UNIVERSITY OF MALAYA

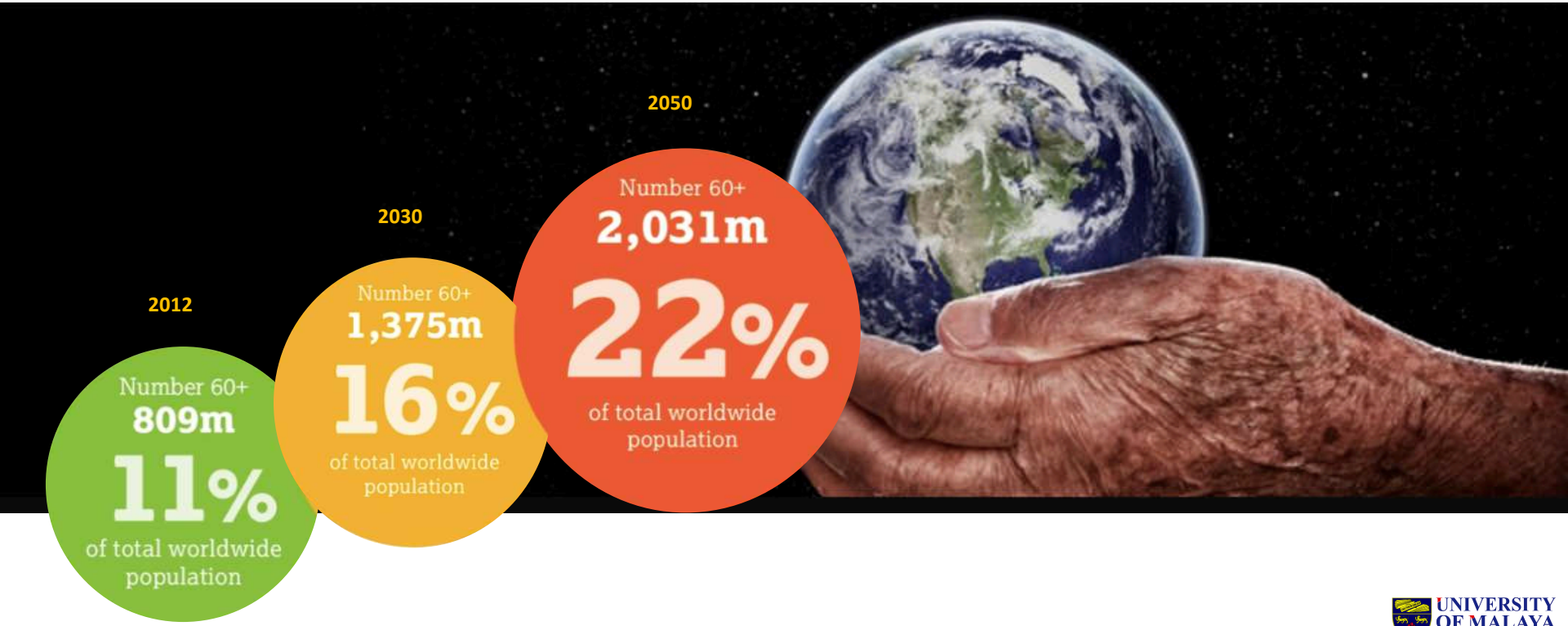
The Leader in Research & Innovation

Reducing The Risk of Falls in The Older Adults.

DR NOR IZZATI SAEDON (SENIOR LECTURER)

GERIATRIC MEDICINE
SPECIAL INTEREST: FALL IN THE ELDERLY

AGING WORLD


2012
Number 60+
809m
11%
of total worldwide population
2030
Number 60+
1,375m
16%
of total worldwide population
2050
Number 60+
2,031m
22%
of total worldwide population

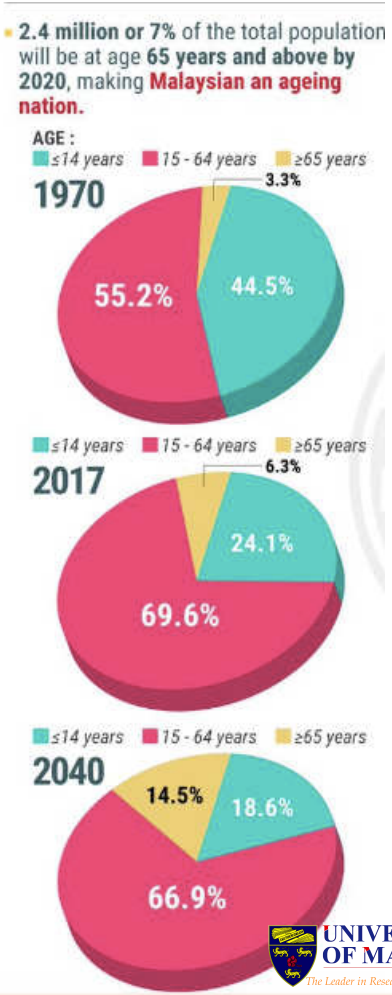
Older Adult in Malaysia

Who are the 'Older Adult' ?

- Chronological age of 65 is accepted by most developed countries as the definition of older adult per WHO.

- In 2020, the population reached 34.3 million, and our olde adult is about 2.4 million (7%).

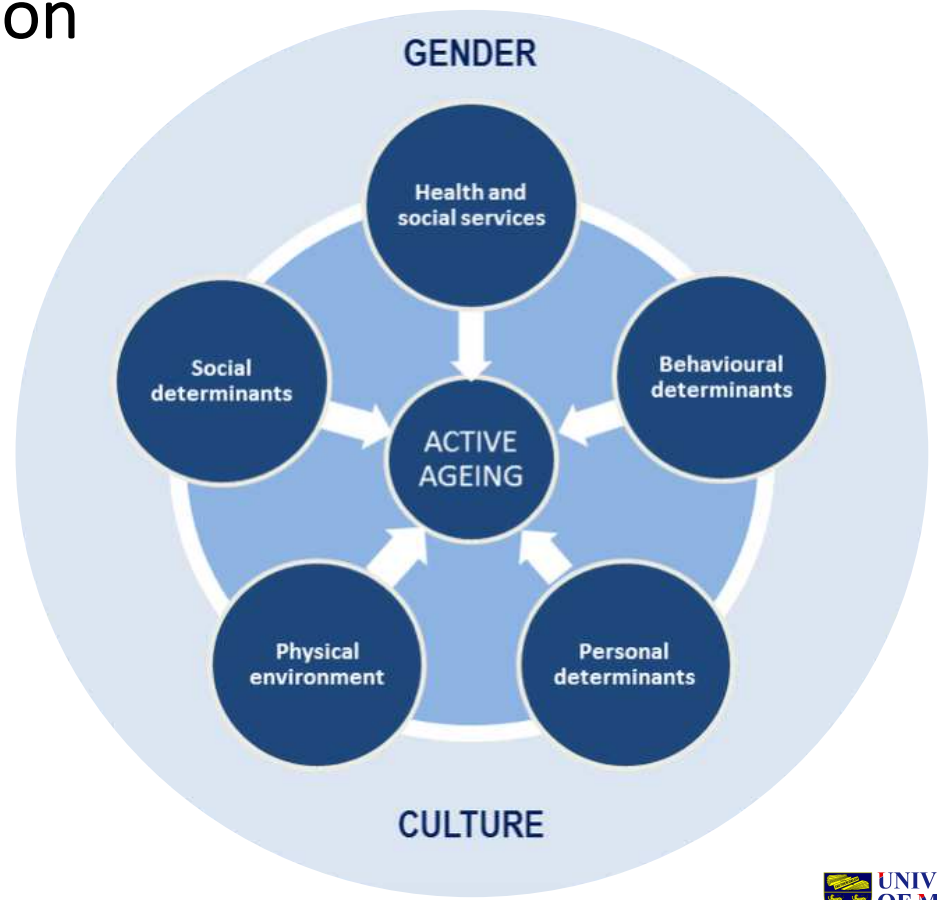
- Population > 65 old is expected to double by 2040.



UNIVERSITY OF MALAYA
The Leader in Research & Innovation

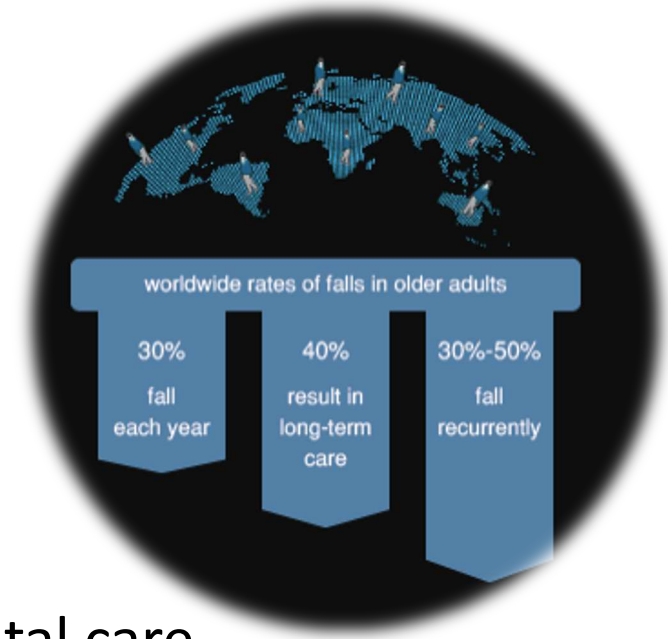
They are a diverse population

- Health
- Mental Status
- Financial Stability
- Healthcare beliefs
- Physical acuity



Fall

Falls Statistics (Worldwide)



- 35-40% of over-65s annually[1]
  - 5% hospitalization
- Hospitals and nursing homes:
  - 1.5 falls/bed/year
  - 10-25% fracture, laceration or hospital care
- £1 billion per year[2]
- 40% of nursing home admissions[3]

1. Tinetti et al. NEJM 1998
2. Scuffham et al J Epidem Comm Health 2003
3. Donald et al. Age Ageing 1999

Malaysian Statistic

- 27% Rural Dwellers >60 years[1]
  - 25% recurrent falls
- 47% Attending Primary Care Clinics[2]
  - 61% indoors, 57% recurrent
- Unpublished survey
  - 27% recurrent
  - Injury rates 85%
  - 89% fear of falling

1. *Rizawati 2008*
2. *Sazlina 2008*

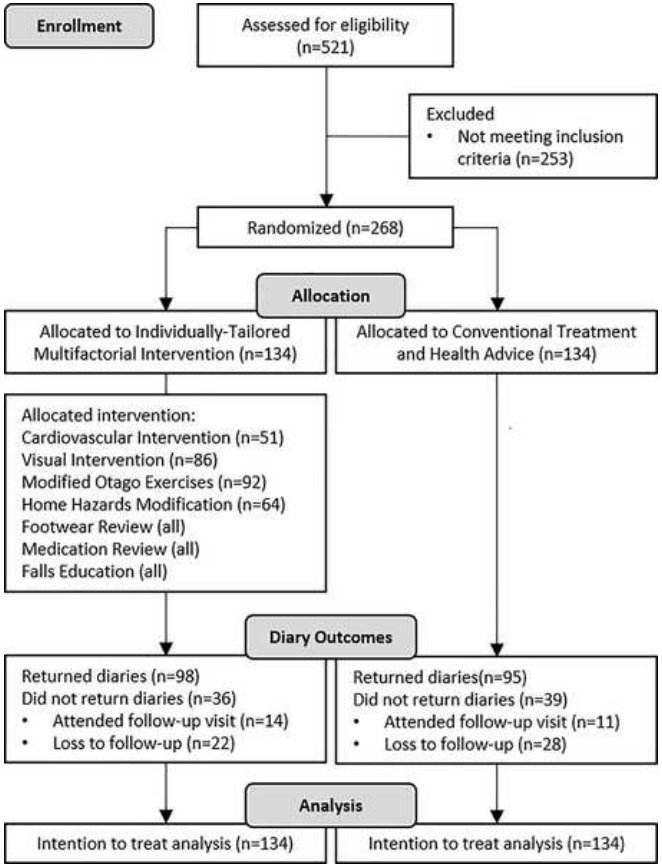
RESEARCH ARTICLE

Individually-tailored multifactorial intervention to reduce falls in the Malaysian Falls Assessment and Intervention Trial (MyFAIT): A randomized controlled trial

Pey June Tan, Ee Ming Khoo, Karuthan Chinna, Nor I'zzati Saedon, Mohd Idzwan Zakaria, Ahmad Zulkarnain Ahmad Zahedi, Norlina Ramli, Nurliza Khalidin, Mazlina Mazlan, Kok Han Chee, Imran Zainal Abidin, Nemala Nalathamby, Sumaiyah Mat, [...], Maw Pin Tan [view all]

Published: August 3, 2018 • https://doi.org/10.1371/journal.pone.0199219

Fig 1. CONSORT flow diagram of recruitment, treatment allocation and follow-up.



Tan PJ, Khoo EM, Chinna K, Saedon NI, Zakaria MI, et al. (2018) Individually-tailored multifactorial intervention to reduce falls in the Malaysian Falls Assessment and Intervention Trial (MyFAIT): A randomized controlled trial. PLOS ONE 13(8): e0199219. https://doi.org/10.1371/journal.pone.0199219
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199219

Results at 12-months follow-up

Characteristics	n	Intervention	n	Control	Ratio (95% CI)	p-value
Number of falls, n	134	274	134	232		
Rate of fall, mean (SD) *	134	2.0 (2.3)	134	1.8 (1.7)	RR 1.16 (0.85–1.58)	0.38
Fall recurrence, n (%) ‡	134	95 (70.5)	134	94 (70.1)	OR 1.04 (0.61–1.75)	0.89
Mortality, n (%) ‡	129	8 (6.2)	131	9 (6.9)	OR 0.90 (0.34–2.40)	0.83
Time to first fall (days), mean (SD) §	134	255.3 (129.9)	134	243.1 (131.5)	HR 0.95 (0.71–1.26)	0.71

* Negative binomial regression, RR Rate Ratio

‡ Binary logistic regression, OR Odds Ratio

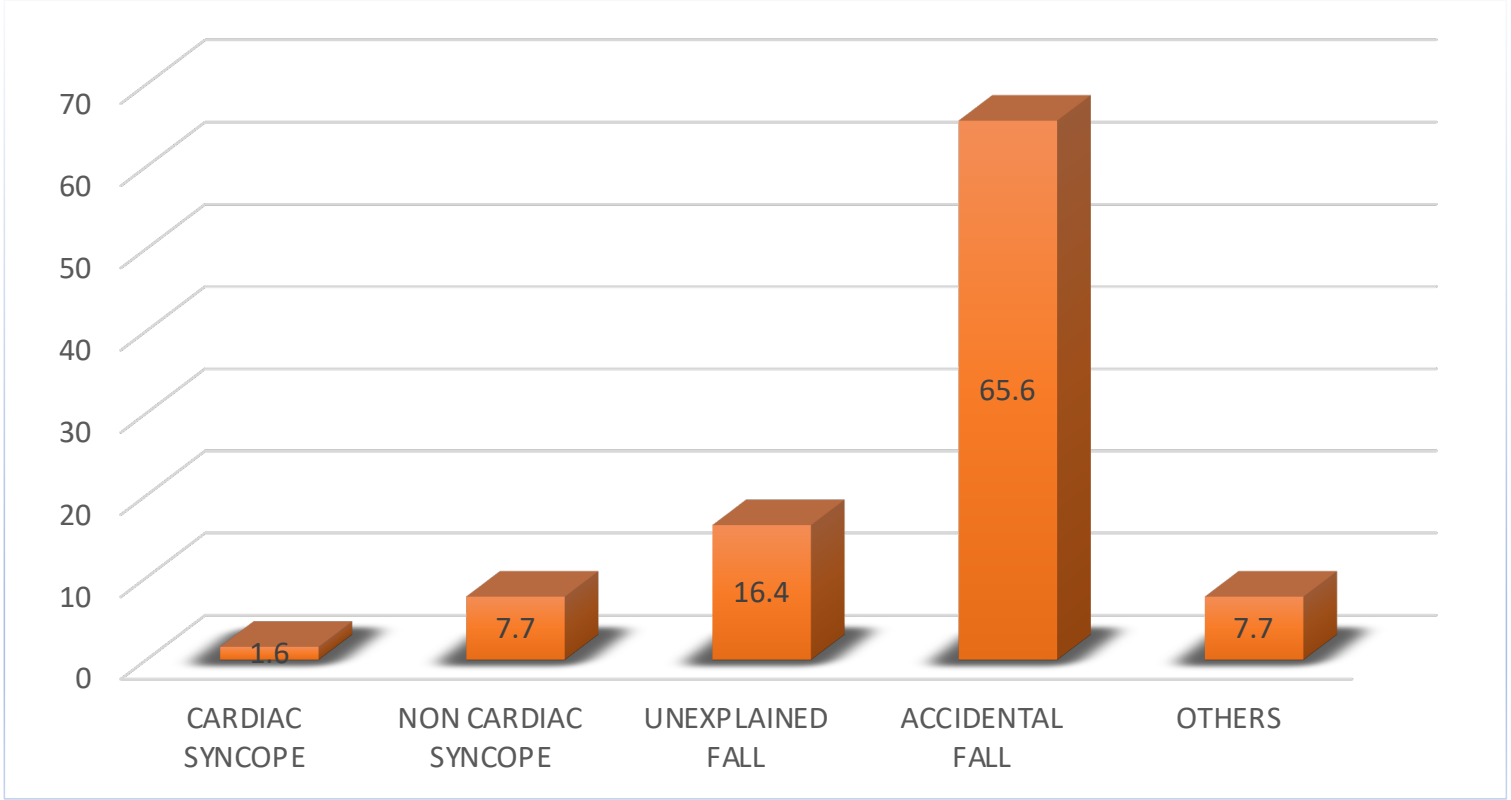
§ Cox regression, HR Hazard Risk Ratio

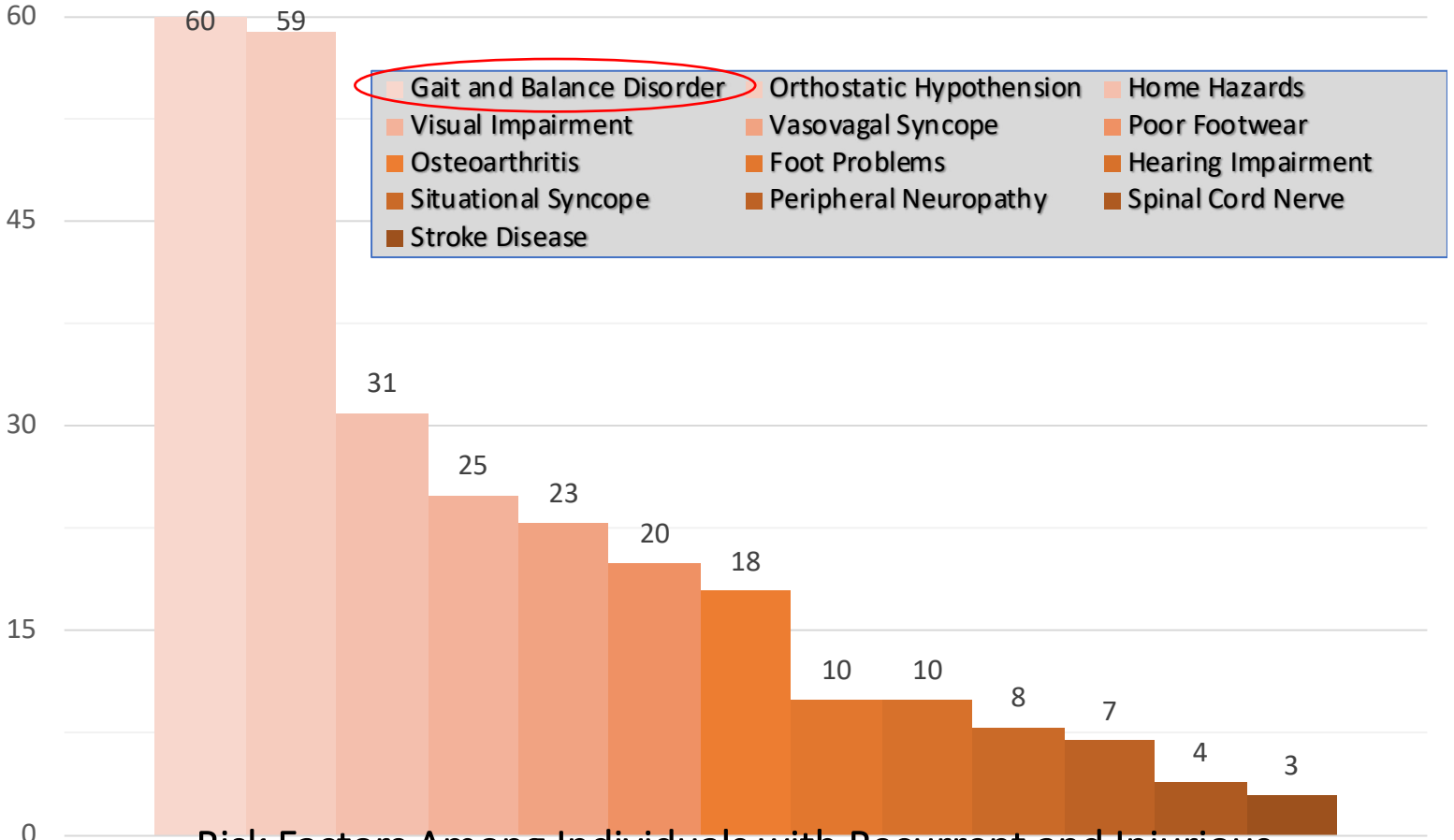
Note: Missing data in mortality as old identification number was not found in national database.

https://doi.org/10.1371/journal.pone.0199219.t003

Tan PJ, Khoo EM, Chinna K, Saedon NI, Zakaria MI, et al. (2018) Individually-tailored multifactorial intervention to reduce falls in the Malaysian Falls Assessment and Intervention Trial (MyFAIT): A randomized controlled trial. PLOS ONE 13(8): e0199219. https://doi.org/10.1371/journal.pone.0199219
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199219

Provisional Diagnosis, MyFAIT

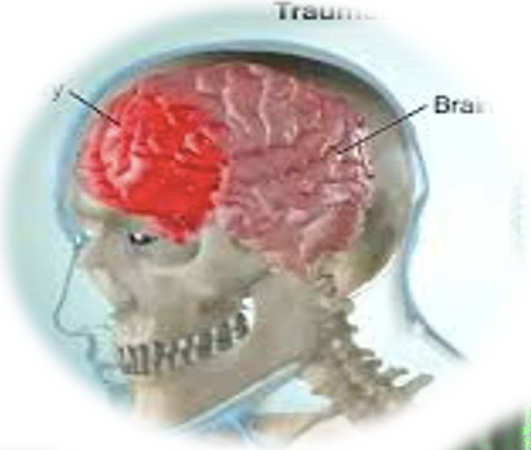


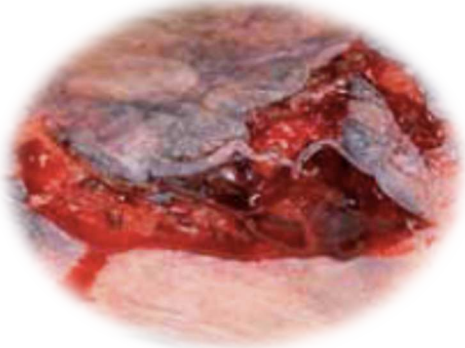


Risk Factors Among Individuals with Recurrent and Injurious Falls (MyFAIT)

UNIVERSITY OF MALAYA
The Leader in Research & Innovation

What Happen After A Fall?





› Geriatr Gerontol Int. 2016 Jan;16(1):111-7. doi: 10.1111/ggi.12446. Epub 2015 Jan 22.

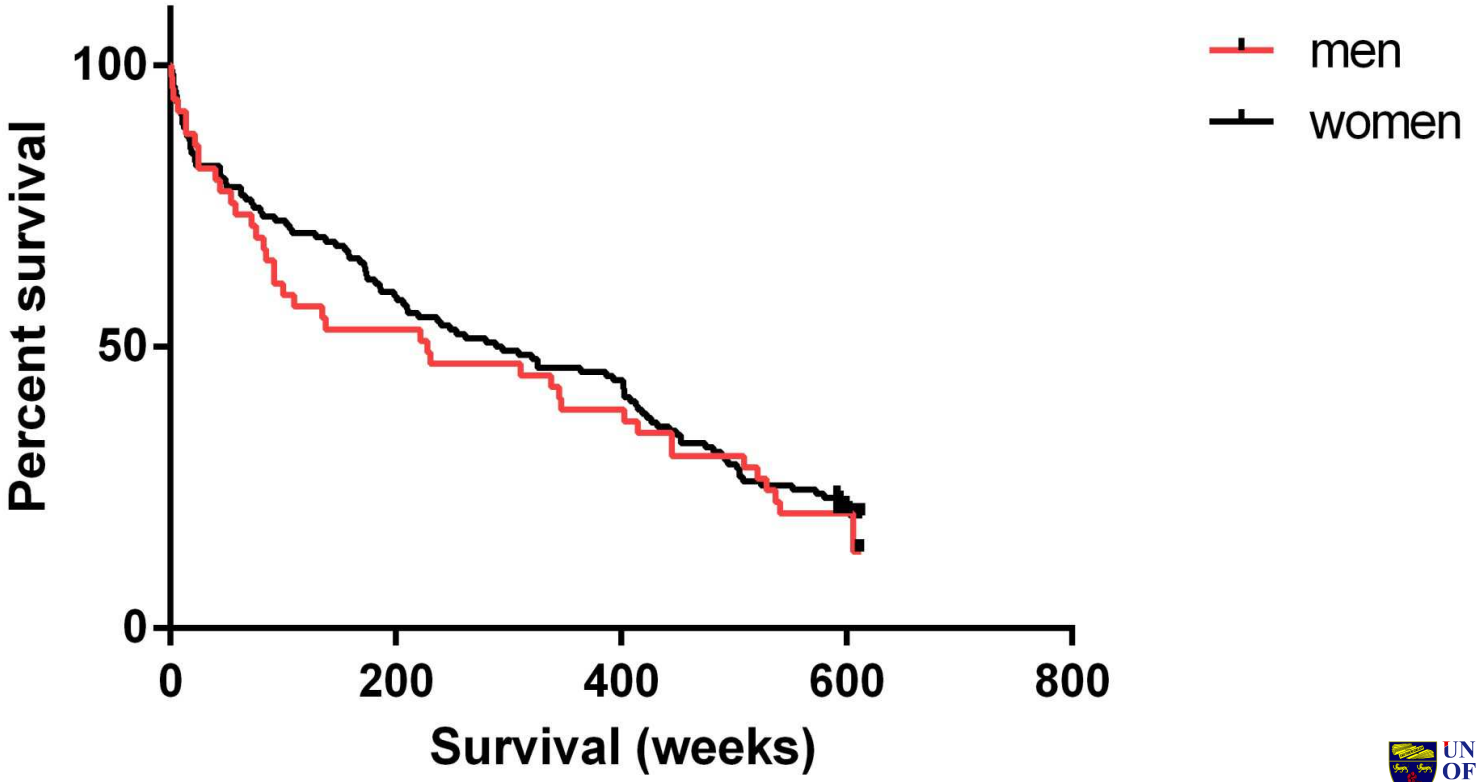
Ten-year Mortality in Older Patients Attending the Emergency Department After a Fall

Maw Pin Tan [1 2], Shahrul Bahyah Kamaruzzaman [1 2], Mohd Idzwan Zakaria [2 3], Ai-Vyrn Chin [1 2], Philip Jun Hua Poi [1 2]

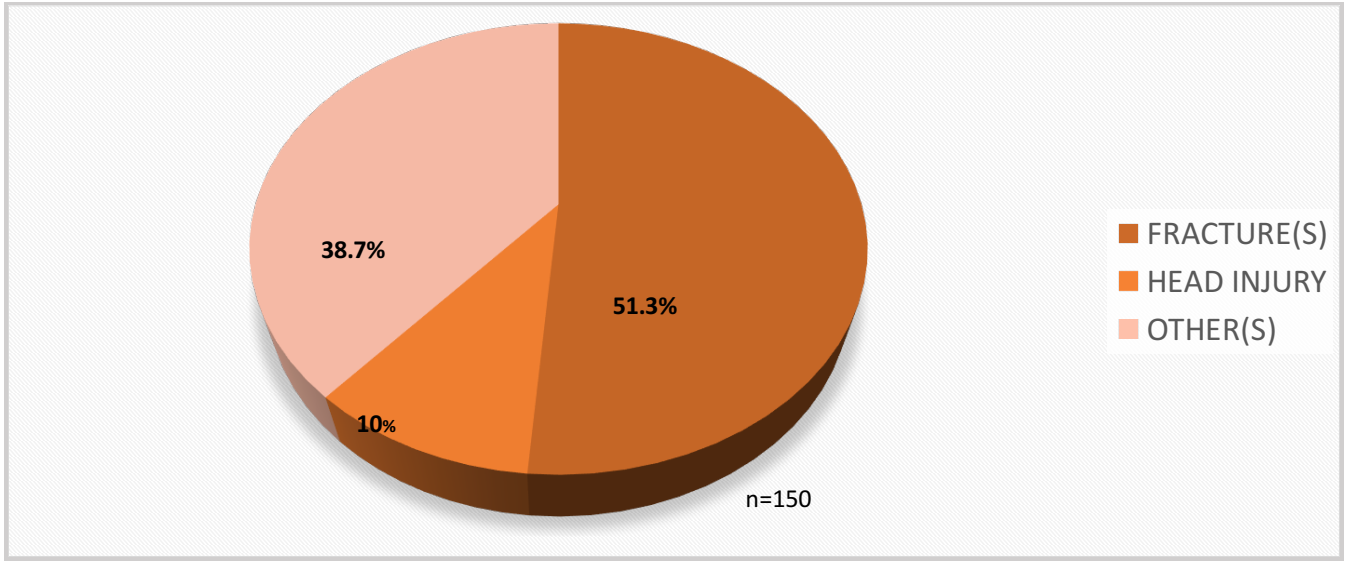
Affiliations + expand

PMID: 25613422 DOI: 10.1111/ggi.12446

10 year falls mortality



Post Fall, MyFAIT



Dependency After Fall

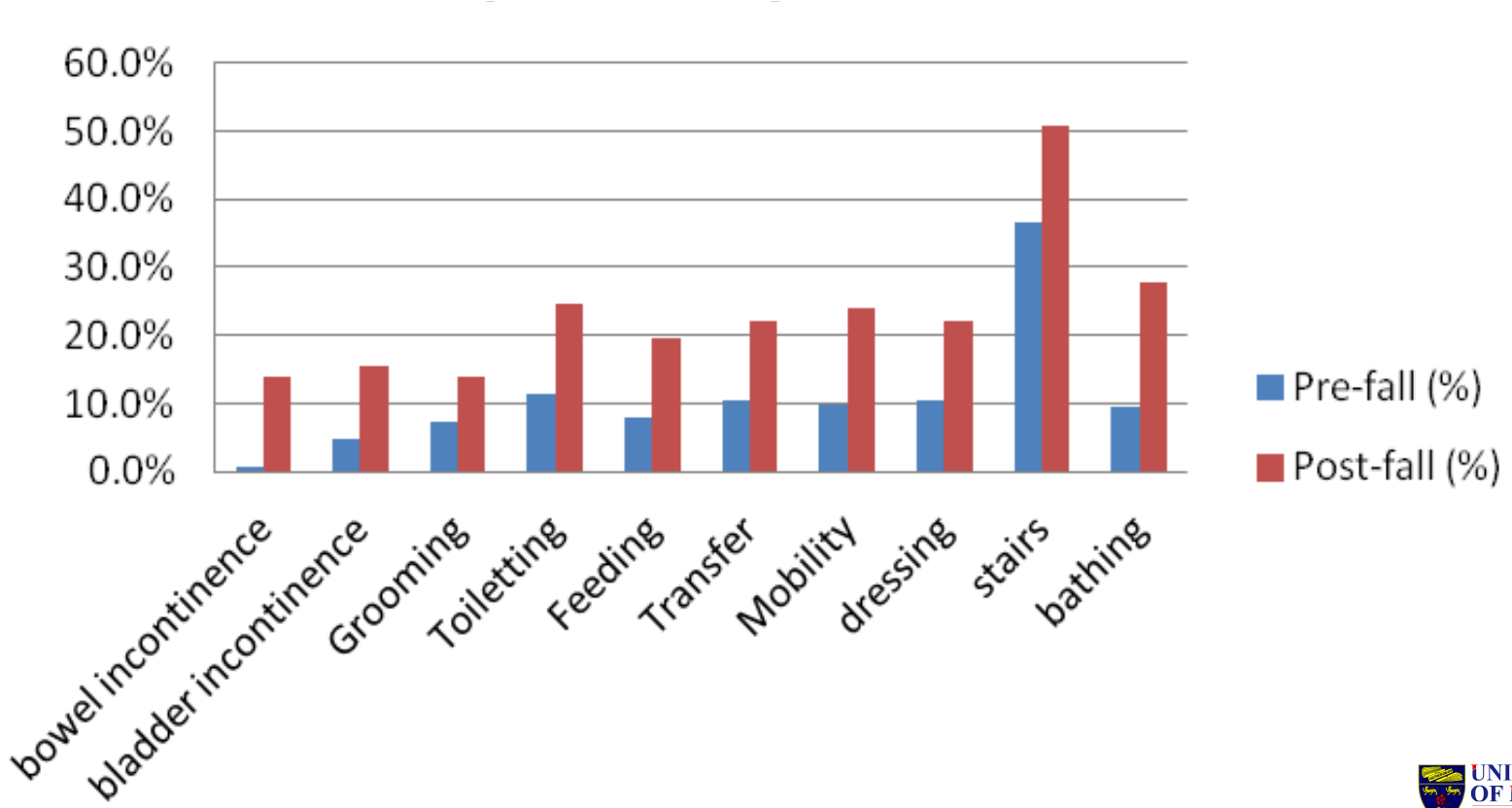


Table 1. Baseline characteristics of participants.

Characteristics	Intervention (n = 134)	Control (n = 134)
Age, mean (SD)	74.5 (6.8)	76.1 (7.5)
Female, n (%)	93 (69.4)	88 (65.7)
Ethnicity, n (%)		
Malay	24 (17.9)	21 (15.5)
Chinese	76 (56.7)	90 (67.2)
Indian	30 (22.4)	21 (15.7)
Others	4 (3.0)	2 (1.5)
Waist hip ratio, mean (SD)	0.88 (0.08)	0.89 (0.07)
Total comorbidities, median (range)	2 (0–8)	3 (0–10)
BMI, mean (SD)	24.5 (4.2)	23.9 (4.1)
Number of medications, median (range)	4 (0–13)	4 (0–21)
TUG (second), mean (SD)	17.7 (12.7)	17.7 (11.02)
FR (centimeter), mean (SD)	23.5 (8.04)	23.2 (8.5)
Short FES-I, mean (SD)	14.3 (6.1)	13.4 (5.6)
Depression, mean (SD)	7.3 (8.7)	7.1 (8.7)
Stress, mean (SD)	8.1 (8.1)	7.3 (7.4)
Anxiety, mean (SD)	4.0 (4.5)	4.0 (5.3)
Unexplained falls, n (%)	49 (36.6)	52 (38.8)
Injury from falls, n (%)	100 (74.6)	95 (70.9)

SD Standard deviation, *BMI* Body mass index, *TUG* Timed-up and Go, *FR* Functional reach, *FES-I* Falls efficacy scale international.

Tan PJ, Khoo EM, Chinna K, Saedon NI, Zakaria MI, et al. (2018) Individually-tailored multifactorial intervention to reduce falls in the Malaysian Falls Assessment and Intervention Trial (MyFAIT): A randomized controlled trial. PLOS ONE 13(8): e0199219. https://doi.org/10.1371/journal.pone.0199219
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0199219

Sarcopenia

Criteria

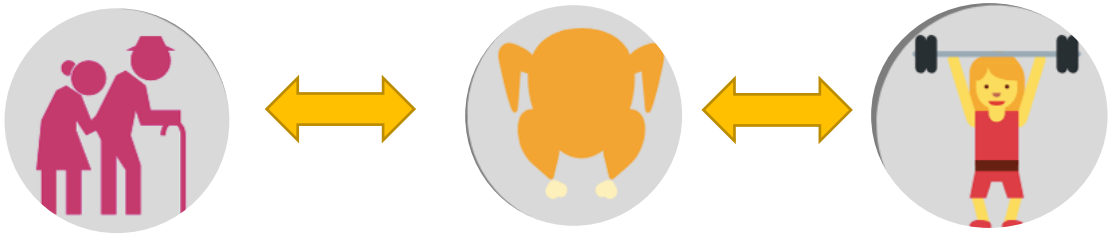
1. Low muscle strength
2. Low muscle quantity and quality
3. Low physical performance

Diagnosis

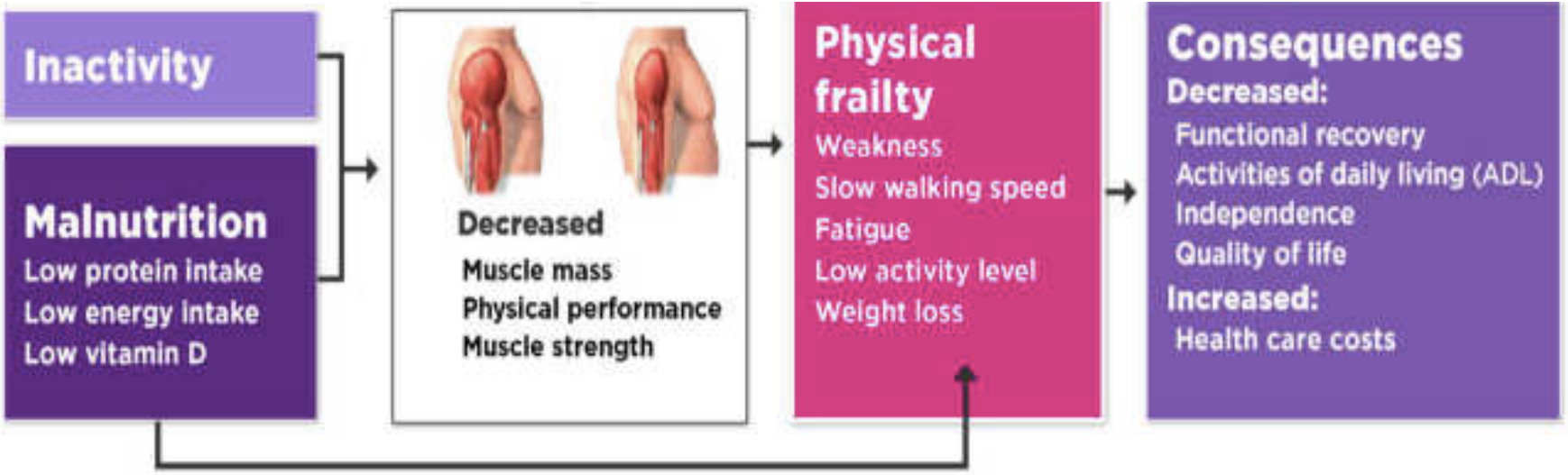
Criteria 1 alone = Probable

Criteria 1 +2 = Confirmed

Criteria 1+2+3 = Severe



FRAILITY **NUTRITION** **EXERCISE**



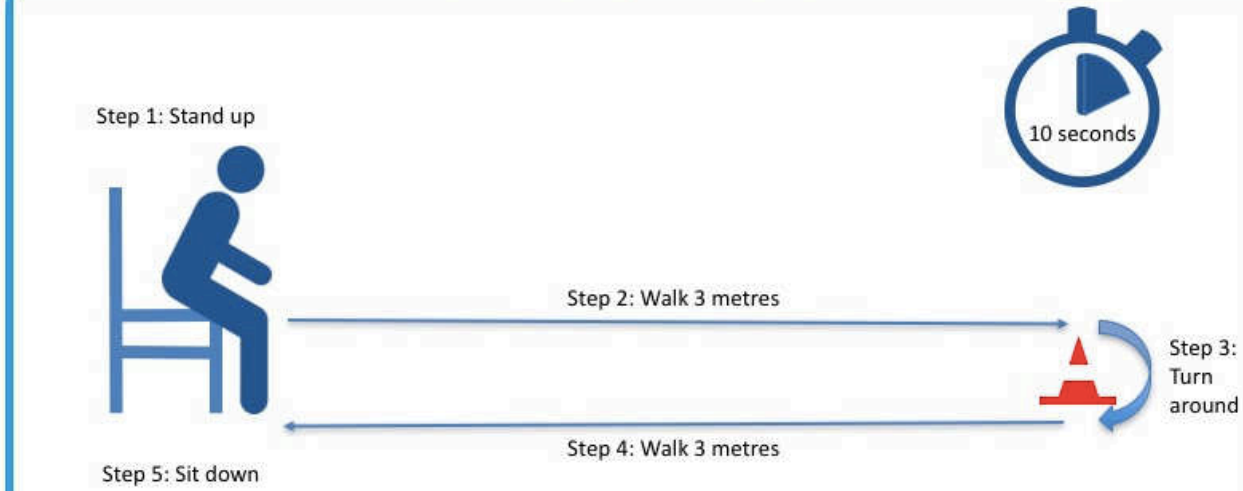
Core nutrients to address malnutrition and sarcopenia

- Protein
- Amino acids (e.g. leucine)
- Vitamin D
- Calories (depending on energy need)

Figure adapted from Landi et al. EGM. 2016;7(3):197-200.

Dent et al. J Nutr Health Aging. 2018;22(10):1148-1161. Cruz-Jentoft A et al. Age Ageing. 2019 Jan 1;48(1):16-31. Bauer JM et al. JAMDA. 2013 Aug;14(8):542-59. Morley J. et al. JAMDA. 2010 Jul;11(6):391-6. Chen LK. et al. JAMDA. 2014 Feb;15(2):95-101.

The Timed Up and Go Test



How Do We Reduced Fall Risk?

1. Proper diet and nutrition
2. Exercise to improve strength and balance
3. Safe home environment
4. Regular eye check
5. Medication check

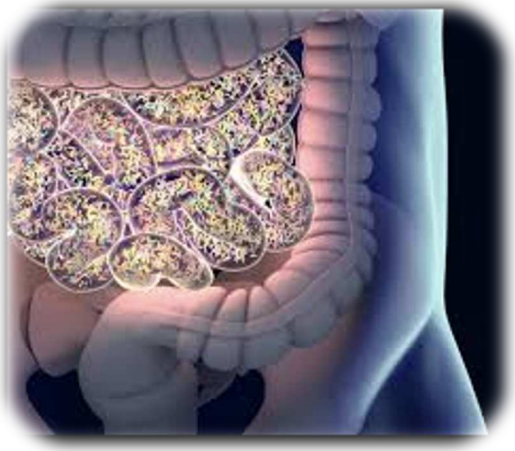
Nutrition In Older Adult

UNIVERSITY OF MALAYA
The Leader in Research & Innovation

Digestive Changes in Older Adult

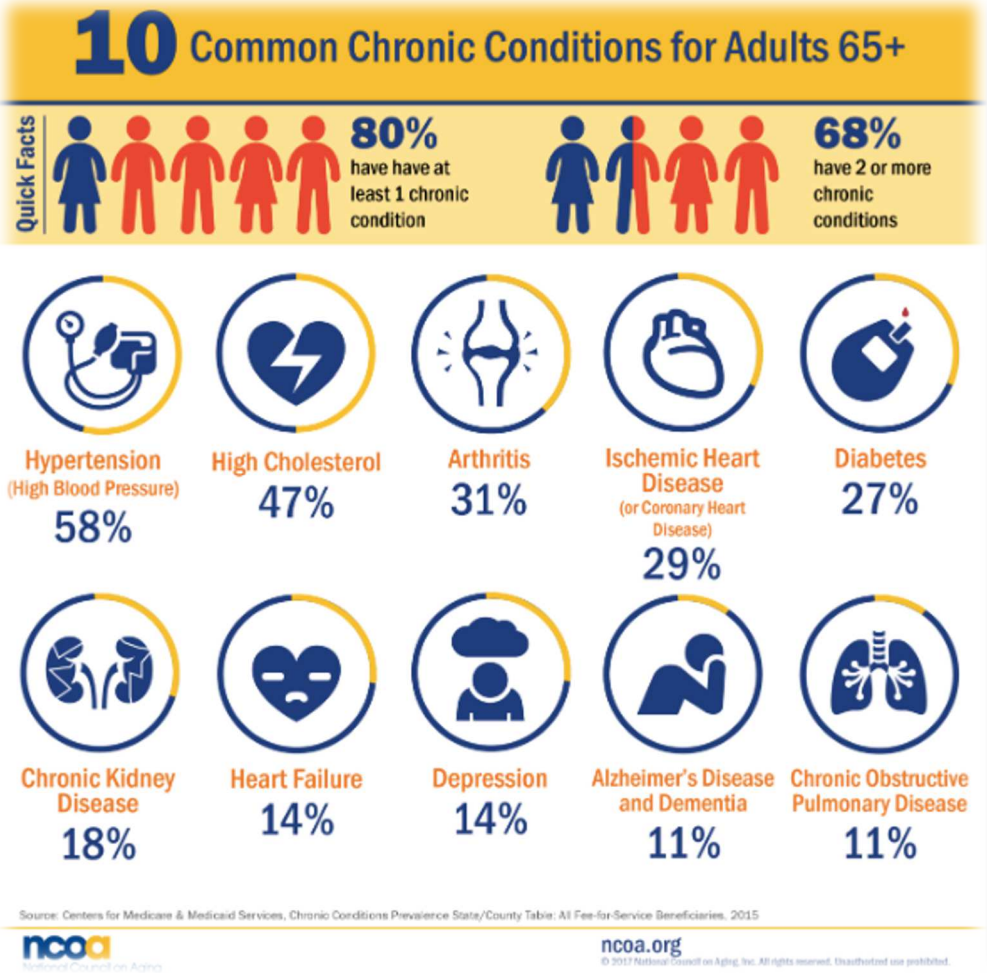
Change in sensory
-taste
-smell
-vision and hearing
-dental issue

Change of bowel
-reduce motility
-reduced organism



EFFECTS OF AGING ON NUTRITION

Change	→ ***Effect***
Sensory Impairment	
• Decreased sense of taste	→ Reduced appetite
• Decreased sense of smell	→ Reduced appetite
• Loss of vision and hearing	→ Decreased ability to purchase and prepare food
• Oral health / dental problems	→ Difficulty chewing, inflammation, poor quality diet
Altered energy need	→ Diet lacking in essential nutrients
Decreased physical activity	→ Progressive depletion of LBM and loss of appetite
Muscle loss (sarcopenia)	→ Decreased functional ability, assistance needed with ADLs
Psychosocial (isolation)	→ Decreased appetite
Environmental (financial)	→ Limited access to food; poor quality diet
Cumulative Effect	→ ***Progressive Undernutrition***



Chronic Illness Influence On Diet

- Hypertension
- Diabetic Mellitus
- Chronic Kidney Disease
- Cognitive Impairment

Hypertension

The DASH diet or a Mediterranean diet

- eating less saturated fat and total fat
- getting plenty of potassium
- limiting the amount of sodium in the diet
- limiting alcohol consumption

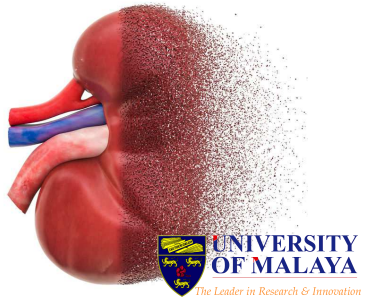
Diabetes Mellitus

- Low calorie
- Low cholesterol
- High in unsaturated fats- mono (MUFA) and polu (PUFA) La
- High in fiber
- High in minerals and vitamins
- Low in sodium especially salt
- Plenty of fluid
- High in omega-3 fat
- Low fat particularly saturated fats

Chronic Kidney Disease

- Restrict protein intakes dependent on the severity of Chronic Kidney Disease

- Restriction among selected patients and controversial
  - 0.6-0.8 g/kg per day
  - Follow body weight , serum albumin, pre albumin in advanced CKD
  - Monitored by dietician



Cognitive Impairment

- Change in taste bud and food choice
- Limited food choice (plant based)
- Selective food intake (specific type of food)

- Forgetfulness
- Overeating
- Loss of appetite
- Difficulty in swallowing

Malnutrition in Cognitive Impairment

ELSEVIER

International Journal of Nursing Studies
Volume 48, Issue 7, July 2011, Pages 863-871

Malnutrition and cognitive impairment among people 60 years of age and above living in regular housing and in special housing in Sweden: A population-based cohort study

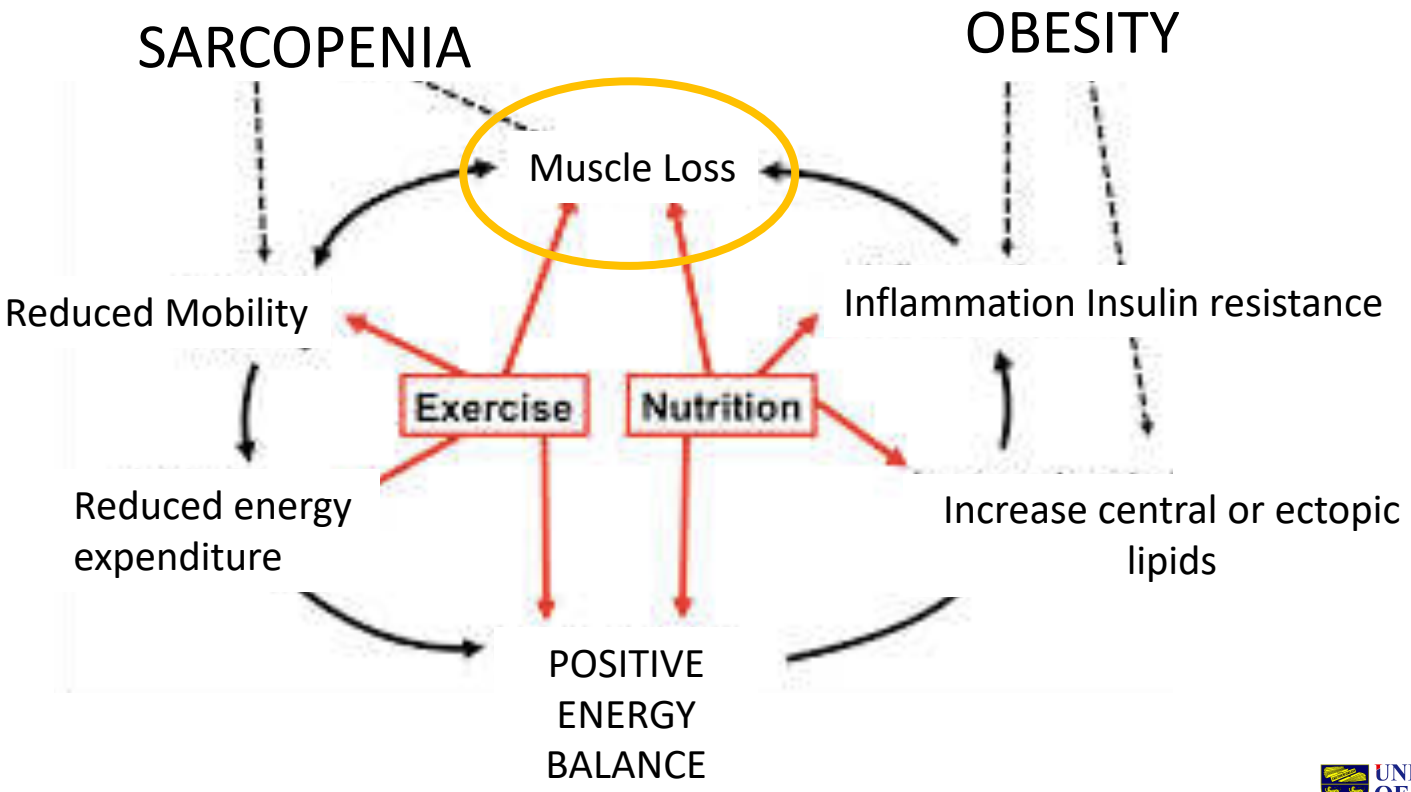
Fagerström, Cecilia, Palmqvist, Roger, Carlsson, Johanna, Hellström, Ylva

Show more

https://doi.org/10.1016/j.ijnurstu.2011.01.007

Get rights and content

Importance of Nutrition In the Older Adult



Conclusion

1. Fall in the older adult is undeniable an important issue.
2. The severe complication of fall can be avoided.
3. Good nutrition in the older adult , with physical exercise is an important element to ensure healthy aging.

Modification

- Soft and easily digestible food
- High calories food
- High vitamins and mineral