

Muscle Health in Primary Care

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Demographic time bomb



- Ageing Population in Singapore
- In 2020, 15.2% of local residents are aged 65 years and above
- Increase to 25% by 2030
- Almost 50% by 2050
- Ageing: progressive loss of muscle health



Why do you need to pay heed to muscle health?



Progressive Loss of Muscle Mass, Strength and Function associated with Ageing

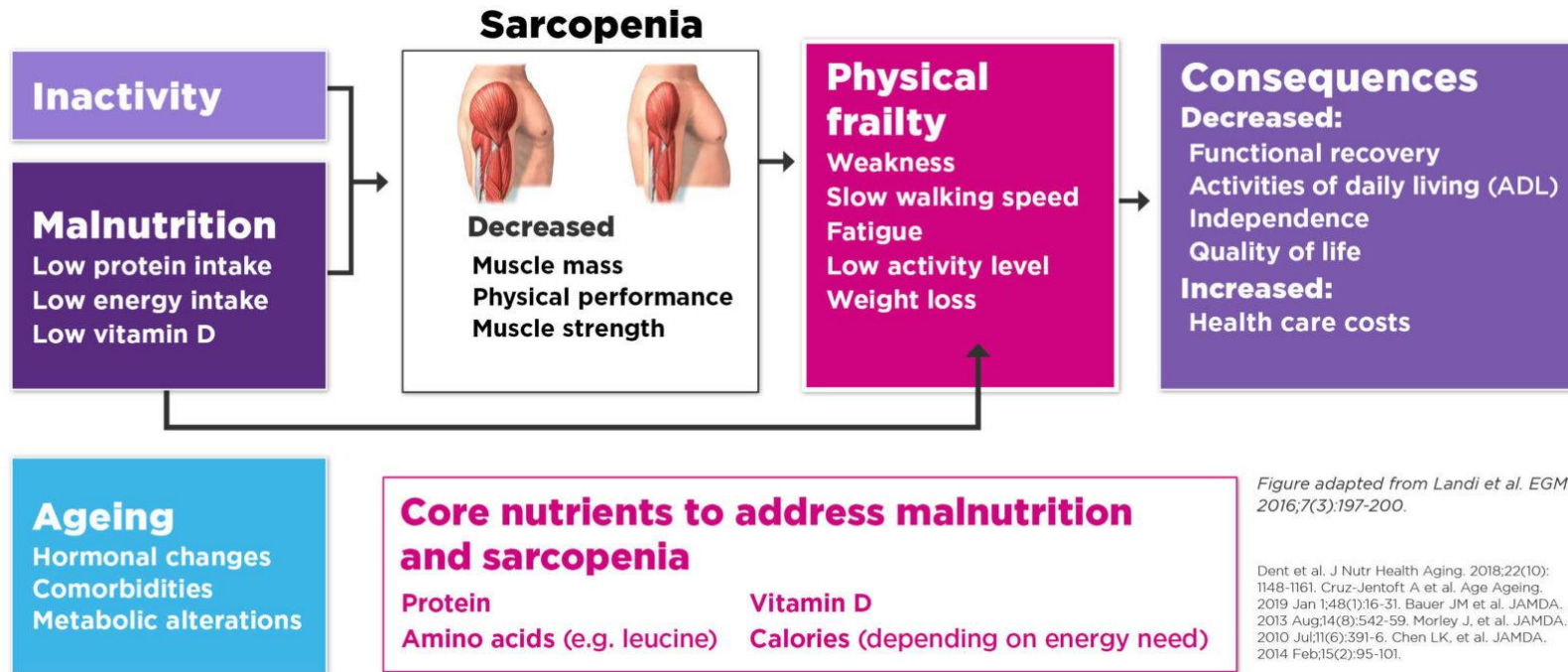


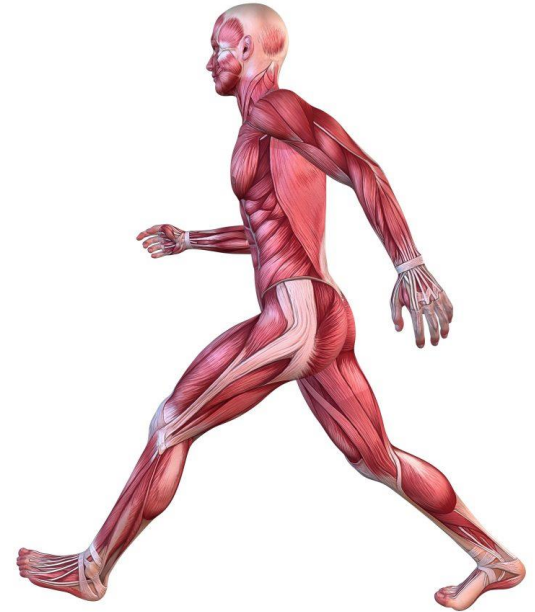
Figure adapted from Landi et al. EGM. 2016;7(3):197-200.

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.

How do you know your muscles are healthy?



- Mass
- Strength
- Function



Muscle Strength



Prioritized as a **primary determinant**

AWGS 2019 guidelines: handgrip strength is the sole measure of strength

Asian men < 28 kg

Asian women < 18 kg

EWGSOP2 recommends the 5CST test
- measures the time to stand up from a standard chair five times, as a surrogate measure of muscle strength in the lower limbs

≥ 10 s for 5 rises

Muscle Mass



Bioimpedance analysis (BIA):
estimate appendicular skeletal
muscle mass (ASM) in community
and outpatient settings

Men: $< 7.0 \text{ kg/m}^2$

Women: $< 5.7 \text{ kg/m}^2$

Calf circumference can be a
surrogate measure of muscle mass

Men: $< 34 \text{ cm}$

Women: $< 33 \text{ cm}$

Muscle Function



Gait speed: predictive of adverse clinical outcomes, such as falls, functional decline, cognitive decline and mortality in Asian populations

AWGS 2019: cut-off gait speed in the 6-m walk test < 1.0 m/s

5CST as a surrogate measure of gait speed in community-dwelling older adult

Nishimura et al. - gait speed of 1.0 m/s correlates with a cut-off of ≥ 12 s for 5CST (recommended by **AWGS 2019**)

As healthcare professionals, can we do more to support muscle health in older persons?

- International survey: only 50% of clinicians measured at least one muscle parameter in patients aged ≥ 60 years [1]
- Majority of healthcare professionals (HCPs) lack guidance on the recognition, assessment and management of muscle health [2, 3].
- Barriers:
 - time constraints;
 - complexity of measurement variables;
 - a paucity of population-specific cut-offs for these measures;
 - lack of collaboration

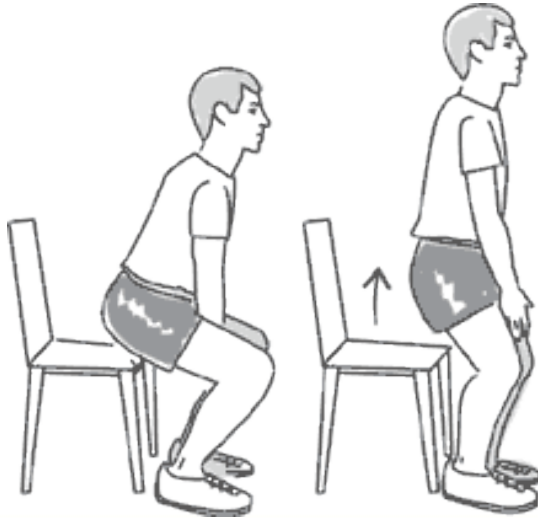
1. Bruyère O, Beaudart C, Reginster JY, Buckinx F, Schoene D, Hirani V, et al. Assessment of muscle mass, muscle strength and physical performance in clinical practice: an international survey. *Eur Geriatr Med*. 2016;7(3):243–6. <https://doi.org/10.1016/j.eurger.2015.12.009>
2. World Health Organization. Integrated care for older people. Guidelines on community-level interventions to manage declines in intrinsic capacity. 2017. Available from: <https://apps.who.int/iris/handle/10665/258981>
3. Reijnierse EM, de van der Schueren MAE, Trappenburg MC, Doves M, Meskers CGM, Maier AB. Lack of knowledge and availability of diagnostic equipment could hinder the diagnosis of sarcopenia and its management. *PLoS One*. 2017;12(10):e0185837. <https://doi.org/10.1371/journal.pone.0185837>

How do we screen for muscle health in the community?

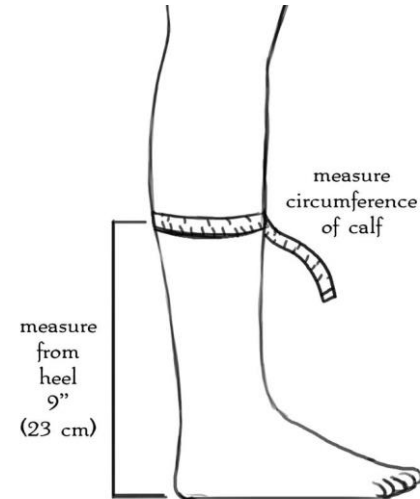
A Pragmatic Approach

Screening of muscle health using the SARC-F Questionnaire
You need a stable chair, a watch (handphone) and a measuring tape!

5 X Chair-Stand Test



Diameter of Calf



SARC-F Q: A score of ≥ 4 predicts sarcopenia & poor outcome

TABLE. The Simple "SARC-F" Sarcopenia Questionnaire (0-10 points)³

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
Assistance in walking	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
Climb stairs	How much difficulty do you have climbing a flight of 10 stairs?	None = 0 Some = 1 A lot or unable = 2
Falls	How many times have you fallen in the last year?	None = 0 1-3 falls = 1 4 or more falls = 2

5 Times Sit-Stand Test: Video



Source:

https://www.youtube.com/watch?v=PiSqEEw_BjM

Screening of Muscle Health in a Nutshell

- Recognize the importance of muscle health (mass, strength and function) across the continuum of care
- Muscle health: prioritized in older adults (≥ 65 years), esp those at risk of sarcopenia
- Screening:
 - the SARC-F questionnaire, followed by
 - muscle strength assessment via handgrip strength
 - or the 5-times chair stand test with a cut-off of ≥ 10 s (surrogate measures of muscle strength)

What is next?

- A/P Samuel Chew: Diagnosis and Classification of Sarcopenia based on The Singapore Consensus on Muscle Health
- How do we maintain muscle health?
 - Diet: Dr Charles Lew
 - Physical Activity: Dr Geetha Kayambu
 - Rehabilitation: Dr Tham Shuen-Loong
- Q & A

Acknowledgement of other team members
in the Singapore Consensus

