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# Comparing Recent Multinational Consensus Guidelines with the Latest Consensus from the European Working Group on Sarcopenia in Older People

*Vergleich aktueller multinationaler Konsensleitlinien mit dem jüngsten Konsens der European Working Group on Sarcopenia in Older People (EWGSOP)*

## Summary

- › **This clinical review** presents definitions of sarcopenia, diagnostic tools and criteria, as well as recommended therapeutic measures. Current consensus papers and guidelines were systematically identified, and their key statements were compared with the latest recommendations from the European Working Group on Sarcopenia in Older People.
- › **Finally**, three consensus papers were included for comparison. The consensus papers revealed both similarities and differences with regard to the underlying disease construct, screening procedures, diagnostic thresholds, and therapeutic recommendations. Some of the observed differences can be explained by population-specific factors, such as ethnic differences in body composition, different lifestyles, and different healthcare infrastructures.
- › **Nevertheless**, this review provides a valuable point of orientation and a foundation for clinical decision-making.

## KEY WORDS:

Muscle, Aging, Exercise, Nutrition, Therapeutic Recommendations, Lifestyle, Health Care

## Introduction

Sarcopenia is most commonly defined as a disorder of skeletal muscle characterized by a significant loss of muscle mass and strength, which increases the risk of functional impairments and adverse events (8). The term 'sarcopenia' ('sarx'=flesh, and 'penia'=loss) was first introduced by Rosenberg in 1989 to describe age-related loss of muscle mass (12). The clinical and economic relevance of sarcopenia derives less from its isolated occurrence than from its consequences and adverse health outcomes. It is consistently reported that sarcopenia is linked to an increased risk of falls and fractures, reduced health-related quality of life, and higher mortality (2). These associations highlight sarcopenia's significance as a public health concern.

Sarcopenia can manifest, for example, in a decrease in motor units, negative changes in neuromuscular junctions and efficiency of neuromuscular transmission (nerve signal to muscle activation), predominant atrophy of type 2 fibers, and increasing ectopic fat accumulation in skeletal muscle (4,13). A reduction in anabolic stimuli caused by a decrease in anabolic hormones and physical inactivity, as well as nutritional

deficiencies, can significantly influence disease progression (14). Chronic diseases associated with systemic inflammation and medications such as statins, muscle relaxants, or glucocorticoids, further contribute to its pathogenesis (13). This indicates that the physiological processes underlying sarcopenia are complex and extend beyond age-related processes alone (15).

This rapid review presents definitions of sarcopenia, diagnostic tools and criteria, as well as recommended therapeutic measures. To this end, current consensus papers and guidelines were systematically identified, and their key statements on definition, diagnosis, and therapy were compared with the latest recommendations from the European Working Group on Sarcopenia in Older People (EWGSOP2) (5,6).

## Literature Selection

### Systematic Literature Search

A systematic literature search was conducted in the PubMed database, focusing on current consensus and guideline documents on sarcopenia. The following search string was used:



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(“sarcopenia” [Title]) AND (“consensus” [Title] OR “guideline” [Title] OR “recommendation” [Title] OR “statement” [Title]). The search was limited to publications from the past three years (1/2023 to 1/2026), and was last updated on 17 January 2026.

**Inclusion and Exclusion Criteria**

Only English-language, multinational consensus and guideline documents providing explicit statements on the definition, diagnosis, and/or treatment of sarcopenia were included. Consensus and guideline documents on sarcopenia focusing on specific groups with additional comorbidities, on patients with sarcopenic obesity, or addressing only specific aspects (e.g. selected diagnostic methods) were excluded. Primary studies and other (systematic) reviews were also excluded.

**Selection Process**

The identified publications underwent a two-stage screening process. First, titles and abstracts were screened, followed by a full-text review of potentially relevant documents. Selection was performed independently by KR and CB according to the predefined inclusion and exclusion criteria. In cases of discrepancy, consensus was reached through discussion.

After applying the search strategy and completing the two-stage screening, three papers were ultimately included (see figure 1).

The publications included were multinational consensus documents providing normative standards for the definition, screening/diagnosis, and/or treatment of sarcopenia. The latest recommendations from the EWGSOP were added to these.

An overview of the characteristics of the included publications is presented in table 1.

**Definition of Sarcopenia**

EWGSOP2: Sarcopenia is defined as a skeletal muscle disorder affecting older adults, but that can also occur earlier in life and is associated with an increased risk of adverse outcomes. ‘Probable sarcopenia’ is identified by low

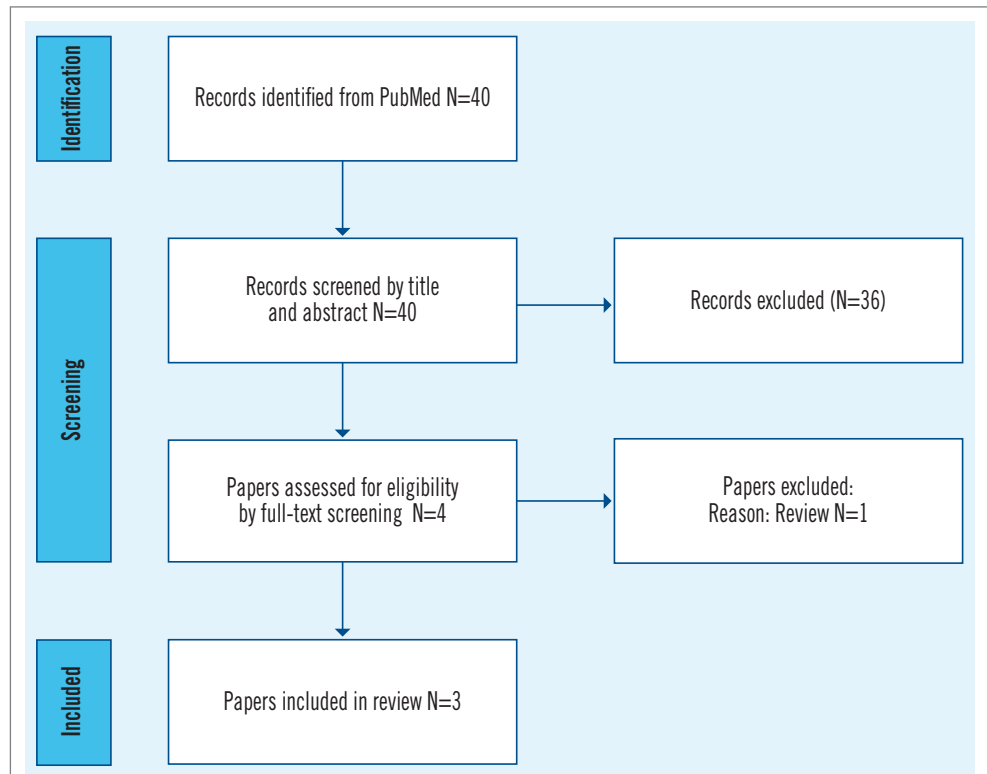


Figure 1 Flow diagram.

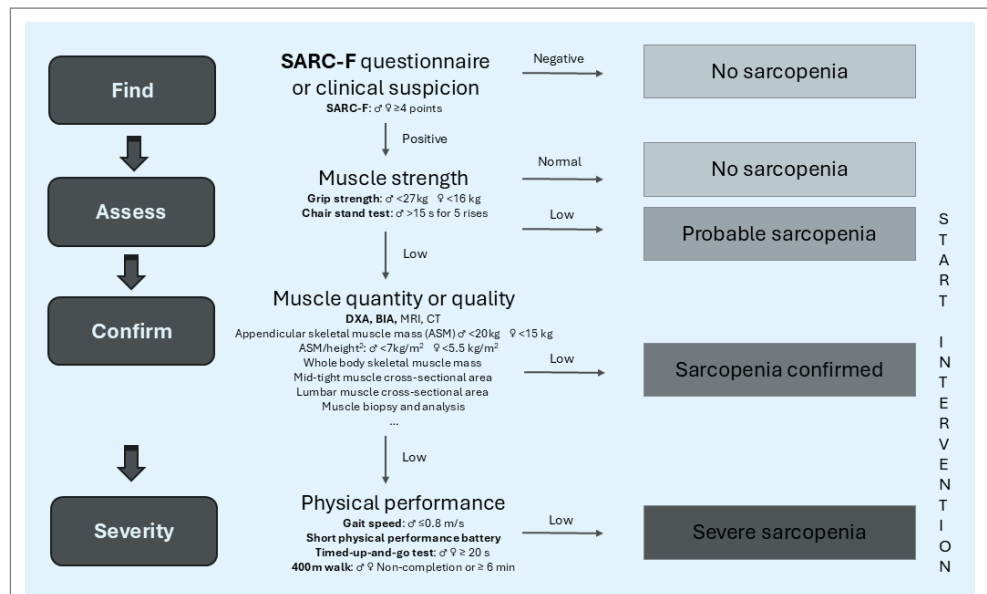


Figure 2 Find-Assess-Confirm-Severity pathway. Modified version. Original illustration adapted from the EWGSOP2 consensus paper (6). Cut-off values are provided as reported in the original publication, where available.

muscle strength, and sarcopenia is confirmed when low muscle quantity or quality is documented. If low physical performance is also evident, sarcopenia is considered severe. When no other specific cause is evident, sarcopenia is classified as ‘primary’ (age-related), otherwise it is ‘secondary’ (e.g. due to an inflammatory disease). Sarcopenia of less than 6 months is defined as acute sarcopenia, while sarcopenia lasting ≥6 months is considered chronic.

Similarities and important deviations in the latest consensus papers: Members of the ANZSSFR task force reached consensus to adopt the EWGSOP2 sarcopenia

Table 1

Consensus papers on sarcopenia included in the rapid review.

AUTHORS/YEAR	TITLE	TYPE OF PUBLICATION	ORGANIZATION/WORKING GROUP
Chen et al., 2025 (3)	A focus shift from sarcopenia to muscle health in the Asian Working Group for Sarcopenia 2025 Consensus Update.	Consensus	Asian Working Group for Sarcopenia (AWGS)
Kirk et al., 2024 (8)	The Conceptual Definition of Sarcopenia: Delphi Consensus from the Global Leadership Initiative in Sarcopenia (GLIS)	Delphi Consensus	Global Leadership Initiative in Sarcopenia (GLIS)
Zanker et al., 2023 (16)	Consensus guidelines for sarcopenia prevention, diagnosis and management in Australia and New Zealand	Delphi Consensus	Australian and New Zealand Society for Sarcopenia and Frailty Research (ANZSSFR) Sarcopenia Diagnosis and Management Task Force
Cruz-Jentoft et al., 2019 (6)	Sarcopenia: revised European consensus on definition and diagnosis	Consensus	European Working Group on Sarcopenia in Older People 2 (EWGSOP2)

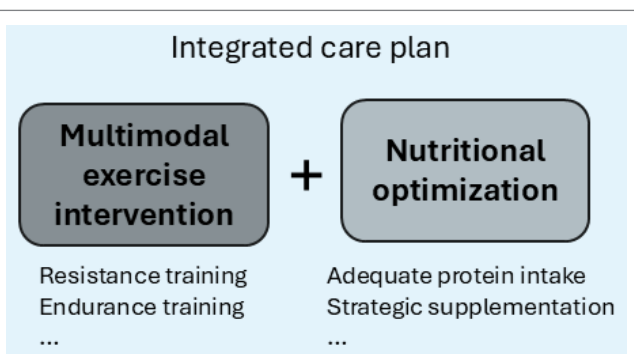


Figure 3

Sarcopenia management according to the AWGS's conceptual framework.

definition. The GLIS conceptual definition of sarcopenia differs from the EWGSOP2 definition regarding relevant diagnostic criteria. According to GLIS guidelines, sarcopenia is defined by reduced muscle strength, decreased muscle mass and muscle-specific strength (muscle strength/muscle size). Impaired physical performance is considered an outcome rather than a diagnostic criterion. Muscle quality is not included in the definition and morphological characteristics of muscle tissue, such as muscle fat infiltration, are not part of the conceptual definition. Furthermore, levels of disease severity are not included in the definition (with no distinction made between sarcopenia and severe sarcopenia). The AWGS's working group definition defines sarcopenia as age-related loss of skeletal muscle mass accompanied by low muscle strength. 'Possible sarcopenia' is identified by low muscle strength and sarcopenia is confirmed when low muscle quantity is documented. Similar to the GLIS definition, the AWGS's does not grade sarcopenia severity. What is particularly noteworthy is the conceptual framework, which adopts a lifelong approach to muscle health, emphasizing muscle-organ crosstalk.

### Screening and Diagnosis

EWGSOP2: The group recommends the FIND-ASSESS-CONFIRM-SEVERITY (F-A-C-S) pathway for use in clinical practice (figure 2).

The aim of this approach is to identify individuals with early signs of muscle weakness and functional decline and to guide further diagnostic evaluations. The SARC-F is a 5-item questionnaire to assess patients' limitations in

strength, walking ability, rising from a chair, stair climbing and experiences with falls (6,9). Grip strength and chair stand test are recommended for measuring muscle strength. Muscle quantity and/or quality should be assessed using dual-energy X-ray absorptiometry (DXA) or bioelectrical impedance analysis (BIA) in routine clinical care, while alternative methods (e.g. MRI or CT) are useful for extended diagnostic evaluation or research. Deficits in physical performance can be detected using gait speed, short physical performance battery, timed-up-and-go test or 400 m walk test.

Similarities and important deviations in the latest consensus papers: The ANZSSFR has adopted the EWGSOP2 F-A-C-S framework, with minor modifications. Step 3 'Confirm' is considered optional and may be constrained in terms of limited access to the necessary resources. Furthermore, topic experts agree that not only reduced muscle strength but also slowness indicates 'probable' sarcopenia. Therefore, gait speed is recommended as an additional measure of physical performance in Step 2 'Assess'. The GLIS consensus does not provide an operational definition of sarcopenia, and currently does not specify diagnostic tools and cut-off values. The AWGS presents a conceptual framework that integrates the promotion of muscle health into the World Health Organization's Integrated Care for Older People (ICOPE) approach. To facilitate case-finding, individuals presenting any of the following should be assessed for sarcopenia: functional decline, unintended weight loss, depressed mood, cognitive impairment, repeated falls, malnutrition, heart failure, chronic obstructive pulmonary disease, diabetes mellitus, chronic kidney disease, etc. In addition, the AWGS encourages all older adults to perform self-assessments, including SARC-F, measuring calf circumference (SARC-CalF) or the Yubi-wakka test (placing a ring around the calf using the thumbs and index fingers and assessing whether the calf is smaller than (possible indication of sarcopenia), equal to, or larger than the ring). In depth-assessment begins with the measurement of handgrip strength. Low handgrip strength indicates 'possible sarcopenia'. To confirm the sarcopenia diagnosis, appendicular skeletal muscle should be quantified by DXA or BIA. The AWGS consensus endorses the assessment of clinical and functional outcomes, including physical performance. However, physical performance tests are not part of the sarcopenia diagnosis process but serve to assess limitations in daily functioning. The cut-off values proposed by the

EWGSOP2 consensus differ and are available for men and women aged 50-64 years and  $\geq 65$  years based on research in Asian populations.

### Therapeutic Measures

Only the ANZSSFR task force and the AWGS present recommendations for the management of sarcopenia. Within the ANZSSFR task force, there is consensus that healthcare professionals should provide information and support to promote engagement in self-determined health behaviors. Patients with sarcopenia should be offered resistance training delivered by accredited healthcare professionals. A total protein intake of 1-1.5 g/kg/day should be considered for individuals with sarcopenia, except for those with severe kidney disease (stage IV). To optimize energy and protein intake, consultations with a qualified dietitian is recommended. The AWGS recommends that an integrated care plan should be developed, that also considers muscle-organ crosstalk, comorbid conditions as well as the individual's social environment. The AWGS consensus formally endorses multimodal exercise interventions (combined resistance and endurance training) coupled with nutritional optimization (in particular, adequate protein intake with supplementation of branched-chain amino acids or  $\beta$ -hydroxy- $\beta$ -methylbutyrate (HMB), when needed) (figure 3). In its explanations, the consensus refers to a meta-analysis demonstrating that combined exercise is the superior intervention for increasing muscle mass in individuals with sarcopenia (10). Reference is also made to a meta-study suggesting that a protein intake of  $\geq 1.6$  g/kg body weight/day may be beneficial for maximizing the effects of resistance training in older adults (11). Furthermore, a recent meta-analysis on HMB supplementation (2.4-3 g/day) is cited, reporting beneficial effects on muscle mass and strength in patients with sarcopenia, but also pointing out that the results must be interpreted with caution due to the limited data available (7). Other interventions with potential efficacy (e.g. omega-3 long-chain polyunsaturated fatty acid or probiotic supplementation) are discussed but are not included in the formal AWGS recommendations.

Currently, no pharmaceutical drugs are approved for the treatment of sarcopenia. Only the AWGS provides more detailed information on the challenges of drug development (among others, the complexity of clinical phenotypes). Several agents are under investigation, including testosterone, Insulin-like Growth Factor-1 (IGF-1), Growth Hormone (GH), selective androgen receptor modulators (SARMs), Angiotensin Converting Enzyme Inhibitors (ACEi), Angiotensin Receptor Blockers (ARBs) or drugs inhibiting the myostatin/activin-ActRIIB pathway. Although some drugs may be effective in improving skeletal muscle mass, they are not necessarily effective in improving physical performance.

### Conclusions and Perspectives

Overall, the consensus papers revealed both similarities and differences with regard to the underlying disease construct, screening procedures, diagnostic thresholds, and therapeutic recommendations. These differences are attributable to methodological considerations and population-specific factors, such as ethnic differences in body composition, different lifestyles, and different healthcare infrastructures (1). Differences in the consensus papers highlight the challenges inherent in efforts to achieve international harmonization through a global initiative. Future research should focus on the early identification of individuals at high risk of sarcopenia and the development of innovative therapeutic strategies to promote muscle health and, consequently, overall health. ■

### Conflict of Interest

*The authors have no conflict of interest. CB received fees/grants from Abbott, Diabetes Care, Eli Lilly, and Novo Nordisk.*

### Ethical Approval

*This paper is a clinical review and did not involve any new research on human participants or animals*

### Summary Box

Sarcopenia is most commonly defined as reduced muscle strength and mass. For screening, older adults should be encouraged to do self-assessments, such as the SARC-F questionnaire. Grip strength and the chair stand test are recommended for measuring muscle strength. Muscle quantity can be assessed using DXA or BIA in routine clinical care. Cut-off values vary across populations. Therapeutic measures should include multimodal exercise interventions and nutritional optimization.

## References

- (1) **Bae S, Kong S, Kim CH, et al.** Position statement: Evidence-Based Exercise Guidelines for Sarcopenia in Older Adults: Insights from the Korean Working Group on Sarcopenia. *Ann Geriatr Med Res.* 2025; 29: 278-94. doi:10.4235/agmr.25.0052
- (2) **Beaudart C, Alcazar J, Aprahamian I, et al.** Health outcomes of sarcopenia: a consensus report by the outcome working group of the Global Leadership Initiative in Sarcopenia (GLIS). *Aging Clin Exp Res.* 2025; 37: 100. doi:10.1007/s40520-025-02995-9
- (3) **Chen LK, Hsiao FY, Akishita M, et al.** A focus shift from sarcopenia to muscle health in the Asian Working Group for Sarcopenia 2025 Consensus Update. *Nat Aging.* 2025; 5: 2164-75. doi:10.1038/s43587-025-01004-y
- (4) **Clark BC.** Neuromuscular Changes with Aging and Sarcopenia. *J Frailty Aging.* 2019; 8: 7-9. doi:10.14283/jfa.2018.35
- (5) **Cruz-Jentoft AJ, Baeyens JP, Bauer JM, et al.** Sarcopenia: European consensus on definition and diagnosis: Report of the European Working Group on Sarcopenia in Older People. *Age Ageing.* 2010; 39: 412-23. doi:10.1093/ageing/afq034
- (6) **Cruz-Jentoft AJ, Bahat G, Bauer J, et al.** Sarcopenia: revised European consensus on definition and diagnosis. *Age Ageing.* 2019; 48: 16-31. doi:10.1093/ageing/afy169
- (7) **Gu WT, Zhang LW, Wu FH, Wang S.** The effects of  $\beta$ -hydroxy- $\beta$ -methylbutyrate supplementation in patients with sarcopenia: A systematic review and meta-analysis. *Maturitas.* 2025; 195: 108219. doi:10.1016/j.maturitas.2025.108219
- (8) **Kirk B, Cawthon PM, Arai H, et al.** The Conceptual Definition of Sarcopenia: Delphi Consensus from the Global Leadership Initiative in Sarcopenia (GLIS). *Age Ageing.* 2024; 53: afae052. doi:10.1093/ageing/afae052
- (9) **Malmstrom TK, Miller DK, Simonsick EM, Ferrucci L, Morley JE.** SARC-F: a symptom score to predict persons with sarcopenia at risk for poor functional outcomes. *J Cachexia Sarcopenia Muscle.* 2016; 7: 28-36. doi:10.1002/jcsm.12048
- (10) **Negm AM, Lee J, Hamidian R, Jones CA, Khadaroo RG.** Management of Sarcopenia: A Network Meta-Analysis of Randomized Controlled Trials. *J Am Med Dir Assoc.* 2022; 23: 707-14. doi:10.1016/j.jamda.2022.01.057
- (11) **Nunes EA, Colenso-Semple L, McKellar SR, et al.** Systematic review and meta-analysis of protein intake to support muscle mass and function in healthy adults. *J Cachexia Sarcopenia Muscle.* 2022; 13: 795-810. doi:10.1002/jcsm.12922
- (12) **Rosenberg IH.** Sarcopenia: origins and clinical relevance. *Clin Geriatr Med.* 2011; 27: 337-9. doi:10.1016/j.cger.2011.03.003
- (13) **Sivritepe R, Siyer OK, Tiril SM, Basat SU.** Do we know about dynapenia? *North Clin Istanbul.* 2024; 11: 593-9. doi:10.14744/nci.2024.48642
- (14) **Tezze C, Sandri M, Tessari P.** Anabolic Resistance in the Pathogenesis of Sarcopenia in the Elderly: Role of Nutrition and Exercise in Young and Old People. *Nutrients.* 2025; 15: 4073. doi:10.3390/nu15184073
- (15) **Yuan S, Larsson SC.** Epidemiology of sarcopenia: Prevalence, risk factors, and consequences. *Metabolism.* 2023; 144: 155533. doi:10.1016/j.metabol.2023.155533
- (16) **Zanker J, Sim M, Anderson K, et al.** Consensus guidelines for sarcopenia prevention, diagnosis and management in Australia and New Zealand. *J Cachexia Sarcopenia Muscle.* 2023; 14: 142-56. doi:10.1002/jcsm.13115