

Fall Prevention & Home Modification

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- Identify the scope of the problem
- Effects of falls
- Describe the contributing factors for falls
- Home Modification
- Questions and open discussion

Definition:

An event which results in a person coming to rest **inadvertently** on the ground or floor or other lower level

Consequence: Injurious/Non-injurious

Excluded:

- Not as a result of **loss of consciousness**
- Major **internal event** e.g. stroke
- Being hit by an **external force**

Why are falls important?

- Large numbers of older people are falling
 - Approx. 30% of people >60 fall each year
 - Approx. 50% >80 fall each year
- Accidents are the 5th leading cause of death in older adults
 - Falls account for 2/3 of these accidental deaths

Why are falls important?

- Falls are the leading cause of fatal and nonfatal injuries
 - 20% with fracture(Hip, Wrist, Upper arm, Pelvis)
 - 10% of hip-fracture will die within 1 month
 - 30% will die within the first year
 - Incidence is higher in certain populations
 - Institutionalized elderly, Diabetics, Parkinson's disease, Post-stroke

Why are falls important?

90-day outcome after hip fracture

- 24% return to pre-fracture level of function
- 42% of survivors require extra help with their daily activities
- 21% require an increased level of residential or hospital care
- 35% receive increased community health and social service care at home

Why are falls important?

- Further loss of function
 - ¼ to ¾ of patients do not recover prior level of ADLs
- Loss of mobility, independence, dignity and confidence
- Fear of falling
 - Approx. 10% of older people who fall will become too afraid to leave their homes

Why are falls important?

- Risk of having a **second fall** within a year rises to **60%**
- Increased **isolation and loneliness**
- Frequent fallers have **poor outcomes**
- Fall-related injuries are among the **most expensive health conditions**

Complications of Fall Related to Immobility :

- Dehydration
- Bronchial pneumonia
- Contractures
- Constipation
- Decubitus ulcers
- Hypothermia
- Disability
- Institutionalization
- Loss of independence

Intrinsic risk factors:

Medicines & Polypharmacy

Benzodiazepines (50%), Antidepressants (70%), Antipsychotics (60%)

Medical conditions

Incontinence, PD, AD, CVA, seizures, dizziness, Infections

Postural hypotension

Poor hydration

Anaemia

Malnutrition (Ca, D)

Pain

Reduced Body mass index (BMI)

Previous falling

Intrinsic risk factors

Reduced balance

Walking problems

Reduced muscle strength in legs and arms

Poor vision

Poor hearing

Loss of sensation in feet

Psychological

Reduced motivation, depression, memory problems, confusion

3 studies have found that:

- 65-100% of older adults **with 3 or more risk factors** fell in a 12-month period
- compared with 8-12% of older adults **without any risk factors**

Extrinsic Risk factors :

- Unsafe walking aids
- Inappropriate footwear
- Home hazards
- Inadequate lighting
- Pets in the house
- loose mats
- wires, hosepipes
- Transfers- bath
- Stairs
- Bed
- Chair

What can we do?



ACOVE indicators

- ACOVE = **Assessing Care Of Vulnerable Elders**
- The 9 new ACOVE indicators are designed to improve the clinical approach to falls and mobility in older adults

ACOVE Indicator 1:

- ALL vulnerable elders should have ANNUAL documentation about the occurrence of recent falls

Falls risk assessment program!

- 18% fewer 1st falls
- 37% fewer of any falls with

Falls Risk Assessment Features:

- Medication review
- ADL and IADL assessment
- Orthostatic blood pressure measurement
- Vision assessment
- Gait and balance evaluation
- Cognitive evaluation
- Assessment of environmental hazards

ACOVE Indicator 2

- IF a vulnerable elder reports **2 or more falls** in the **previous year**, THEN document a basic **fall history** within 3 weeks of the report
- What is a fall history?
 - Circumstances?
 - Medications?
 - Chronic conditions?
 - Mobility status?
 - Alcohol intake?

ACOVE Indicator 3

- IF a vulnerable elder reports **2 or more falls (or 1 fall with injury)** in the previous year, THEN there should be documentation of **orthostatic vital signs** within 3 months of the report
- Some clinical guidelines that are recommended:
 - **Correct postural hypotension**
 - **Cardiovascular examination**

Postural Hypotension

- Behavioral modifications that help decrease fall risk include:
 - Rising slowly
 - Using hand rails
 - Limiting prolonged standing

ACOVE Indicator 4:

- IF a vulnerable elder reports a history of **2 or more falls in the last year**, THEN there should be documentation of an **eye examination** in the previous year or visual acuity testing within 3 months of the report...

ACOVE Indicator 5 and 6

Basic gait, Balance and Strength evaluation

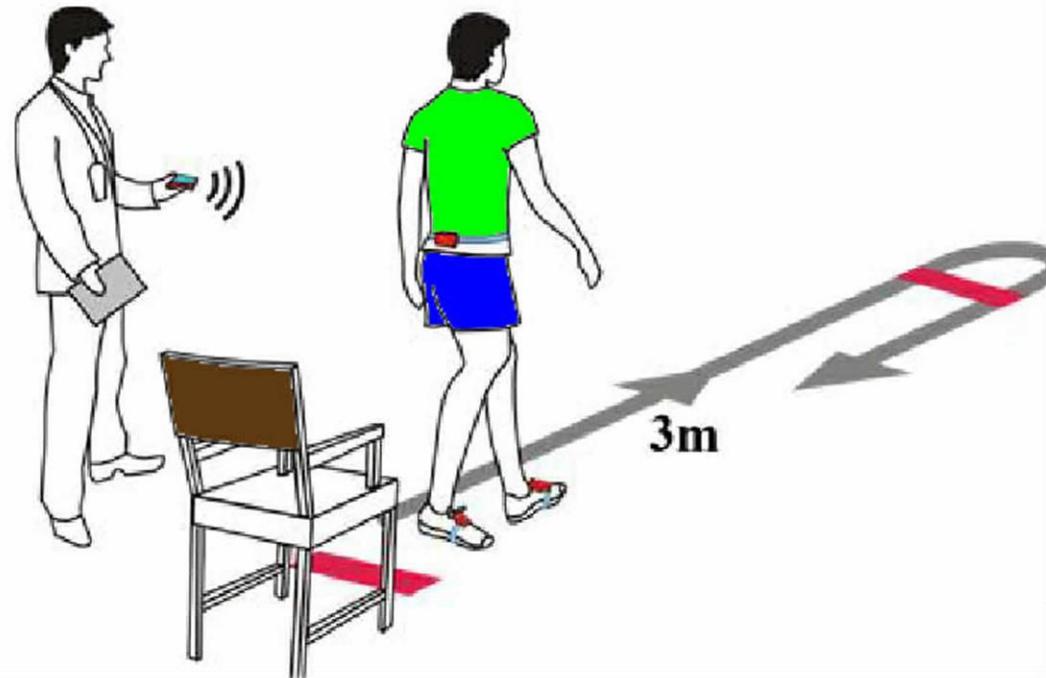
- IF a vulnerable elder reports
 - 2 or more falls in the last year,
 - OR, New or worsening difficulty with ambulation, balance or mobility
- Abnormal gait and balance alone were significant predictors of falls
- Risk assessment includes assessment of gait, balance, mobility and muscle weakness

Screening and Examination of Gait and Balance

- Timed Get Up and Go Test(TUG)
- Single Leg Stand Test

Timed Get Up and Go Test

- Reflects multiple domains
- Useful in detecting mobility impairment
- Time it takes to stand up from arm chair, walk 3 meters, return to chair and sit down



Timed Get Up and Go Test

< 10 sec.

- Low fall risk
- Clients are freely mobile
- Encourage regular exercise

< 20 sec.

- Moderate fall risk
- Clients are independent with basic transfers
- Most go outside alone and climb stairs
- Many are independence with tub and shower transfers
- PT referral may be appropriate

Timed Get Up and Go Test

20-29 sec.

- High fall risk; “Gray zone”
- Functional abilities vary
- Physician or multidisciplinary team assessment recommended.

>30 sec.

- Very high fall risk
- Many are dependent with chair and toilet transfers
- Most are dependent with tub and shower transfers
- Most cannot go outside alone
- Few, if any, can climb stairs independently
- Physician or multidisciplinary team assessment recommended

Single Leg Stance Test

- A measure of static balance that **relates to foot/ankle strategies**
- Functional implications for **gait**, especially on **uneven surfaces**, and going up/down **curbs or steps**
- Marker of **frailty** in elderly persons
- Community dwelling older adults **unable to stand** for 5 sec. had a **2.1 times risk of injurious falls**

ACOVE Indicator 7

- IF a vulnerable elder reports 2 or more falls in the past year, THEN there should be documentation of a cognitive assessment

ACOVE Indicator 8

- IF a vulnerable elder reports a history of **2 or more falls, or 1 fall with injury**, in the past year,
THEN there should be documentation of a
discussion of related risks and assistance offered
to **reduce or discontinue benzodiazepine use**

ACOVE Indicator 8

Home Modification

- Homes Are Not Typically Designed For Users of Various Abilities
- Difficulty Moving Around at Home
 - Hard to go up stairs 35%
 - Difficulty walking 15%
 - Use of cane/walker 8%
 - Use of wheelchair 6%
 - Difficulty bathing 3%
 - Chair or bed transfers 3%

Important Housing Features

- Main floor, bath
- Main floor, bedroom
- Accessible climate controls
- Non-slip flooring
- Bathroom aids
- No step entrance
- Covered parking

3 Major Problem Areas of the Home:



- **Outside Steps To The Entrance**
- **Inside Stairs To A Second Floor**
- **Unsafe Bathrooms**

Home Modification

Adaptation to the living environment intended to

- **Increase ease of use,**
- **Safety**
- **independence**



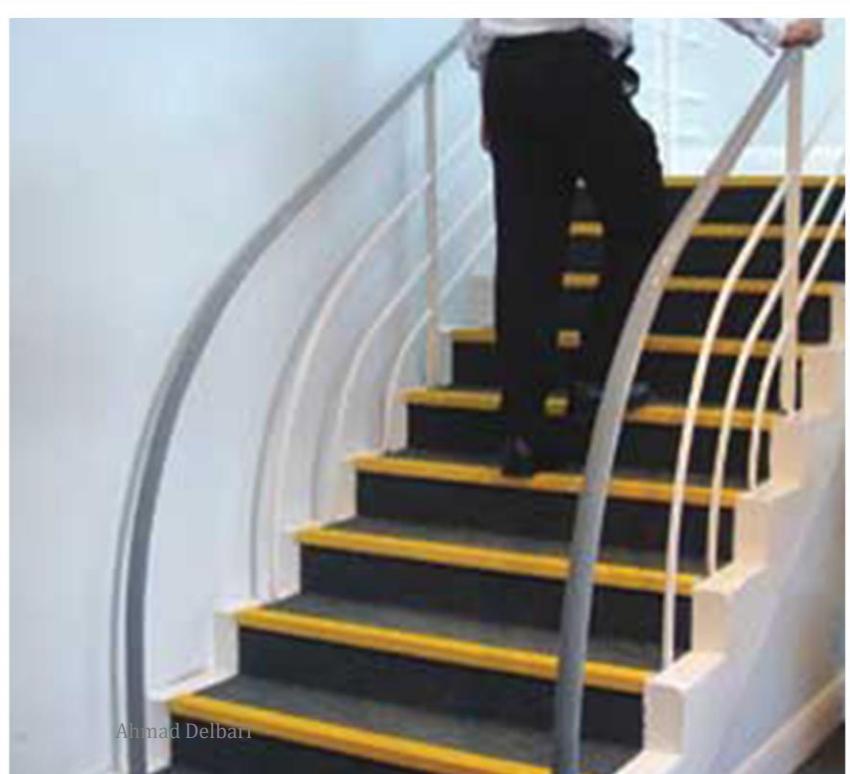
ایمن سازی راه پله ها:



- وسایل اضافی در راه پله ها
- نور کافی و یکنواخت
- کف پوش و موکت ثابت
- کلید برق در ابتدا و انتهای پله ها
- نصب علائم حسی قبل از ورود پلکان و در پاگردها
- میله های حمایتی در ارتفاع ۹۰ و تداوم آن ۳۰
- پله های بیرونی و جمع شدن آب

ایمن سازی راه پله ها:

- عرض کف پله ۳۰ و حداکثر ارتفاع آن ۱۷
- حداقل عرض پله ۱۲۰ نصب دستگیره در طرفین پلکان الزامی
- سطح پله باید از جنس سخت و غیر لغزنده
- در کناره های پله مانع لغزش عصا شود
- حداکثر تعداد پله بین دو پا گرد باید ۱۲ پله
- عرض پله ها (جای پا) نبایستی کمتر ۲۸
- حداقل ابعاد پا گرد پلکان باید $۱۲۰*۱۲۰$



مناسب سازی سرویس بهداشتی و حمام:



- دمپایی غیر لغزنده و غیرمستعمل
- وان حمام
- پله و موانع داخل حمام
- دوش دستی
- شیر آب سرد و گرم
- کف پوش(پلاستیکی، چسبنده و مکش دار)
- زنگ خطر
- اختلال در تعادل و استحمام تنها

مناسب سازی سرویس بهداشتی و حمام:

- کف پوش های غیرلغزنده
- توالت فرنگی دسته دار با ارتفاع ۴۵ و فاصله ۳۰ از دیوار،
- میله حمایتی عمودی و افقی در ارتفاع ۷۰ و ۲۰ سانت جلوتر از توالت



- قفل در حمام حذف یا از دو طرف
- در به طرف بیرون باز
- سرویس بهداشتی روشنایی کافی
- صندلی ثابت و متمایز از رنگ دیوار
- استفاده از پرده بجای در

اتاق خواب استاندارد برای سالمندان

- مسیر اتاق به توالت
- تختخواب در ارتفاع ۴۰-۴۵ تا
- نور کافی از نوع طبیعی و الکتریکی
- کلید برق نزدیک در و کنار تخت
- کلیدهای برق در موقع تاریکی
- کاملاً مفروش و قالیچه های لغزنده
- مرتب و عاری از سیم تلفن و وسایل اضافی
- رنگ کف و دیوار نزدیک به هم و خیره کننده نباشد
- سیم تلفن و ...

Rugs can be tripping hazards



- Remove scatter rugs that are not firmly secured.
- Secure area rugs with non-slip matting or dbl-faced carpet tape

استانداردهای لازم در سالن

- به هم ریختگی و شلوغی
- بودن سیم تلفن، تلویزیون و برق
- آستانه در
- قالیچه های لغزنده
- دسترسی به تلفن
- به جای جوراب یا پایی برنه
- از دمپایی مناسب و غیرلغزنده
- رمپ برای ورودی و خروجی ها
- مبل ایمن ، چرت روزانه



مناسب سازی آشپزخانه:

- تمیز و خشک بودن سرامیک کف از قطرات آب و روغن
- از اجاق گاز برقی یا گاز پیلوتی استفاده شود.
- پوشیدن لباس با آستین گشاد و بلند در هنگام آشپزی
- دسته قابلمه و تابه ها در روی اجاق گاز به سمت دیوار
- دستگیره اهرمی درب ها و شیر آب



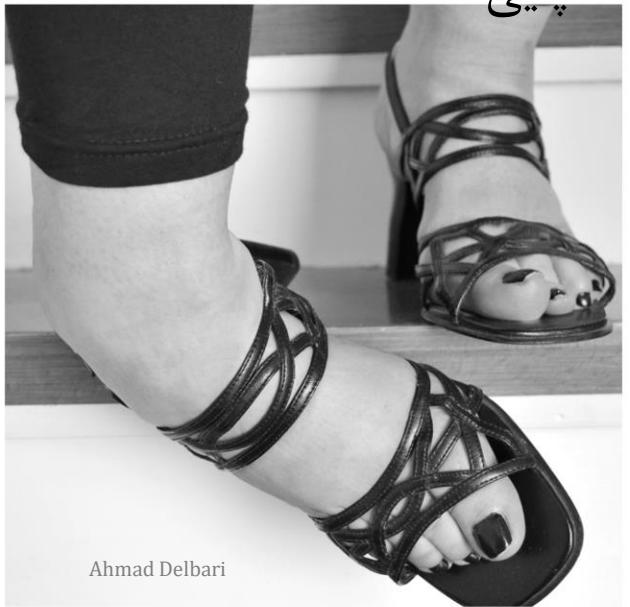
- دستگیره های کشویی روی درب ه
- سیستم اعلان حریق
- کپسول آتشنشانی
- روی اجاق گاز خم نشده
- پرهیز از چهار پایه

سالمندان با اختلال بینایی

- نور بیشتر
- لامپ های با ماندگاری طولانی
- مشخص کردن اختلاف سطوح با رنگ
- کاهش درخشندگی سطوح

کفش مناسب

- کفش های با پاشنه بلند و یا دارای تخت نرم و ضخیم
- کفشهای با کف نازک، سخت، عیر لغزنده و در عین حال سبک و قابل انعطاف
- دم پایی، صندل و کفش های پارچهای به علت داشتن پاشنه نرم
- از کفش هایی استفاده شود که قابل کوچک و بزرگ شدن
- به هیچ وجه با پای برهنه و یا با جوراب راه نرفته و حتما از دمپایی
- دمپایی مستعمل، لغزنده و با سایز متفاوت



ACOVE Indicator 9

- IF a vulnerable elder is found to have a problem with gait, balance, strength or endurance, THEN there should be documentation of a structured or supervised **exercise program** offered in the previous 6 months...



از توجه شما
سپاسگزارم

دکتر احمد دلبری

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