primary care physician or the other resources listed in the brochure for more detailed information.*



### ENTRANCE AND EXTERIOR:

- Use high wattage light bulbs outside that are within safe limits for the light fixture to increase illumination
- Consider adding light to exterior pathways to increase night visibility
- Railings on both sides of entrance/exterior stairs to aid in navigating steps safely
- Remove throw rugs or secure with double sided tape to reduce likelihood of tripping
- Remove electrical cords on entrance platform to avoid tripping over them
- Repair any broken gates to ensure adequate swing clearance
- Repair cracked and uneven pathway surfaces to avoid tripping over them
- Remove threshold at front entrance or consider a threshold ramp to reduce likelihood of tripping

### BEDROOM:

- Add night lights or a lamp close to bed to increase night visibility
- Remove throw rugs or secure with double sided tape to avoid being tripped over
- Rearrange bed and furniture to allow for a clear space that will safely allow for reaching items in the closet
- Bed risers on a low bed to help complete safe transfers
- If possible, consider removing the box spring mattress if bed is too high to help complete safe transfers
- Remove clutter to clear pathways and increase safe accessibility



### BATHROOM:

- Put an anti-slip mat down on tub surface or nonslip wax on the bathroom floor to prevent slipping on wet tub surface
- Install grab bars in shower and toilet area to help with standing
- Raise toilet height to 17-19" from floor surface or use a raised toilet seat to help with standing
- Add night lights or add light fixtures to increase illumination and visibility when walking to the bathroom at night
- Insure light bulbs are working correctly and not dusty to increase illumination
- Use non slip wax on floor surfaces, especially outside shower and near toilet, to prevent slipping on the wet surface
- Remove throw rugs or secure with double sided tape to avoid being tripped over
- Use hand-held shower head for cleaning hard to reach areas
- Toilet paper holder close to toilet seat to avoid overstraining when reaching
- Keep bathroom sanitary and clutter free to avoid tripping over obstacles within pathway
- Grab bars should be installed at 24-42" length and 33-36" height from the standing surface (make sure properly installed)



### KITCHEN:

- Install high wattage light bulbs and verify bulbs are functioning and not dusty to increase visibility of room pathway
- Place frequently used and heavier items lower in cupboards within reach
- Keep commonly used pans on stovetop and appliances on counters to prevent overstraining to reach them
- Use sturdy step ladder with handle grip to reach light items on higher shelves
- Use sturdy chairs with arm rests and a chair height between 15-17" from floor surface
- Have sturdy counter stool or bar stool available during long standing positions
- Remove throw rugs or secure with double sided tape to avoid trip hazard
- Use cellular shades or thermal blackout curtains on windows to filter outside glare

### LIVING ROOM:

- Remove throw rugs or secure them with double sided tape to reduce trip hazard
- Use sturdy chairs with arm rests and chair height between 15-17" from floor surface
- Handrails or grab bars for steps leading into living room
- Risers for sofa frame or seat wedge cushion to make it easier to stand

