International Centre for Allied Health Evidence

University of South Australia

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iCAHE

A member of the Sansom Institute

*i*CAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club location ECH Southern Wellness

JC Facilitator Bronwyn Keller

JC Discipline Physiotherapy

Background

Clinical Scenario

I am interested in further researching interventions for our frail community dwellers, mostly exercise-based but also possibly nutritional

Review Question/PICO/PACO

P: frail community dwelling adults
I: exercise programs +/_ nutrition/dietetic input
C: nil or education only
O: Increased muscle bulk/strength; Improved mobility/balance; Improved ADL/IADL

Article/Paper

Denison, H.J., Cooper, C., Sayer, A.A. and Robinson, S.M., 2015. Prevention and optimal management of sarcopenia: a review of combined exercise and nutrition interventions to improve muscle outcomes in older people. *Clinical interventions in aging*, *10*, p.859.

Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the DOHSA librarian.

Article Methodology: **Systematic Review**

Click here to access critical appraisal tool

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CONTACTS
www.unisa.edu.au/cahe
iCAHE@unisa.edu.au
Telephone: +61 8 830 22099
Fax: +61 8 830 22853

University of South Australia
GPO Box 2471
Adelaide SA 5001
Australia

CRICOS Provider Number 00121B

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Ques No.	Yes	Can't Tell	No	Comments
1	✓			**Did the review address a clearly focused question?** In older adults (>65 years) what combination of nutrition and exercise interventions are used to increase muscle strength and/or mass, and achieve improvements in physical performance.
2	✓			**Did the authors look for the appropriate sort of papers?** We sought to include trials which had included both nutritional supplementation and exercise training, and had examined measures of muscle strength, size, and/or physical performance as outcomes. Studies were included if they had comparison groups that received exercise training as well as exercise training combined with nutritional supplementation. We excluded studies that only measured protein synthesis, muscle fiber hypertrophy or biochemical properties of muscle; we also excluded studies where the nutritional intervention was energy restriction to promote weight loss. **Is it worth continuing?** **YES**
3			✓	**Do you think the important, relevant studies were included?** To identify eligible studies, we searched the MEDLINE and EMBASE databases via the OVID system for articles which included both MeSH and free-text terms related to trials of nutrition, exercise or physical activity and muscle outcomes. The databases were searched from their start dates to April 2013. The references of included papers were also screened for additional articles, which did not generate any further studies for inclusion. There was no attempt to speak with experts in the field and only two databases were searched.
4			✓	**Did the review's authors do enough to assess the quality of the included studies?** The studies were not graded for quality; no attempt at a meta-analysis was made.
5			✓	**If the results of the review have been combined, was it reasonable to do so?** The studies were grouped according to their nutritional intervention- protein/amino acid supplementation, multinutrient supplementation, vitamin D supplementation and creatine supplementation, yet there was very little homogeneity within the grouped studies. The authors acknowledge different time periods of intervention within each group and the different style of exercise, but there is no attempt to control for any of these confounding factors.

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6				**What are the overall results of the reviews?** The finding of enhanced benefits of exercise training when combined with dietary supplementation in some trials, highlights its potential as a strategy for the prevention and management of sarcopenia. However, existing evidence is based on populations who differ in age, frailty, and nutritional status – and findings are inconsistent. The many gaps in current understanding mean there is insufficient evidence on which to base recommendations.
7			✓	**How precise are the results?** Not precise. For only one of the supplementation groups (protein/amino acid supplementation) is a p-value given, comparing muscle size to a placebo. However, the study's objective was to determine what combinations of exercise and intervention are used in the treatment of sarcopenia, not whether it is effective. In this sense the results are precise as they clearly identify what type of exercise is paired with what kind of nutritional supplementation.
8	Journal Club to discuss			**Can the results be applied to the local population?** **CONTEXT ASSESSMENT (please refer to attached document)** – *Infrastructure* – *Available workforce (? Need for substitute workforce?)* – *Patient characteristics* – *Training and upskilling, accreditation, recognition* – *Ready access to information sources* – *Legislative, financial & systems support* – *Health service system, referral processes and decision-makers* – *Communication* – *Best ways of presenting information to different end-users* – *Availability of relevant equipment* – *Cultural acceptability of recommendations* – *Others*
9				**Were all important outcomes considered?**
10				**Are the benefits worth the harms and costs?**
11				**What do the study findings mean to practice (i.e. clinical practice, systems or processes)?**
12				**What are your next steps?** ***ADOPT, CONTEXTUALISE, ADAPT*** **And then (e.g. evaluate clinical practice against evidence-based recommendations; organise the next four journal club meetings around this topic to build the evidence base; organize training for staff, etc.)**
13				**What is required to implement these next steps?**