

<b>Paper Category:</b>	Physical Activity and Exercise
<b>Paper Title:</b> (Arial Font; 14 Pt Size)	<b>Muscle-to-Fat Ratio Predicts 3-year Handgrip Strength Decline in community-dwelling older adults</b>
<b>Abstract Body:</b> (Arial Font; 12Pt Size)	<ul style="list-style-type: none"> <li>• Background</li> <li>• Objectives</li> <li>• Method</li> <li>• Results</li> <li>• Discussions and Conclusions</li> </ul>

**Background:**  
In the aging process, the gradual loss of muscle mass and increase in fat are both significantly associated with functional decline in older adults, such as changes in handgrip strength (HGS). Sarcopenic obesity refers to the combined presence of sarcopenia (muscle loss) and obesity, but there is currently no clear definition for it. Previous research has found that the muscle-to-fat ratio (MFR) can serve as a potential biomarker for sarcopenic obesity and can also predict adverse health outcomes. However, there is relatively limited literature exploring the impact of sarcopenic obesity on functional decline.

**Methods:** This study analyzed data from the Longitudinal Aging Study of Taipei, involving community-dwelling individuals aged 50 and older, with a three-year interval between two waves of data. The HGS difference percentile between the two waves (wave2 - wave1 / wave1) was divided into quartiles, and logistic regression were conducted to identify significant correlations with independent risk factors.

**Results:** Among 831 participants, univariate analysis revealed significant correlations between HGS change and factors such as gender, alcohol consumption, relative appendicular muscle mass (RASM), total MFR (tMFR), appendicular MFR (aMFR), International Physical Activity Questionnaire (IPAQ), total body fat, HGS, fasting plasma glucose, and HbA1c. Due to strong collinearity, tMFR and aMFR were presented separately. After adjusting confounding factors, tMFR was an independent risk factor of handgrip change (OR 1.880, P=0.015). On the other hand, aMFR was also an independent risk factor of handgrip decline in 3-year follow-up (OR 2.367, P=0.013).

**Conclusions:** tMFR and aMFR were both positive predictors for HGS change and aMFR had better prediction of change in handgrip in 3-years follow-up. Further research is needed to identify the potential mechanism of muscle-to-fat ratio and handgrip decline in community-dwelling older adults.

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