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# Application of a New Definition of Sarcopenic Obesity in Middle-Aged and Older Adults and Association with Cognitive Function: Findings from the National Health and Nutrition Examination Survey 1999–2002

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The role of the sarcopenic obesity (SO) phenotype for disease risk prediction has been tested in several observational studies, but results have been contrasting due to the application of different diagnostic models[1–3]. This study applies the newly proposed the European Society for Clinical Nutrition and Metabolism (ESPEN)-European Association for the Study of Obesity (EASO) definition of SO[4] to a representative population of adults aged 50 years and older to evaluate its performance in the identification of prevalent cases of SO and its association with measures of cognitive function.

Data from individuals aged 50-85 years was collected from the National Health and Nutrition Examination Survey 1999-2002 waves. At the screening phase of the SO definition following the definition of the European Society for Clinical Nutrition and Metabolism and the European

Association for the Study of Obesity (ESPEN-EASO), body mass index and waist circumference were used to evaluate obesity, while sarcopenia cases were identified using the SARC-F questionnaire (a self-report questionnaire to screen sarcopenia). Sarcopenia was diagnosed based on knee extensor isometric strength per weight (KES/W) and a percentage of appendicular lean mass per weight, while fat mass percent measured by Dual-energy X-ray absorptiometry was used to determine obesity. Cognitive function in older participants was assessed using the Digit Symbol Substitution Test (DSST), while memory-related question was used for middle-aged individuals or older participants without DSST scores.

Participants aged 50–85 years were men (44.7%) with a mean age of 66.7 years, and most participants aged 60 years and over (87.4%). The prevalence of SO was 32.5%, 20.9% and 15.3% at screening, diagnosis phase I, and diagnosis phase II of the ESPEN-EASO definition, respectively. The prevalence of cognitive impairment was 14.8% in participants aged 50-59 years and 29.5% in participants aged 60-85 years. There were associations between SO and cognitive impairment at diagnosis phase I (Odds ratio (OR): 1.6, 95%CI (confidence interval) 1.1-2.4) and phase II (OR: 1.9, 95%CI 1.1-3.3). These associations were significant among participants aged 60-85 years (phase I, OR: 2.2, 95%CI 1.4-3.4; phase II, OR: 2.8, 95%CI 1.6-4.8), but not among those aged 50-59 years.

The new ESPEN-EASO definition of SO identified a high prevalence of SO cases. A significant association between SO and poor cognitive function in older individuals was observed.

## References

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