

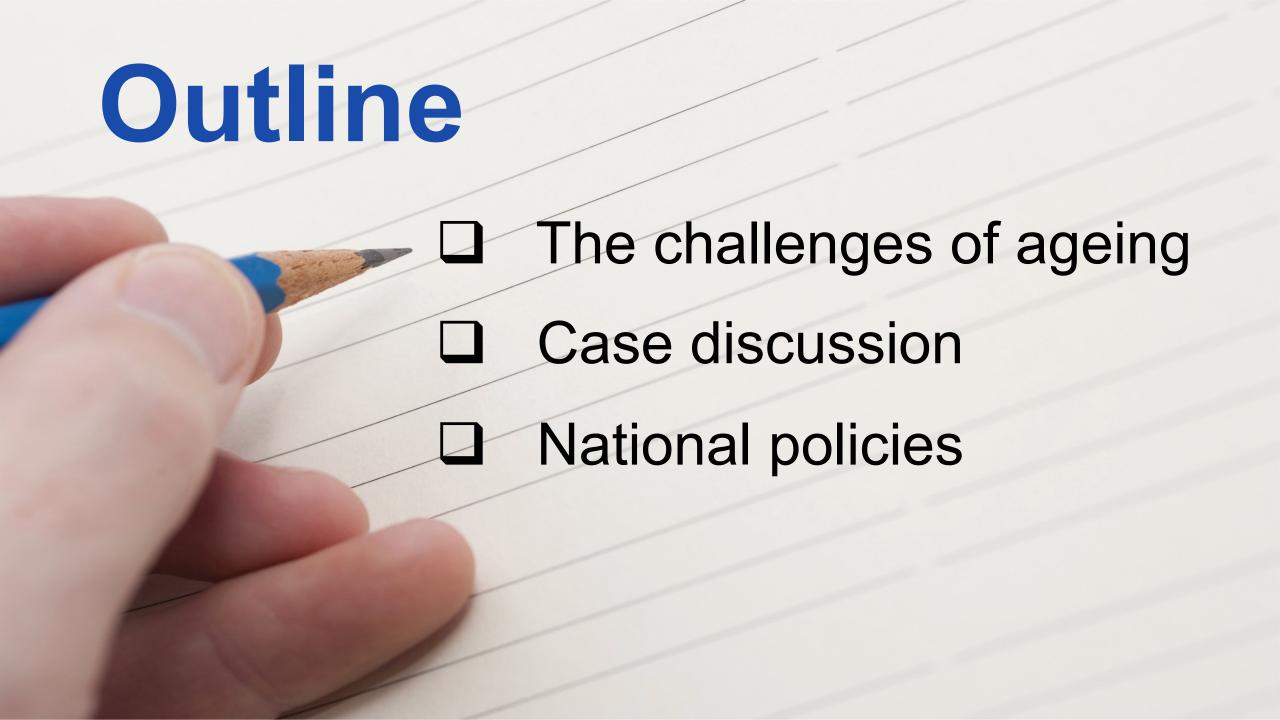
# **Nutritional Concerns of Older Persons**

Clinical Experiences of a Geriatrician

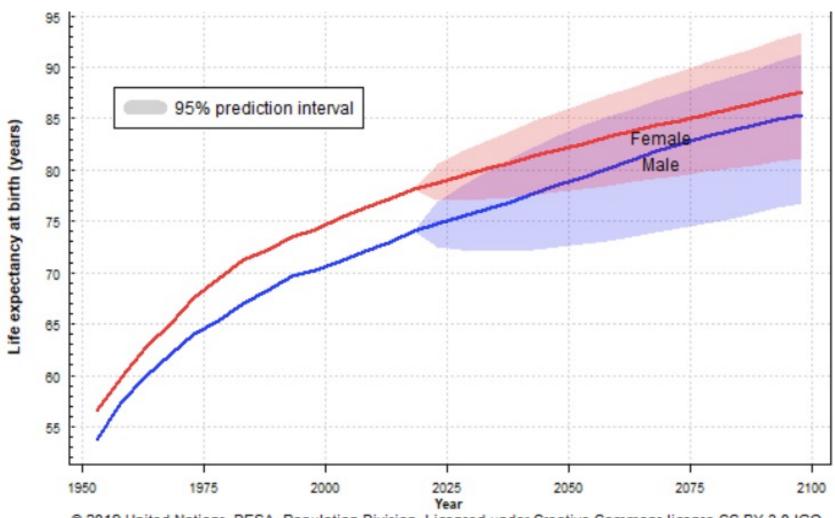
Dr Alan Ch'ng

Consultant Geriatrician Seberang Jaya Hospital, Penang



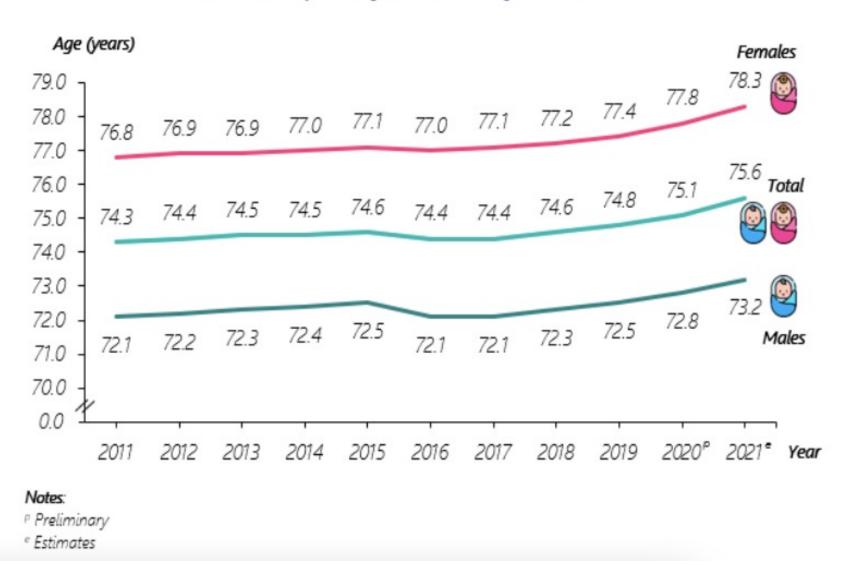


#### Malaysian life expectancy at birth: 1950-2021



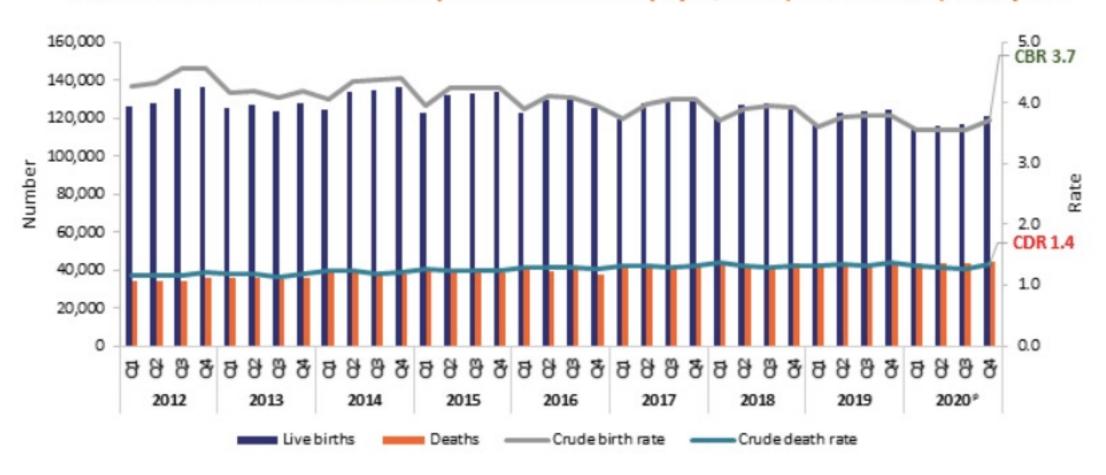
© 2019 United Nations, DESA, Population Division. Licensed under Creative Commons license CC BY 3.0 IGO. United Nations, DESA, Population Division. World Population Prospects 2019. http://population.un.org/wpp/

Chart 1: Life expectancy at birth, Malaysia, 2011-2021

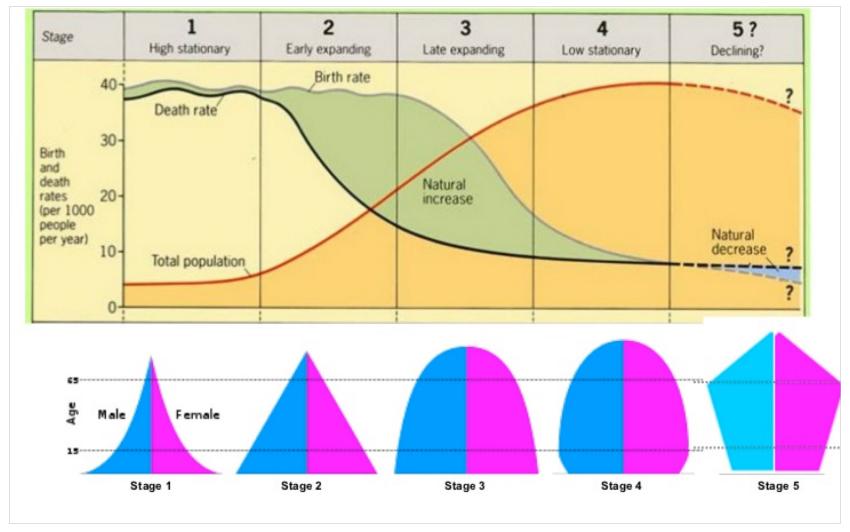


#### Reducing Birth Rate

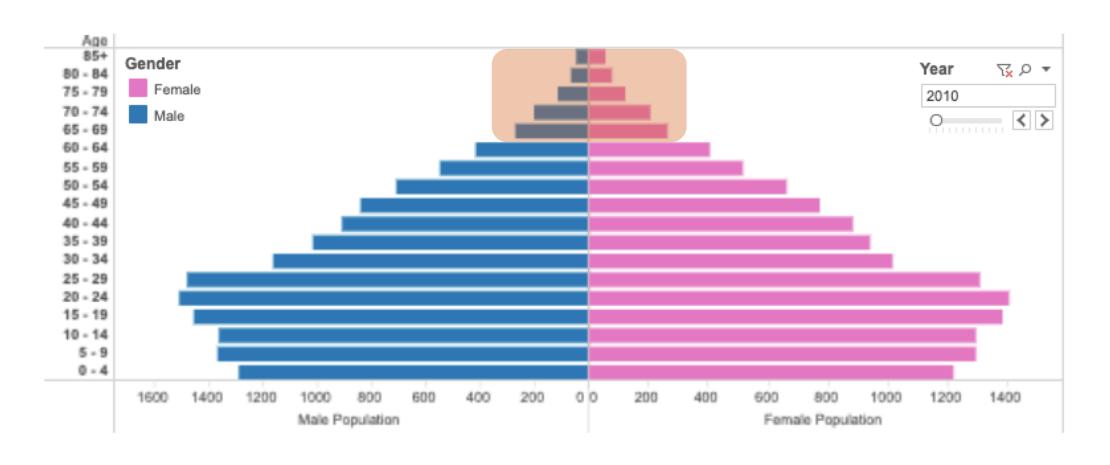
Chart 2: Live Births and Deaths (Number and Rate) by Quarter, 2012-2020<sup>p</sup>, Malaysia



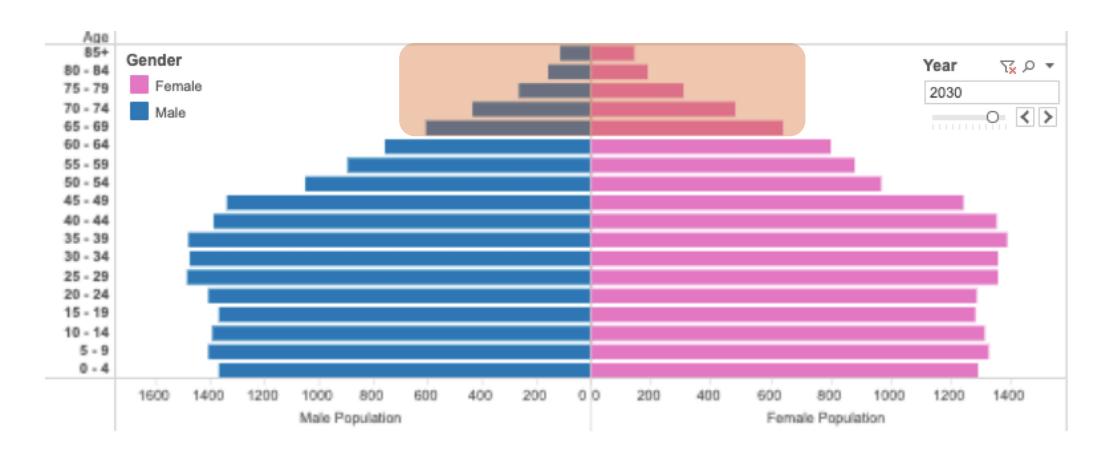
#### Demographic transition



Halter, Jeffrey, et al. Hazzard's geriatric medicine and gerontology. McGraw-Hill Prof Med/Tech, 2009.

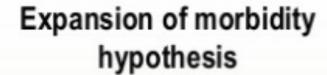








#### Achieving longer life vs improving quality of life



Increasing life
expectancy→longer
life but with worsening
health→increased
consumption of health
care services and
products

#### Compression of morbidity hypothesis

Increasing life
expectancy→chronic disease
occur only in the much later
years→healthy life prolonged
at a greater rate than total
years of life→increased
fraction of life spent healthy

#### Common Issues in the Geriatric Population

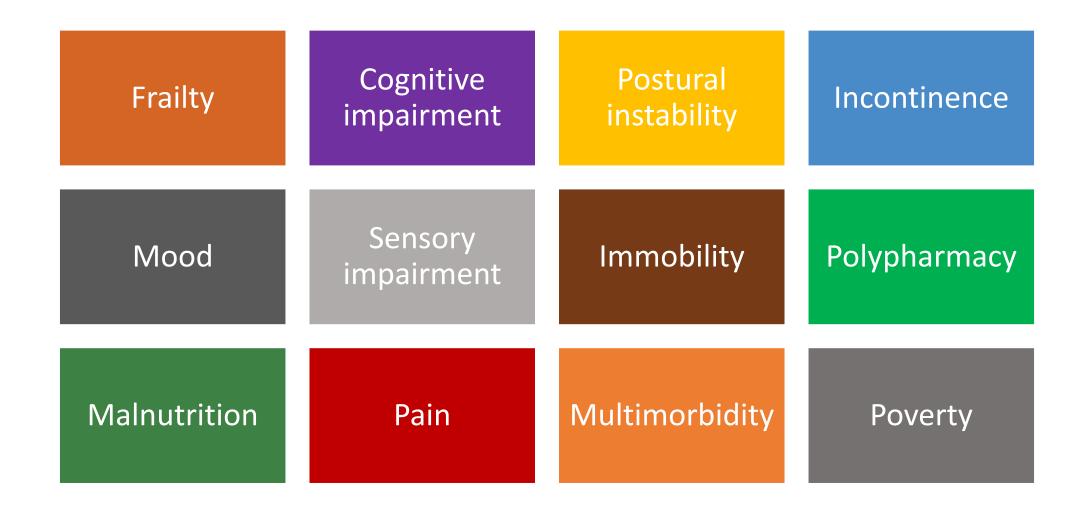
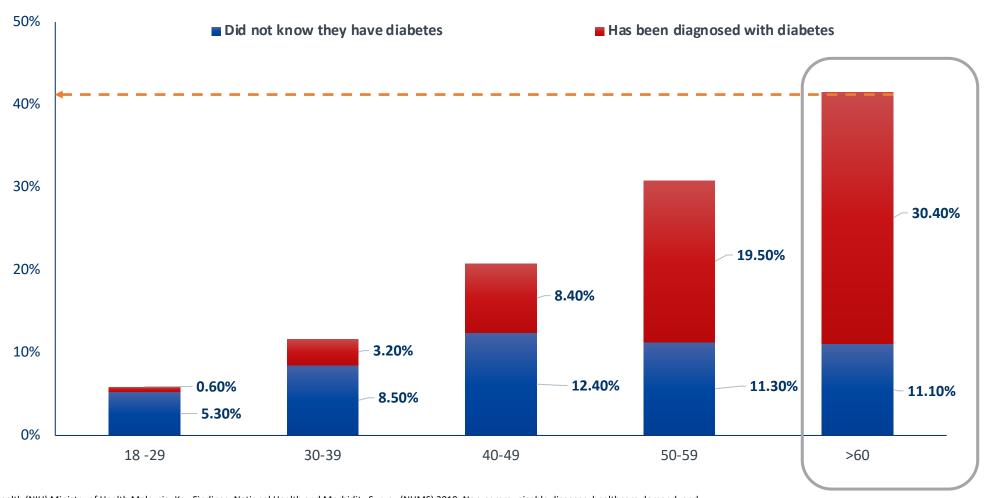


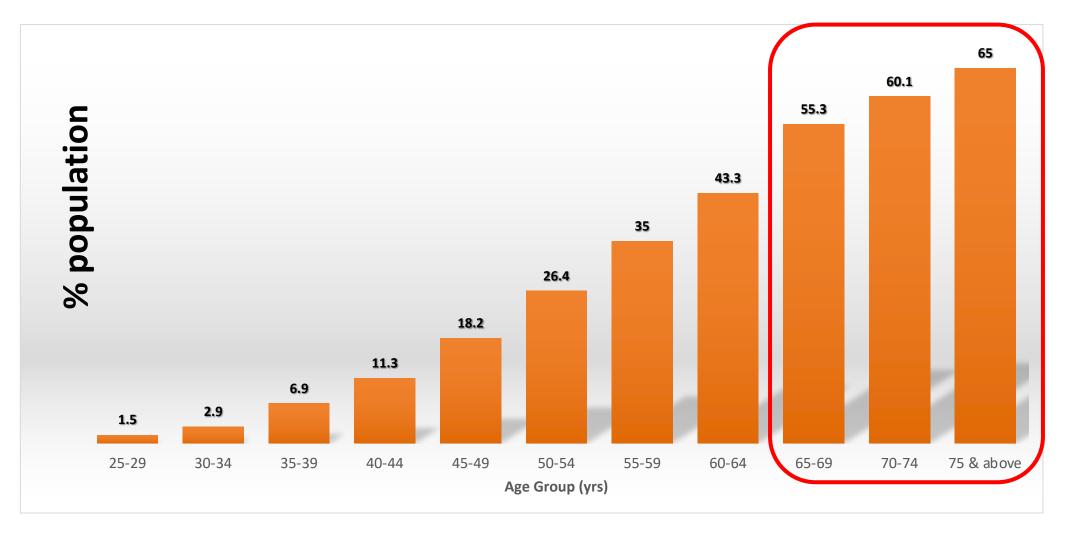
Figure 2. Maintaining functional capacity over the life course Early life Adult life Older age Maintaining highest Maintaining independence Growth and possible level of function andpreventing disability development Functional capacity Range of function in individuals Disability threshold\* Rehabilitation and ensuring the quality of life Age Source: Active Ageing: A Policy Framework, WHO, 2002

Source: Active Ageing: A Policy Framework, WHO, 2002

# In Malaysia, more than 40% of patients with diabetes mellitus are ≥60 years



# In Malaysia, more than half of patients aged ≥65 years have hypertension



Hindawi Journal of Nutrition and Metabolism Volume 2021, Article ID 6639935, 8 pages https://doi.org/10.1155/2021/6639935



#### Research Article

### Malnutrition among the Elderly in Malaysia and Its Associated Factors: Findings from the National Health and Morbidity Survey 2018

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Mohamad Hasnan Ahmad (1), Ruhaya Salleh (1), Cheong Siew Man (1), Munawara Pardi (1), Norsyamlina Che Abdul Rahim (1), Norhafizah Shahril (1), Mohd Hatta Abdul Mutalib (1), Suzana Shahar (1), and Noor Ani Ahmad (1)
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A total of 3,977 respondents aged 60 years and above were successfully recruited and completed MNA-SF. The distribution was almost equal by sex, and the majority of them stayed in urban areas.

Table 2: Prevalence of malnutrition and risk of malnutrition among the elderly in Malaysia (prevalence (95% CI)).

Variable	MNA-SF status			1
	Malnutrition	Risk of malnutrition	Normal	p value
All	7.3 (6.0-8.9)	23.5 (21.2-26.0)	69.2 (66.272.0)	_
Sex				
Men	7.2 (5.9–8.8)	22.9 (20.1-26.0)	69.9 (66.6-73.1)	0.718
Women	7.4 (5.6–9.7)	24.1 (21.3-27.2)	68.4 (64.5-72.1)	
Strata				
Urban	6.3 (4.8-8.4)	21.1 (18.3-24.2)	72.6 (68.7–76.2)	0.001*
Rural	10.0 (8.2-12.2)	30.2 (27.0-33.7)	59.8 (55.9-63.5)	
Age groups (years)				
60-69	3.9 (3.0-5.1)	20.5 (17.7-23.6)	75.6 (72.3-78.6)	0.001*
70-79	11.4 (8.3-15.5)	27.8 (24.3-31.6)	60.8 (55.9-65.4)	
80 and above	23.3 (18.3-29.3)	35.3 (27.3-44.3)	41.3 (34.3-48.7)	
Ethnicity				
Malay	7.9 (6.2–10.1)	24.3 (21.5-27.4)	67.7 (64.1-71.2)	0.023*
Chinese	4.7 (3.1-7.1)	19.4 (15.1-24.6)	75.9 (70.0-80.9)	
Indian	11.0 (6.0-19.2)	24.9 (15.4-37.4)	64.2 (50.8-75.6)	
Bumiputra Sabah	10.7 (6.7-16.9)	30.6 (23.5-38.7)	58.7 (48.4-68.3)	
Bumiputra Sarawak	5.6 (3.4-9.1)	25.7 (21.1-31.0)	68.7 (63.7-73.4)	
Others	9.1 (3.5–21.6)	34.7 (24.3-46.9)	56.1 (39.2-71.8)	
Marital status				
Never married	6.2 (2.6-13.8)	36.0 (20.6-54.9)	57.8 (41.0-72.9)	0.003*
Married	5.5 (4.4-7.0)	20.6 (18.3-23.1)	73.8 (71.0-76.5)	
Separated or divorced	20.4 (3.8-62.3)	30.2 (15.9-49.7)	49.4 (27.9-71.1)	
Widow or widower	11.0 (8.9-13.6)	29.0 (25.8-32.3)	60.0 (56.5-63.4)	

Ahmad, Mohamad Hasnan, et al. "Malnutrition among the elderly in Malaysia and its associated factors: findings from the National Health and Morbidity Survey 2018." *Journal of nutrition and metabolism* 2021 (2021).

Table 3: Associated factor to at-risk or malnutrition among the elderly in Malaysia.

Variable	Unadjusted odd ratio		Adjusted odd ratio	
	OR	95% CI	aOR	95% CI
Sex				
Men	1		1	
Women	1.073	0.898-1.283	0.820	0.620 - 1.083
Strata				
Urban	1		1	
Rural	1.784*	1.394-2.283	1.429*	1.073-1.903
Age groups (years)				
60-69	1		1	
70-79	1.999 *	1.632-2.447	1.082	0.846-1.382
80 and above	4.395 *	3.113-6.205	0.987	0.593-1.642
Ethnicity				
Malay	1		1	
Chinese	0.667*	0.485-0.916	0.583*	0.377-0.902
Indian	1.173	0.645-2.133	1.392	0.788-2.458
Bumiputra Sabah	1.477	0.938-2.327	1.043	0.640 - 1.700

Variable	Unadjusted odd ratio		Adjusted odd ratio	
Variable	OR	95% CI	aOR	95% CI
Bumiputra Sarawak	0.956	0.726-1.259	0.478*	0.307-0.744
Others	1.640	0.810-3.318	0.995	0.541-1.829
Marital status				
Married	1		1	
Never married separated/widow	1.940*	1.661-2.267	1.204	0.895-1.620
Education				
No formal/primary	2.898	1.983-4.235	1.741*	1.023-2.96
Secondary	1.199	0.772-1.861	1.172	0.727-1.890
Tertiary	1		1	
Working status				
Employed	1		1	
Unemployed	1.239*	1.035-1.484	0.918	0.700-1.203
Individual monthly income				
<rm1000.00< td=""><td>2.318*</td><td>1.696-3.170</td><td>0.973</td><td>0.660-1.435</td></rm1000.00<>	2.318*	1.696-3.170	0.973	0.660-1.435
RM1000.00-RM1999.99	1.756*	1.213-2.542	1.283	0.867-1.898
≥RM2000.00	1		1	
Depression				
Yes	4.859*	3.460-6.823	2.086*	1.433-3.037
No	1		1	
Hearing disability				
Yes	4.382*	2.8836.658	1.644	0.836-3.234
No	1		1	
Vision disability				
Yes	3.609*	2.279-5.716	1.197	0.726-1.976
No	1		1	

Ahmad, Mohamad Hasnan, et al. "Malnutrition among the elderly in Malaysia and its associated factors: findings from the National Health and Morbidity Survey 2018." *Journal of nutrition and metabolism* 2021 (2021).

ADLs status				
Dependent	4.298*	3.294-5.608	1.350	0.990 - 1.840
Independent	1		1	
IADLs status				
Dependent	3.261*	2.674-3.976	1.355*	1.053-1.743
Independent	1		1	
Fall history				
Yes	1.444*	1.117-1.867	1.130	0.807-1.583
No	1		1	
Social support				
Low to fair	2.522*	1.9463.269	1.172	0.802-1.713
High	1.162	0.886-1.525	0.901	0.622-1.306
Very high	1		1	
Quality of life status				
Tertile 1 (<44)	4.527 *	3.250-6.308	1.879*	1.334-2.646
Tertile 2 (45-51)	1.749 *	1.324-2.310	1.562*	1.114-2.190
Tertile 3 (≥52)	1		1	
BMI status				
Underweight	7.551*	4.682-12.180	6.725*	4.071-11.110
Normal	1		1	1
Overweight	0.525*	0.417-0.660	0.538*	0.419-0.691
Obese	0.503*	0.344-0.736	0.501*	0.306-0.820
Food security status				
Food secure	1		1	
Food insecure	3.068*	2.445-3.850	1.767*	1.366-2.287

Ahmad, Mohamad Hasnan, et al. "Malnutrition among the elderly in Malaysia and its associated factors: findings from the National Health and Morbidity Survey 2018." *Journal of nutrition and metabolism* 2021 (2021).



#### Case of Puan Ros

- 78 year-old, housewife
- Frailty, hypertension, T2DM, atrial fibrillation, falls, lower back pain, OA knees
- Recent admission for Covid-19 (Cat 4)
- Deconditioning assisted BADLs

- BP 138/82 HR 72
- Height 155cm, weight 40kg, BMI 16.6
- SARC-F = 7 (Probably sarcopenic)
- MNA-SF = 5 (Malnourished)



- A complex metabolic syndrome
- Mediated by proinflammatory cytokines
- Characterized by loss of muscle with or without loss of fat mass
- Assoc with chronic conditions e.g. cancer, HIV/AIDS, heart failure, and chronic obstructive pulmonary disease

- Inadequate intake
- Reversed when adequate energy and protein intake is achieved

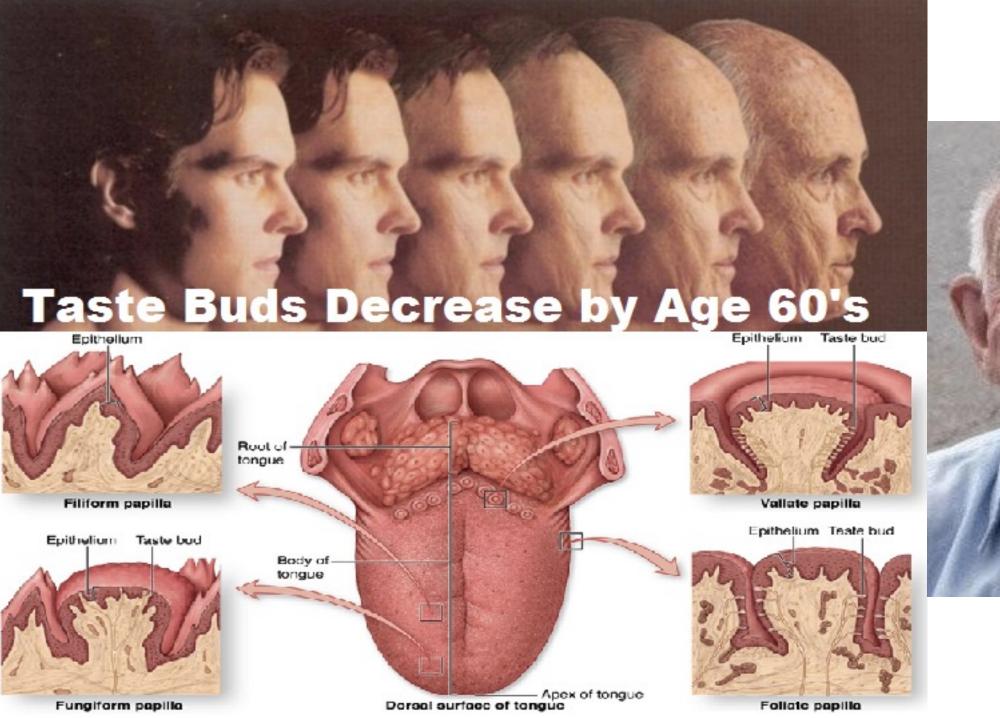
Undernutrition

Unintentional Weight Loss

Cachexia

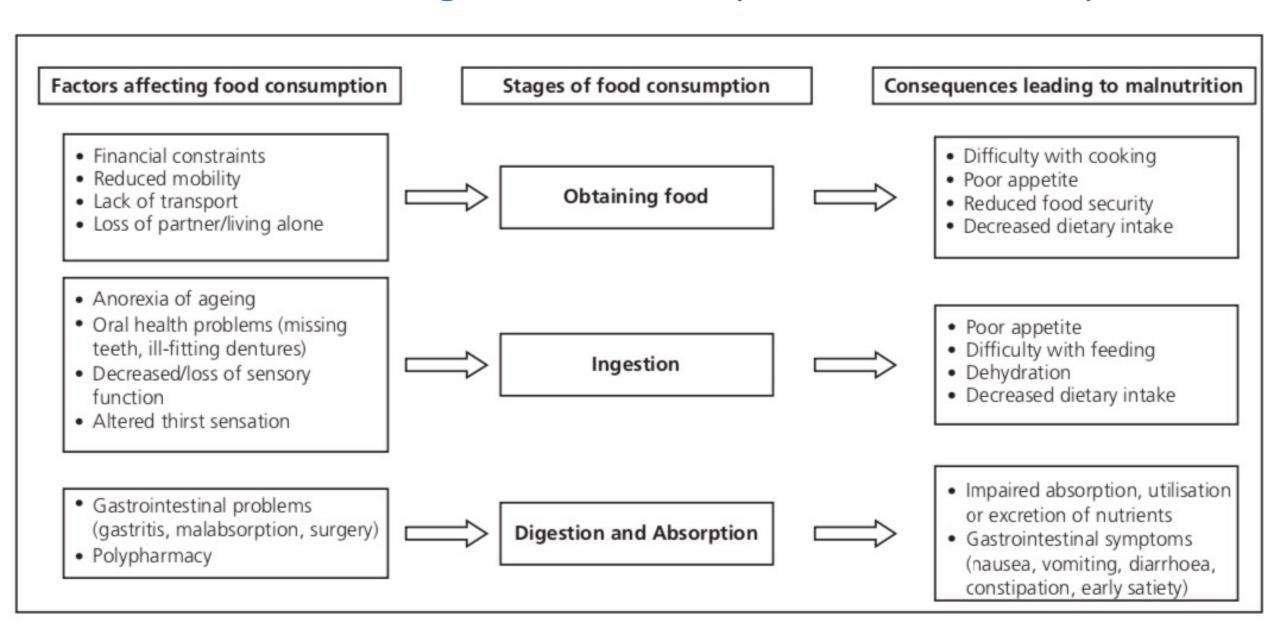
Sarcopenia

- A result of decreased muscle mass and alterations to muscle structure at the microscopic level
- Assoc with increased frailty, loss of strength, reduced physical function and diminished capacity for exercise





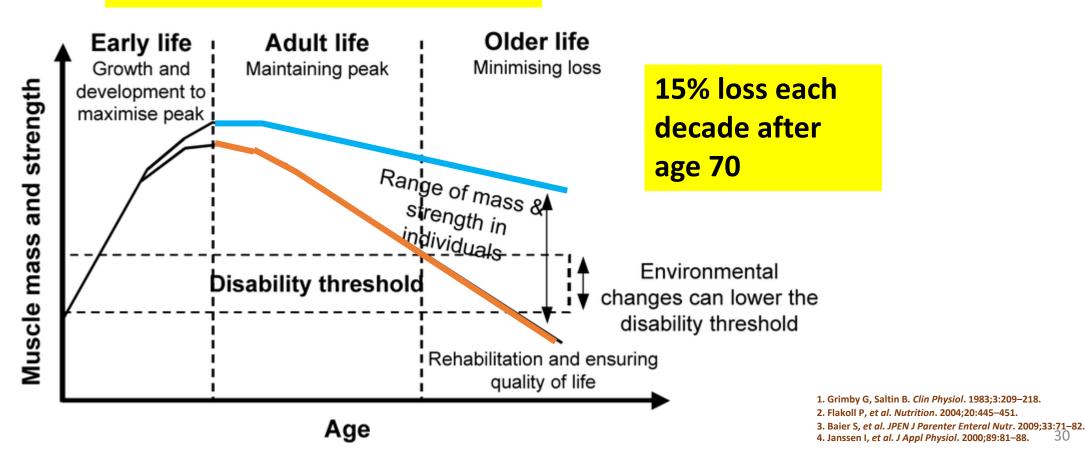
#### Factors Affecting Food Consumption in Older People



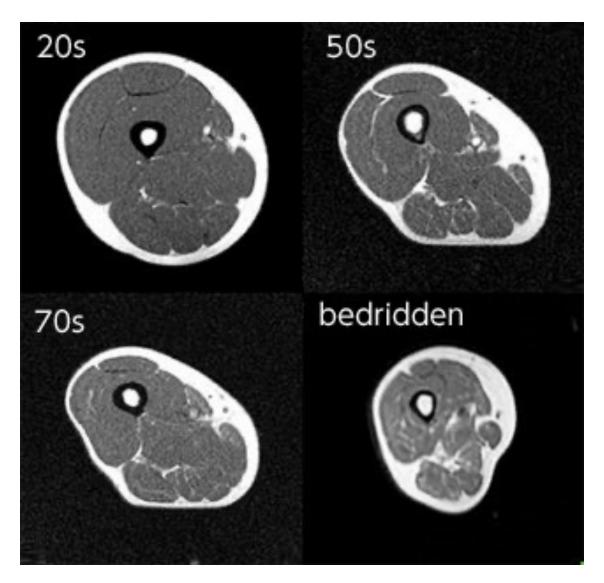
#### Loss of muscle mass and strength is part of aging

- After age 40, healthy adults can lose 8% of muscle every 10 years<sup>1-4</sup>
- Between 40 to 70 years old, healthy adults lose an average of 24% of muscle<sup>1–4</sup>

#### 24% loss from age 40-70



#### Muscle mass and strength declines with age



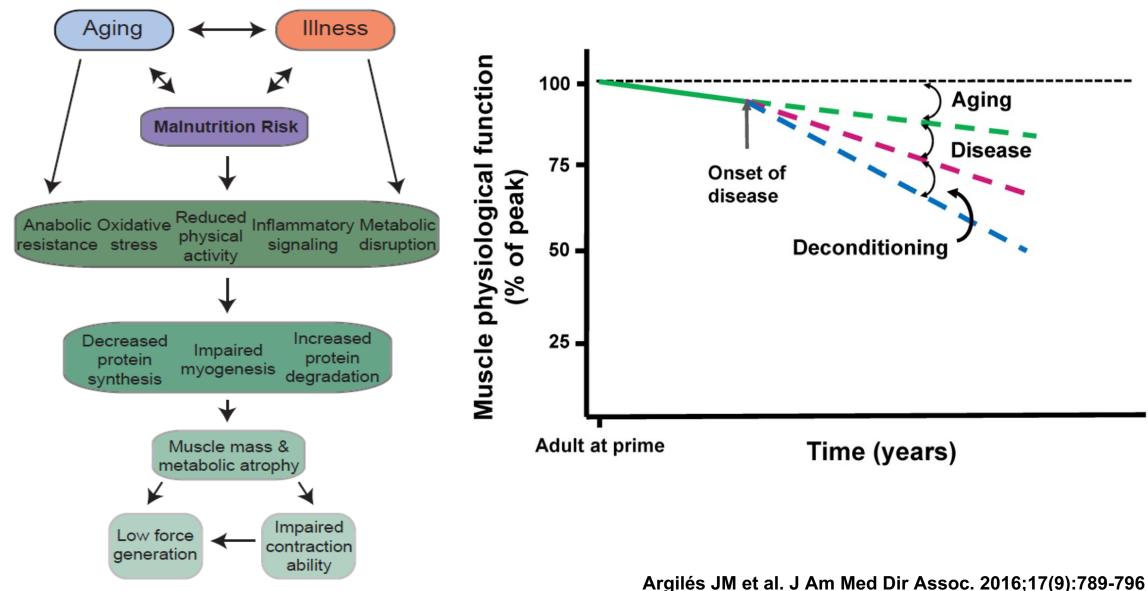
Cross section of thigh muscle



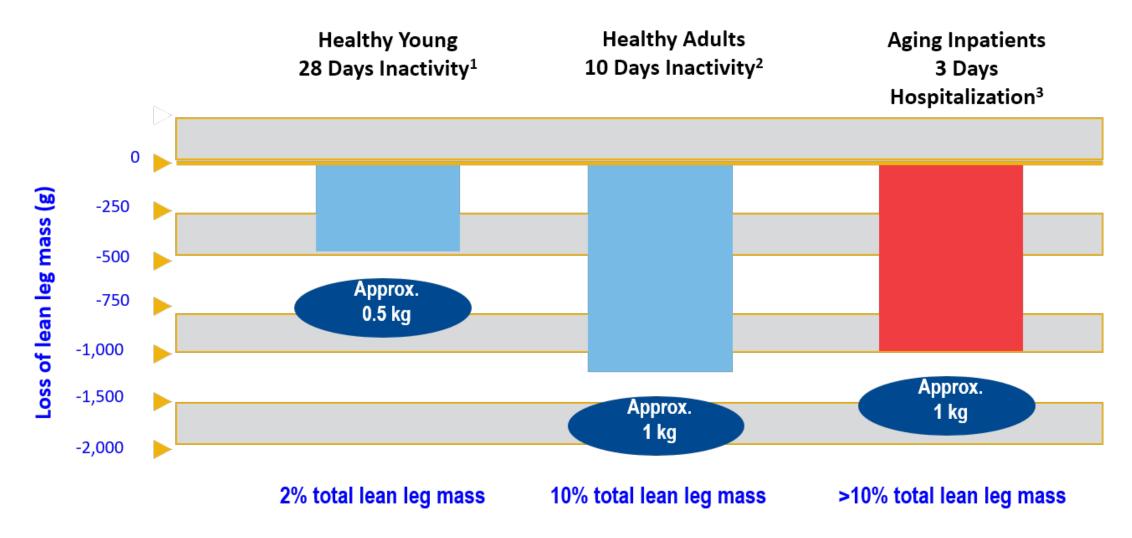
Vonda Wright et al. Chronic Exercise Preserves Lean Muscle Mass in Masters Athletes. The Physician and Sports Medicine. 39 (3). 2011.

<u>Sarcopenia</u>: Age associated progressive and generalized loss of skeletal muscle mass and strength with a risk of adverse outcomes such as physical disability, poor quality of life and death

#### MUSCLE WASTING DUE TO AGING, ILLNESS &



#### **IMPACT OF IMMOBILIZATION**



- 1. Paddon-Jones D. J Clin Endocrinol Metab. 2004;89(9):4351–4358
- 2. Kortebein P, Ferrando A, Lombeida J, et al. JAMA. 2007;297(16):1772–1774.
- 3. Paddon-Jones D. Columbus, OH: Abbott Nutrition. 2009

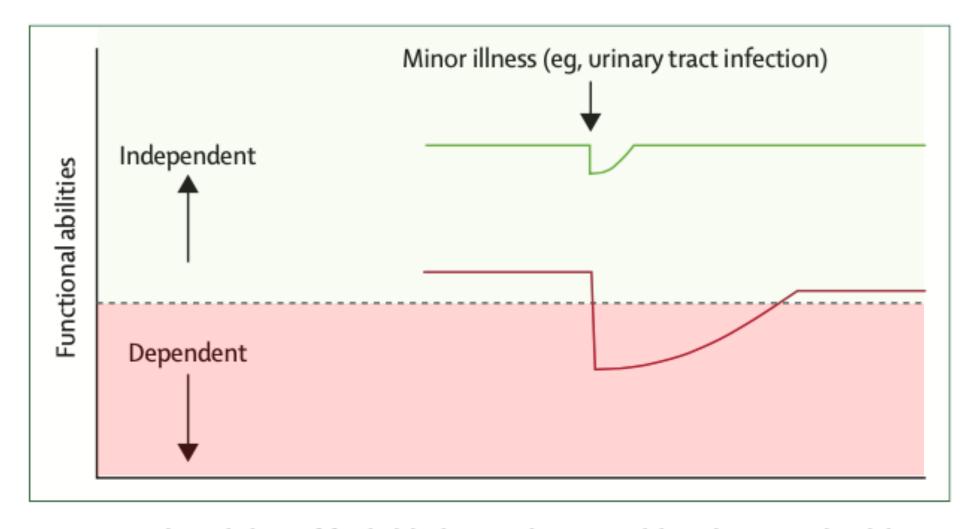
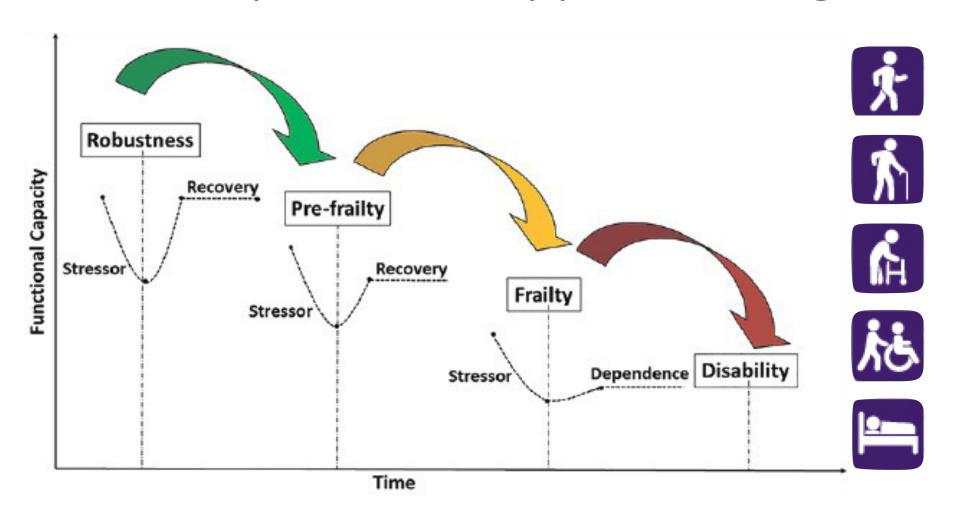


Figure 1: Vulnerability of frail elderly people to a sudden change in health status after a minor illness

Lancet 2013; 381: 752–62

#### Disability did not happen overnight



#### Sarcopenia diagnosis and prevalence in Malaysia

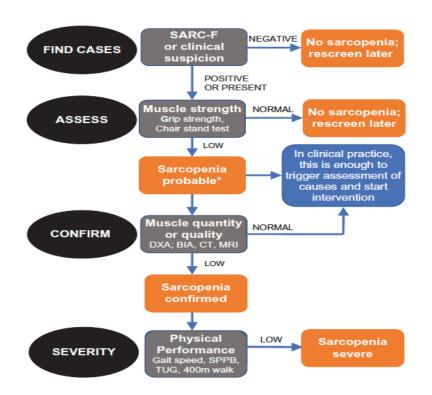
Age and Ageing 2019; **48:** 16–31 doi: 10.1093/ageing/afy169 Published electronically 24 September 2018

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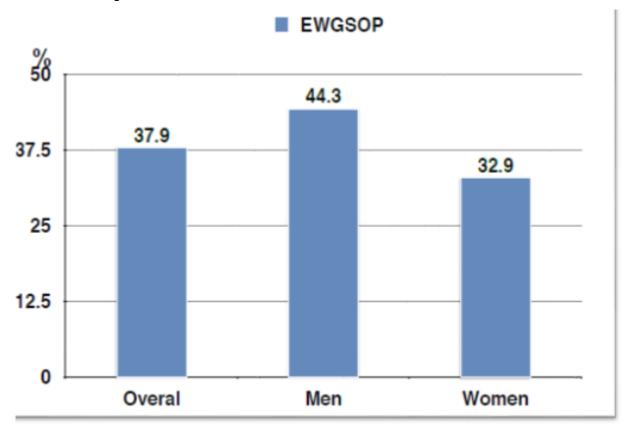
#### **GUIDELINES**

#### Sarcopenia: revised European consensus on definition and diagnosis

Alfonso J. Cruz-Jentoft<sup>1</sup>, Gülistan Bahat<sup>2</sup>, Jürgen Bauer<sup>3</sup>, Yves Boirie<sup>4</sup>, Olivier Bruyère<sup>5</sup>, Tommy Cederholm<sup>6</sup>, Cyrus Cooper<sup>7</sup>, Francesco Landi<sup>8</sup>, Yves Rolland<sup>9</sup>, Avan Aihie Sayer<sup>10</sup>, Stéphane M. Schneider<sup>11</sup>, Cornel C. Sieber<sup>12</sup>, Eva Tomnkova<sup>13</sup>, Maurits Vandewoude<sup>14</sup>, Marjolein Visser<sup>15</sup>, Mauro Zamboni<sup>16</sup>, Writing Group for the European Working Group on Sarcopenia in Older People 2 (EWGSOP2), and the Extended Group for EWGSOP2



#### Prevalence of sarcopenia among older Malaysians



Arimi Fitri et al. International Conference on Frailty and Sarcopenia Research 2015

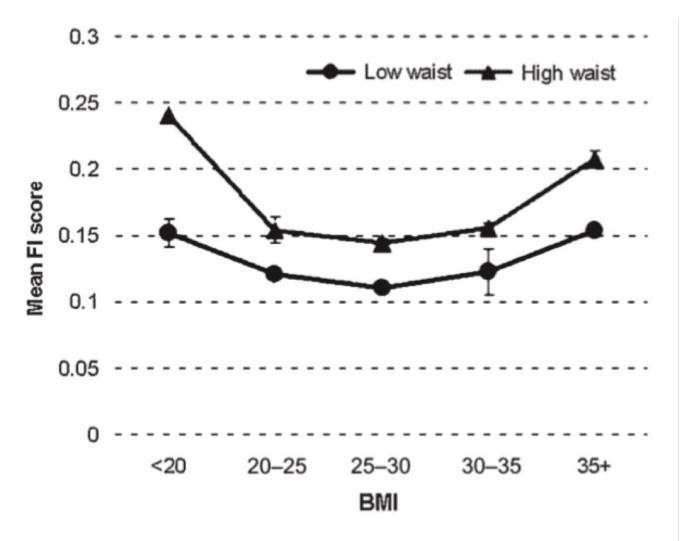
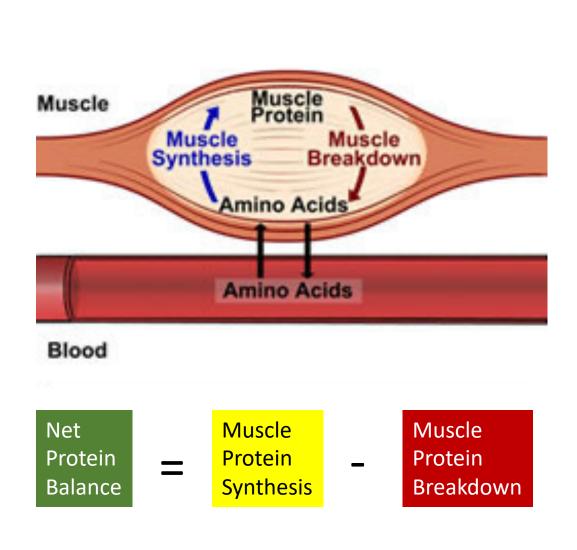
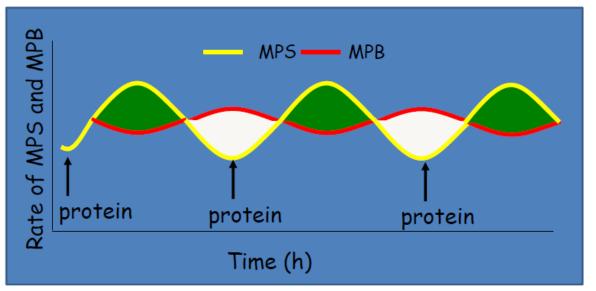


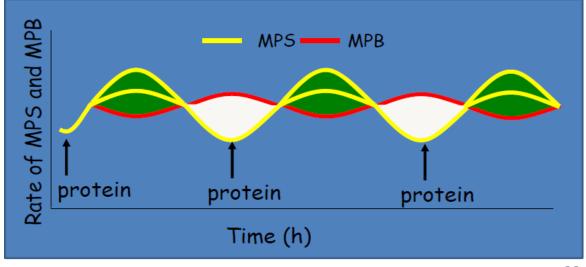
Figure 1. Mean frailty index (FI) score in English Longitudinal Study of Ageing Wave two participants aged 65 years and older by body mass index (BMI) categories and waist circumference. *Notes:* "High waist" is waist circumference 88 cm or more (women) and 102 cm or more (men). Scores were adjusted for sex, age, level of education, and smoking status, and 95% confidence intervals are shown

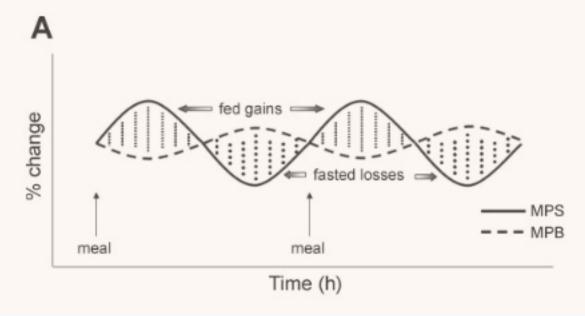
#### BMI and frailty: U-shaped curve

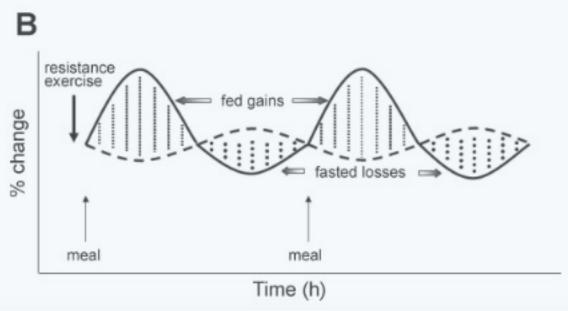
### Anabolic resistance: Protein-induced increases in muscle protein synthesis are lower with aging







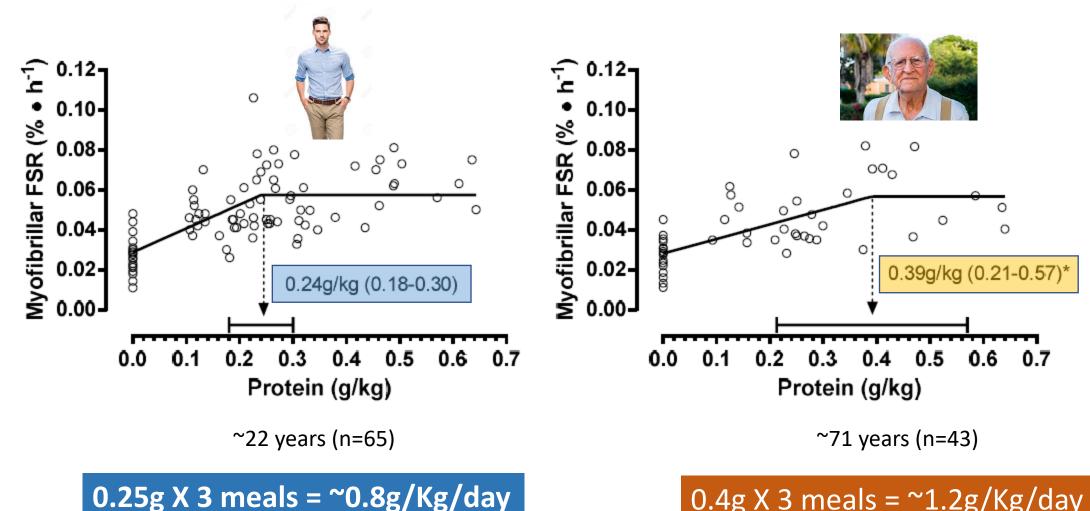




#### FEEDING

# FEEDING + RESISTANCE EXERCISE

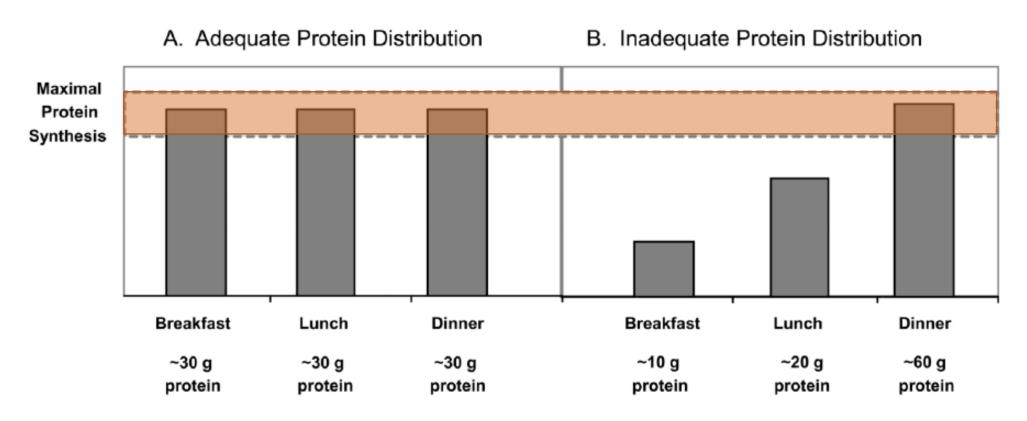
#### Older people require more protein to optimally stimulate MPS



0.4g X 3 meals = ~1.2g/Kg/day

#### Sufficient Protein Intake With Each Meal Is Essential

Study suggests to include a moderate serving of high biological value protein during each meal to promote skeletal muscle protein anabolism for older adults



Paddon-Jones et al. Curr Opin Clin Nutr Metab Care 2009;12(1): 86–90.

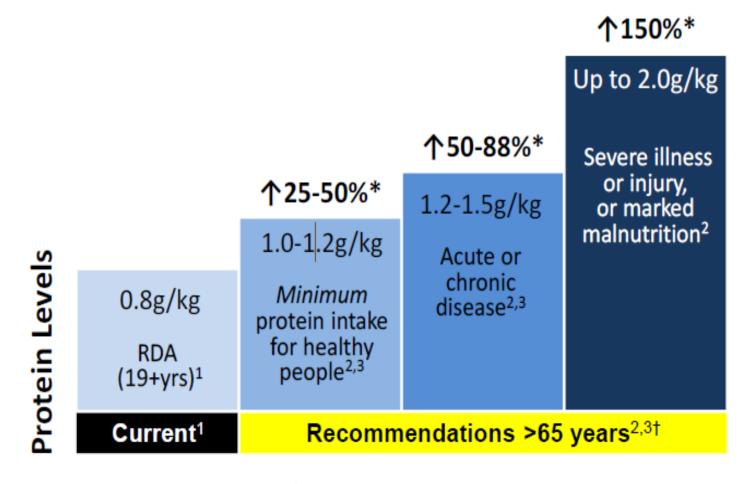
- Geriatric Depression Scale: 4/15
- Hb 10 (microcytic hypochromic anemia)
- Serum Creatinine 50, adjusted Ca 2.3
- Albumin 19
- Thyroid function normal range
- HbA1c 6.0 %
- Lipid profile normal range
- 25-OH-Vit D: 15ng/mL (deficiency)



- <u>T2DM</u>
- HbA1c aim <8 %</li>
- Screen for macro and microvascular Cpx retinopathy, ECG, urine microalbumin
- Hypertension
- Aim: <150/90
- Beta-blocker, ARB +/- CCB
- Atrial Fibrillation
- Rate control with beta-blockers
- Stroke prevention with DOAC



## Higher protein requirement for older adults with acute and chronic diseases



<sup>\*</sup>increase above current Protein RDA1

- DRIs for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). National Academy of Sciences. Institute of Medicine, 2005.
- Bauer J et al. Evidence-based Recommendations for Optimal Dietary Protein Intake in Older People: A Position Paper From the PROT-AGE Study Group. JAMDA. 2013;14:542-59.
- Deutz NEP et al. Protein intake and exercise for optimal muscle function with aging: Recommendations for the ESPEN Expert Group. Clinical Nutrition. Clin Nutr. 2014; 33(6): 929-36.

<sup>†</sup>Older people with severe kidney disease who are not on dialysis may need to limit protein intake.

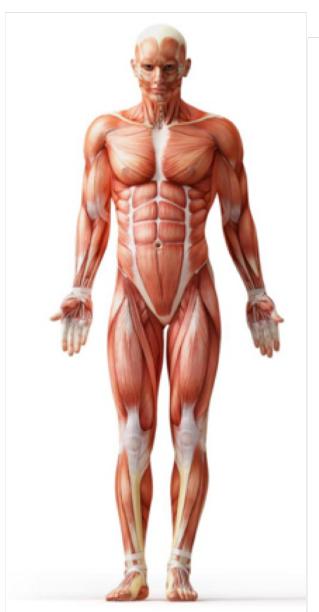
- Medication review and deprescribing
- Undernutrition
- Dietitian referral for protein and caloric supplementation, aim protein 1.5g/kg/day in divided portions
- Poor dentition
- Dental referral for assessment and treatment of cavities, gum diseases, dentures

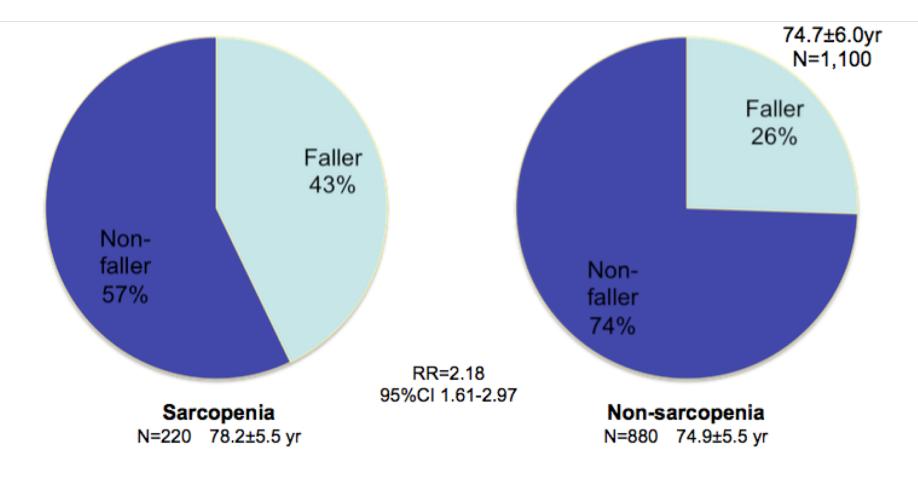


- Vitamin D deficiency
- Vit D3 50,000 IU/week x 8 weeks and repeat 25-OH-Vit D
- Calcium supplement
- Osteoporosis & Risk of Fractures
- DXA scan, X-ray TRO vertebral fracture, osteoporosis treatment

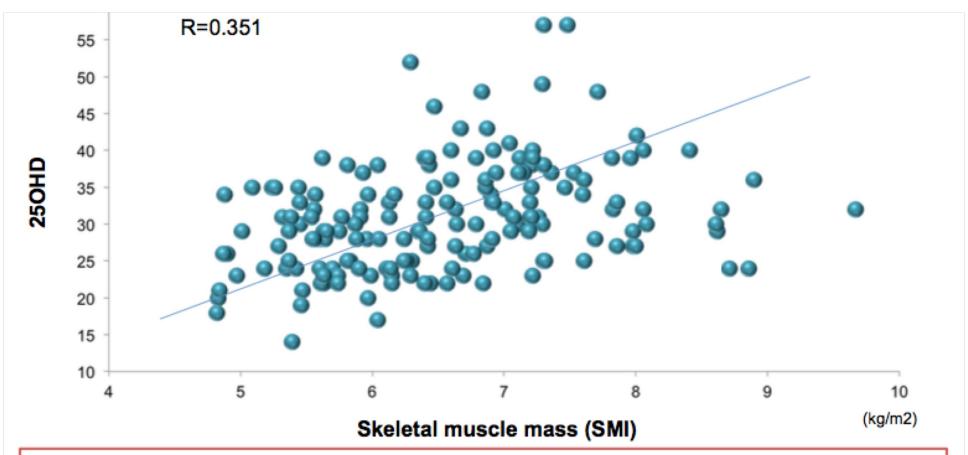


## Muscle Wasting is High Risk for Falls





## **Low Vitamin D and Skeletal Muscle Mass**



The low 25(OH) D level is associated with muscle mass, lower muscle strength, declined physical performance, and activity of daily living (ADL) disability.

Houston DK, et al (2008). Am J ClinNutr Hirani V, et al (2005). Age Ageing Houston DK, et al (2007). JGMS

#### • Frailty / Sarcopenia

- Physiotherapy assessment and training for gait, balance, strength, suitable walking aid, quadriceps strengthening, improve ROM for OA knees, pain relief, back care education
- Occupational therapy ADLs assessment and training, home fall hazard assessment
- Chronic Pain
- Paracetamol, topical NSAIDs, therapy



## Older person are all different

#### One size does not fit all













Weakness

Slow walking speed

Low level of physical activity

Fatigue or exhaustion

Unintentional weight loss











#### **CLINICAL FRAILTY SCALE**

*	1	VERY FIT	People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.
•	2	FIT	People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g., seasonally.
t	3	MANAGING Well	People whose medical problems are well controlled, even if occasionally symptomatic, but often are not regularly active beyond routine walking.
•	4	LIVING WITH Very Mild Frailty	Previously "vulnerable," this category marks early transition from complete independence. While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up" and/or being tired during the day.
	5	LIVING WITH MILD Frailty	People who often have more evident slowing, and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation, medications and begins to restrict light housework.



#### **SCORING FRAILTY IN PEOPLE WITH DEMENTIA**

The degree of frailty generally corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well.

They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.

In very severe dementia they are often bedfast. Many are virtually mute.



Clinical Frailty Scale ©2005–2020 Rockwood, Version 2.0 (EN). All rights reserved. For permission: www.geriatricmedicineresearch.ca Rockwood K et al. A global clinical measure of fitness

and frailty in elderly people. CMAJ 2005;173:489-495.

## National Policies on Ageing in Malaysia





Ministry of Health



National Policy for the Elderly, 1995 Policy for Older Persons, 2008



National Policy for Older Persons, 2011 National Day of Older Persons celebrated on 1st October since 1992

## National Policy for Older Persons 2011

#### **PHILOSOPHY**

The National Policy on Older Persons acknowledges the older persons as citizens with varied background and experiences, have the rights to enjoy a comfortable and respected life and contribute to the development of the nation.



#### POLICY STATEMENT

The National Policy on Older Persons is the Government's commitment to create older persons who are independent, with dignity, high sense of self-worth and respected by optimizing their self-potential through a healthy, positive, active, productive and supportive ageing to lead a well-being life.

## National Policy for Older Persons 2011

- New policy after the NPE 1995 ended in 2005 under the MWFCD. Works together with the National Health Policy for Older Persons 2008 under MOH.
- Policy focuses on empowering individuals, families and communities through provision of elderlyfriendly services and enabling environments to improve the well-being in old age.

#### Strategies

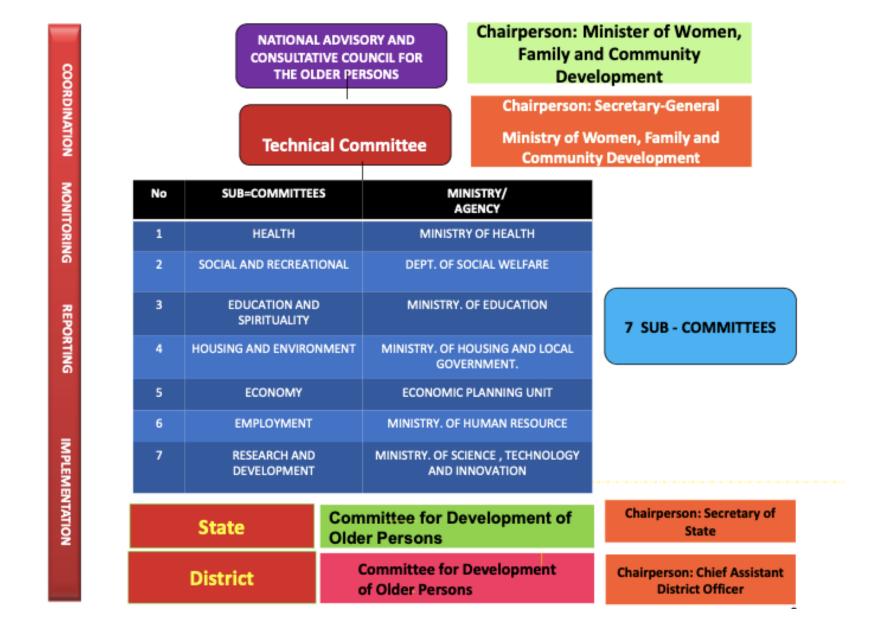
Promotion & Advocacy Management & Shared Responsibilities

Lifelong Learning Participation & Unity across Generations

Security & Protection

Research & Development

#### Governance Structure: National Policy for Older Persons 2011



#### 5 Dimensions Framework



Table 1 Various ageing policy frameworks available globally

Policy frameworks	Definitions	Countries Adopting United Kingdom and Europe
Active Ageing (WHO)	Continuing participation in social, economic, cultural, spiritual and civic affairs by older persons and not just being physically active or mere participation in the labour force [12].	
Active Ageing (Adapted)	Optimizing opportunities for physical, social, mental well being throughout life, in order to extend healthy life expectancy, productivity and good quality of life as people age [13].	Malaysia
Healthy Ageing	All Australians have the opportunity to maximise their physical, social and mental health throughout life. Population health strategies promote and support healthy ageing across the lifespan. Information, research and health care infrastructure is available to support the healthy ageing of the Australian population [14].	Australia
Successful Ageing	Multiple dimensions of functioning and wellness are measured and these include cognitive and affective status, overall physical health, social functionally and life engagement including life satisfaction. These will form the salient determinants of successful ageing [15].	Singapore
Healthy Ageing	A lifelong process of optimising opportunities for improving and preserving health and physical, social and mental wellness, independence, quality of life and enhancing successful life-course transitions [16].	Canada
Positive Ageing	Shine a positive light on ageing and older persons by recognizing their potential skills and ability rather than their age [17].	New Zealand

### Thoughts on the National Policy for Older Persons

- In most Asian countries, co-residing with an older relative and providing aged care is part of the cultural tradition. Policy makers in Asia aim at maintaining these cultural norms and values rather than developing potentially expensive formal aged care programs and facilities.
- In Malaysia, a multi-sectoral and multidisciplinary approach is required to set up these policies, with sharing of responsibility between government, private sectors, non-government organisations, community and the older people themselves in order to meet their needs.

## Moving forward ...

- Improving healthcare system to systematically enable nutrition screening and appropriate intervention among the pre-elderly and elderly who are at risk for malnutrition.
- Preventive nutrition programs and services need to be part of the policy agenda, and to focus on secondary prevention through nutrition education and intervention with at-risk groups.
- Engage the community vigorously in healthy eating and living campaigns as an approach to directly educate them, beginning from young.

# Screening and preventive strategies need to focus on

- population-specific interventions
- research and evidence-based strategies
- incorporation into health professionals' routines and programs of community
- increased availability of healthy foods
- evaluation of efficacy and effectiveness

We must be fully aware that while the developed countries became rich before they became old, the developing countries will become old before they become rich.

- Gro Harlem Brundtland, WHO's Director-General

# DondangSayang.com Caring for Older People in Malaysia!

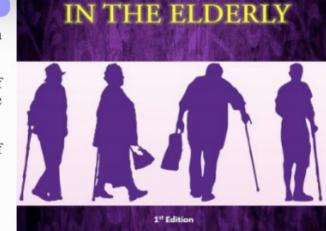


#### **FORWARD**

"Dondang sayang" immediately conjures an image of kebaya clad ladies melodiously singing the pantun accompanied by the sultry strings of the violin interspersed with beats by the gong and rebana. But it says more than that. It's Malaysian and it speaks of love!

We are not clad in kebaya and neither do we gong nor pantun, but all of us here sing the same song – we just love the older person. We are a group of like-minded individuals who care for the older guys and girls but in addition we love what we do. Hence instead of twiddling our thumbs and toes we have decided to fiddle with our keyboards and come up with or contribution for this community.

Ever so often we come across elders or caregivers who need help and need questions answered. Well, we attempt to shower our website with pearls of knowledge and experience for you all to mine, and we hope that this website will hit the right note with you."



**GUIDELINES FOR** 

PAIN MANAGEMENT







