

Screening, Assessment, and Intervention for Sarcopenia in Clinical Practice: The Dietitian's Perspective

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■ BACKGROUND

As we age, we lose muscle mass and function, which may lead to a syndrome known as sarcopenia. The prevalence of sarcopenia has been estimated to range from 7% in community-dwelling older people, to 25% in the hospital, and to 71% in community-dwelling post hip-fracture patients.¹⁻⁴ Because sarcopenia contributes to disability, institutionalization, and mortality, clinicians need to help patients minimize muscle loss with early nutrition intervention and exercise to lower the risk for disability and hospitalization.⁵ As healthcare systems move to preventive medicine, knowing when and how to assess for sarcopenia can become standard practice in clinics. Clinicians will need to address patients at risk for onset of sarcopenia.

■ SCREENING FOR RISK FACTORS

Identifying sarcopenia starts with screening for risk, followed by a full assessment. Simple and reliable screening tools ensure consistent and accurate results in different clinical practices. Early indicators for patient screening include complaints of weakness and inability to get up from a chair. Examples of screening tools that may be useful in clinical practice include malnutrition screening tools and, more recently, the sarcopenia-specific SARC-F questionnaire (Strength, Assistance with walking, Rise from a chair, Climb stairs, Falls).

■ USING MALNUTRITION TOOLS TO IDENTIFY SARCOPENIA RISK

Unintentional weight loss can be an indicator of muscle mass loss and is a component of nearly every malnutrition screening tool. An example of a simple tool is the malnutrition screening tool.⁶ Assessment tools such as the subjective global assessment provide another opportunity for dietitians to recognize risk of sarcopenia. More recently, diminished functional status as assessed by handgrip strength has been added to a list of malnutrition assessment criteria.⁷ Malnutrition tools can help identify patients at risk for loss of muscle mass and function and determine who needs further screening and assessment for sarcopenia.

■ SCREENING FOR SARCOPENIA: SARC-F QUESTIONNAIRE

The SARC-F, a patient-reported questionnaire, is one example of a quick screening tool for sarcopenia (Table 1).⁸ Studies have shown the SARC-F is suitable for community-dwelling sarcopenia screening.⁹

Table 1. Components of SARC-F Questionnaire*

SARC-F Screen for Sarcopenia (Loss of Muscle)	
COMPONENT	QUESTION
S trength	How much difficulty do you have in lifting and carrying 10 pounds? Scoring: None = 0 Some = 1 A lot or unable = 2
A ssistance in Walking	How much difficulty do you have walking across a room? Scoring: None = 0 Some = 1 A lot, use aids or unable = 2
R ise from a Chair	How much difficulty do you have transferring from a chair or bed? Scoring: None = 0 Some = 1 A lot or unable without help = 2
C limb stairs	How much difficulty do you have climbing a flight of ten stairs? Scoring: None = 0 Some = 1 A lot or unable = 2
F alls	How many times have you fallen in the the last year? Scoring: None = 0 1-3 Falls = 1 4 or more falls = 2
Total score of 4 or more indicates sarcopenia.	

* Adapted from Malmstrom TK et al.⁸

SARCOPENIA ASSESSMENT

After risk is identified in the screening, assessment confirms sarcopenia. While most research groups agree that assessment should include both muscle mass and strength, exact cutoffs vary.⁴ One example is from The European Working Group on Sarcopenia in Older People (EWGSOP) who published diagnostic criteria for sarcopenia in 2010.¹⁰ To diagnose sarcopenia, an algorithm is recommended to define both loss of muscle mass and loss of muscle function (Figure 1). The Foundation for the National Institutes of Health (FNIH) has also proposed defining sarcopenia by measurements of weakness using handgrip strength and low lean mass using appendicular lean mass adjusted for body mass index.¹¹ Similar to the definition of malnutrition, work is ongoing to establish a global consensus definition.

At bedside or in a clinic, assessing muscle mass loss can be done through body composition analysis (e.g., bioimpedance analysis [BIA]), or anthropometric measures such as mid-upper arm circumference (MUAC). Where available, computed tomography (CT) scans may be used to assess muscle loss and ultrasound is another tool currently being explored. Assessing loss of muscle function can be documented as either low strength such as handgrip strength, or low physical performance such as gait speed or timed get-up-and-go test. See Table 2 for an expanded list of recommended assessment options.

While muscle mass assessment tools are available, the use of these tools such as dual energy X-ray absorptiometry (DXA) and CT may not be available or applicable in all clinical settings. However, working with a cross-functional clinical team, including physical therapy, may help identify what tests are already parts of the care protocol to determine if synergies can be created.

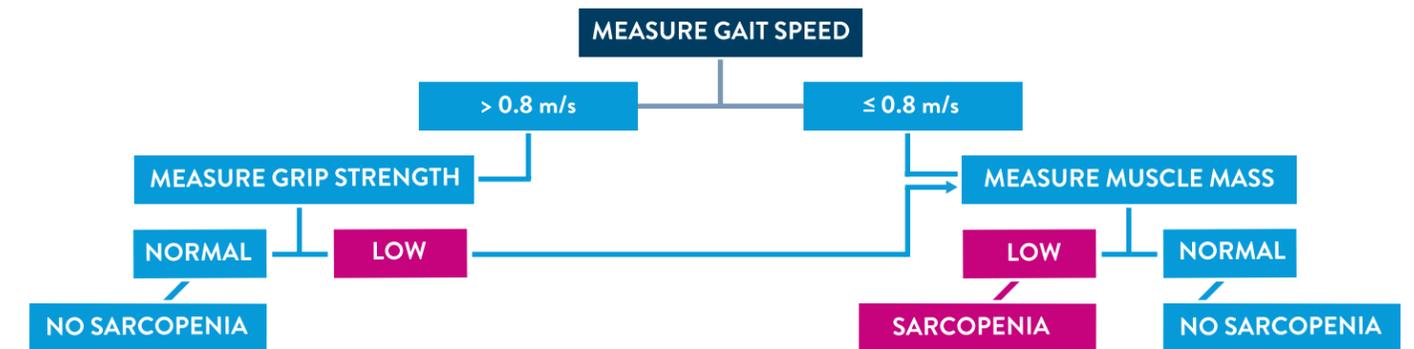


Figure 1. EWGSOP algorithm for diagnosing sarcopenia in older people.*

m/s=meter per second, EWGSOP=European Working Group on Sarcopenia in Older People

* Reproduced with permission from Cruz-Jentoft AJ, et al.¹⁰

Table 2. Assessment Tools for Diagnosing Sarcopenia*

DIAGNOSTIC CRITERIA	CLINICAL PRACTICE SETTING	RESEARCH SETTING
Muscle Mass	Anthropometry BIA DXA Ultrasound	Anthropometry BIA DXA Ultrasound CT Body potassium per fat free mass
Muscle Strength	Handgrip strength	Handgrip strength Knee flexion/extension Peak expiratory flow
Muscle Function	Gait speed Short physical performance battery Timed get-up-and-go test	Gait speed Short physical performance battery Timed get-up-and-go test Stair climb power test

BIA=bioimpedance analysis, DXA=dual energy X-ray absorptiometry, CT=computed tomography

* Reproduced with permission from Cruz-Jentoft AJ, et al.¹⁰

STARTING INTERVENTION

Whether patients are at risk or have confirmed sarcopenia, implementation of clinical strategies can address the loss of muscle strength and function that occurs with age to help lower the risk for frailty, disability, injuries, and hospitalization. Both exercise and nutrition intervention are recommended.¹² Supervised resistance training is appropriate as improved outcomes in strength and physical function have been documented in the frail elderly population.¹² At a minimum, nutrition intervention should include increasing protein intake to 1.2 g/kg body weight/day and ensuring individuals have access to food sources to meet their daily nutritional needs.¹²

Effective October 2016, clinicians can use the new ICD-10-CM code M62.84 to specifically record a diagnosis for patients with sarcopenia.¹³ With the new ICD-10 code, greater advancements in the prevention, diagnosis, and treatment of sarcopenia in older adults are in progress. This is an important step to ensure patients can receive the proper clinical care.

CONCLUSION

With a growing recognition of the adverse impact of sarcopenia, identifying individuals who need intervention becomes the first step to help maintain muscle mass and/or regain muscle strength as they age. A variety of simple tools—including those established for diagnosing malnutrition—are becoming available to help screen and assess sarcopenia-related muscle mass loss and function. Identify patients at risk and start nutrition and exercise intervention early to minimize further decline and help with recovery.



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