Sarcopenia Assessment
using DXA Technology from GE Healthcare

Healthy Aging – It's Vital

What is sarcopenia?

Sarcopenia – muscle loss with aging

Sarcopenia is a disease associated with the aging process. Loss of muscle mass and strength affects balance, gait, and the ability to perform daily living tasks. Sarcopenia most commonly is seen in inactive people but can also affect individuals who remain physically active throughout their lives.

Although a sedentary lifestyle contributes to this disease, it's not the only factor. As we age, hormone levels change, protein requirements alter, motor neurons die, and we tend to become more sedentary.[1]

In recent studies, it has been found that worsening sarcopenia followed trends in losses of muscle strength as well as impairment of daily functioning.[2] In one such study, it was found that the prevalence of sarcopenia increased dramatically with age from 4% of men and 3% of women aged 70-75 to 16% of men and 13% of women aged 85 or older.[3]

When sarcopenia is coupled with other diseases associated with aging, its affects can be even more pronounced. Loss of muscle mass and strength is a significant risk factor for disability in the aging population.[4] When patients suffer from both sarcopenia and osteoporosis, the risk of falling and subsequent fracture incidence is higher.[5] Therefore, treating sarcopenia will in turn help to lessen its burden on co-existing diseases.
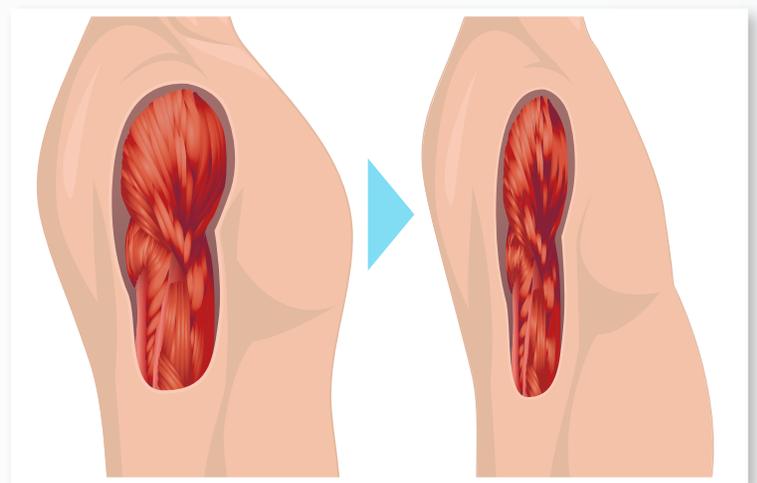
Illustration of sarcopenia induced muscle loss

DXA bone densitometer systems with enCORE v17 sarcopenia feature

The optional sarcopenia software in enCORE version 17 calculates values based on published definitions and thresholds using measured **appendicular lean mass** in combination with patient demographics and entered values of **muscle strength** and **physical performance**. These values may be useful to health care professionals in their management of sarcopenia.

Sarcopenia Calculator uses Appendicular Lean Mass (ALM) from a DXA Scan
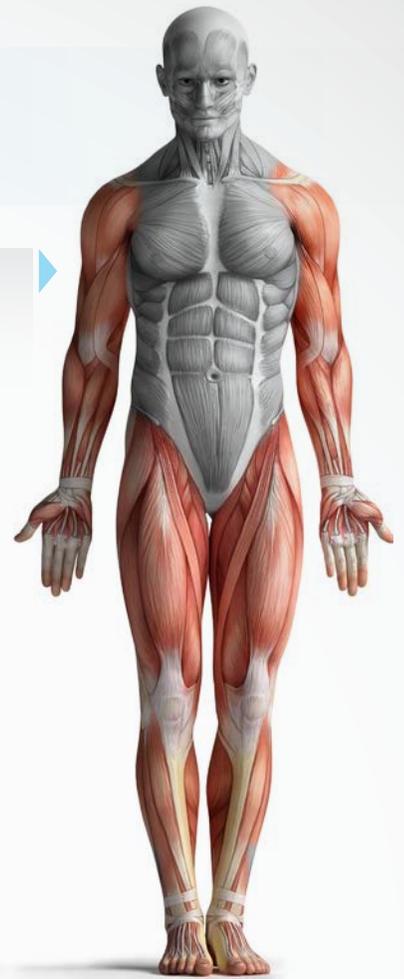
Choose from different sarcopenia definitions

The sarcopenia feature allows you to choose from one of the five standards:

- **BAUM** – Baumgartner[6]
- **AWGS** – Asian Working Group for Sarcopenia[7]
- **EWGSOP** – European Working Group on Sarcopenia in Older People[8]
- **FNIH** - Foundation for National Institutes of Health Sarcopenia Project[9]
- **IWGS** – International Working Group on Sarcopenia[10]

Sarcopenia Definitions   ✕

☑ Enable   OK

AWGS	Asian Working Group for Sarcopenia
BAUM	Baumgartner
EWGSOP	European Working Group on Sarcopenia in Older People
FNIH	Foundation for the National Institutes of Health Sarcopenia Project
IWGS	International Working Group on Sarcopenia

Cancel

☐ Advanced
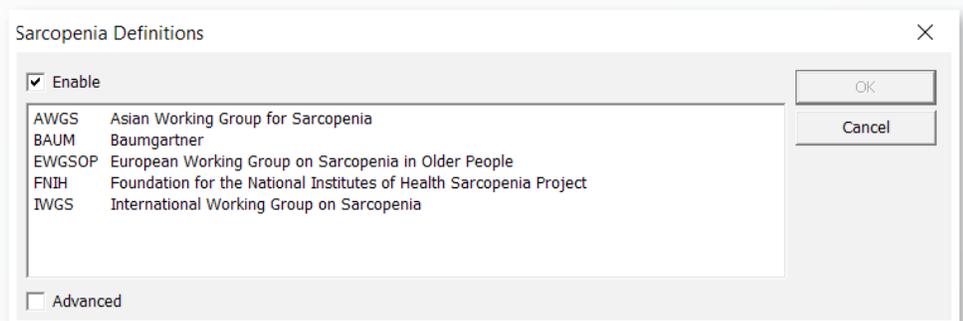
Possible Definitions of Sarcopenia in enCORE 17

View an existing sarcopenia definition

You could also view any of the existing sarcopenia definitions.

Sarcopenia Definitions   ✕

☑ E_nable

		OK
AWGS	Asian Working Group for Sarcopenia	Cancel
BAUM	Baumgartner	
EWGSOP	**European Working Group on Sarcopenia in Older People**	New...
FNIH	Foundation for the National Institutes of Health Sarcopenia Project	
IWGS	International Working Group on Sarcopenia	Vi_ew...

☑ Ad_vanced

> ◄ View existing Sarcopenia definition

Sarcopenia Definition   ✕

Abbreviation and Name:

EWGSOP	European Working Group on Sarcopenia in Older People

Female:

Minimal Age

| 65 | ▾ |

Sev.	Classification	Formula
1	Presarcopenia	$(ALM/Ht^2 <= 5.45\ kg/m^2)$
2	Sarcopenia	$((Gait\ Speed < 0.80\ m/s)\ Or\ (Grip\ Strength < 20.0\ kg))\ And\ (ALM/Ht^2 <= 5.45\ kg/m^2)$
3	Severe Sarcopenia	$(Gait\ Speed < 0.80\ m/s)\ And\ (Grip\ Strength < 20.0\ kg)\ And\ (ALM/Ht^2 <= 5.45\ kg/m^2)$

Male:

Minimal Age

| 65 | ▾ |

Sev.	Classification	Formula
1	Presarcopenia	$(ALM/Ht^2 <= 7.26\ kg/m^2)$
2	Sarcopenia	$((Gait\ Speed < 0.80\ m/s)\ Or\ (Grip\ Strength < 30.0\ kg))\ And\ (ALM/Ht^2 <= 7.26\ kg/m^2)$
3	Severe Sarcopenia	$(Gait\ Speed < 0.80\ m/s)\ And\ (Grip\ Strength < 30.0\ kg)\ And\ (ALM/Ht^2 <= 7.26\ kg/m^2)$

OK	Cancel

Create new sarcopenia definitions

You also have the ability to create new sarcopenia definitions by using patient measurement parameters such as ALM, BMI, height, gait speed and grip strength.

- **Classification field**: Enter a classification name

- **Logic drop-down menus**: Provide the classification measurement device "and/or" logic. Select Or() and And() to provide parentheses to indicate precedence

- **Measurement**: Select measurement devices used in determining sarcopenia classifications

- **Operator selections**: Provide a math operation for comparison to value

- **Value fields**: Enter a comparison measurement value

Calculate sarcopenia results

After you have selected a default sarcopenia definition, you can use the sarcopenia feature to calculate whether a patient is sarcopenic after entering values of muscle strength and physical performance.

Sarcopenia Calculator

| Densitometry | Composition | CoreScan | Metabolic | Sarcopenia | Information |

Measurement:

ALM/Ht²	6.59	kg/m²
Grip Strength	29.9	kg
Gait Speed	0.81	m/s

Classification:
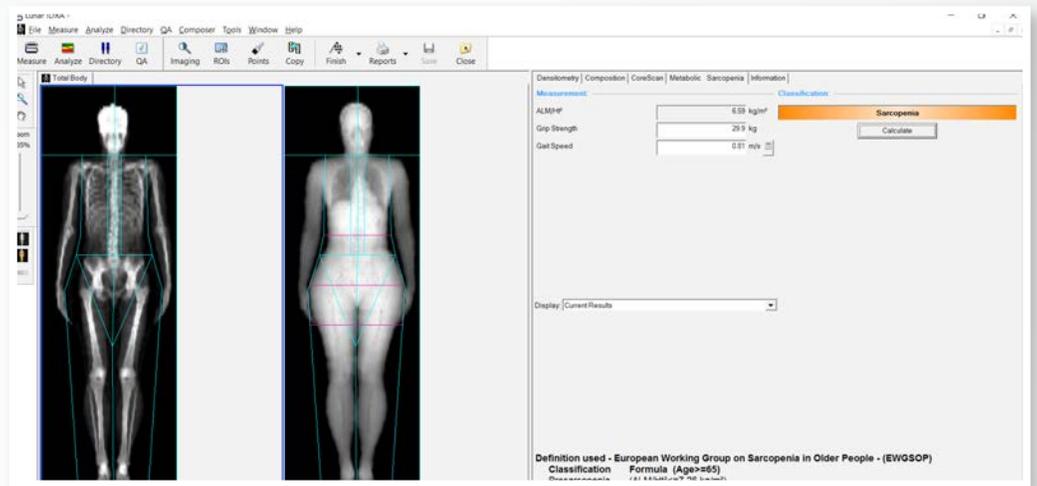
Sarcopenia

[Calculate]

References:

1. International Osteoporosis Foundation - https://www.iofbonehealth.org/what-sarcopenia

2. Mithal A, Bonjour J-P, Boonen S, Burckhardt P, Degens H, El Hajj Fuleihan G, Josse R, Lips P, Morales Torres J, Rizzoli R, Yoshimura N, Wahl D.A., Cooper C, Dawson-Hughes B(2011) Impact of nutrition on muscle strength and performance in older adults. Osteoporosis International (in press)

3. Castillo EM, Goodman-Gruen D, Kritz-Silverstein D, Morton DJ, Wingard DL, Barrett-Connor E (2003) Sarcopenia in elderly men and women - The Rancho Bernardo Study. Am J Prev Med 25: 226-231

4. Volpi, E, Nazemi R, Fujita S, (2004) Muscle tissue changes with aging. Curr Opin Nutr Metab Care July, 7(4):405-410

5. Sarcopenia: European consensus on definition and diagnosis, Report of the European Working Group on Sarcopenia in Older People," Age and Ageing Advance Access originally published online on April 13, 2010, Age and Ageing 2010 39(4):412-423

6. Baumgartner RN, Koehler KM, Gallagher D et al (1998) Epidemiology of sarcopenia among the elderly in New Mexico. Am J Epidemiol 147(8):755–763

7. Chen LK, Liu LK, Woo J, Assantachai P, Auyeung TW, Bahyah KS, et al. Sarcopenia in Asia: consensus report of the Asian Working Group for Sarcopenia. JAMDA. 2014;15:95–101

8. Cruz-Jentoft AJ, Baeyens JP, Bauer JM et al (2010) Sarcopenia: European consensus on definition and diagnosis: report of the European Working Group on Sarcopenia in Older People. Age and Ageing 39(4):412–423

9. Studenski SA, Peters KW, Alley DE et al (2014) The FNIH sarcopenia project: rationale, study description, conference recommendations, and final estimates. J Gerontol A Biol Sci Med Sci 69(5):547–558

10. Fielding RA, Vellas B, EvansWJ et al (2011) Sarcopenia: an undiagnosed condition in older adults. Current consensus definition: prevalence, etiology, and consequences. International working group on sarcopenia. J Am Med Dir Assoc 12(4):249–256

April 2017
JB48544XX