What causes a fall?

Medical, physical, cognitive and environmental considerations
Falls are an inevitable part of ageing.
Falls are an inevitable part of ageing.
Growing old is inevitable, growing up is optional.

(ANON)
The elderly fall more than any other age group?

True

False
The elderly fall more than any other age group?

True

False
Older people speaking about falling over

LISTEN CAREFULLY
Fever
Myalgia
Arthralgia
Headache
Sore throat

Influenza

Medical syndrome
What causes a fall?

vs

How to prevent future falls?
Most falls in the elderly are due to

- Intrinsic factors
- Extrinsic factors
- Behavioural factors
- All of the above
Most falls in the elderly are due to

- Intrinsic factors
- Extrinsic factors
- Behavioural factors
- All of the above
Falls risk factors

- Stable vs changing
- Modifiable vs non-modifiable
- Intrinsic vs extrinsic

[Diagram showing the relationship between stable vs changing, modifiable vs non-modifiable, and intrinsic vs extrinsic factors in falls risk]
Falls risk factors

- e.g. Age
- e.g. Medications
- e.g. Environment
History of Falls

- More than one fall in the last 12 months
- A fall with an injury in the previous year
Which medication is most likely to cause a fall?
Medication (as a falls risk factor)

- use of > 4 medications
- psychoactive medication
- benzodiazepines
- antidepressants
- anti-psychotics
- anti-arhythymics
- antihypertensive
- anti-inflammatory
- analgesics

Lord et al, 2007

- *** strong evidence
- ** moderate evidence
- * weak evidence
- - no evidence
Medical Conditions

- impaired cognition ***
- stroke ***
- Parkinson’s disease ***
- multiple chronic illnesses ***
- depression **
- neurological signs **
- incontinence **
- acute illness **
- arthritis **
- foot problems **
- dizziness *
- orthostatic hypotension *
- vestibular disorders -

Lord et al, 2007
Falls in Clinical Groups

Lord et al., 1993; Forster & Young, 1995; Hill, 1998; Hill & Stinson, 2004
Vitamin D Deficiency

- Vitamin D important for bone mineralisation, and general muscle and bone health

Older adults at risk of deficiency -
- Exposed to less sunshine
- Reduced ability to synthesise vitamin D
Balance

Central integration

SENSEORY
- vision
- vestibular
- somato-sensory

MOTOR
- coordination
- strength
- range of motion
- reaction time
Visual Impairment

Source: Vision 2020
www.vision2020australia.org.au
Vision (as a falls risk factor)

- People with a vision impairment have:
  - twice as many falls
  - three times the risk of depression and
  - the risk of hip fractures increases eight fold.
Macular Degeneration

Source: Vision 2020
www.vision2020australia.org
Diabetic Eye Disease

Source: Vision 2020
www.vision2020australia.org.au
Glaucoma

Source: Vision 2020
www.vision2020australia.org.au
Vestibular dysfunction

- Common cause of dizziness
- Difficult to diagnose
- Vestibular rehabilitation can be used to treat
The Lower Limb

Age related changes

Muscle weakness

Decreased joint range of motion

Somatosensory changes
Foot Problems

• Painful feet including painful corns, arthritis
• bunions
• gout
• swollen ankles / feet
• toe deformities (hammer, mallet and claw toes)
• fallen arches
Footwear

• Desirable characteristics:
  – Shoes with fastening mechanism (laces / velcro etc)
  – Shoes with thin, hard soles
  – High shoe collar (boots)
  – Slip resistant soles and good tread on soles
  – Low or no heels
  – Posterior (back) bevel on heel

Shoes that are too small can result in foot pain and deformity
Cognition
Epidemiology of Falls in Dementia

- 60-90% of older people with dementia (twice the rate of older people without cognitive impairment)

- Approx. 3 times increased fracture risk

- Fallers with dementia are 5 times more likely to be institutionalized

Continence

• Risk factor for falls in 2 ways:
  – Episode of incontinence and subsequent potential for slipping
  – Urge incontinence may cause a person to hurry
Continence (as a falls risk factor)

• Relationship between incontinence and falls is likely to be confounded by mobility and cognition

• Urinary frequency or need for frequent assistance with toileting

• Desire to avoid an incontinent episode
Nutrition

• Low Body Mass Index (BMI)

VS

• High Body Mass Index (BMI)
Behavioural factors
Physical Activity

Inactive ↔ Moderately active ↔ Active

- Inactive
- Fear or injury or functional decline
- Falls
Now add to that…

...The environment
What is the environment?

...the physical, social and attitudinal environment in which people live and conduct their lives (WHO, 2001)

...comprises cultural, physical, social and institutional elements (CAOT, 1997)
The environment and person centred care

comfort

safety

preferences
Nothing can be done to stop falls

True

False
Nothing can be done to stop falls

True

False
Falls Prevention Tip:

Falls occur because of an interaction of factors.