

Clinical reviews

Our panel of GPs review recent research papers in their specialist areas that may influence the way you practise

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Musculoskeletal disease

Low muscle mass linked to more rapid decline in executive function

Low appendicular lean soft tissue mass (ALM) is significantly and independently associated with subsequent faster decline in executive function in patients aged 65 and older, a longitudinal study from Canada has found.

The study authors analysed data from the Canadian Longitudinal Study on Aging (CLSA), which enrolled 30,097 community dwelling individuals from across Canada between 2011 and 2015.

CLSA participants were aged between 45 and 85, and underwent in-depth neuropsychological, body composition, physical function, and clinical assessments at baseline and at three-year follow-up.

The subsample of participants for this study were aged at least 65 years and had full baseline cognitive, body composition, and handgrip strength assessments. ALM, used as a proxy for skeletal muscle mass was measured by DXA. Those with a clinical condition that might affect study outcomes, including multiple sclerosis, Alzheimer's disease, stroke or transient ischaemic attack, Parkinson's disease, recent surgery or chemotherapy, traumatic brain injury with memory problems, or

receiving dialysis treatment, were excluded.

Of the 8,279 participants included in the present study, just under half (48%) were female, 8,005 (97%) were white. Their mean age was 72.9 years and mean BMI 27.7. The majority of participants, 5,979 (72.2%), were educated to diploma or degree level.

Overall, 1,605 participants (19.4%) had low ALM at baseline. Compared with participants who did not have low ALM those with low ALM were more likely to be older (74.3 vs 72.2 years), have lower mean BMI (23.6 vs 28.6), and lower physical activity levels.

At baseline, those with low ALM had poorer immediate and delayed recall (memory), animal naming score (executive function), and slower choice reaction time (psychomotor speed) than those with normal ALM.

Over the three-year study period, low ALM was associated with a more rapid decline in executive function and psychomotor speed. After adjusting for covariates which included age, education, percentage body fat, and handgrip strength, low ALM remained independently associated with greater decline in executive function (standardised β : -0.032; $P = 0.03$).

Mean scores on both immediate and delayed memory tests increased over the three years in both sarcopenic and non-sarcopenic individuals, while memory loss is typically expected with aging. The authors speculate that this may be due to a retest effect. However, the increase in immediate recall was significantly blunted in individuals with low ALM compared with those without low ALM, suggesting a deficit in the memory domain for participants with low ALM.

The study authors conclude: 'This cohort study found that the presence of low muscle mass measured by DXA was significantly and independently associated with faster subsequent executive function decline over three years among adults aged at least 65 years.

'Clinical screening of older adults to identify those with low muscle mass may provide insight regarding their risk of developing cognitive impairment and thereby guide the testing and application of preventative or therapeutic interventions.'

DR JEZ THOMPSON

Tessier A-J, Wing SS, Rahme E et al. Association of low muscle mass with cognitive function during a 3-year follow-up among adults aged 65 to 86 years in the Canadian Longitudinal Study on Aging. JAMA Network Open 2022;5(7):e2219926

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