

Sarcopenia: the newest geriatric syndrome?

Alfonso J. Cruz-Jentoft, *Hospital Universitario Ramón y Cajal, Madrid, Spain*

Sarcopenia is highly prevalent among older people around the world, and this condition has huge personal and financial costs. Yet sarcopenia does not have a broadly accepted clinical definition, and there are no consensus criteria or ICD-9 codes for this diagnosis. Likewise, treatment guidelines have not yet been developed. As a result, sarcopenia in older adults is almost certainly under-diagnosed and under-treated. The terms *sarcopenia*, *frailty*, and *cachexia* have all been used to describe conditions in which aging individuals experience a loss of muscle mass and strength, with decreasing physical function. This presentation discusses sarcopenia considered as a geriatric syndrome, while Professor Bauer will explore the relationship between sarcopenia and frailty in another presentation.¹

Sarcopenia, derived from the Greek *sarx* (*flesh*) + *penia* (*loss*), is a term that represents the condition of progressive loss of mass, quality, and strength of skeletal muscle with aging. Sarcopenia is a predictor of physical disability, leading in turn to loss of independence, lowered quality of life, and ultimately to death.²⁻³ Among older people, sarcopenia commonly occurs in association with *frailty*, which is characterized by decreased reserve and resistance to stressors, resulting in vulnerability to adverse health outcomes—falls, hospitalization, institutionalization, and death.

As a medical condition, sarcopenia has multiple contributing factors—less-than-optimal diet, sedentary lifestyle, certain drug treatments, and heritable causes.⁴⁻⁶ Also, sarcopenia must be considered from a life-course perspective; individuals with low levels of peak muscle mass early in life are more likely to experience sarcopenia as they age (Figure 1).⁵

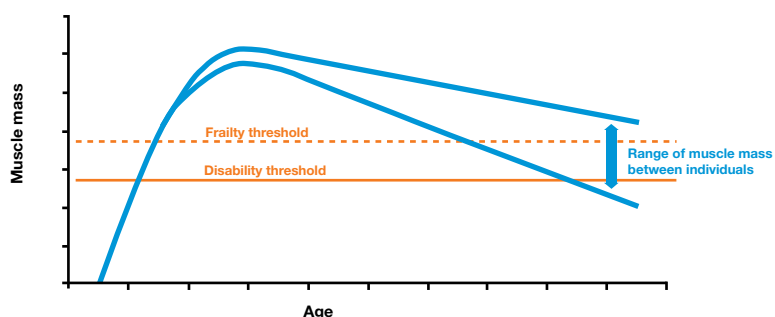


Figure 1. The life course of muscle mass and its relationship to development of sarcopenia

Geriatric syndromes are clinical scenarios that represent a state of impaired health in older individuals. Unlike other medical syndromes, geriatric syndromes are complex conditions resulting from multiple, interactive risk factors that can ultimately lead to development of frailty and poor outcomes (Figure 2).⁷ Age-related effects on multiple systems and diseases interact to produce a constellation of signs and symptoms. Four shared risk factors—older age, baseline cognitive impairment, impaired mobility, and baseline functional impairment—have been identified across 5 geriatric syndromes (pressure ulcers, incontinence, falls, functional decline, and delirium).⁷

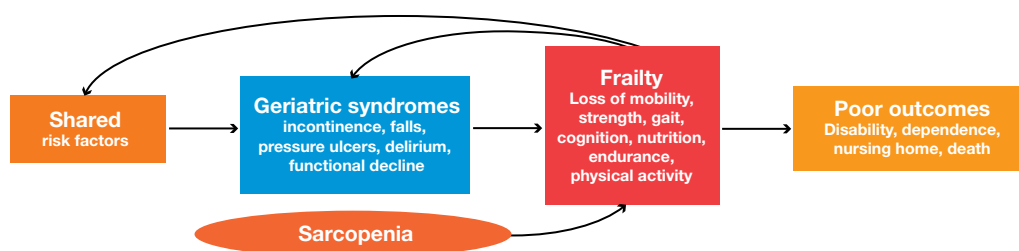


Figure 2. The association between geriatric syndromes, sarcopenia, frailty, and poor outcomes (Adapted from Inouye, 2007)

Sarcopenia can be best understood if considered as a geriatric syndrome, an approach that can help clinicians develop effective strategies to manage this condition. Signs and symptoms of sarcopenia can be treated, as is the case for other geriatric syndromes, even when causes remain unknown. Optimal management requires development of tools and algorithms for early detection, criteria for diagnosis, and evidence-based recommendations for treatment.

In the future, effective management of sarcopenia and other geriatric syndromes will depend on identifying multiple risk factors and on determining how these factors interact to damage organs and systems. The ultimate goal for management of sarcopenia is to identify lifestyle and treatment strategies that can prevent or delay its onset.

Take-home messages

- Understanding sarcopenia as a geriatric syndrome can help to understand its complex pathophysiology and consequences.
- Optimal management of sarcopenia will require development of tools and algorithms for early detection, criteria for diagnosis, and evidence-based recommendations for treatment.
- The ultimate goal for management is to identify lifestyle and treatment strategies that can prevent or delay onset of sarcopenia.

References

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Discussion

Mercedes Planas Vila: I agree that we must develop a working definition for sarcopenia. How will we differentiate between sarcopenia and the muscle weakening of other conditions that affect physical function, for example COPD? Both conditions are characterized by reduced muscular function; we must keep this situation in mind.

Alfonso Cruz: That's an excellent comment. There are many diseases that appear to be similar to sarcopenia. In some cases, we know the pathophysiology is different, as in cancer cachexia, [which is mediated by circulating cytokines]. In other diseases, the mechanism may be closer to that of the sarcopenic process. The problem is that we don't have much information yet to define the mechanisms of weight loss of COPD, heart failure, or renal failure. Do they share pathways with cancer or sarcopenia, or do they follow their own pathways?

Juergen Bauer: In an ideal world, we would have black and white—with sarcopenia as white and cachexia as black. But in our world, we have a lot of shades of gray. COPD may be a little bit closer to the light gray sarcopenia side. But rheumatoid arthritis, cancer cachexia, and heart failure may be more toward the darker shade of gray. Maybe it's a continuum; it's not easy to tackle those shades of gray.

Alfonso Cruz: This discussion reminds me of trying to differentiate between vascular dementia and Alzheimer's disease. For definitions, clear-cut big differences between both diseases were looked for. After definitions were agreed upon and research began, it was found that most patients had neither pure vascular dementia nor pure Alzheimer's, but they were in between. Those who were closer to vascular dementia were characterized as having vascular dementia, and those closer to Alzheimer's were considered to have Alzheimer's; but both diseases seem to be a continuum.