

## Comment on: “Sarcopenia and its association with falls and fractures in older adults: A systematic review and meta-analysis” by Yeung et al.

With great interest, we read the recent meta-analysis written by Yeung and colleagues,<sup>1</sup> which assessed sarcopenia and the association with fractures and falls. The author concluded that sarcopenia individual had a significant risk of falls and fractures among community-dwelling older people. Although we appreciate the authors who conducted comprehensive data analysis, we have a couple of concerns about the methodologies used in their analysis.

Firstly, we wondered why several included studies that reported sarcopenia is a risk factor for falls or fractures among older adults are not shown in the pooled result. One important and valuable study, which included 5934 community-dwelling men written by Cawthon *et al.*,<sup>2</sup> found that sarcopenia is a risk factor for recurrent falls among older adults dwelling in the community (OR: 2.34; 95% CI: 1.33–4.13) while they did not found that sarcopenia individual is a risk factor that can increase the rate of hip fractures compared with non-sarcopenia older people (HR: 1.17; 95% CI: 0.71–1.93). Although Yeung showed that there were three studies among nursing home residents in this systematic review and meta-analysis, the data of the Henwood *et al.*<sup>3</sup> study (OR: 0.74; 95% CI: 0.34–1.63) were not included in the pooled result. In addition, a study of Schaap *et al.*<sup>4</sup> did not reported a significant association between sarcopenia with falls and fractures, which the result was in conflict with most studies and also did not include in the meta-analysis. From the aforementioned studies, we believe that the data of these three included studies need to be calculated in the meta-analysis.

Secondly, the risk profile of older people with hip fractures is not equivalent to those with incident fractures, non-spine fractures, and non-vertebral fractures. Thus, the fracture type should be taken into consideration to draw a firm conclusion. Therefore, we performed a subgroup analysis in terms of fracture types, based on the data of the studies included in the meta-analysis. Our subgroup analysis revealed a significant association between sarcopenia and fractures

among community-dwelling older people for incident fractures (OR: 1.63; 95% CI: 1.40–1.88) and non-vertebral fractures (OR: 1.79; 95% CI: 1.39–2.30). In addition, this association was found for hip fracture (OR: 1.81; 95% CI: 1.01–3.23) and non-spine fracture (OR: 1.70; 95% CI: 1.33–2.17) among community-dwelling older people.


Thirdly, some studies reported at least one fall as outcome, other study reported specific data of different type of falls, and one study showed recurrent falls as outcome. We think that the risk profile of older people with a first fall is not equivalent to those with a recurrent fall or multiple falls. The best solution was to conduct subgroup analysis in terms of the fall types, but we cannot perform due to insufficient data. Therefore, this limitation should be stated in the discussion.

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### Ethical Guidelines

All authors certify that they comply with the ethical guidelines for authorship and publishing in the *Journal of Cachexia, Sarcopenia, and Muscle*.<sup>5</sup>

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