



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 effects 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.

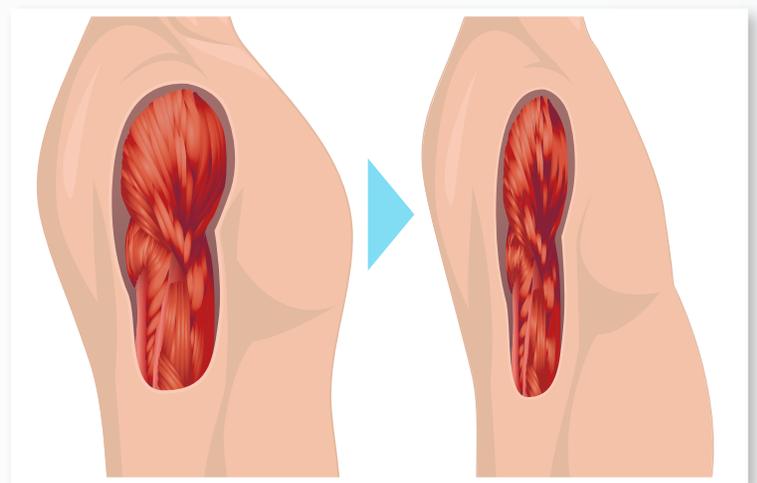


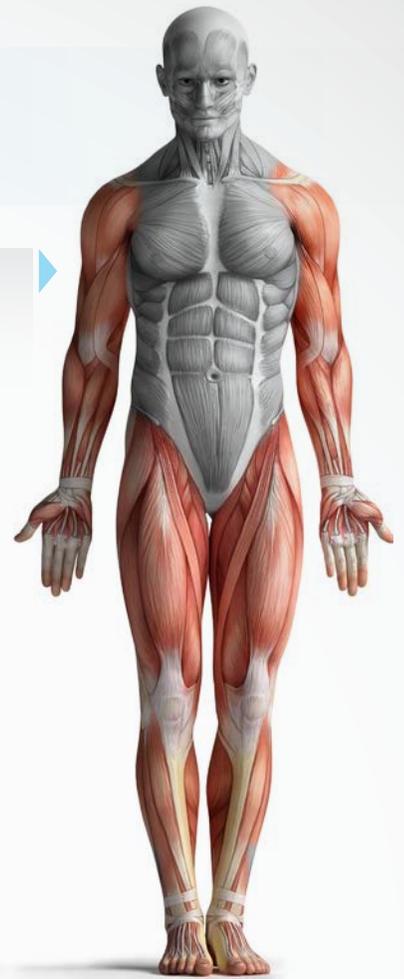
Illustration of sarcopenia induced muscle loss



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.

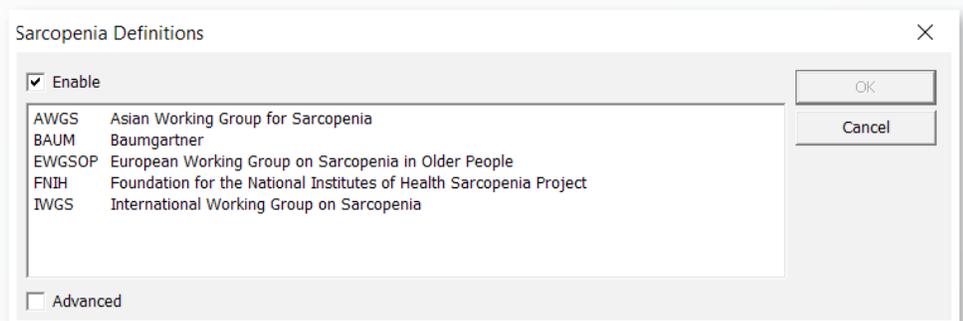
Sarcopenia Calculator uses Appendicular Lean Mass (ALM) from a DXA Scan



Choose from different sarcopenia definitions

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

- **BAUM** – Baumgartner⁶
- **AWGS** – Asian Working Group for Sarcopenia⁷
- **EWGSOP** – European Working Group on Sarcopenia in Older People⁸
- **FNIH** - Foundation for National Institutes of Health Sarcopenia Project⁹
- **IWGS** – International Working Group on Sarcopenia¹⁰



Possible Definitions of Sarcopenia in enCORE 17

View an existing sarcopenia definition

You could also view any of the existing sarcopenia definitions.

The image shows two overlapping dialog boxes from a software application. The top dialog, titled 'Sarcopenia Definitions', has a list of definitions: 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), and IWGS (International Working Group on Sarcopenia). The 'EWGSOP' entry is selected and highlighted in blue. To the right of this dialog is a callout box with a blue arrow pointing to the 'View...' button, containing the text 'View existing Sarcopenia definition'. The bottom dialog, titled 'Sarcopenia Definition', shows the configuration for the selected 'EWGSOP' definition. It includes fields for 'Abbreviation and Name' (filled with 'EWGSOP' and 'European Working Group on Sarcopenia in Older People') and two tables for 'Female' and 'Male' criteria. Each table has a 'Minimal Age' dropdown set to '65' and a table with columns 'Sev.', 'Classification', and 'Formula'. The 'Female' table has three rows: 1. Presarcopenia (ALM/Ht² ≤ 5.45 kg/m²), 2. Sarcopenia ((Gait Speed < 0.80 m/s) Or (Grip Strength < 20.0 kg)) And (ALM/Ht² ≤ 5.45 kg/m²), and 3. Severe Sarcopenia (Gait Speed < 0.80 m/s) And (Grip Strength < 20.0 kg) And (ALM/Ht² ≤ 5.45 kg/m²). The 'Male' table has three rows: 1. Presarcopenia (ALM/Ht² ≤ 7.26 kg/m²), 2. Sarcopenia ((Gait Speed < 0.80 m/s) Or (Grip Strength < 30.0 kg)) And (ALM/Ht² ≤ 7.26 kg/m²), and 3. Severe Sarcopenia (Gait Speed < 0.80 m/s) And (Grip Strength < 30.0 kg) And (ALM/Ht² ≤ 7.26 kg/m²). Both dialog boxes have 'OK' and 'Cancel' buttons.

Sarcopenia Definitions

- Enable
- 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

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)



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

Sarcopenia Definition

Abbreviation and Name: USER | New Sarcopenia Definition

Female: Minimal Age | 65

Male: Minimal Age | 65

Classification New

Classification: New Sarcopenia Definition

Logic: And

Measurement: Gait Speed

Operator: < (is less than)

Value: 0.01 m/s

NOTE: Classifications must be ordered from least to highest severity (Sev.)

Classification New

Classification: New Sarcopenia Definition

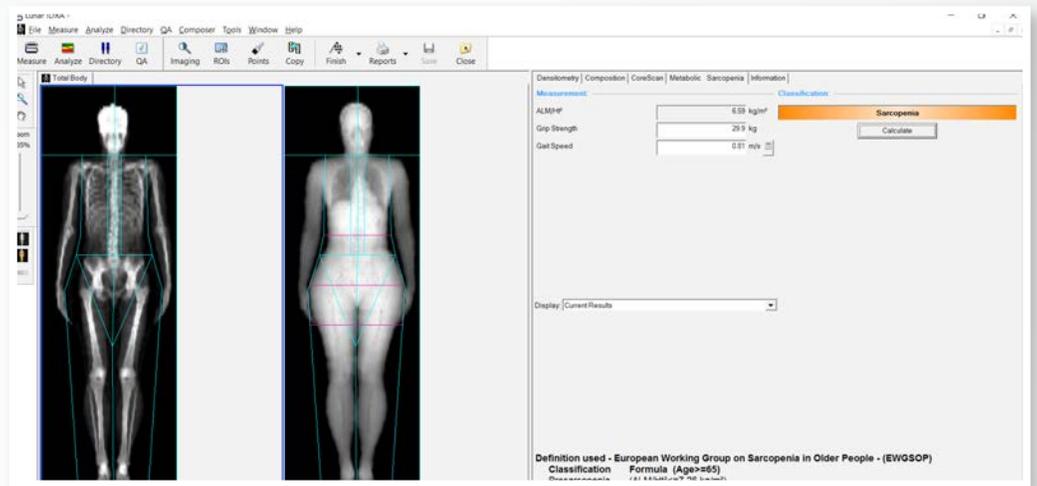
Logic:	Measurement:	Operator:	Value:
And	Gait Speed	< (is less than)	0.80 m/s
And	Grip Strength	< (is less than)	20.0 kg
Or	ALM/HT ²	<= (is less than or equal to)	5.54 kg/m ²

OK Cancel



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



References:

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