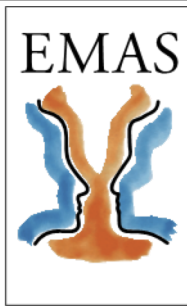


# What happens at the menopause and its impact on long-term health

EUROPEAN  
MENOPAUSE  
AND  
ANDROPAUSE  
SOCIETY



EUROPEAN  
MENOPAUSE  
AND  
ANDROPAUSE  
SOCIETY



EMAS



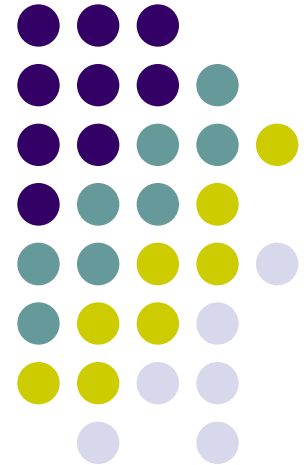
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Editor in Chief Case Reports in Women's Health

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Conflict of interest: none declared



- The average of the menopause is 50
- Menos month
- Pausus to stop
- Menopause is cessation of ovarian function leading to estrogen deficiency

Women represent 54 per cent of the population aged 60 and over and 62 per cent of those aged 80 and over.

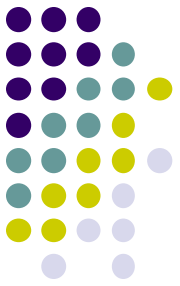
The World's Women 2015

<https://unstats.un.org/unsd/gender/worldswomen.html>

By 2050 over 1 billion women will be aged over 60 worldwide

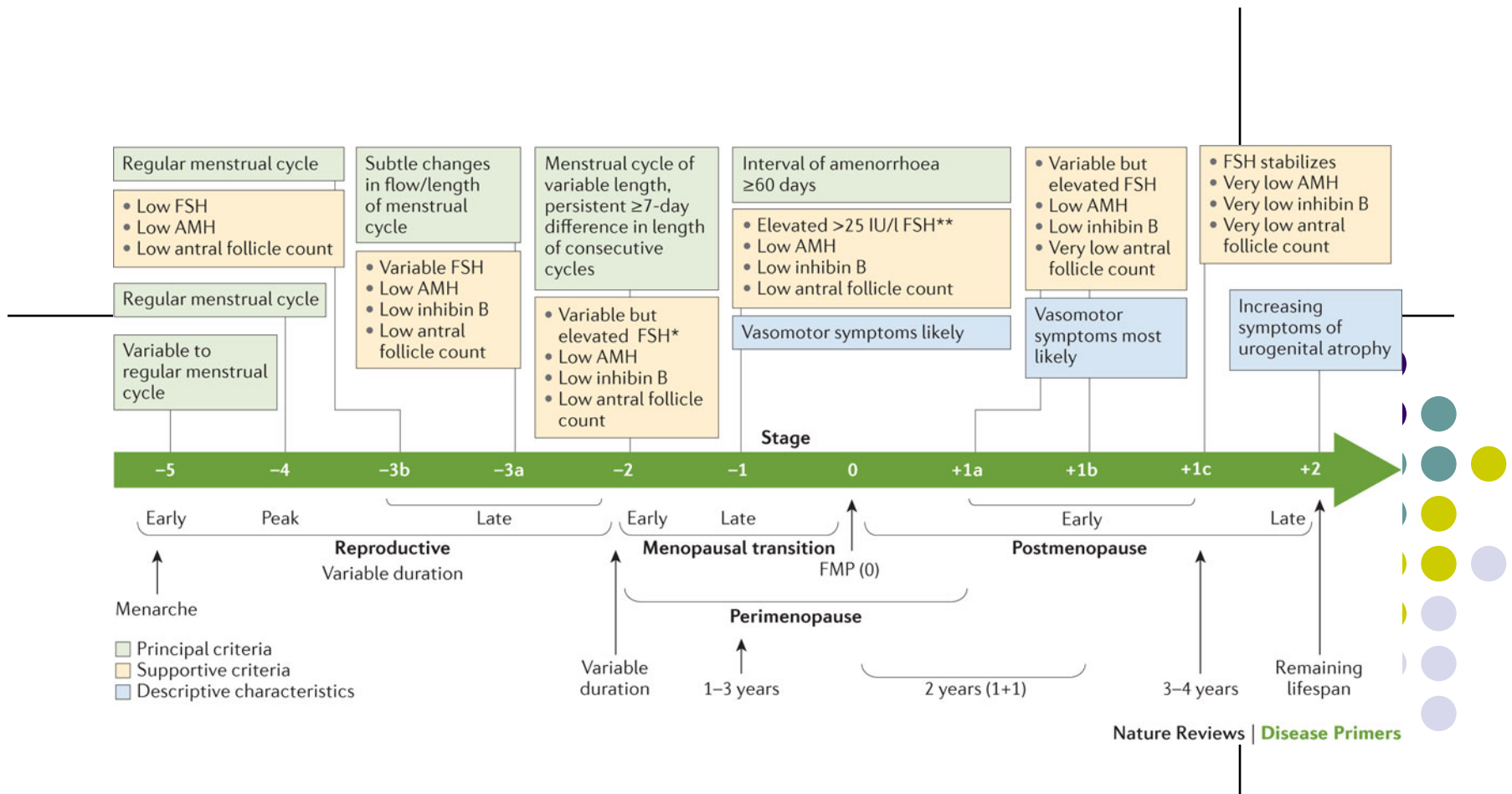


# Menopause symptoms and long term health



- Symptoms
  - Hot flushes and night sweats
  - Vaginal dryness
  - Symptoms of genitourinary syndrome of menopause eg repeated UTIs
- Long term health
  - Osteoporosis and musculoskeletal health
  - Cardiovascular disease
  - Cognitive decline and dementia

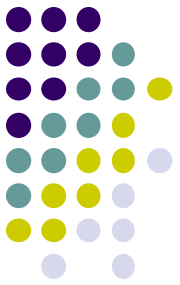
**Figure 2** The stages of reproductive ageing in women



Davis, S. R. *et al.* (2015) Menopause

*Nat. Rev. Dis. Primers* doi:10.1038/nrdp.2015.4

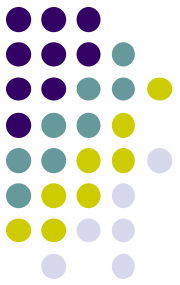
Figure reproduced from *Climacteric* (Harlow, S. D. *et al.* Executive summary of the Stages of Reproductive Aging Workshop + 10: addressing the unfinished agenda of staging reproductive aging. *Climacteric* **15**, 105–114 (2012).) with permission from Informa Healthcare ([www.informahealthcare.com](http://www.informahealthcare.com)). Figure reprinted by permission from the American Society for Reproductive Medicine (*Fertility and Sterility*, 2012, **97**, 843–851). Figure republished with permission of Endocrine Press, from the *Journal of Clinical Endocrinology and Metabolism*, Harlow, S. D. *et al.*, **97**, 1159–1168, 2012; permission conveyed through Copyright Clearance Center, Inc. Figure reproduced from Harlow, S. D. *et al.* Executive summary of the Stages of Reproductive Aging Workshop + 10: addressing the unfinished agenda of staging reproductive aging. *Menopause* **19**(4), 387–395 (2012).



# Premature/ early menopause

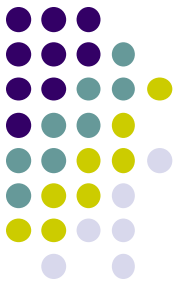
- **Premature menopause** ideally should be defined as menopause that occurs at an age less than two standard deviations below the mean estimated for the reference population. The age of 40 years is frequently used as an arbitrary limit.
- **Early menopause** is menopause before age 45
- **Affects**
  - 1% women under age 40 and 0.1% under 30, cohort of 1858 women born between 1928 and 1932
  - *Coulam et al. Incidence of premature ovarian failure. Obstet Gynecol. 1986;67:604-6.*
  - At age 44–45 years, 73% of the female cohort members, included in analyses, were still premenopausal, 21% were perimenopausal and 6% were post-menopausal. The 1958 British birth cohort study data on 4403 women.
  - *Tom et al. Fetal environment and early age at natural menopause in a British birth cohort study. Hum Reprod. 2010; 25: 791-798.*

# Vasomotor symptoms: hot flushes and night sweats



- Affect up to 85% of menopausal women
- Present in as many as 55% of women even before the onset of the menstrual irregularity that defines entry into the menopausal transition and their incidence and severity increases as women traverse the menopause, peaking in the late transition and tapering off within the next several years.
- Precise etiology uncertain: but women experiencing hot flushes tended to lack the normal vasoconstrictor response
- Santoro et al. Endocrinol Metab Clin North Am. 2015;44:497-515.

# Vasomotor symptom duration



- **SWAN study 3302 women** Median total VMS duration was 7.4 years. Among 881 women who experienced an observable FMP, the median post-FMP persistence was 4.5 years.
- Women who were premenopausal or early perimenopausal when they first reported frequent VMS had the longest total VMS duration (median, >11.8 years) and post-FMP persistence (median, 9.4 years). May last longer for African American women
- **Penn Ovarian Aging Study cohort 255 women** Mean (SD) duration of moderate/severe hot flashes after the FMP was 4.6 (2.9) years (for any hot flashes, 4.9 [3.1] y). One third of women at 10 years or more after menopause continued to experience moderate/severe hot flashes.
- African-American women (obese and nonobese) and obese white women had significantly greater risks of hot flashes compared with nonobese white women
- Avis et al. JAMA Intern Med. 2015 175:531-9.
- Freeman et al. Menopause. 2014;21:924-32.

# Vaginal dryness: Genitourinary syndrome of menopause

- **GSM** is a more descriptive term than vulvovaginal atrophy (**VVA**) and does not imply pathology. Thus it is defined as a collection of symptoms and signs associated with a decrease in estrogen and other sex steroids involving changes to the labia majora/minora, clitoris, vestibule/introitus, vagina, urethra and bladder. The syndrome may include but is not limited to genital symptoms of dryness, burning, and irritation; sexual symptoms of lack of lubrication, discomfort or pain, and impaired function; and urinary symptoms of urgency, dysuria and recurrent urinary tract infections.
- However there are concerns that GSM includes symptoms not only resulting from estrogen deficiency, but also those arising from the effects of ageing and other processes on the bladder and pelvic floor.
- This has therapeutic implications.
- Portman DJ, Gass ML; Vulvovaginal Atrophy Terminology Consensus Conference Panel. *Maturitas*. 2014;79:349-54.



# VVA: impact

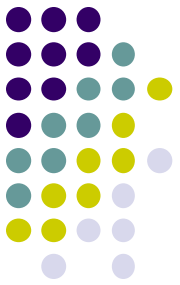
- Affects up to 50% women after menopause
- The incidence is probably under-reported, underdiagnosed and therefore undertreated.
- Women are generally unaware that VVA is a chronic condition with a significant impact on sexual health and quality of life, and that effective and safe treatments may be available.
- Affects couple's lives: sexual dysfunction and painful sex
- Nappi et al. Maturitas. 2016;94:87-91.

# Recurrent urinary tract infections

- A woman's lifetime risk of at least one UTI is around 20 per cent, with a prevalence that is age related, and this increases by 1% per decade of life.
- The increased incidence of UTI after menopause is associated with urinary incontinence, cystocele and post-void residual urine
- Urinary tract infections are common in the elderly with a reported incidence of 20% in the community and over 50% in institutionalised patients
- Lower urinary tract infection represents a spectrum of disease from asymptomatic bacteriuria to acute pyelonephritis and are associated with significant morbidity and mortality
- Treatment and prevention (antibiotics, topical/ vaginal estrogens)

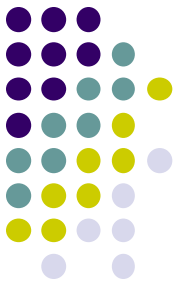
Robinson et al. Maturitas. 2015;81:343-347.

# Cardiovascular disease

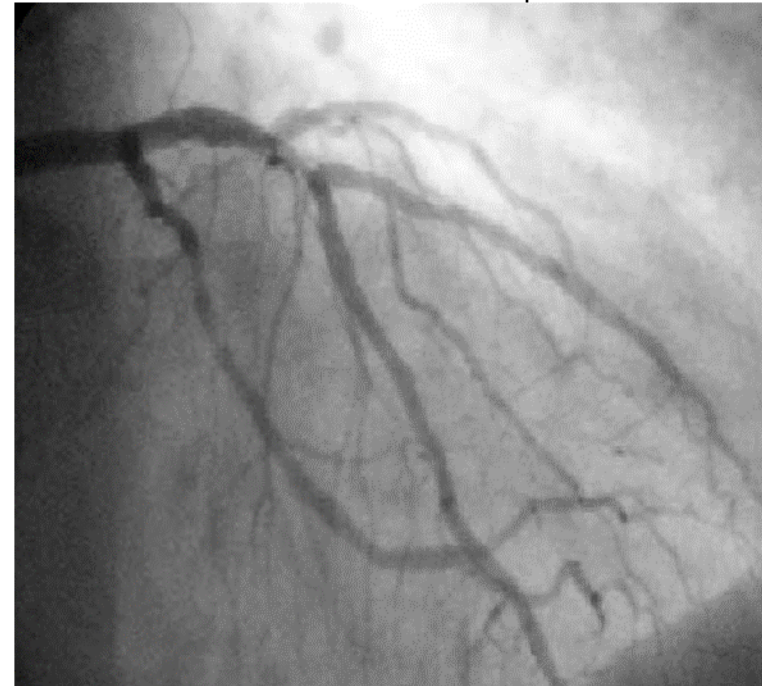


- Cardiovascular disease (CVD) in women is the number one cause of death worldwide. This includes ischemic **heart disease** (IHD), **stroke** and other cardiovascular disease (often heart failure).
- In Europe CVD is responsible for over 3.9 million deaths a year, or 45% of all deaths.
- In men, CVD accounts for 1.8 million deaths (40% of all deaths)
- In women it is responsible for **2.1 million deaths (49% of all deaths)**.
- By comparison, **cancer** accounts for just under 1.1 million deaths (24%) in men and just under **900,000 deaths (20%) in women**.
- World Health Organisation. Cardiovascular diseases (CVDs) Fact sheet Updated May 2017 <http://www.who.int/mediacentre/factsheets/fs317/en/>
- European Cardiovascular Disease Statistics 2017 edition <http://www.ehnheart.org/cvd-statistics.html>

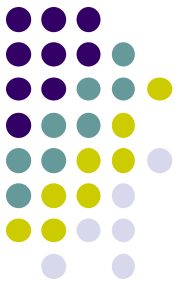
# Heart disease in women



- Presents on average 7-10 years later in women than in men.
- Symptoms of myocardial infarction may be atypical women delaying seeking medical help
- Women also have other patterns of IHD and heart failure eg of non-obstructive coronary lesions , functional IHD (such as spasm)
- Female sex hormones affect vascular and myocardial aging.
- Persistent hot flushes and inflammatory disease increase CVD risk. The classical 'high risk woman' has a genetic predisposition, migraine in her teens/twenties and experienced pregnancy-related disorders, such as recurrent miscarriage and hypertension.



# Stroke



- Women have stroke at an **older** age than men.
- Women may have **a worse prognosis** compared to men.
- **Risk factors** for stroke include: hypertension, atrial fibrillation, tobacco use, diabetes, obesity and physical inactivity. The role of hypercholesterolemia in the development of strokes is, however, disputed and several studies in elderly people have shown how elevated levels of HDL cholesterol can protect against the development of ischemic strokes.
- **Types**
- 85% are ischemic .
- 10% of all strokes are due to intracerebral haemorrhage
- 5% due to subarachnoid haemorrhage.

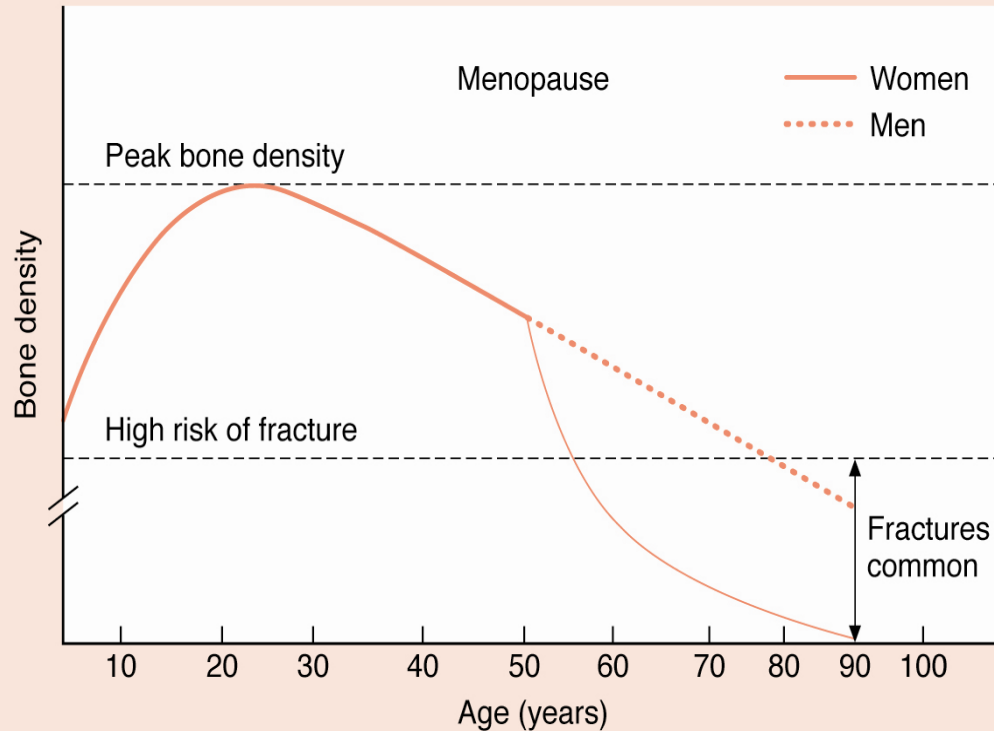
# Osteoporosis

- **Definition** “a skeletal disorder characterized by compromised bone strength predisposing to an increased risk of fracture”.
- **Fractures**: hip, spine and wrist (Colles)
- **Excess mortality rates** during the first year after hip fracture range from 8.4% to 36%, compared to people who have not had a fracture
- **Highest** in the days and weeks following the index fracture, and remained elevated for months and perhaps even years following the index fracture.

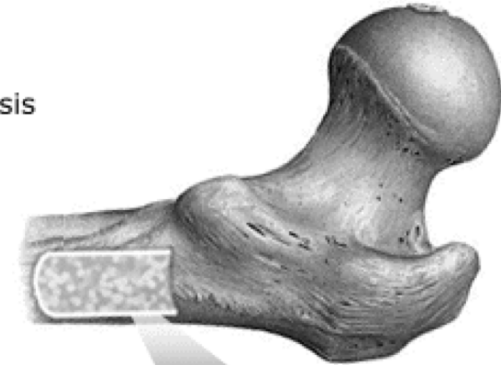
# Osteoporosis: global and European burden

- **Worldwide** Osteoporosis causes more than 8.9 million fractures annually.
- **In Europe** 3.5 million cases per year.
- **Clinical and economic burden** of osteoporotic fractures in 27 European countries in 2010 found that two thirds of all incident fractures occurred in women and fracture incidence increased with age, with the majority of hip fractures reported in patients aged  $\geq 80$  years.
- **The total number of people with osteoporosis in Europe has been predicted to rise by 23%, from 27.5 million in 2010 to 33.9 million in 2025** due to the increasing proportion of elderly people in the population.

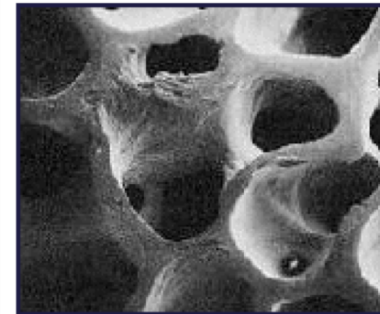
# Osteoporosis affects 1 in 3 women and 1 in 5 men



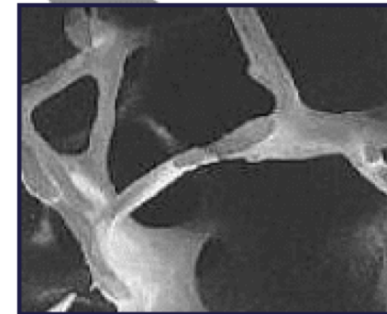
Section of bone showing osteoporosis



Normal Bone



Osteoporotic Bone



Reproduced from *J Bone Miner Res* 1986;1:16-21 with permission of the American Society for Bone and Mineral Research



# Risk factors for assessment of fracture probability

- 1. Age
  2. Sex
  3. Low body mass index ( $\leq 19\text{kg/m}^2$ )
  4. Previous fragility fracture, particularly of the hip, wrist and spine including morphometric vertebral fracture
  5. Parental history of hip fracture
  6. Current glucocorticoid treatment (any dose, by mouth for three months or more)
  7. Current smoking
  8. Alcohol intake of three or more units daily
  9. Secondary causes of osteoporosis including:
    - Rheumatoid arthritis
    - Untreated hypogonadism in men and women
    - Prolonged immobility
    - Organ transplantation
    - Type I diabetes
    - Hyperthyroidism
    - Gastrointestinal disease
    - Chronic liver disease
    - Chronic obstructive pulmonary disease
- Compston et al; National Osteoporosis Guideline Group (NOGG). UK clinical guideline for the prevention and treatment of osteoporosis. Arch Osteoporos. 2017;12:43.



## Calculation Tool

Please answer the questions below to calculate the ten year probability of fracture with BMD.

Country: **UK**

Name/ID:

[About the risk factors](#)

### Questionnaire:

1. Age (between 40 and 90 years) or Date of Birth

Age:

Date of Birth:

Y:

M:

D:

2. Sex

☐

Male

☐

Female

3. Weight (kg)

4. Height (cm)

5. Previous Fracture

☒

No

☐

Yes

6. Parent Fractured Hip

☒

No

☐

Yes

7. Current Smoking

☒

No

☐

Yes

10. Secondary osteoporosis

☒

No

☐

Yes

11. Alcohol 3 or more units/day

☒

No

☐

Yes

12. Femoral neck BMD (g/cm<sup>2</sup>)

Select BMD ▼

Clear

Calculate



### Weight Conversion

Pounds ➡ kg

Convert

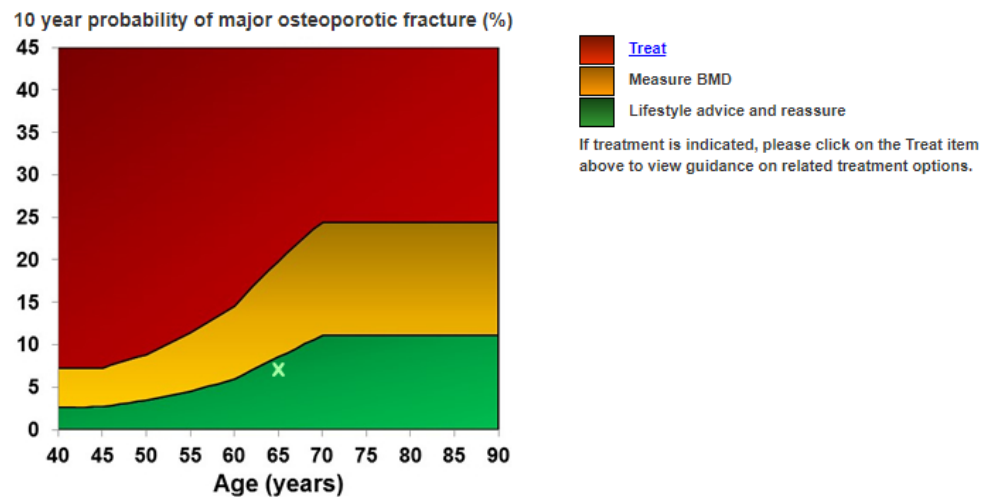
### Height Conversion

Inches ➡ cm

Convert

Welcome to the NOGG 2017 Guideline Update. These new thresholds ensure equality of access to treatment for older patients with and without fracture (for full details, see [the Guideline document](#))

## Assessment threshold - Major fracture



Interpretation

# Sarcopenia

- **Sarcopenia**, or age-related loss of muscle, leads to functional loss, disability and falls
- **Pathophysiology** of sarcopenia is multifactorial, with decreased caloric intake, muscle fiber denervation, intracellular oxidative stress, hormonal decline, and enhanced myostatin signaling all thought to contribute.
- **Prevalence rates** around 30%, low body mass index, and low physical activity as significant risk factors.
- **Risk factors** for sarcopenia include female gender, low physical activity and low protein intake.
- The coexistence of sarcopenia and increased fat mass is referred to as **sarcopenic obesity (SO)**.
- The English Longitudinal Study of Ageing recently found that sarcopenic obesity did not confer any greater risk than sarcopenia alone.

# Dementia and cognitive decline

- Dementia is a progressive, irreversible decline in cognition that, by definition, impacts on a patient's pre-existing level of functioning.
- **Types** Alzheimer's disease (AD) is the most common, thought to be present in 50–75% of cases. Other processes include vascular, Lewy body and frontotemporal pathologies.
- **Risk factors** Dementia and cardiovascular disease have many common risk factors, including hypertension, hypercholesterolaemia, obesity, and diabetes. Cardiovascular disease is an important risk factor for cognitive decline in postmenopausal women
- Incidence increases with age
- At present there are no treatments proven to slow or cure any of the dementia processes.

# World Alzheimer Report 2015

## The Global Impact of Dementia

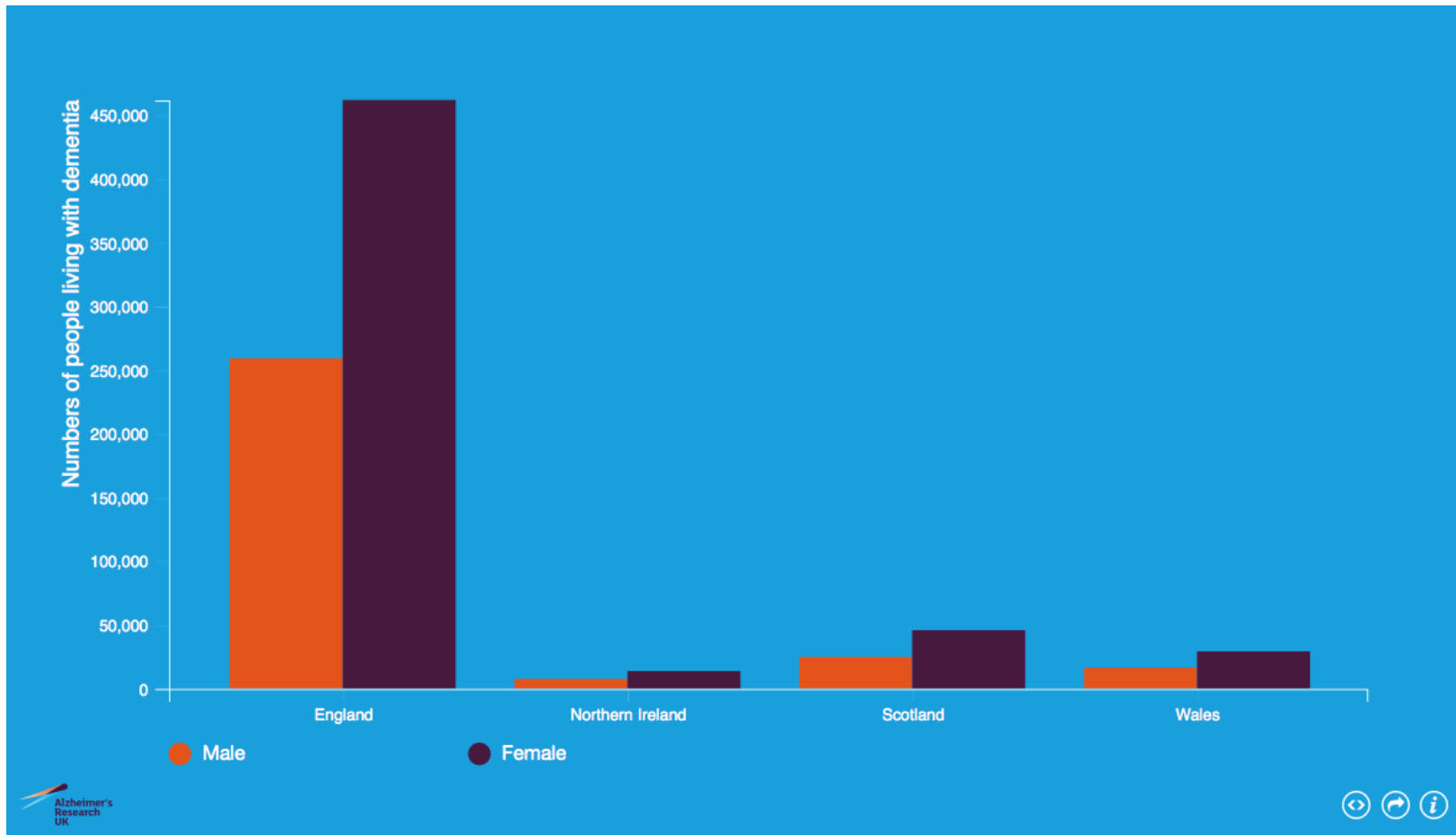
- Regional estimates of dementia prevalence in people aged 60 years and over range from 4.6% in Central Europe to 8.7% in North Africa and the Middle East.
- When compared to 2009 estimates, estimated prevalence has increased in Asia and Africa, but decreased in Europe and the Americas.
- Estimate that 46.8 million people worldwide are living with dementia in 2015. This number will almost double every 20 years, reaching 74.7 million in 2030 and 131.5 million in 2050.
- Estimate that 58% of all people with dementia live in countries currently classified by the World Bank as low or middle income countries. The proportion of people with dementia living in these same countries is estimated to increase to 63% in 2030 and 68% in 2050.
- <https://www.alz.co.uk/research/WorldAlzheimerReport2015.pdf>

# Cognitive decline and dementia: gender

- Several European studies have suggested that women have a higher incidence rate of dementia or AD than men. However, studies in the United States have not shown a difference, or the difference has varied with age
- Regardless of this difference in risk (in incidence rates) across continents, all studies consistently showed that more women than men have AD at any given age, possibly because women survive.
- However, the higher number of women affected by dementia may not be true for other types of dementia such as vascular dementia or Lewy body dementia.

Martin et al. BMC Geriatr. 2015 Jun 16;15:66. doi: 10.1186/s12877-015-0064-6.

**The national breakdown of dementia prevalence by gender. England's greater population of people leads to the much higher numbers of people with dementia though a similar gender breakdown is seen across the UK.**







**60 -70% of carers for  
people with dementia are  
women.**



**20%** of female carers have gone from full-time to part-time employment as a result of their caring responsibilities and **17%** felt penalised at work.

# [https://en.wikipedia.org/wiki/List\\_of\\_oldest\\_living\\_people](https://en.wikipedia.org/wiki/List_of_oldest_living_people)

## 100 oldest living people

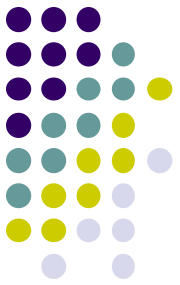
*This [incomplete](#) list is frequently updated to include new information.*

*This is a [dynamic list](#) and may never be able to satisfy particular standards for completeness. You can help by [expanding it](#) with [reliably sourced](#) entries.*

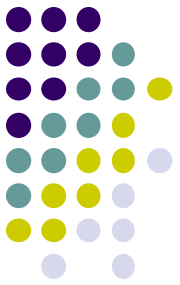
No. ↕	Name ↕	Sex ↕	Birth date ↕	Age as of 31 October 2018 ↕	Place of residence ↕
1	<a href="#">Kane Tanaka</a> <sup>[3]</sup>	F	2 January 1903	115 years, 302 days	<a href="#">Japan</a>
2	<a href="#">Maria Giuseppa Robucci</a> <sup>[3]</sup>	F	20 March 1903	115 years, 225 days	<a href="#">Italy</a>
3	<a href="#">Shimoe Akiyama</a> <sup>[3]</sup>	F	19 May 1903	115 years, 165 days	<a href="#">Japan</a>
4	<a href="#">Magdalena Oliver Gabarro</a> <sup>[6]</sup>	F	31 October 1903	115 years, 0 days	<a href="#">Spain</a>
5	<a href="#">Lucile Randon</a> <sup>[3]</sup>	F	11 February 1904	114 years, 262 days	<a href="#">France</a>
6	<a href="#">Shin Matsushita</a> <sup>[3]</sup>	F	30 March 1904	114 years, 215 days	<a href="#">Japan</a>
7	<a href="#">Maria Vikentyevna Kononovich</a> <sup>[7]</sup>	F	27 May 1904	114 years, 157 days	<a href="#">Belarus</a>
8	<a href="#">Gabrielle Valentine des Robert</a> <sup>[3]</sup>	F	4 June 1904	114 years, 149 days	<a href="#">France</a>
9	<a href="#">Lessie Brown</a> <sup>[3]</sup>	F	22 September 1904	114 years, 39 days	<a href="#">United States</a>
10	<a href="#">Maggie Kidd</a> <sup>[8]</sup>	F	8 December 1904	113 years, 327 days	<a href="#">United States</a>
11	<a href="#">Jeanne Bot</a> <sup>[3]</sup>	F	14 January 1905	113 years, 290 days	<a href="#">France</a>
12	<a href="#">Shigeyo Nakachi</a> <sup>[3]</sup>	F	1 February 1905	113 years, 272 days	<a href="#">Japan</a>
13	<a href="#">Haruno Yamashita</a> <sup>[3]</sup>	F	19 February 1905	113 years, 254 days	<a href="#">Japan</a>
14	<a href="#">Kame Ganeko</a> <sup>[3]</sup>	F	10 April 1905	113 years, 204 days	<a href="#">Japan</a>
15	<a href="#">Antonia Valderrama Ocampo</a> <sup>[9]</sup>	F	11 April 1905	113 years, 203 days	<a href="#">Mexico</a>
16	<a href="#">Ellen Gibb</a> <sup>[3]</sup>	F	26 April 1905	113 years, 188 days	<a href="#">Canada</a>
17	<a href="#">Alelia Murphy</a> <sup>[3]</sup>	F	6 July 1905	113 years, 117 days	<a href="#">United States</a>
18	<a href="#">Anonymous of Kyoto</a> <sup>[3]</sup>	F	16 July 1905	113 years, 107 days	<a href="#">Japan</a>
19	<a href="#">Geertje Kuijntjes</a> <sup>[3]</sup>	F	19 July 1905	113 years, 104 days	<a href="#">Netherlands</a>

# Conclusion

- Menopause is increasingly a midlife stage
- Menopausal symptoms and the consequences of estrogen deficiency are not confined to the perimenopausal years
- Health professionals need training starting early in medical and training schools



"H..has your hot flush gone yet,  
c..can we close the window  
now?"



# Further information

- EMAS CareOnline 2018; the online menopause text book
- EMAS position statements and clinical guides
- Attendees to this workshop can benefit from free EMAS membership for 3 months





12<sup>TH</sup> EUROPEAN CONGRESS  
ON MENOPAUSE AND ANDROPAUSE  
15 – 17 MAY 2019 | BERLIN



12<sup>th</sup> European Congress on Menopause and Andropause  
15 – 17 May 2019 | Berlin, Germany

*Managing Midlife Health and Beyond in the Era of e-Medicine*

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