

# Falls

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# This talk will

Summarise the epidemiology, causes and consequences of falls in older people.

Briefly describe the clinical assessment of a faller and the evidence for falls prevention

Give a sneak preview of an EU Consensus statement

Save the NHS money?

# A Comprehensive fracture prevention strategy in older Adults

## The European Union Geriatric Medicine Society Statement

*Blain et al (2016)*

# Introduction

Three quarters of all vertebral and non-vertebral fractures occur among adults aged 65 years or older and over three quarters of hip fractures occur in people aged 75 or over.

The most appropriate and cost-effective strategy to prevent major fractures in older people remains a hotly-debated topic.

*Blain et al (2016)*

# Mrs Jones

Mrs Jones is 81 and presents to ED with a fall and back pain. She is unable to say how she fell.

She has had falls on at least 3 previous occasions but cannot explain why. She has some memory loss and has been 'slowing up' lately. She says she feels unsteady when standing and her daughter thinks she is a little more off balance lately.

She has atrial fibrillation, diabetes and hypertension and takes Bisoprolol, Gliclazide, Lisinopril, Simvastatin and Warfarin.

On examination, she has a systolic murmur over the aortic area. Supine BP is 150/76 and standing BP 124/72.

Her gait is slow and shuffling. She has a rest tremor. She is tender over T5 & 6. No focal neurological deficit.

ECG shows rate-controlled AF and voltage criteria LVH.

FBC, U&E, CRP are normal. INR is 2.5.

# Primary cause of this fall?

- 1 – Balance impairment
- 2 – Cardiovascular syncope
- 3 – Neurological disease
- 4 – Polypharmacy
- 5 – Urinary Tract Infection

# Mrs Jones

## CNS

- Cognitive impairment
- Possible parkinsonism

## CVS

- Possible syncope
- Postural hypotension with supine hypertension
- Possible aortic stenosis
- Atrial fibrillation (and anti-coagulation)

Diabetes (?hypoglycaemia)

Osteoporosis with vertebral fragility fractures

Polypharmacy (?adverse effects)

Postural instability and gait abnormality

Do you admit Mrs Jones?



# Falls

Historical interlude

Epidemiology

Causes

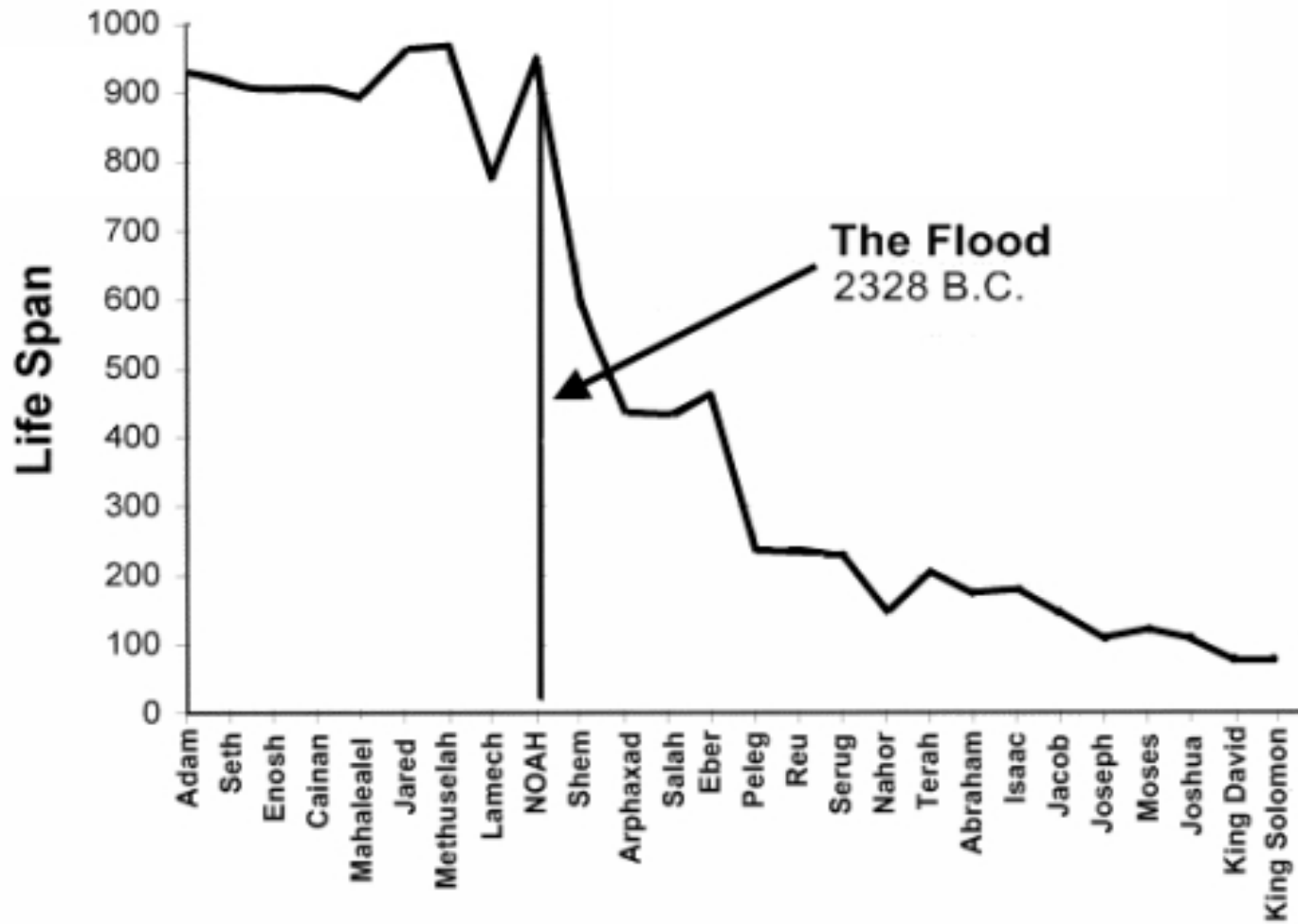
Assessment

Prevention

“But woe to him who is alone when he falls and has not another to lift him up!”

*Ecclesiastes 4,10*

## Lifespans before and after the Flood



The Bible Study Web Site at [BibleStudy.org](http://BibleStudy.org)

With the growth of the older population, prevention of fractures has become a public health priority.

*Blain et al (2016)*

# Geriatric Giants

Instability

Immobility

Intellectual impairment

Incontinence

*Isaacs (1965)*

# Geriatric Giants

Falls

Immobility

Dementia

Incontinence

*Isaacs (1965)*

# Geriatric Giants 2016

Falls and fractures

Immobility and functional decline

Dementia and delirium

Incontinence and pressure sores

Loneliness and poverty

# Geriatric Giant 2016

## Frailty



# Frailty and Falls

Recurrent falls are a marker condition for frailty

Best managed with Comprehensive Geriatric Assessment

Even if syncope is the cause of her fall...

**Mrs Jones is Frail**

# Epidemiology

Falls are a common problem for older people

Most common emergency presentation in over-65's

A third of community-dwelling over-65's report a fall in the previous year

50% of over-80's

60% of care home residents

1 fall for every 100 hospital bed days

# Consequences of falls

## Fractures

10% of falls result in fractures in over-65's

Over 80% of non-vertebral fractures follow a fall

## Head injury

## Long lie

Hypothermia, pressure sores, rhabdomyolysis

Reduced mobility, isolation, dependency

## Fear of falling

**Acute cost & bed days: Falls/fractures > Stroke**

# Causes of falls

Categories of fall in community dwelling older people

“Accidental” fall – could happen to anyone

“Medical” fall – caused by a specific medical problem

“Postural” fall – impairment of balance and/or gait

# Causes of falls

In a prospective study of older people in New Zealand:

60% of falls were multifactorial, largely due to musculoskeletal, gait or balance problems

20% were largely due to single "medical" problems

20% were accidents in people without risk factors

*Campbell (1990)*

# Causes of falls

Falls are usually an acute presentation of one or more chronic problems or risk factors

## **Risk factors:**

Intrinsic and Extrinsic

Predisposing and Precipitating

Modifiable and Non-modifiable

# Risk factors

Increasing age

Previous fall (50% risk over next 12 months)

Environmental hazards

Musculoskeletal problems

Abnormalities of gait or balance

Neurological disease

Stroke, dementia, Parkinson's

Sensory impairment

Medication

Physiological risk

# Physiological risk

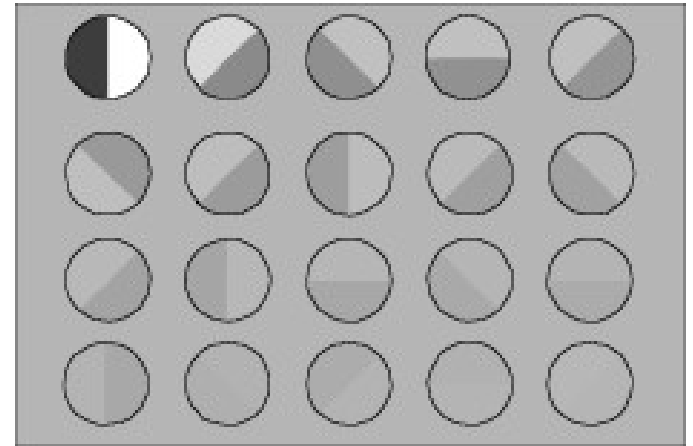
Contrast sensitivity

Proprioception

Lower limb strength

Reaction time

Postural sway



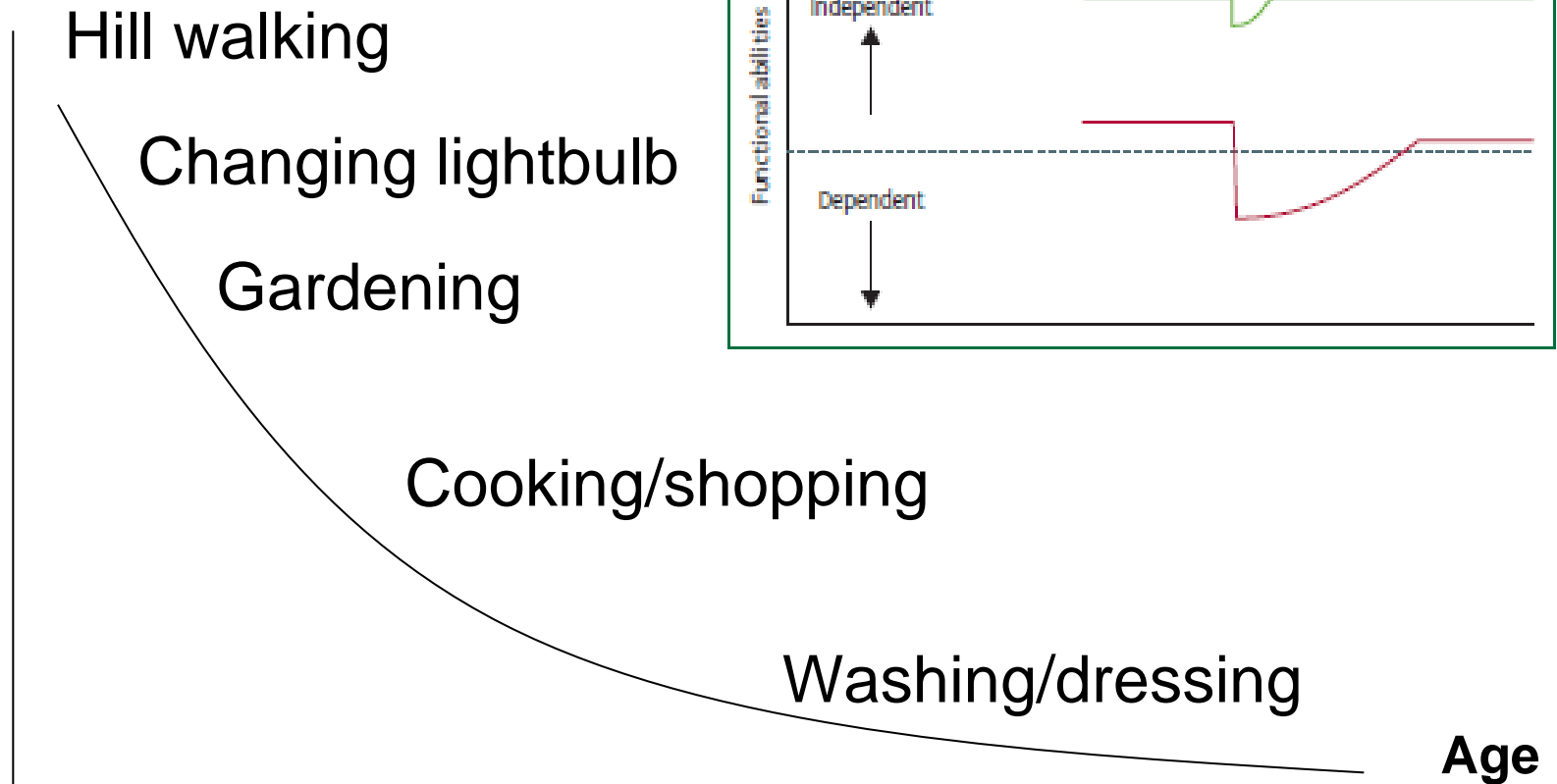
*Lord et al, Physical Therapy (2003)*



An increasing number of risk factors  
or physiological deficits increases  
the risk of falls and fractures  
and the degree of frailty

# Frailty and Falls

Postural  
Stability



*after Campbell (2006) and Clegg (2013)*

# Assessment

# Assessment - history

History of fall(s)

Collateral history

Witness account

Specifically considering transient LOC...

Consider any relevant risk factors

Consider any consequence of falls

Any dizziness?

“Poor historian” = “lazy doctor”

# History - pitfalls

30% of cognitively intact older people are unable to recall documented falls 3 months after the event

Eye witness accounts of falls are often unavailable

Amnesia for a loss of consciousness is present in up to 50% of patients with syncope

# Assessment - dizziness

What does “dizzy” mean to the patient?

Faintness / light-headedness = possible pre-syncope

Spinning / rotation = vestibular problem

Unsteadiness / off-balance = balance impairment

“Fuzziness” / “Muzziness” = Oh dear!

# Assessment - examination

Quick assessment of gait and balance

Timed Up and Go test

**Watch them stand and walk**

Cardiovascular

Including lying and standing blood pressures

Neurological exam

Vision and vestibular

# Prevention of falls



# Prevention of falls

There is rather consistent evidence in subjects with low or moderate risk of fall that multicomponent physical activity programs, including balance exercises associated with exercises to improve muscle strength and protective responses in case of a fall are effective in the reduction of serious falls and non-vertebral fractures.

A multifactorial approach, determined by individual assessment of functional, medical, and social concerns, may be a more appropriate strategy to prevent falls in older people at high risk of fall... conferring benefits beyond falls prevention.

*Blain et al (2016)*

# Reducing risk of falls

Therapeutic exercise

Multifactorial modification

Specific single interventions

What does the evidence tell us?

# Therapeutic exercise

Otago or FaME programmes

Physiotherapist or exercise instructor

Home/Community setting

Muscle strengthening, balance training

Progressive and individualised

Lower cost, larger numbers, but poor uptake

30% reduction in falls rate, 66% reduction in fracture

Cost effective

Probably no benefit beyond fall/fracture reduction

# Multifactorial modification

Multiple risk factor assessment and intervention

Multidisciplinary, usually clinic based

Usually includes a doctor

Medication review

Identify and manage modifiable problems

High cost, small numbers

24% reduction in falls rate

Cost neutral, except in individuals with 4+ risk factors

Benefits likely to extend beyond falls risk reduction

# Specific single interventions

OT home safety assessment and modification

Psychotropic medication withdrawal

Prescribing modification programme

Cataract surgery - first eye only

Podiatry - in people with disabling foot pain

Vitamin D supplementation - only in deficient individuals

Pacing - in cardioinhibitory carotid sinus syndrome

Home modification and repairs

Anti-slip shoe device – in icy conditions

# Environment

People do fall over things, occasionally

May indicate an underlying balance/gait/cognitive problem

**Hazard reduction** of limited benefit

People will always find something else to fall over

**Environmental adaptation** (to provide assistance with transfers, ADL's etc) a more productive strategy

**Alarm raising** must always be considered

# Ineffective interventions

Single exercise interventions

Nutrition or fluid therapy

Cognitive behavioural interventions

Educational interventions

Second eye cataract surgery

# Risk stratification

## Higher risk

History of recurrent or injurious falls during the previous 12 months or with significant gait, balance, or muscle strength problems

## Moderate risk

History of at least one fall in the past year, a fear of falling or a feeling of unsteadiness, or with moderate gait, balance, or muscle strength problems

Note – no consensus definition of ‘significant’ or ‘moderate’ gait, balance, or muscle strength problems

Blain et al (2016)



# Clinical pathways

Higher risk fallers

Should be referred for multiple risk factor assessment and intervention, usually in a falls clinic

Moderate risk fallers

Should be referred for therapeutic exercise

Fallers with possible transient LOC:

Should be referred to a falls and/or syncope service

Fracture Liaison Service

**Only admit to hospital if the injury/illness requires it**

# Comprehensive Geriatric Assessment (CGA)

People at high risk [of falls] should benefit from multifactorial measures based on a comprehensive geriatric assessment.

*Blain et al (2016)*

# Comprehensive Geriatric Assessment (CGA)

CGA is a multi-dimensional assessment process aimed at identifying a list of problems in a frail older person

It is carried out by a multi-disciplinary team

Leads to goal-driven interventions seeking to address the identified problems in a patient-centred approach

Results in a significant increase in independence and reduction in mortality

# In practice

Following a fall or fracture, older people should also be assessed for:

- Dementia (AMT10, MMSE, MOCA)

- Delirium in acute settings (CAM, 4AT)

- Continence and skin problems (ask and look)

- Social, environmental and functional needs (ask the family)

Role for OPAL service/Acute Frailty Units/etc

Ideally this can be done without hospitalisation

# Mrs Jones

Multiple problems including falls, some of which may be syncopal, and vertebral fragility fracture

Also likely dementia and parkinsonism, possibly secondary to cerebrovascular disease

Will require cardiological work-up, of course  
(Are we worried that she is on Warfarin?)

She needs Comprehensive Geriatric Assessment from a Multi-Disciplinary Team

Will you admit Mrs Jones?

Thank you

# Further Reading

Comprehensive geriatric assessment – a guide for the non-specialist. Welsh T, Gordon AL, Gladman JRF. International Journal of Clinical Practice 2014; 68(3):290-293

Quality Care for Older People with Urgent and Emergency Care Needs “Silver Book” 2012 (available at [www.bgs.org.uk](http://www.bgs.org.uk))

STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. O’Mahony D, et al. Age and Ageing 2015;44:213-218

A Comprehensive fracture prevention strategy in older Adults: The European Union Geriatric Medicine Society Statement. Blain H, et al. European Geriatric Medicine 2016 (submitted)

MDTea Podcast. Available at <http://thehearingaidpodcasts.org.uk/mdtea-2>