

The background of the slide features a close-up photograph of an elderly person's hands, which are wrinkled and aged, resting on their lap. The person is wearing a garment with a complex, colorful pattern of leaves and flowers in shades of blue, orange, and white. The top half of the image is partially obscured by a dark grey rectangular area containing the title and subtitle text.

# Assessing and Treating Low Muscle Mass and Malnutrition

Continuing Professional Education  
Self-Study Short Course

# **Assessing and Treating Low Muscle Mass and Malnutrition Course**

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# Assessing and Treating Low Muscle Mass and Malnutrition Course

## Acknowledgements

### Required Reading for this course:

Prado CM, Landi F, Chew STH, et al. Advances in muscle health and nutrition: A toolkit for healthcare professionals. *Clin Nutr*. 2022;41(10):2244-2263.

<https://doi.org/10.1016/j.clnu.2022.07.041>

Disclaimer: The required reading material associated with this course is required solely for the course taker to learn the underlying principles which they will apply in taking a case-study based exam. Neither the authors nor the publishers of the required reading material have contributed to or endorsed this course.



## Continuing Professional Education Self-Study Course

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# Assessing and Treating Low Muscle Mass and Malnutrition Course

## Professional Approvals

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This course and test must be completed prior to the expiration date. To obtain your continuing education certificate, you must review the material including required reading, take and pass an online test, and complete a simple evaluation. You may re-take the online test as many times as needed prior to the expiration date. If you are interrupted and cannot finish the test, you can save the test and come back later to finish it.

Carefully review the contents of this program. Keep in mind the practical applications it has for you in your individual setting. The focus is to increase your knowledge and application of the subject matter. For multiple choice questions select the one best answer from the choices given.

## Assessing and Treating Low Muscle Mass and Malnutrition Course

Course Expiration Date Must be completed prior to this date	Continuing Professional Education Units (Hours)	CDR Level	CDR Type	CDR Activity Number
November 10, 2026	4.0	II	740	179756

### Course Description

The required reading for this course, *Advances in muscle health and nutrition: A toolkit for healthcare professionals*, was published in *Clinical Nutrition* and presents a summary of the latest research and recommendations for identifying and treating low muscle mass and malnutrition.

A case-study based CPE examination helps the reader apply information in the course to their work setting and patient population. This course is appropriate for registered dietitian nutritionists, dietetic students, and educators.

### Course Learning Objectives

After completion of this CPE program, participants will be able to:

1. Interpret and apply learnings from evidence-based literature on assessing and treating low muscle mass and malnutrition.
2. Select valid and reliable tools and approaches based on the data to conduct low muscle mass and malnutrition assessments.
3. Collect and analyze anthropometric and body composition data on muscle mass to support nutrition diagnoses.

### Suggested CDR Performance Indicators

- 8.1.1 Interprets and applies evidence-based literature and standards for determining nutritional needs of target audiences.
- 10.2.1 Selects valid and reliable tools to conduct comprehensive nutrition assessments.
- 10.2.6 Collects and analyzes anthropometric and body composition data to contribute to nutrition diagnoses.

**Note: Numerous other Performance Indicators may apply.**

# Assessing and Treating Low Muscle Mass and Malnutrition Course

## Continuing Professional Education Self-Assessment Test

### Case Study:

Aviana and Mira are RDNs at a large Veterans Administration (VA) medical center. They have been asked to present a multi-disciplinary seminar on assessing and treating low muscle mass and malnutrition, especially given the generally older population they serve at the center. Mira posts a message to an online dietitian group asking for resources. A colleague recommends a new literature review and toolkit based on learnings from a global nutrition conference published in *Clinical Nutrition*. Aviana and Mira review the article and identify key points to include in their presentation.

1. Through their reading, Aviana and Mira are able to share with their colleagues that low muscle mass and malnutrition
  - a. are only observed in people who appear emaciated.
  - b. always result in visible symptoms or effects.
  - c. are prevalent at any body weight and age.
  - d. primarily present as conditions in patients who are critically ill.
2. The condition of having both low muscle mass and low muscle function is called
  - a. sarcopenia.
  - b. cachexia.
  - c. osteoporosis.
  - d. arthritis.
3. Which of the following statements is accurate as presented in the article?
  - a. Patients with low muscle mass or sarcopenia are always malnourished.
  - b. Individuals who are malnourished will also have low muscle mass or sarcopenia.
  - c. Sarcopenia causes frailty and malnutrition.
  - d. Malnutrition leads to sarcopenia because of a reduction in physical function.
4. In the meta-analysis of 39 studies on older hospitalized patients included in the review, what percent of the patients had a dual diagnosis of malnutrition and sarcopenia?
  - a. 28 percent
  - b. 42 percent
  - c. 56 percent
  - d. 18 percent



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5. An emerging factor related to aging and reduced muscle mass or function that is also seen in acute and chronic health conditions is
  - a. mitochondrial dysfunction.
  - b. muscle proteostasis.
  - c. microvascular inflammation.
  - d. neuromuscular damage.
6. It is suggested that the Global Leadership Initiative on Malnutrition (GLIM) criteria be used to diagnose malnutrition in conjunction with
  - a. comprehensive nutrition assessment.
  - b. valid nutrition screening tools.
  - c. valid nutrition screening tools and comprehensive nutrition assessment.
  - d. dual-energy x-ray absorptiometry and comprehensive nutrition assessment.
7. Aviana plans to prepare a table of body composition tools with an overview of their value in assessing muscle status, including which tool that is an indicator of cell membrane health and integrity?
  - a. Bioelectrical impedance analysis
  - b. Phase angle
  - c. Dual-energy x-ray absorptiometry
  - d. Spectroscopy
8. Which of the following assessment tools would be the most appropriate for use in an outpatient setting?
  - a. Ultrasound
  - b. Computerized tomography
  - c. Bioelectrical impedance analysis
  - d. Dual-energy x-ray absorptiometry
9. Recognizing that assessment tools may not always be available, Mira adds information to her slides on surrogate approaches for assessing muscle mass, such as
  - a. measuring calf circumference.
  - b. calculating body mass index.
  - c. administering timed-up-and-go.
  - d. performing a deuterated creatine dilution.

## **Assessing and Treating Low Muscle Mass and Malnutrition Course**

10. The ability of dietary protein to stimulate muscle protein synthesis depends on the rate of protein digestion and the amount of
  - a. complex carbohydrates.
  - b. essential amino acids.
  - c. short-chain fatty acids.
  - d. enzymes.
  
11. Deficiency of which vitamin has been linked to muscle dysfunction and sarcopenia?
  - a. Vitamin K
  - b. Vitamin C
  - c. Vitamin B12
  - d. Vitamin D
  
12. Aviana plans to wrap up the presentation with a focus on exercise, including its role in promoting mitochondrial health by
  - a. reducing oxidative damage.
  - b. decreasing protein genesis.
  - c. increasing adiposity.
  - d. inhibiting myogenesis.