12TH GLOBAL CONFERENCE ON AGEING

Prevalence and Risk Factors of Sarcopenia in Residential Aged Care

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Ageing and Muscle

Sarcopenia

- European Working Group on Sarcopenia in Older People suggested conceptual staging for clinical diagnosis that would capture other important age-related muscle changes

Stage	Muscle mass	Muscle Strength	Performance
Pre-Sarcopenia	↓		
Sarcopenia	↓	↓ **OR**	↓
Severe Sarcopenia	↓	↓	↓

- Cruz-Jentoft et al. Age and Ageing 2010, 39, 412-423.

Aims

Identify the prevalence of sarcopenia in residential aged care facilities in Australia with a specific interest in sarcopenic status and the risk factors to being sarcopenic.

Methods

Design

- Cross-sectional

Recruitment

- 11 Residential aged care facilities
- 709 residents, 381 eligible and 273 randomised to study
  - Inclusion: ≥ 65yrs, permanent resident of RACF, Informed Consent, Proxy consent if indicated
  - Exclusion: (i) pacemaker fitted, (ii) end-stage palliative or terminal, (iii) behavioural problems (iv) other
- Ineligible (N = 328)
  - 3% pacemaker,
  - 8% were end-stage palliative or terminal,
  - 31% had dangerous behaviours, and
  - 58% had medical or other conditions/problems
- 102 Participants

Assessment

OUTCOME MEASURE	TOOL
Demographics	
Health Status	Medical Records
BMI	Height (stadiometer), Weight (calibrated scales)
Muscle Mass	Bioelectrical Impedance Assessment
Physical Performance (Gait Speed)	2.4m walk test (the Short Physical Performance Battery)
Muscle Strength	Handgrip Strength (dynamometer)
Balance	Standing Balance test (SPPB)
Balance Confidence	Activity Specific Balance Confidence (ABC)
Lower Limb Strength	Repeated chair rise (SPPB)
Cognition	Mini-Mental State Examination (MMSE)
Mood	Geriatric Depression Scale (GDS-SF)
Physical Activity Levels	International Physical Activity Questionnaire (IPAQ)
Nutrition	Mini-Nutritional Assessment Instrument (MNA-SF)
Sedentary Behaviour	IPAQ, ActivPAL

Results

- Age - 84.5 ± 8.2 years
- BMI – 27.3 ± 5.7 Kg/m^2
- SPPB Summary score 3.5 +/- 2.4
- Time in RAC – 39.8 ± 40.3 months, Range 2 and 237 months
- Falls in previous 6 months – N = 27

- 39% had mild cognitive impairment (MMSE) a
- 51% were classified normal on the GDS

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Results

MNA Nutritional Status (n, %)

Malnourished	At risk of malnutrition	Normal	Total
15 (15%)	49 (49%)	37 (37%)	101

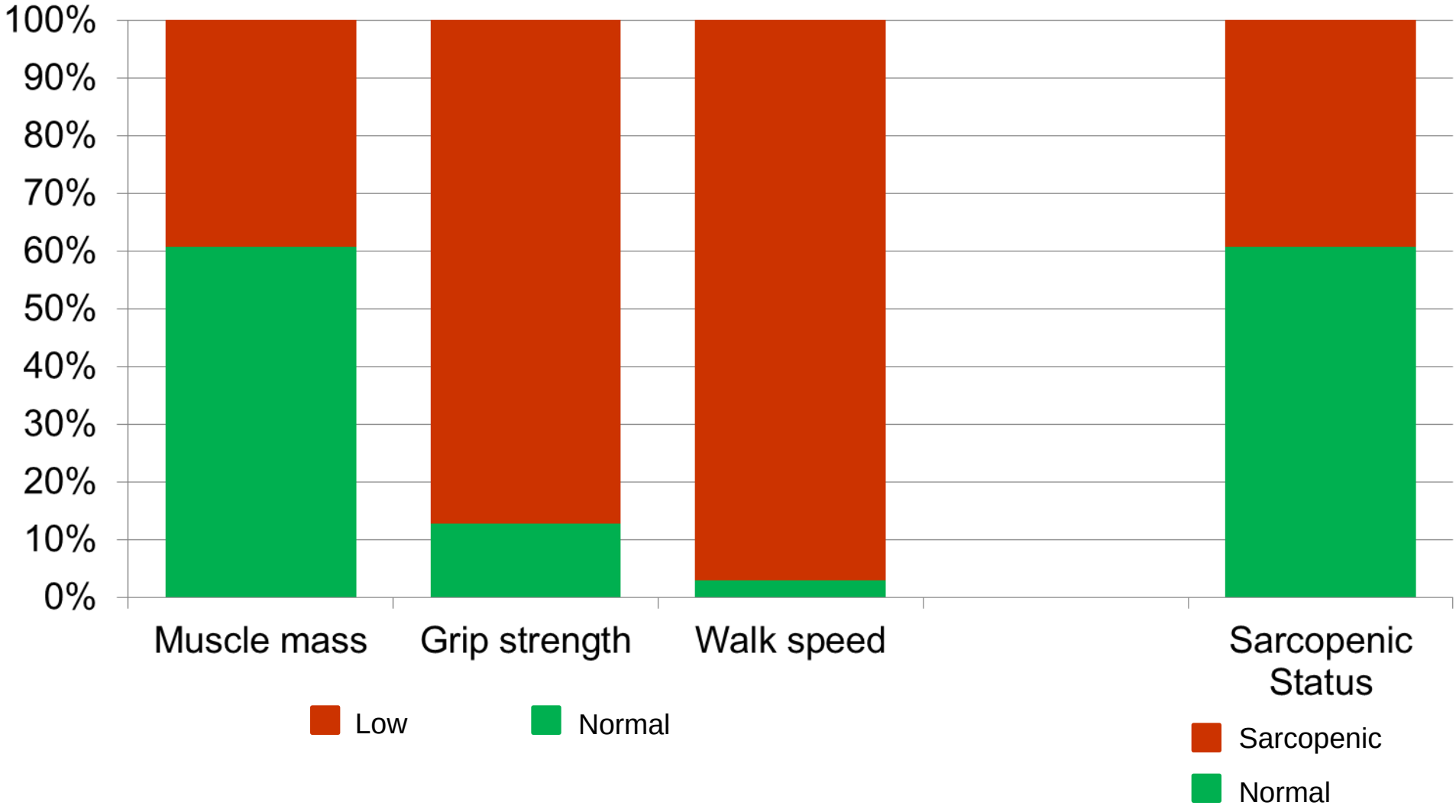
IPAQ Mean (s.d.), MET-mins/wk

Component	Males	Females	Total Sample
Walking	248 (752.8)	275 (609.4)	266 (654.3)
Moderate	41 (123.8)	132 (293.6)	103 (255.3)
Vigorous	0	0	0
Total IPAQ	289 (765.1)	407 (715.8)	370 (729.9)
Sitting time (hrs/day)	13.3 (2.3)	12.7 (3.3)	12.9 (3.0)

ActivPAL (n=41)

During Wake Hours	Sitting/Lying (hr)	Standing (hr)	Stepping (mins)
Med (IQR)	12.4 (1.7)	1.9 (1.3)	21.4 (36.7)

Sarcopenic Status



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Older People Without Sarcopenia

Normal Muscle Mass (n=62, 61%)

- 60 (97%) - low physical performance
- 50 (81%) - low muscle strength.
- 49 (79%) - both low muscle strength and low physical performance

- 11 (18%) - low physical performance, but normal muscle strength
- 1 (2%) - low strength, but normal physical performance

- 1 participant has normal strength and normal physical performance

Prediction of Sarcopenic Status (logistic regression analysis)

Univariable analysis – statistically significant factors at 10% level

Factor	Odds ratio (95% CI)	P-value
BMI	0.86 (0.78 – 0.94)	0.001
Total SPPB	0.82 (0.69 – 1.00)	0.05
Standardised sitting (ActivPAL)	1.90 (0.90 – 4.03)	0.09
IPAQ sitting time	1.18 (1.00 – 1.40)	0.05
Nutritional status	0.19 (0.05 – 0.68)	0.01

Multivariable analysis – statistically significant factors at 5% level

Factor	Odds ratio (95% CI)	P-value
BMI	0.86 (0.78 – 0.94)	0.001

Other RACF sarcopenia studies, high risk assoc with male gender, cerebrovascular disease, osteoarthritis; low risk with BMI >21kg/m^2, leisure physical activity (Landi et al. 2012)

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ORIGINAL ARTICLE

Assessing sarcopenic prevalence and risk factors in residential aged care: methodology and feasibility

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Article

Objectively Measured Activity Patterns among Adults in Residential Aged Care

Natasha Reid [1,*], Elizabeth Eakin [1], Timothy Henwood [2], Justin W. L. Keogh [3,4,5], Hugh E. Senior [6], Paul A. Gardiner [7,8], Elisabeth Winkler [1] and Genevieve N. Healy [1,9,10]

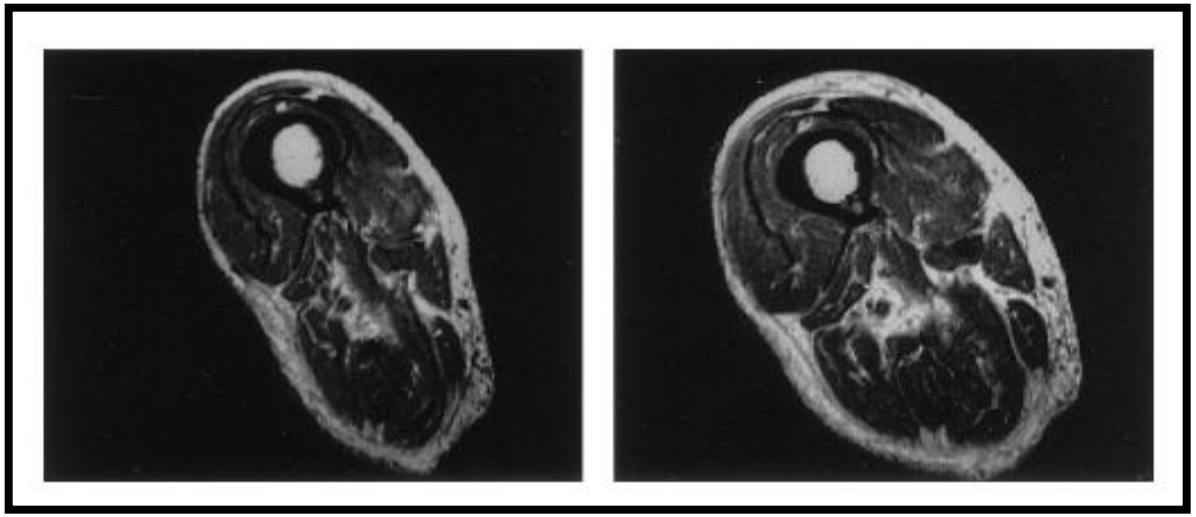
Conclusion

- Older people living in residential aged care facilities experience high prevalence of sarcopenia at 39%
- Older people living in RACFS who did not have sarcopenia also displayed a high level of low muscle strength and/or physical performance
- Older people living in RACF with a higher BMI had a lower risk of sarcopenia

Resistance Training

- Resistance training is unequivocally the most effective method of reversing age-related declines in muscle mass and strength

MRI taken at the mid-thigh of a 92yo man before and after a 12 week resistance training program. Muscle mass and strength increased by 150 and over 200% respectively



Pre-Training Post-Training

Harridge et al. Muscle Nerve 1999; 22: 831-9