

Editorial

Forecasting the Hidden Burden of Obesity in Aging Populations

David Jiménez-Pavón^{a,b,c,*}^a MOVE-IT Research Group, Department of Physical Education, Faculty of Education Sciences, University of Cadiz, Cadiz, España.^b Biomedical Research Innovation Institute of Cadiz (INIBICA), Cadiz, España.^c CIBER of Frailty and Healthy Aging (CIBERFES), Madrid, España.

The analyses published in 2025 by *The Lancet* on global obesity trends by the GBD 2021 BMI Collaborators provide valuable projections on the epidemic's trajectory, which are crucial for understanding the current burden and health implications. However, their reliance on body mass index (BMI) alone may mask a critical issue: the growing burden of muscle mass loss and sarcopenic obesity in older adults. The observed decline in obesity prevalence among older populations may not necessarily indicate true reductions in adiposity but rather an underestimation due to age-related muscle loss, which lowers BMI while allowing adiposity to persist or increase, along with its consequences, even in individuals with normal weight.

BMI is Insufficient for Aging Populations

BMI remains widely used for large-scale epidemiological studies due to its simplicity, yet it fails to distinguish between fat mass and muscle mass. While BMI is an effective screening tool at the population level, it does not account for age-related shifts in body composition, which can lead to misclassification of obesity status in older individuals. Rubino et al.³ emphasize the need for alternative diagnostic approaches beyond BMI, advocating for clinical frameworks that incorporate direct measures of adiposity and muscle mass. Studies indicate that many older adults categorized as normal-weight by BMI actually present high adiposity and low muscle mass^{6,7}, increasing their risk for metabolic diseases, disability, and mortality.

Age-related declines in muscle mass often accompany increases in fat mass, particularly in the visceral compartment, exacerbating metabolic dysfunction. This means that a stable or even decreasing BMI with aging does not necessarily reflect improved health outcomes or decreased risk but rather a shift toward sarcopenic obesity. Given that BMI alone does not capture these nuances, relying solely on it to assess obesity trends in older adults risks overlooking a major health concern.

The Hidden Epidemic of Sarcopenic Obesity

Sarcopenic obesity, defined by low muscle mass and high fat mass, is an underrecognized condition with severe health implications. Prado et al.⁴ and Vieira et al.⁵ highlight its rising prevalence and its association with reduced mobility, inflammation, and chronic disease risk. Unlike traditional obesity, sarcopenic obesity may not always be reflected in elevated BMI values, making it particularly difficult to detect through standard epidemiological methods.

Global epidemiological data suggest that while general obesity rates decline with age, the prevalence of sarcopenic obesity persists or even increases, particularly in older individuals at risk of frailty⁶. Moreover, findings from the Rotterdam Study⁷ confirm that sarcopenic obesity significantly elevates mortality risk, independent of BMI. This suggests that current obesity classification systems fail to capture the complexity of body composition changes in aging populations. A refined approach to obesity assessment must account for both fat mass and muscle loss to better identify individuals at the highest risk.

Physical Inactivity and the Need for Targeted Interventions

The increasing burden of sarcopenic obesity is compounded by insufficient physical activity, which exacerbates muscle atrophy while allowing adiposity to accumulate (figure 1). Sedentary lifestyles accelerate muscle degradation, impair metabolic health, and heighten the risk of physical disability in older adults.

Studies on global physical inactivity⁸⁻¹⁰ emphasize the economic and health consequences of neglecting structured exercise programs. Despite growing recognition of resistance training as a crucial countermeasure to sarcopenic obesity, public health strategies continue

* Corresponding Author: David Jiménez-Pavón, MOVE-IT Research Group, Department of Physical Education, Faculty of Education Sciences, University of Cadiz Email: david.jimenez@uca.es (David Jiménez-Pavón)

to prioritize weight loss interventions that focus solely on caloric restriction rather than body composition improvement. Implementing resistance training and structured physical activity programs in aging populations is essential to mitigate the impact of sarcopenic obesity. Beyond weight management, these interventions help maintain functional independence, reduce fall risk, and enhance overall health outcomes.

Conclusion

Future obesity research and public health strategies must look beyond BMI and consider body composition assessments and ideally muscle quality through simple field tests (such as chair stand or handgrip strength) in aging populations. As *The Lancet's* recent publications shape global obesity prevention policies, it is critical to integrate muscle-preserving interventions and more precise diagnostic criteria to address the true burden of obesity in older adults. Current epidemiological methods, while valuable, must evolve to incorporate measures that distinguish between adiposity and muscle mass loss.

We urge researchers and policymakers to redefine obesity assessment frameworks to account for sarcopenic obesity, ensuring that interventions effectively reduce health risks in aging populations. Addressing this gap in global obesity surveillance will be crucial in developing evidence-based, targeted strategies that improve health outcomes in older adults. Without a shift in assessment paradigms, the true burden of obesity in aging populations will remain underestimated, leaving a substantial portion of older individuals at risk for preventable disability and mortality.

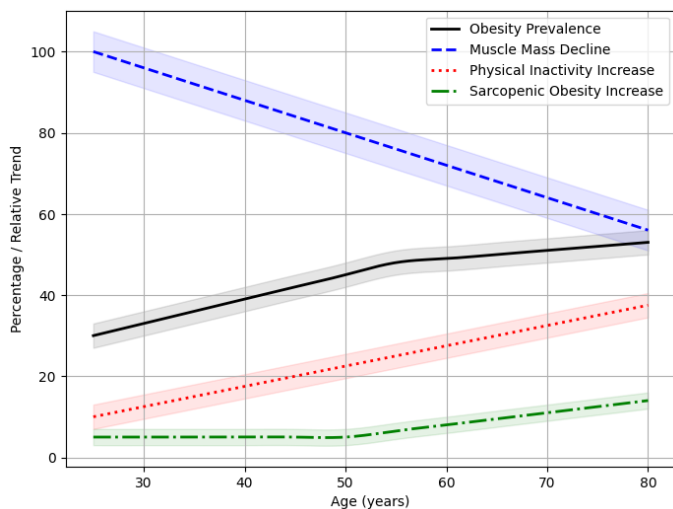


Figure 1. Simulated trends of overweight and obesity, muscle loss, inactivity levels, and sarcopenic obesity across the lifespan.

Conflict of Interest Statements

The author declares no conflicts of interest related to this work.

Role of Funding Source

No specific funding was received for this work.

References

1. GBD 2021 Adult BMI Collaborators; Ng M, Gakidou E, Lo J, Abate YH, Abbafati C, Abbas N, et al. Global, regional, and national prevalence of adult overweight and obesity, 1990–2021, with forecasts to 2050: a forecasting study for the Global Burden of Disease Study 2021. *Lancet*. 2025;405(10481):813-38. doi:10.1016/S0140-6736(25)00355-1.
2. GBD 2021 Adolescent BMI Collaborators; Kerr JA, Patton GC, Cini KI, Abate YH, Abbas N, Abd Al Magied AHA, et al. Global, regional, and national prevalence of child and adolescent overweight and obesity, 1990–2021, with forecasts to 2050: a forecasting study for the Global Burden of Disease Study 2021. *Lancet*. 2025;405(10481):785-812. doi:10.1016/S0140-6736(25)00397-6.
3. Rubino F, Cummings DE, Eckel RH, Cohen RV, Wilding JPH, Brown WA, et al. Definition and diagnostic criteria of clinical obesity. *Lancet Diabetes Endocrinol*. 2025;13(3):221-62. doi:10.1016/S2213-8587(24)00316-4.
4. Prado CM, Batsis JA, Donini LM, Gonzalez MC, Siervo M, Zamboni M, et al. Sarcopenic obesity in older adults: a clinical overview. *Nat Rev Endocrinol*. 2024;20:261-77. doi:10.1038/s41574-023-00943-z.
5. Vieira FT, Cai Y, Gonzalez MC, Goodpaster BH, Prado CM, Haqq AM, et al. Poor muscle quality: A hidden and detrimental health condition in obesity. *Rev Endocr Metab Disord*. 2025;26:723-44. doi:10.1007/s11154-025-09941-0.
6. Gao Q, Han L, Wang X, Bai S, Chen Y, Yang M, et al. Prevalence of sarcopenic obesity in older adults: a systematic review. *Clin Nutr*. 2021;40(12):4633-41. doi:10.1016/j.clnu.2021.04.027.
7. Benz E, Pinel A, Guillet C, Capel F, Pereira B, De Antonio M, et al. Sarcopenic obesity and mortality risk: findings from the Rotterdam Study. *JAMA Netw Open*. 2024;7(3):e243604. doi:10.1001/jamanetworkopen.2024.3604.
8. Santos AC, Willumsen J, Andersen LB, Bull FC, Guthold R, Katzmarzyk PT, et al. The cost of inaction on physical inactivity to public health-care systems: a population-attributable fraction analysis. *Lancet Glob Health*. 2023;11(12):e2400-10. doi:10.1016/S2214-109X(22)00464-8.
9. Strain T, Flaxman SR, Guthold R, Semenova E, Svenson D, Nugent R, et al. Trends in insufficient physical activity among adults, 2000-2022: a pooled analysis. *Lancet Glob Health*. 2024;12(2):e1232-43. doi:10.1016/S2214-109X(24)00150-5.
10. Costa Santos A, Bull FC. Expanding our understanding of the global impact of physical inactivity. *Lancet Glob Health*. 2023.