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# Does protein and energy supplementation benefit older people at risk of malnutrition?

A Cochrane review looked at international evidence on oral nutritional supplements for older people in institutional settings and at home

## REVIEW QUESTION

What is the best available evidence regarding the benefits of giving oral nutritional supplements to older people who are at risk from malnutrition?

## NURSING IMPLICATIONS

Malnutrition is a major cause for concern in older people, whether they are hospitalised or live in the community.

The problem is relevant to nurses because suboptimal nutrition impairs an individual's immune response, muscle function, respiratory function, wound healing, rehabilitation, mental status and general wellbeing.

Nutritional supplements containing protein and energy are frequently prescribed. However, detailed information to inform practice is lacking.

## STUDY CHARACTERISTICS

The review examined 62 randomised and quasi randomised controlled trials of protein and energy oral supplements involving 10,187 people. Study groups had a minimum average age of 65 years. Groups that were recovering from cancer treatment or were in critical care were excluded.

Studies originated from Europe, the US, Canada, Australia and Hong Kong and included patient groups hospitalised for acute conditions (26 studies), in long stay or care of the elderly wards, continuing care wards or nursing homes (15 studies), or living at home (21 studies).

The quality rating was poor for the majority of included studies because of the lack of blinding of participants and treatment providers, inadequate sample sizes and inadequate reporting of numbers of participants who were allocated,

## BEST PRACTICE RECOMMENDATIONS

Despite the weak quality of the majority of studies included in this review, as evaluated according to the criteria set for randomised controlled trials, the small increase in weight gain and the decrease in mortality – for undernourished groups only – provides justification for continuing the prescription of protein and energy supplements.

However, other interventions intended to improve nutritional status should be integrated. These could include providing targeted dietary advice and palatable, preferred and nutritious food, in addition to addressing non-dietary barriers such as depression and dental problems.

assessed, lost to follow-up or did not take the supplements. There was also bias due to selective reporting of outcomes such as mortality.

Measurable outcomes for supplementation interventions included: mortality; morbidity (for example pressure ulcers, deep vein thrombosis and infections); functional status (such as walking distance and number of falls); weight changes; and arm muscle circumference. Other measurable outcomes were: compliance with the intervention; length of hospital stay; frequency of primary care contact; adverse effects; and quality of life.

Interventions aimed to provide dietary oral supplements, consisting of commercial sip feeds, milk based formulations or direct fortification of food by the addition of calories and protein. Some interventions included minerals and vitamins.

Control groups were asked to maintain usual dietary regimens or were provided with a diluted, lower calorie supplement. It was noted that 10 trials mentioned the inclusion of dietary advice in their intervention but few trials considered altering the nutrient density or diversity of the diet.

Intervention time ranged from 10 days to 18 months. Realistically, this was not long enough in most cases to detect outcome

differences in functional status, quality of life or mortality. Meta analysis was undertaken where possible.

## SUMMARY OF MAIN EVIDENCE

The meta analysis indicated a small but consistent benefit from protein and energy oral supplementation. This was demonstrated by an increase in the pooled weighted mean difference for the percentage of weight change in 42 studies of 2.2% (95% confidence interval 1.8-2.5). However, details in the percentage of change in fat and muscle were not provided in studies.

The subgroup analysis showed a near statistically significant decrease in mortality in undernourished groups who received 400kcal or more per day (n= 2461, RR 0.79, 95% CI 0.64 to 0.97). This was not found in all older populations.

The number of complications such as infection, deep vein thrombosis and pressure ulcers was significantly reduced, based on the meta analysis of 24 trials (n=6225), in intervention groups compared against controls (RR 0.86, 95% CI 0.75-0.99). Subgroup analysis by diagnostic groups indicated fewer complications in patients with hip fractures (n=298 RR 0.60, 95% CI 0.40 to 0.91) and in patients following stroke (n= 4063 RR 0.65, 95% CI 0.40-1.03).

Adverse effects such as nausea and diarrhoea were recorded in 18 trials but none were statistically significant. ◊

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## REFERENCE

Milne AG et al (2009) Protein and energy supplementation in elderly people at risk from malnutrition. *Cochrane Database of Systematic Reviews*; Issue 2, art no: CD003288.DOI:10.1002/14651858.CD003288.pub3