Occupational Therapy Submission for falls and Fractures Prevention.

July 2007

Submitted on behalf of AOTI by:

Tadhg Stapleton, Lecturer in Occupational Therapy, Discipline Of Occupational Therapy, Trinity College Dublin.
Tracy Swanton, Occupational Therapist Manager, St. Vincent’s University Hospital, Dublin 4.
Introduction:

Multidisciplinary, multifactorial, health/environmental risk factor screening and intervention in the community are interventions that are likely to be beneficial for older people with a history of falling or who are at risk of falling.


Suggested areas of Occupational Therapy involvement in the assessment of a person who has fallen should take cognisance of the person, their environment and their everyday occupations and how the interplay of all three elements may influence the occurrence of falls.

Occupational Therapy assessment of the person who has fallen or who may be at risk of falling should include a Home Hazards assessment, personal and extended activities of daily living assessment, development of a fall behaviour profile that would include examination of the persons’ habitual mode of completing everyday activities and how the person’s habitual interaction with their environment contributes in a positive or negative manner to their fall behaviour or risk of falling. Performance components that may contribute to the fall behaviour should also be assessed, these components should include, but are not necessarily limited to, cognition (including attention and divided attention), vision and visual perception, balance and functional mobility.

Multifactorial falls risk assessment and management programmes consisting of exercise, environmental modifications, and education has been found to be the most effective combination in the reduction of falls.


Occupational Therapy Falls Assessment and Intervention:

Evidence would suggest the role of Occupational Therapist lies in the following 4 areas we have outlined below;

1. Home Hazard assessment and intervention
2. Cognitive impairment
3. Visual abnormalities and perceptual deficits
4. The Older Persons Perceived Function and Fear of falling
1. Home Hazards and Falling

Interventions combining exercise, home hazard modification and management of reduced vision showed significant reduction in falls. Home safety interventions for known fallers reduced the risk of falling.


In a randomised controlled trial among elderly people with visual impairment an occupational therapy based home safety programme was found to be the most effective programme in reducing falls among the participants. The programme was home based and focussed on home environment modification and behaviour change.


A randomised controlled trial examining the outcomes of a combined medical and occupational therapy assessment found a significant reduction in falls among the intervention group at 12 month follow up. The occupational therapy intervention consisted of one home visit focussed on identification of environmental hazards, minor environmental modifications were completed, minor assistive equipment was supplied, and referral made for social services occupational therapy follow-up for more structural modifications within the home.


Nice UK guidelines on Falls assessment and prevention state ‘older people who have received treatment in hospital following a fall should be offered a home hazard assessment and safety interventions /modifications by a suitably trained healthcare professional’. (A)


Cumming et al (1999) looked to determine whether home assessments targeted at environmental hazards reduce the risk of falls and concluded that a home visit by an Occupational Therapist can prevent falls among older persons at increased risk.


In a study by Cesari (2002) a reported OR = 1.51 (95% CI 1.43-1.69). Gill (2000) carried out detailed analysis and reported the following contributors to the risk of falls. Loose rugs and mats: hazard ratio = 5.87/95% CI 11.42) and carpet folds as tripping hazard: hazard ratio 3.45/95% CI 1.29-9.27)

Level B evidence that older persons at increased risk of falls should have an assessment of their home by an Occupational Therapist.


Pardessus et al (2002) in a RCT examined if Occupational Therapy (OT) Home Visits reduced the risk of falling and improved autonomy. The study concluded that OT home assessment during hospitalisation of older people at risk of falls better preserved the patient’s long term autonomy.


Nice (2004) Clinical practice guidelines recommend that in its rehabilitation strategies the following are included;

- Teaching awareness of hazards and how to avoid them
- Improving the safety of the older person’s environment by removing, replacing or modifying any hazards.

Fall programmes focussed on exercise, home hazard identification and fall prevention education have been found to significantly reduce the incidence of falling among the intervention group compared to the control group. Home hazard identification and reduction was perhaps the most significant contributing factor to the reduction in falls.


Based on research to date it is recommended that fall prevention programmes maintain a multifactorial approach that includes exercise, home hazard management and client education. Emphasis should be placed on the context of the fall behaviour and should ideally include some home based intervention. The fall prevention programme should focus on facilitating increased awareness of fall risk behaviour, encourage behavioural change particularly related to habits and routines that have become automatic but may be increasing the person’s risk of falling.
2. Cognitive impairment and the Occupational Therapist Role: 
Attention and falling

Research shown a relationship between attention and postural control. Dual task decrement when subjects required to divide attention between a cognitive and a mobility task.

*Stops walking when talking test*

Suggested Occupational Therapy Assessments for consideration when working with patients who have fallen or who are at risk of falling

Sustained and divided attention deficits correlated with functional impairment and falls in a sample of community dwelling people with stroke. Attention deficit might contribute to accident prone behaviour.


3. Assessment of vision:

Perception and Falling

Spatial disorientation considered to be a risk factor related to falls. Environment issues related to visual perception and attention – colours and patterns, interior furnishings, negotiation of space, background noise, object recognition.

Visual abnormalities:

Recommend adaptive strategies incorporating behavioural and environmental components to reduce the risk of falling. (Exploratory piece of research based on observational research, no hard evidence/quantitative measure of fall or fall reduction).


4. Assessment of the older person’s perceived functional ability and fear of related falling:

Behaviour and Falling

Research has found several behavioural factors associated with falls in the elderly.

Collision in the dark, failure to avoid hazards, excessive environmental demands, habitual environmental use, and environment characteristics were patterns of behaviour associated with falling.
This study highlighted the issues of the persons’ habits and ‘way of doing things’ that might be putting them at risk of falling. Elimination of the factors is likely to be closely related to the person’s perception that their environment or how they use their environment as well as their desire to make any changes.


An indepth qualitative study exploring the behavioural factors contributing to older adults falling in public places identified 10 behaviours that were factors in the fall events reported by 15 older adults. Several of the factors identified had an attentional component, such as not attending to the route ahead, not attending to environmental hazards and being distracted by other elements in the environment. Physical factors such as not using assistive walking devices, hurrying, and previous overexertion causing fatigue were common. Behavioural factors such as lack of confidence and the need to alter behaviour particularly when in an unfamiliar environment contributed to the fall events.


The ‘Stepping On’ group education programme found a significant reduction in falls in the elderly treatment group compared to the control group. The programme employed a cognitive-behavioural approach and consisted of group and individual treatment sessions. The treatment sessions included community mobility, home and community safety, medication management, coping with visual impairment, and balance and strength exercise. The main focus of the programme was on encouraging behavioural changes and follow through of fall prevention strategies in everyday lives.


### 2.1 Occupational Therapy Measurement Tools in Falls Intervention

Suggested measurement tools for use by Occupational Therapists in the Assessment of the person who has fallen and also tools that may be used to measure outcomes of intervention are as follows:

**Home Hazard and Assessment Outcome Measures**

Some home environment rating scales have been developed that look specifically at fall risks and hazards in the home environment. The tools rate hazards both inside and outside the home.

- **Safer-Home v.3.** COTA Health. (COTA Health. SAFER-HOME v.3. [www.cotahealth.ca](http://www.cotahealth.ca))
• **Westmead Home Safety Assessment (WeHSA)**, Clemson L. (1997)

• **HOME FAST**

**Cognition and Perception assessments**
- MMSE for generic screen
- Attention Measure – Test of Everyday Attention
- Visual Attention – Behavioural Inattention Test
  - Stops walking when Talking Test (to measure divided attention functionally related to mobility)

Consider the demands the environment places on perception and attention when assessing risk in the home environment; focus should not be just on physical access and mobility.

**Falls Behaviour and Fear of Falling Scales**

**FaB – The Fall Behaviour (FaB) Scale for the Older Person**

10 behavioural dimensions were identified as being associated with falling and avoiding falls – cognition, protective mobility, avoidance, awareness, pace, practical strategies, displacing activities, being observant, changes in level, and getting to the phone. The FaB tool consists of 30 self rated questions and has been found to be reliable and valid for determining the presence or absence of fall protective behaviours.


**Falls Efficacy Scale (FES)**

This is a 10-item rating measure that looks at functional based activities such as getting out of bed.

Each item is scored on a scale of 1-10


**Modified Activities – specific Balance Confidence scale (ABC- UK)**

This is a self rating questionnaire based on 16 items.

Items are very functionally based and include the persons rating of their ability as a percentage to carry out the following picking a slipper up from the floor, reaching for a small tin of food from a shelf at eye level, walking in a crowded shopping centre...
Frenchay Activities Index: Assesses the frequency in which domestic and community ADLs have been completed in the previous 3-6 months. 15 items scored on a 4-point scale from 0-3.


**Prescription and teaching of assistive devices:**

Grade C evidence to the benefits of assistive devices if used as part of a multifactorial intervention programme, little evidence to support their isolated use alone reduces falls. Falls the assessment and prevention of falls in older people. National Institute for Clinical Excellence (NICE). Clinical Guideline 21, November 2004.