

## INTRODUCTION

Sarcopenia is age related muscle loss and can be identified as per EWGSOP guidelines by estimating patient's muscle size, muscle quality, strength or function (1,2). This aging process is known to be associated with higher rates of postoperative complications and mortality (3,4).

With 44% of elderly patients undergoing orthopaedic interventions being sarcopenic, the aim of this review was to evaluate the effects of sarcopenia on postoperative recovery outcomes, including mortality and to assess the methods used to diagnose and define sarcopenia in orthopaedic literature (5).

## SARCOPENIA CROSS SECTION IMAGING



Images adjusted from Roubenoff et al., 2003 (6).

## METHODS

A systematic search was conducted in MEDLINE, EMBASE and Google Scholar databases according to the PRISMA guidelines (5).

### SEARCH TERMS AND INCLUSION CRITERIA:

Used search terms included: "Sarcopenia" AND "Orthopaedic procedures" OR "fracture", OR "arthroplasty". Independent searches using the same terms were carried out in each database and the results were combined. Studies involving sarcopenic patients who underwent defined orthopaedic surgery and recorded postoperative outcomes were included. Randomized controlled trials and cohort studies were considered. Nonclinical studies, reviews, case reports, unpublished data and conference reports were excluded. Studies were also excluded where sarcopenia or the orthopaedic intervention was not clearly defined or reported.

### QUALITY ASSESSMENT

Study quality was assessed using Newcastle-Ottawa Scale (NOS). When a study included relevant information that was associated with methodological quality of the NOS criteria, a point was awarded. Studies were identified as high quality, moderate quality and low quality based on NOS score. Studies were also assessed independently for quality of sarcopenia detection. Studies, which did not employ two parameters to detect sarcopenia, were deemed to have inadequate ascertainment of exposure (sarcopenia status).

## RESULTS

A total of 365 studies were identified and screened, 26 full text records were reviewed and 19 publications included in the analysis.

Studies reflected a variety of orthopaedic interventions, primarily for elderly trauma or degenerative conditions. Mean follow up was 1.9 years (SD: 1.9 years).

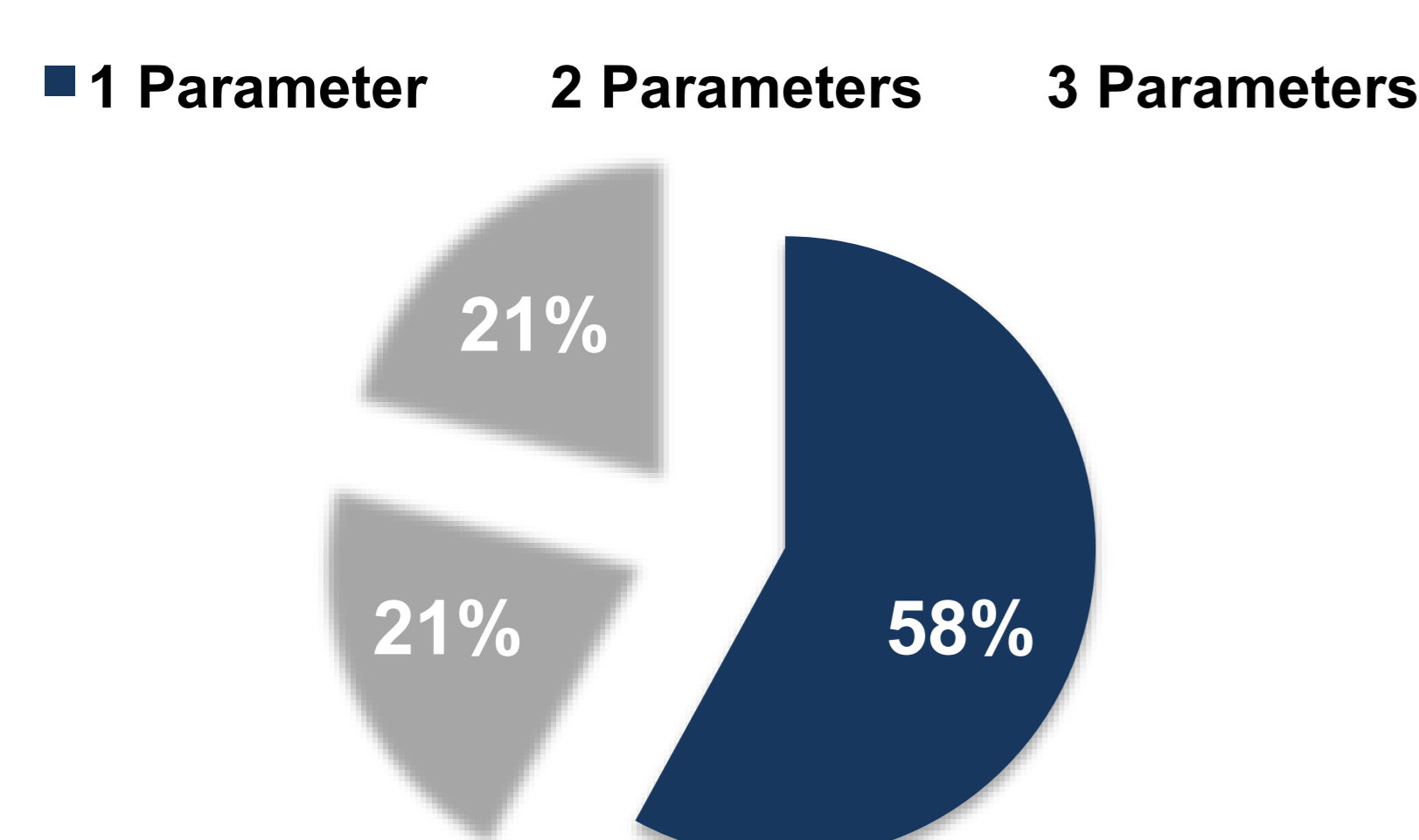
Sarcopenia was associated with at least one deleterious effect on surgical outcomes in all 19 studies. Post-operative mortality rate was reported in 11 papers and sarcopenia was associated with poorer survival in 73% (8/11) of them. The most used outcome was the Barthel index (4/19) and sarcopenic patients recorded lower scores in 75% (3/4) of these.

Sarcopenia was defined using the gold standard three parameters in 21% (4/19) of studies, using two parameters in 21% (4/19) studies and one in the remaining 58% (11/19). The methodological quality of included papers was moderate to high.

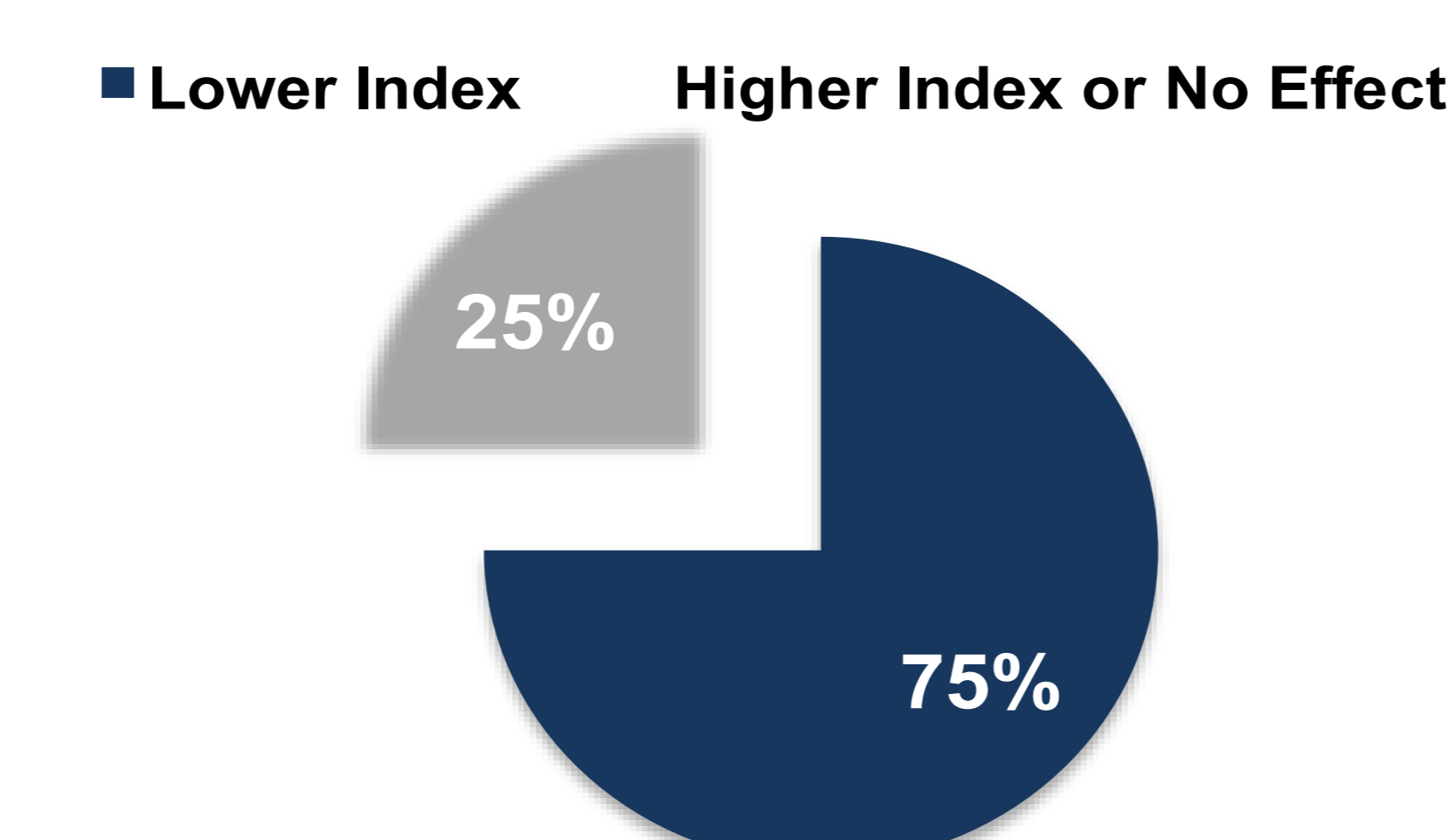
## CONCLUSIONS

The outcomes and classification of sarcopenia diagnosis parameters is heterogenous. Sarcopenia generally increases postoperative mortality and impairs recovery. Future research should further investigate muscle measurements as a predictive tool for pre-operative planning and decision-making.

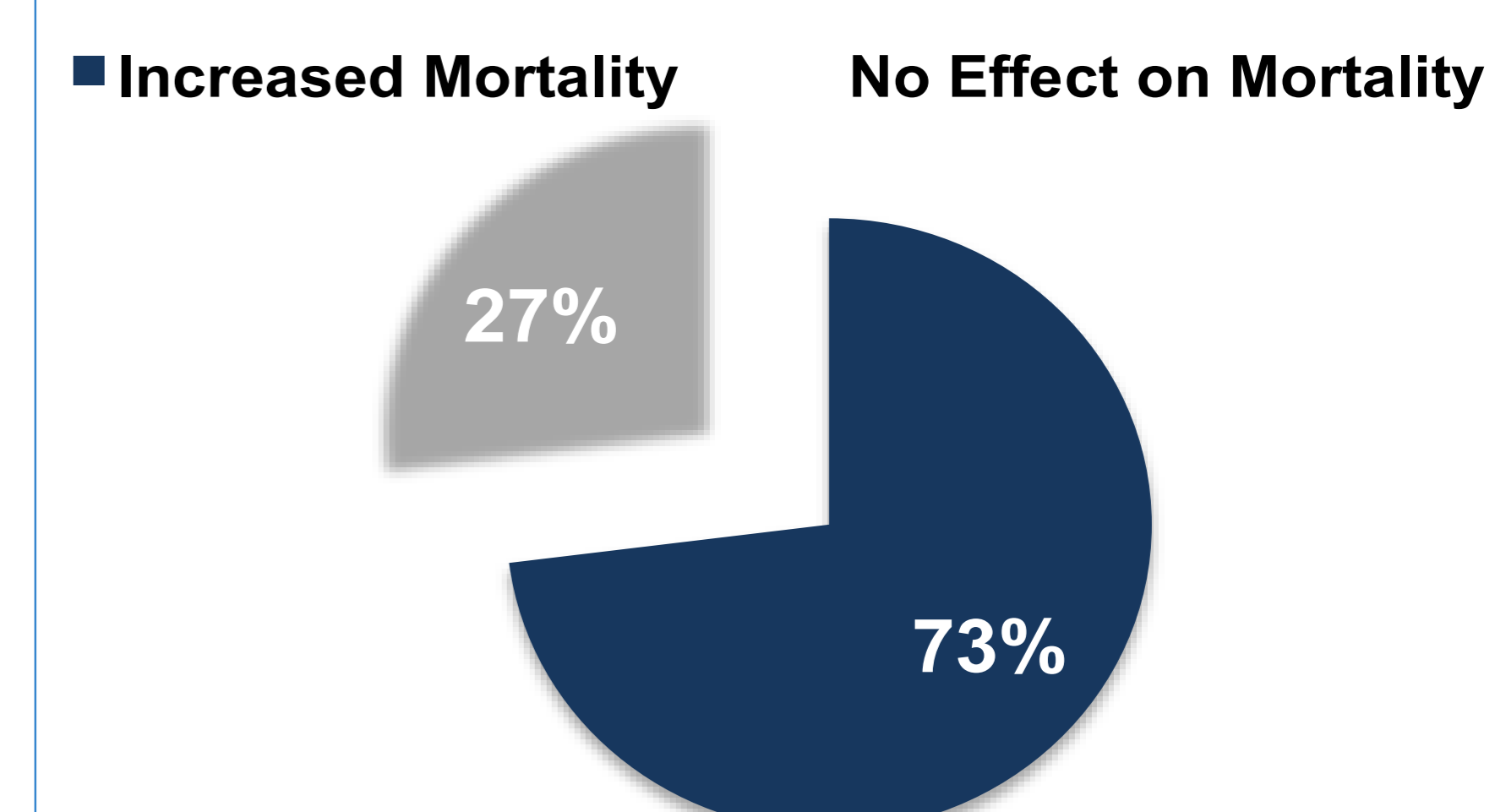
### Number of Parameters Used to Detect Sarcopenia (n = 19)



### Effect of Sarcopenia on Barthel Index (n = 4)



### Effect of Sarcopenia on Mortality (n = 11)



## REFERENCES

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