

23
SETTEMBRE

GIORNATA DEDICATA AL DOTTORATO IN SCIENZE DELLA NUTRIZIONE

SARCOPENIA AND GYNECOLOGICAL CANCER PATIENTS

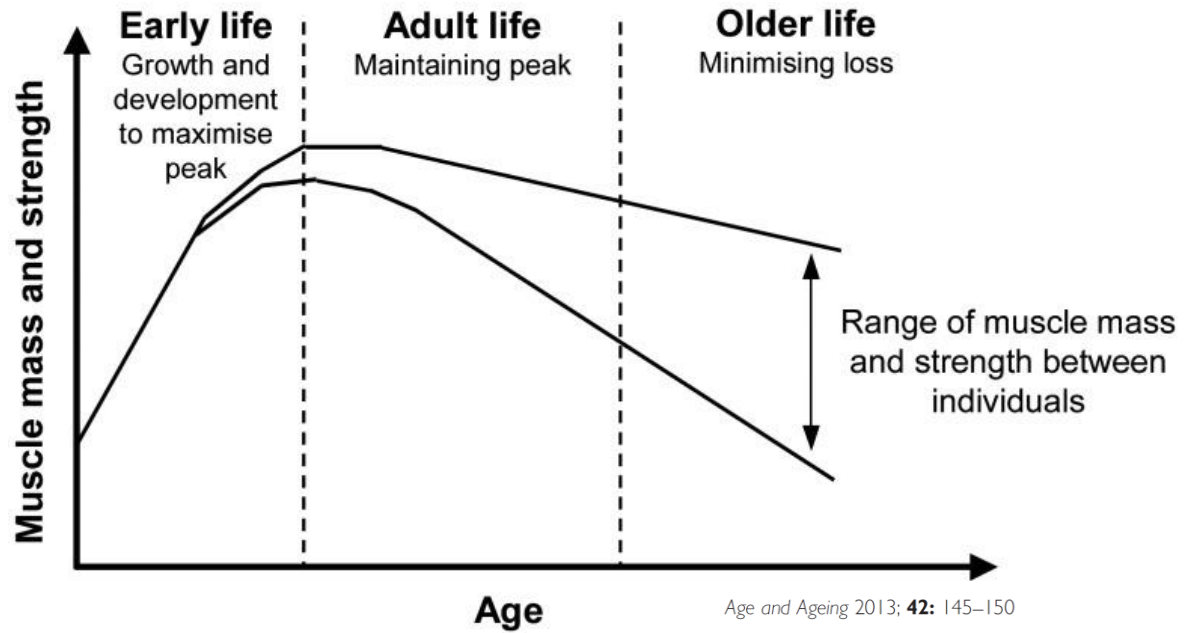
Sarah Damanti, MD

Nutritional Sciences PhD, University of Milan

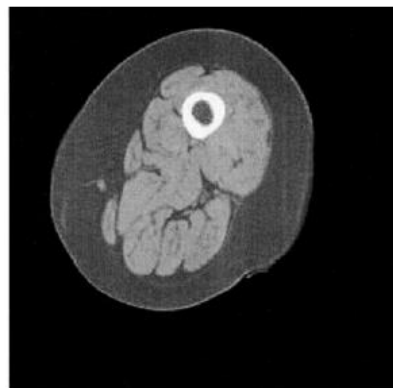
Geriatric Unit IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan



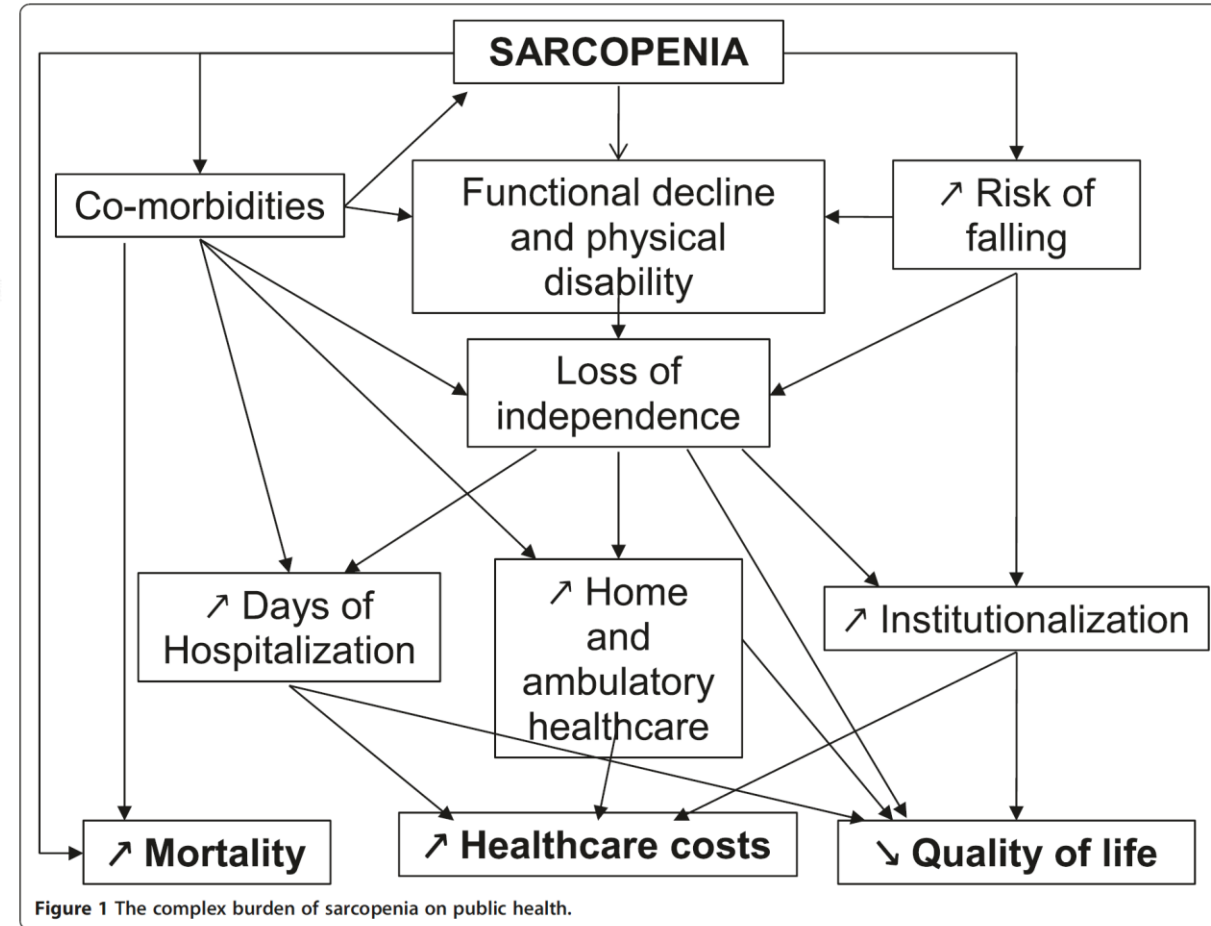
SARCOPENIA



Young, active



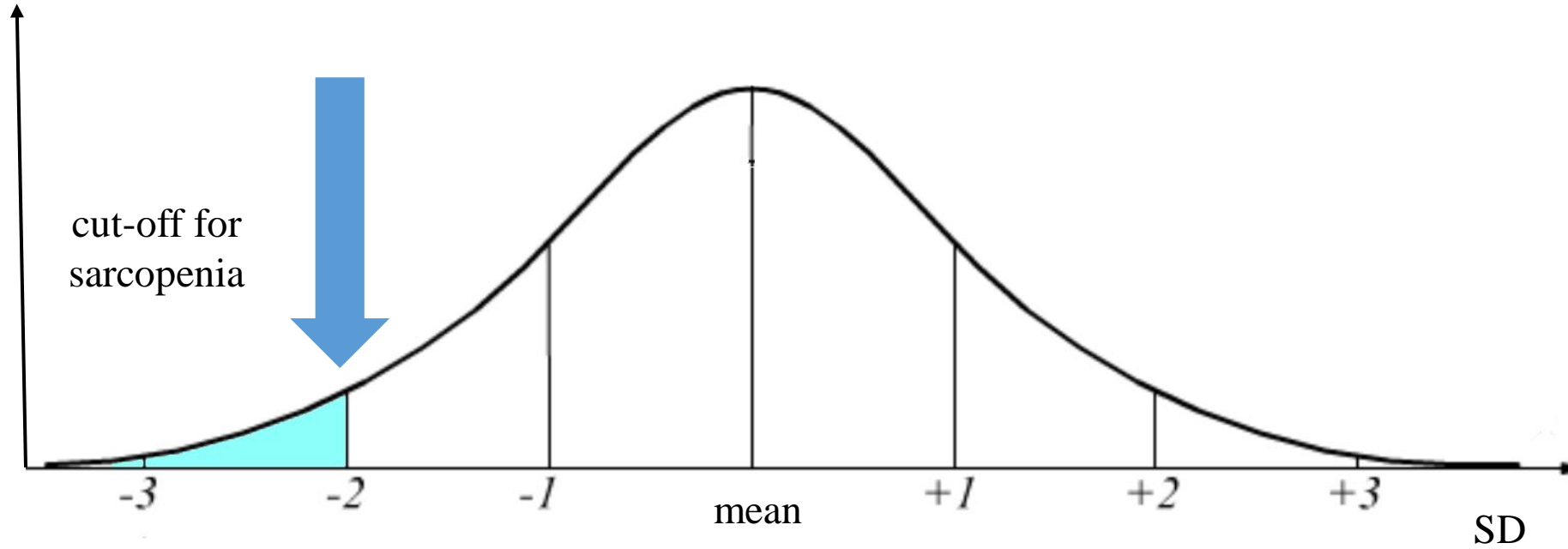
Old, sedentary



Epidemiology of Sarcopenia among the Elderly in New Mexico

Richard N. Baumgartner, Kathleen M. Koehler,¹ Dymna Gallagher,² Linda Romero,³ Steven B. Heymsfield,⁴ Robert R. Ross,⁵ Philip J. Garry,⁴ and Robert D. Lindeman⁵

Distribution of relative muscle mass (ASM/h²) in a young reference population (*Rosetta study*)



Am J Epidemiol 1998;147:755–63.



Sarcopenia: Alternative Definitions

Anne B. Newman

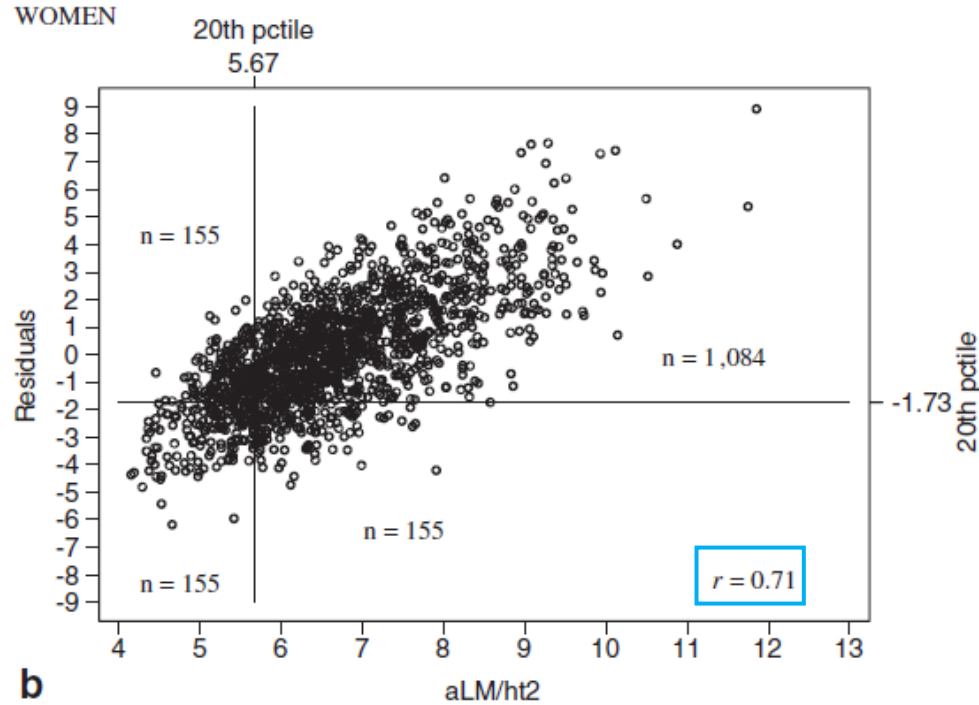


Figure 1. Comparison of the two measures of relative lean mass (a) in men and (b) in women. Residuals (obtained from linear regression of appendicular lean mass (aLM) (kg) on height (meters) and fat mass (kg)) and the ratio (aLM/ht²) of aLM (kg) and height squared (m²). Horizontal and vertical lines indicate the 20th percentile of residuals and aLM/ht² distributions, respectively. Frequencies in each quadrant are indicated by n, and the correlation coefficient between the two measures is indicated by r.

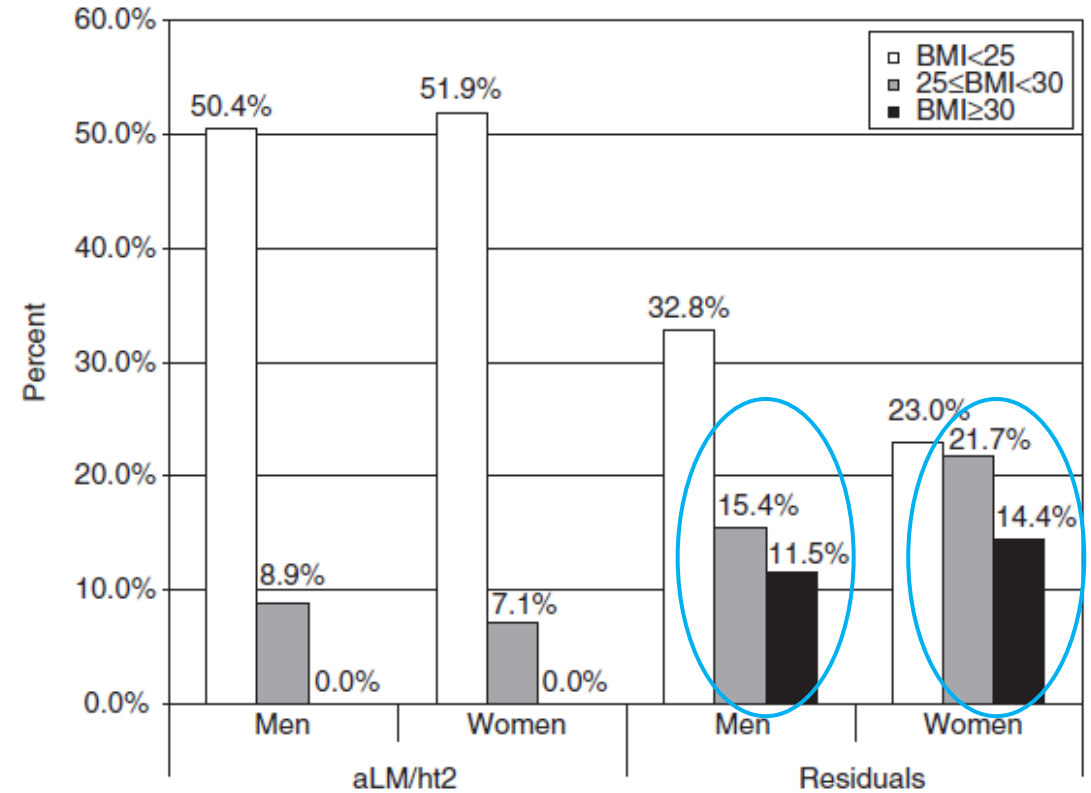


Figure 2. Prevalence of sarcopenia by method (ratio of appendicular lean mass (aLM) (kg) and height squared (m²) (aLM/ht²) and residuals obtained from linear regression of aLM (kg) on height (m), fat mass (kg)), sex, and body mass index groups.

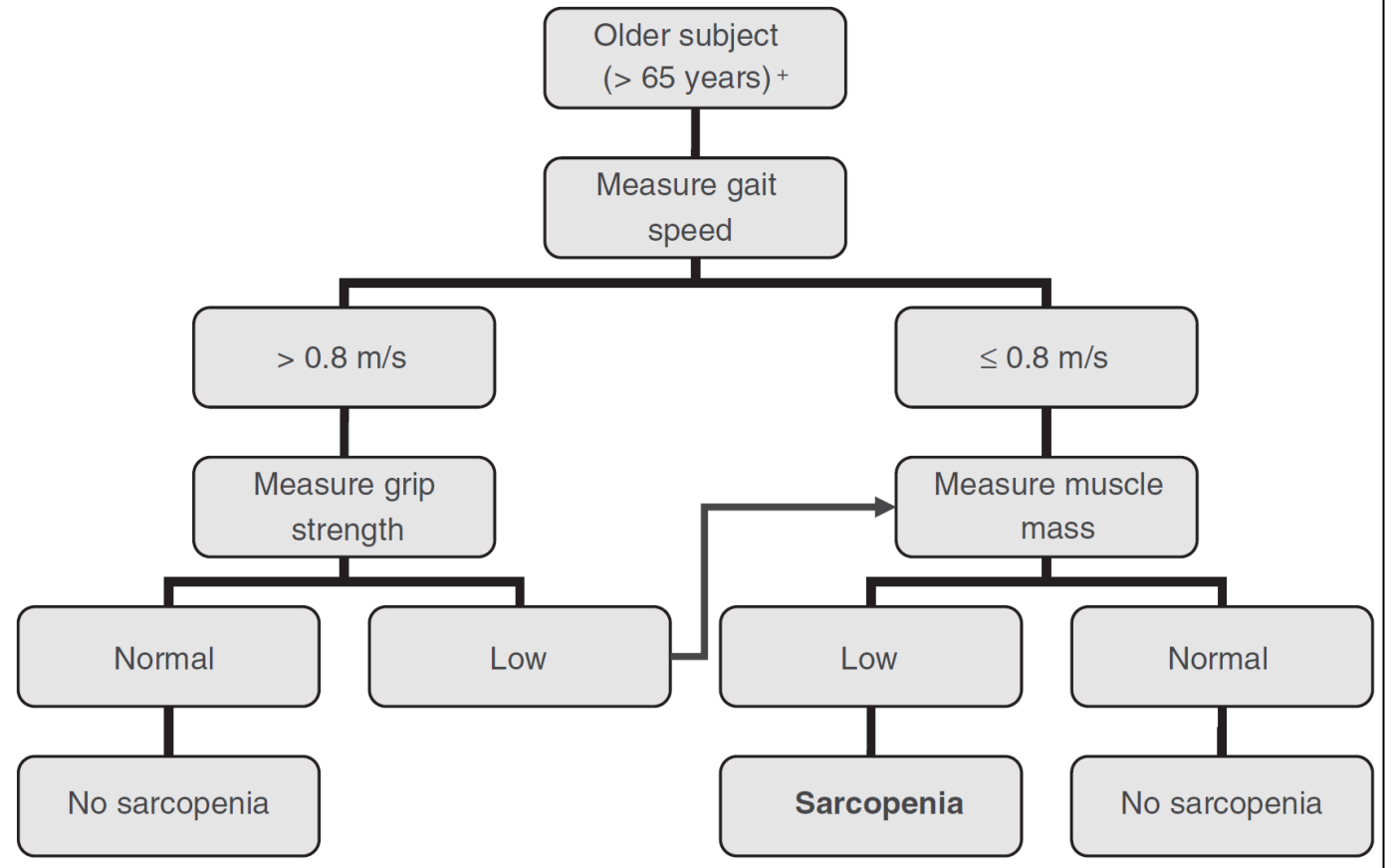
Sarcopenia: European consensus on definition and diagnosis

Age and Ageing 2010; **39**: 412–423

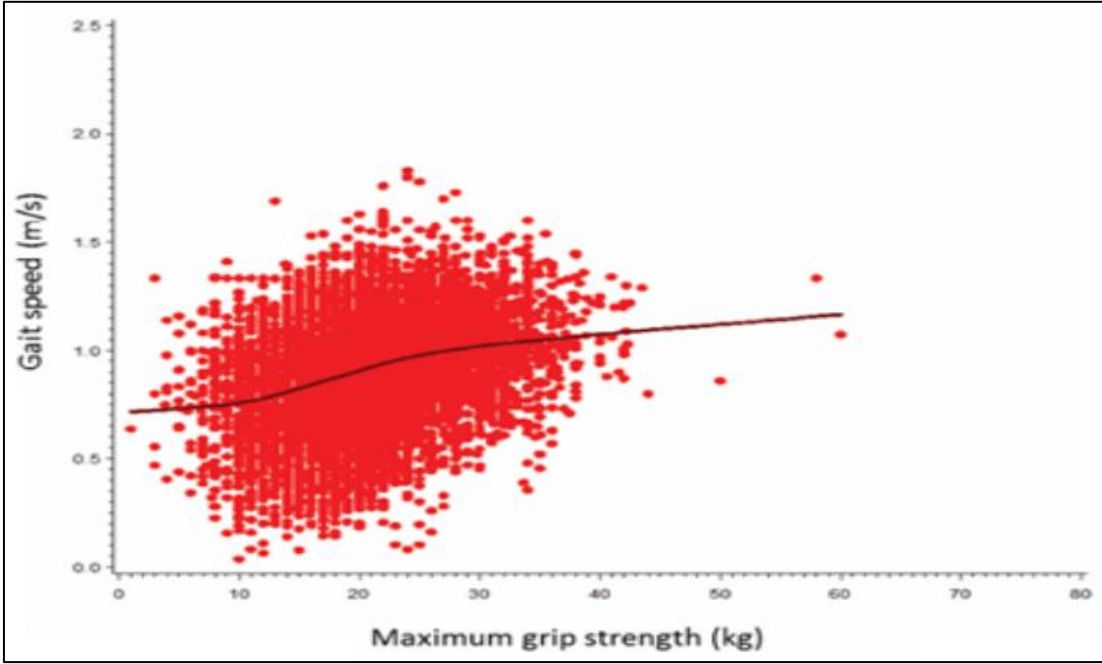
Report of the European Working Group on Sarcopenia in Older People

Criteria for the diagnosis of sarcopenia
Diagnosis is based on documentation of criterion 1 plus (criterion 2 or criterion 3)
.....
1. Low muscle mass
2. Low muscle strength
3. Low physical performance

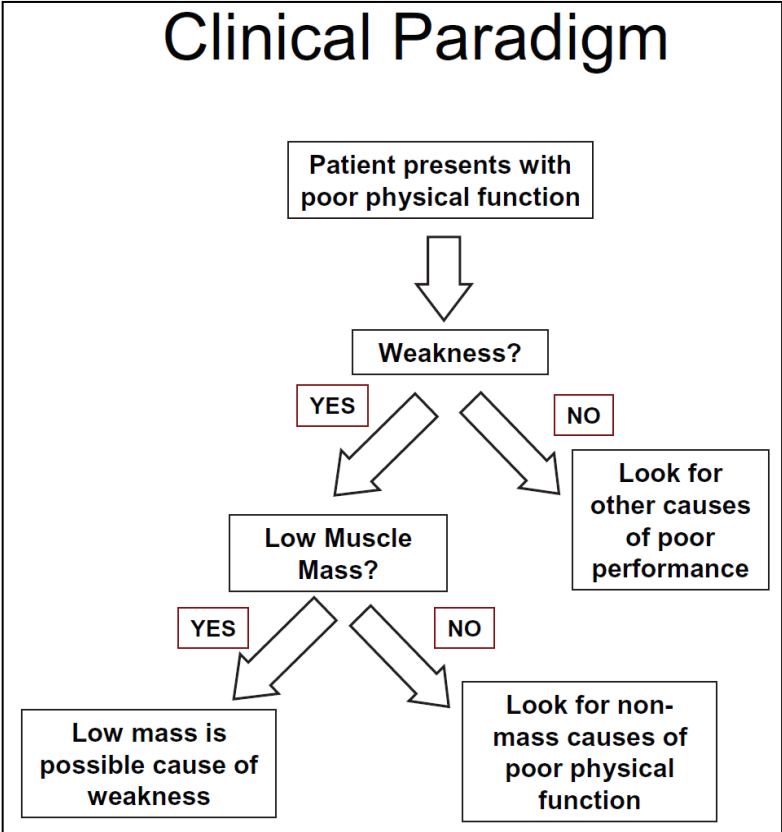
EWGSOP conceptual stages of sarcopenia			
Stage	Muscle mass	Muscle strength	Performance
.....			
Presarcopenia	↓		
Sarcopenia	↓	↓	Or ↓
Severe sarcopenia	↓	↓	↓



The FNIH Sarcopenia Project: Rationale, Study Description, Conference Recommendations, and Final Estimates



J Gerontol A Biol Sci Med Sci 2014 May;69(5):559-566



Journals of Gerontology: MEDICAL SCIENCES
 Cite journal as: *J Gerontol A Biol Sci Med Sci 2014 May;69(5):547-558*
 doi:10.1093/gerona/glu010

Criteria	Operational Definition		
	Physical Performance	Muscle Strength	ALM
Foundation of NIH Sarcopenia Project			
Weakness and low lean mass	—	Grip strength Men: <26 kg Women: <16 kg	ALM _{BMI} Men: <0.789 Women: <0.512
Slowness with weakness and low lean mass	Gait speed: ≤0.8 m/s	Grip strength Men: <26 kg Women: <16 kg	ALM _{BMI} Men: <0.789 Women: <0.512

Journals of Gerontology: MEDICAL SCIENCES
 Cite journal as: *J Gerontol A Biol Sci Med Sci 2014 May;69(5):584-590*
 doi:10.1093/gerona/glu013

Sarcopenia: revised European consensus on definition and diagnosis

EWGSOP2 *Age and Ageing* 2019; **48**: 16–31

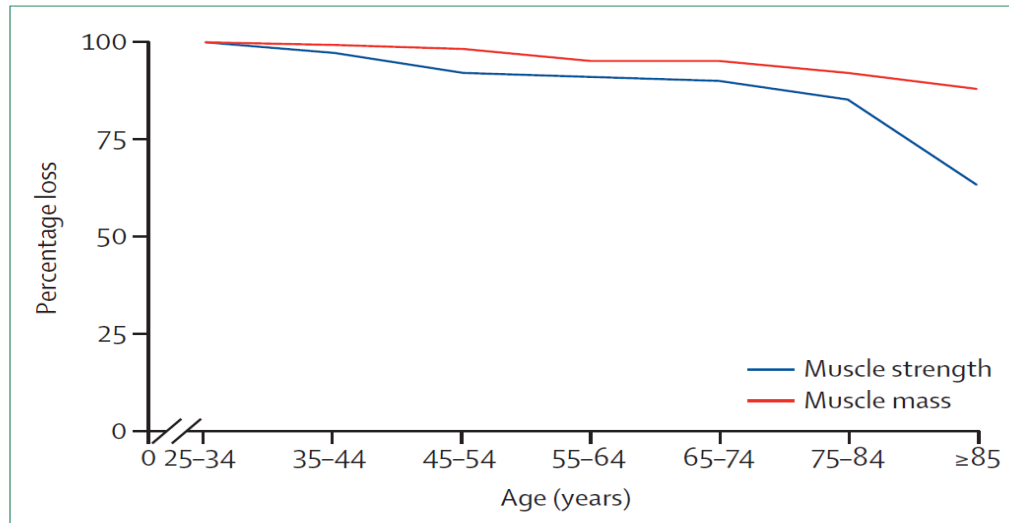
2018 operational definition of sarcopenia

Probable sarcopenia is identified by Criterion 1.

Diagnosis is confirmed by additional documentation of Criterion 2.

If Criteria 1, 2 and 3 are all met, sarcopenia is considered severe.

- (1) Low muscle strength
- (2) Low muscle quantity or quality
- (3) Low physical performance



Percentage loss of muscle mass and muscle strength with age in men

Lancet 2019; 393: 2636–46

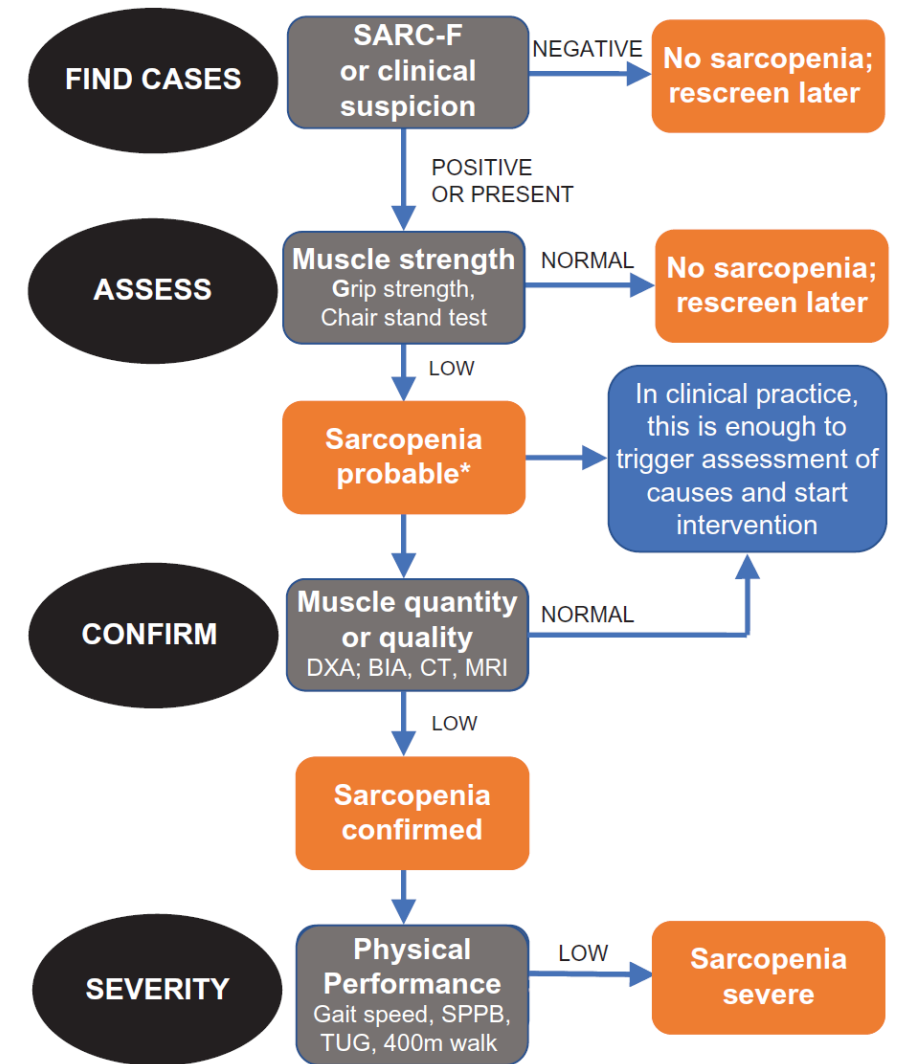
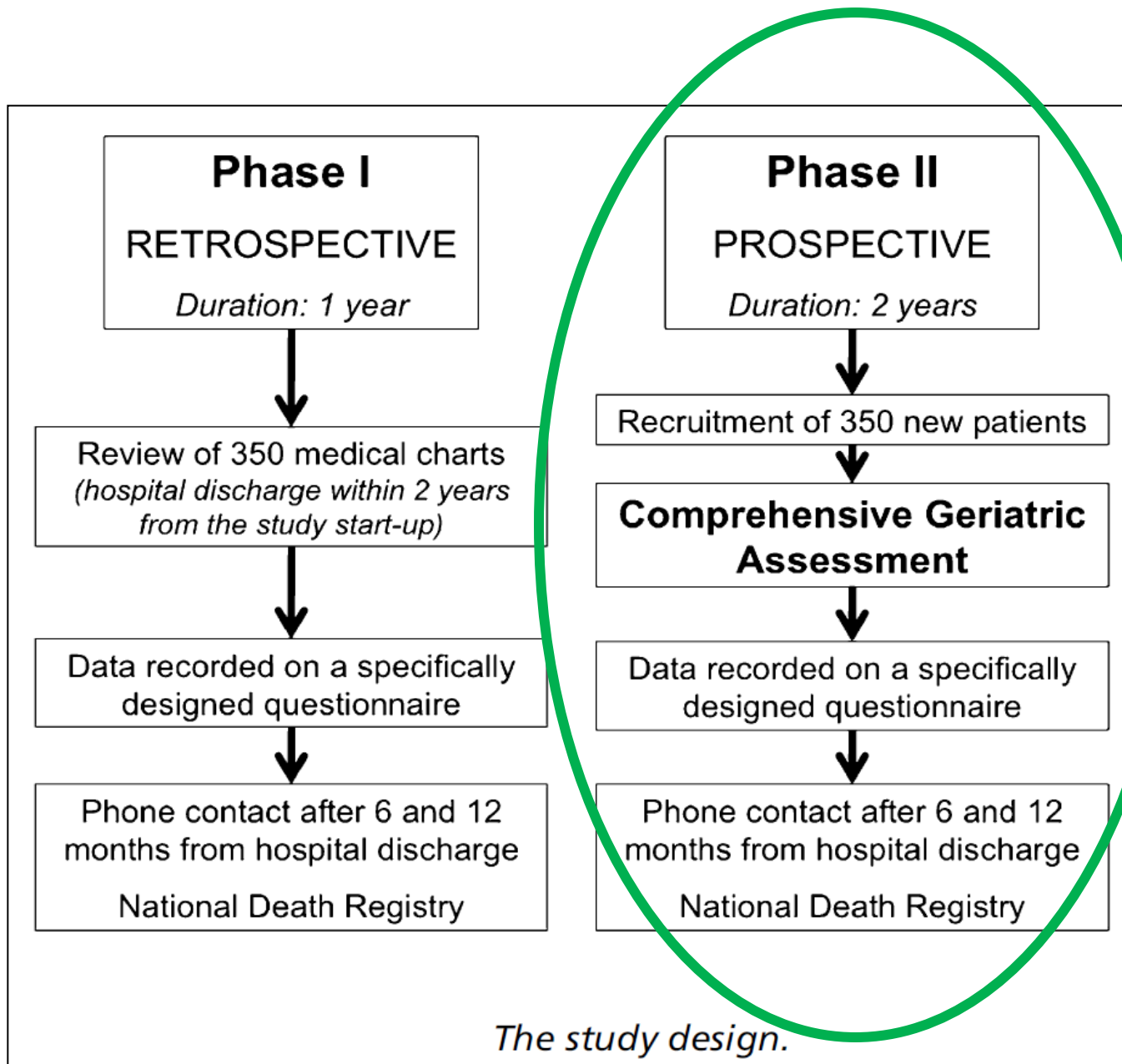


Figure 1. Sarcopenia: EWGSOP2 algorithm for case-finding, making a diagnosis and quantifying severity in practice. The steps of the pathway are represented as Find-Assess-Confirm-Severity or F-A-C-S. *Consider other reasons for low muscle strength (e.g. depression, stroke, balance disorders, peripheral vascular disorders).



Main Areas Investigated during the Comprehensive Geriatric Assessment, and Related Screening Tools/Assessments

Area	Screening Tools/Assessments
Sociodemographics	
Cancer diagnosis	Site, type Staging Classification
Comorbidity	Cumulative Illness Rating Scale
Cognition	Mini Mental State Examination
Mood	Geriatric Depression Scale
Quality of life—Pain	Euro-QoL 5D Pain Visuo-Analogue Scale
Therapy—Polypharmacy	Naranjo Adverse Drug Reaction Probability scale
Biological measures	Blood cell counts Blood chemical measures Blood cancer markers
Body composition	Anthropometric measures Dual energy X-ray absorptiometry
Functional status	Activities of Daily Living Instrumental Activities of Daily Living Eastern Cooperative Oncology Group Performance Status Karnofsky Performance Status
	Short Physical Performance Battery Hand grip strength
Follow-up	Hospitalization Institutionalization Survival

DEFINITIONS OF SARCOPENIA

DEFINITIONS OF SARCOPENIA

<i>Baumgartner</i>	$ASM/height^2 < 5.45 \text{ Kg/m}^2$
<i>Newman</i>	Residuals < -1.73
<i>EWGSOP 2009</i>	$(ASM/height^2 < 5.5 \text{ Kg/m}^2 \ \& \ \text{hand grip} < 20 \text{ Kg}) \mid (ASM/height^2 < 5.5 \text{ Kg/m}^2 \ \& \ \text{gait speed} < 0.8 \text{ m/s})$
<i>FNIH 2012</i>	$ASM/BMI < 0.512 \ \& \ \text{hand grip} < 16 \text{ Kg}$
	$ASM/BMI < 0.512 \ \& \ \text{hand grip} < 16 \text{ Kg} \ \& \ \text{gait speed} \leq 0.8 \text{ m/s}$
<i>EWGSOP 2018</i>	$ASM/height^2 < 5.5 \text{ Kg/m}^2 \ \& \ \text{hand grip} < 16 \text{ Kg}$

Main characteristics of the studied population

	Total (n= 44)		Total (n= 44)		Total (n= 44)
Age (years), mean (SD)	73.6 (6.5)	Comorbidities, number (%)		Weight (Kg), mean (SD)	72.3 (15)
Education (years), mean (SD)	7.38 (4.3)	Hypertension	37 (84.1)	Height (m), mean (SD)	1.6 (0.1)
Smoking status, number (%)		Diabetes	35 (9)	BMI(Kg/m2), mean (SD)	28.8 (5.8)
never	33 (75)	CHD	11 (25)	SPPB, median (IQR)	8 (5-11.75)
current	5 (11.4)	CHF	3 (6.8)	Usual gait speed (m/s), mean (SD)	0.7 (0.3)
ex	5 (11.4)	Atrial fibrillation	5 (11.4)	Handgrip strength (Kg), mean (SD)	21.4 (5.7)
ADL, median (IQR)	5.5 (5-6)	TIA	1 (2.3)	ASM (Kg), mean (SD)	15.4 (2.8)
IADL, median (IQR)	8 (6-8)	Ischemic stroke	0 (0)	ASM (Kg)/h2, mean (SD)	6.1 (0.9)
Mini-Mental State Examination, mean (SD)	27.9 (2.6)	Haemorrhagic stroke	1 (2.3)	ASM (Kg)/BMI, mean (SD)	0.55 (0.12)
Geriatric Depression Scale, mean (SD)	5.3 (3.5)	Peripheral arterial disease	0 (0)	Residuals, median (IQR)	- 0.02 (-2.1-2.1)
Quality of life (mm), mean (SD)	64.9 (21.6)	COPD	4 (9.1)	Total fat mass (Kg), mean (SD)	28.6 (9)
VAS (mm), mean (SD)	45.2 (30.1)	Respiratory infection	1 (2.3)	PAS at hospital admission (mmHg), mean (SD)	127 (12)
Type of cancer, number (%)		Liver disease	1 (2.3)	PAD at hospital admission (mmHg), mean (SD)	74.9 (8.4)
Ovarian	26 (59)	Hypothyroidism	3 (6.8)	Blood tests at hospital admission, mean (SD)	
Uterine	13 (29.5)	Hypertyroidism	2 (4.5)	Hb (g/dl)	11.9 (1.6)
Cervical	2 (4.5)	Depression	4 (9.1)	Platelet (x 10 ⁹ /L)	273 (114)
Vulvar	3 (6.8)	Parkinson	0 (0)	WBC (x 10 ⁹ /L)	5 (1.6)
Tube	0 (0)	Alzheimer Disease	1 (2.3)	Creatinine (mg/dl)	1.07 (0.49)
Vaginal	1 (2.3)	Vertigo	0 (0)	Albumin (g/dl)	3.7 (0.6)
Trophoblast	0 (0)	Osteoporosis	11 (25)	Cholesterol (mg/dl)	181 (32)
Breast	1 (2.3)	Arthrosis	14 (31.8)		
Interventions, number (%)		CIRS severity, mean (SD)	1.6 (0.2)		
Surgery	39 (88.6)	CIRS complexity, median (IQR)	2 (1-2.75)		
Radiotherapy	5 (11.4)	Number of medications, mean (SD)	4 (2.37)		
Chemotherapy	20 (45.5%)				
Palliative care	2 (4.5)				
Death, number (%)	4 (9.1)				

PREVALENCE OF SARCOPENIA

	Total (n= 44)
<i>Baumgartner, number (%)</i>	10 (22.7)
<i>Newmann, number (%)</i>	2 (4.5)
<i>EWGSOP 2009, number (%)</i>	10 (22.7)
<i>FNIH_1, number (%)</i>	4 (9.1)
<i>FNIH_2, number (%)</i>	1 (2.3)
<i>EWGSOP 2018, number (%)</i>	2 (4.5)

CONCORDANCE AMONG DIFFERENT DEFINITIONS OF SARCOPENIA

	<i>Baumgartner</i>		<i>Newman</i>		<i>EWGSOP 2009</i>		<i>FNIH_1</i>		<i>FNIH_2</i>		<i>EWGSOP 2018</i>	
<i>Baumgartner</i>			0.26 κ		0.92 κ		0.23	κ	0.2	κ	0.33 κ	
			0.02 <i>p value</i>		< 0.01 <i>p value</i>		0.19	<i>p value</i>	0.07	<i>p value</i>	0.01 <i>p value</i>	
<i>Newman</i>	0.26 κ				0.26 κ		0.36 κ		-0.36	κ	0.65 κ	
	0.02 <i>p value</i>				0.03 <i>p value</i>		0.01 <i>p value</i>		0.88	<i>p value</i>	< 0.001 <i>p value</i>	
<i>EWGSOP 2009</i>	0.92 κ		0.26 κ				0.18	κ	0.17	κ	0.29 κ	
	< 0.01 <i>p value</i>		0.03 <i>p value</i>				0.28	<i>p value</i>	0.9	<i>p value</i>	0.02 <i>p value</i>	
<i>FNIH_1</i>	0.23	κ	0.36 κ		0.18	κ			0.36 κ		0.63 κ	
	0.19	<i>p value</i>	0.01 <i>p value</i>		0.28	<i>p value</i>			0.01 <i>p value</i>		< 0.01 <i>p value</i>	
<i>FNIH_2</i>	0.2	κ	-0.36	κ	0.17	κ	0.36 κ				0.65 κ	
	0.07	<i>p value</i>	0.88	<i>p value</i>	0.09	<i>p value</i>	0.01 <i>p value</i>				< 0.001 <i>p value</i>	
<i>EWGSOP 2018</i>	0.33 κ		0.65 κ		0.29 κ		0.63 κ		0.65 κ			
	0.01 <i>p value</i>		< 0.001 <i>p value</i>		0.02 <i>p value</i>		< 0.001 <i>p value</i>		< 0.001 <i>p value</i>			

Agreement less than it would be expected by chance	$\kappa < 0$
Agreement equivalent to chance	$\kappa = 0$
Poor agreement	$\kappa < 0.2$
Fair agreement	$0.2 \leq \kappa < 0.4$
Moderate agreement	$0.4 \leq \kappa < 0.6$
Good agreement	$0.6 \leq \kappa < 0.8$
Very good agreement	$0.8 \leq \kappa < 1$
Perfect agreement	$\kappa = 1$

*Thank you
for
the kind
attention*

sarah.damanti@hotmail.it