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COMMENTARY

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Sarcopenia beyond muscle: a public health challenge

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Abstract

Sarcopenia is often understood as a condition restricted to the loss of muscle mass. However, current evidence supports a broader perspective in which reduced muscle strength and physical performance are closely related to functional decline, falls, hospitalization, disability, and mortality. This perspective is particularly relevant in the context of population aging, in which maintaining functional ability has become a major public health priority. Sarcopenia affects not only individual health but also families, communities, healthcare systems, and social participation. Recent evidence suggests that sarcopenia is common among older community-dwelling adults, although prevalence varies substantially according to diagnostic criteria and assessment methods. Importantly, several of its associated factors, including physical inactivity, poor nutritional status, and some chronic conditions, are potentially modifiable. Therefore, sarcopenia should not be addressed exclusively within specialized clinical services. Early identification, health promotion, physical activity, nutritional care, rehabilitation, and coordinated action within primary healthcare may contribute to preserving mobility and independence. Physiotherapy has an important role in this process by connecting assessment and rehabilitation with prevention and promotion of functional health. Recognizing sarcopenia as a public health issue may help shift the focus from treating functional loss after it occurs toward preventing or delaying its progression across the life course.

Keywords: Sarcopenia, aging, public health, primary healthcare, physiotherapy

Sarcopenia is more than a muscle disorder

Sarcopenia has traditionally been associated with the progressive loss of muscle mass that accompanies aging. This view, however, is now considered insufficient. The European Working Group on Sarcopenia in Older People 2 (EWGSOP2) defines sarcopenia as a progressive and generalized skeletal muscle disorder in which low muscle strength is the primary characteristic, while reduced muscle quantity or quality confirms the diagnosis and poor physical performance indicates severe disease [1]. This conceptual shift is important because muscle strength and physical performance are closely related to the ability to walk, climb stairs, rise from a chair, perform daily activities, and remain independent.

Sarcopenia should also be distinguished from frailty. Although the two conditions are closely related and sarcopenia may contribute to the development of frailty, they are not synonymous. Sarcopenia primarily concerns skeletal muscle health, whereas frailty represents a broader state of reduced physiological reserve and increased vulnerability to stressors. Thus, muscle weakness may be an important component of frailty, but frailty encompasses multiple physiological and functional domains beyond muscle health [1, 2].

In other words, sarcopenia is not simply about having less muscle. It is about losing the physical capacity required to live independently.

This distinction changes the way sarcopenia should be understood. When muscle weakness progresses, the consequences may extend far beyond the musculoskeletal system. Older adults with sarcopenia are more likely to experience falls, fractures, disability, hospitalization, and death [2]. Therefore, the condition should be considered within a broader model of health that includes functionality, participation, social context, and access to healthcare.

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Why is sarcopenia a public health concern?

The aging population is transforming health needs worldwide. The World Health Organization (WHO) emphasizes that healthy aging is not simply the absence of disease but the development and maintenance of functional ability that enables well-being in older age [3]. From this perspective, preserving mobility, strength, independence, and participation becomes a central objective of health systems. Sarcopenia fits directly into this agenda.

A recent systematic review and meta-analysis including more than 70,000 community-dwelling older adults estimated an overall sarcopenia prevalence of 18.8%, although estimates ranged widely depending on the diagnostic criteria and assessment methods used [4]. Earlier evidence similarly demonstrated substantial variability in prevalence estimates, reinforcing the importance of standardized definitions and assessment strategies [5]. This variability should not obscure the main message: sarcopenia is sufficiently common to deserve attention beyond specialized geriatric services.

The public health relevance becomes even clearer when considering its consequences. A systematic review and meta-analysis involving 98,754 older adults found that sarcopenia was associated with higher risks of falls, fractures, hospital admissions, disability, and death [2]. Another meta-analysis found that sarcopenia was associated with approximately twice the risk of mortality across different populations and diagnostic definitions [6].

Thus, sarcopenia can be understood as part of a pathway that connects biological aging to functional limitation and, ultimately, to loss of independence.

From individual risk to population health

One of the most important reasons to approach sarcopenia as a public health issue is that its determinants are not exclusively biological.

Recent evidence has identified associations between sarcopenia and older age, poor nutritional status, physical inactivity, diabetes, depression, cognitive impairment, osteoarthritis, osteoporosis, and other chronic conditions [4, 7]. Some of these factors are potentially modifiable and can be addressed through health promotion, disease prevention, physical activity, nutritional interventions, and appropriate clinical management. This means that the response to sarcopenia cannot begin only after substantial functional impairment has occurred.

Primary healthcare services are strategically positioned to identify older adults at risk, encourage physical activity, monitor nutritional status, recognize early functional decline, and coordinate care with other health professionals. Such an approach is consistent with the broader principles of healthy aging, which emphasize person-centered and integrated care within communities [3].

Importantly, screening should not become an isolated activity. Identifying an older adult with low muscle strength is meaningful only when it leads to an appropriate care pathway.

A challenge for health systems

The consequences of sarcopenia also have an economic dimension. A systematic review found that most included studies reported higher healthcare costs among individuals with sarcopenia, although the authors highlighted important methodological limitations and heterogeneity across studies [8]. Earlier research in the United States estimated substantial direct healthcare costs attributable to sarcopenia and suggested that reducing its prevalence could generate meaningful savings [9].

These findings should be interpreted carefully. Not every healthcare cost observed among older adults is attributable to sarcopenia, and economic estimates vary according to definitions, populations, and health systems. Nevertheless, the evidence suggests that ignoring sarcopenia may have consequences not only for individuals but also for health services.

A public health perspective therefore requires a shift from a reactive model to a preventive one.

Instead of asking only, "How do we treat an older adult after functional decline?," health systems should also ask, "How can we identify and prevent functional decline earlier?"

From muscle care to functional health

The most important conceptual change may be simple: sarcopenia should be understood through what it means for people's lives.

An older adult does not experience "low muscle strength" as an isolated laboratory or clinical finding. They have trouble carrying groceries, standing from a chair, walking to the market, climbing stairs, playing with grandchildren, or participating in community activities. This is where sarcopenia becomes a public health concern.

The WHO framework for healthy aging places functional ability at the center of healthy aging and emphasizes the interaction between individual capacity, environments, and social conditions [3]. This framework provides an appropriate context for understanding sarcopenia. Muscle health is important because it contributes to mobility, independence, participation, and quality of life.

Therefore, addressing sarcopenia requires more than clinical diagnosis. It requires environments that support physical activity, accessible primary healthcare, appropriate nutrition, community-based exercise opportunities, early identification of functional decline, and coordinated multidisciplinary care.

Conclusions

Sarcopenia should no longer be viewed simply as an inevitable consequence of aging or as a problem confined to muscle tissue. It is a multidimensional condition with consequences for mobility, independence, disability, healthcare utilization, and survival.

The growing older population makes this issue increasingly relevant to public health. Early identification, physical activity, nutritional care, and functional interventions should be incorporated into strategies aimed at healthy aging. Within this framework, physiotherapy can play an important role by connecting prevention, assessment, exercise, rehabilitation, and functional independence. Ultimately, the goal should not be merely to preserve muscle. The goal is to preserve the ability to live.

Declarations

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