A review of the effect of oral nutritional interventions on both weight change and functional outcomes in older nursing home residents

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CRD summary
The authors’ concluded that there was some evidence of positive effect of oral nutritional intervention on function through weight gain. Limited database search, potential bias in the review process, small sample sizes and differences in the included studies means that this conclusion should be interpreted with caution.

Authors’ objectives
To evaluate the effects of oral nutrition interventions on weight change and change in functional outcomes in older nursing home residents.

Searching
A previous Cochrane Review published in 2009 and the Cochrane Central Register of Controlled Trials (CENTRAL; September 2010) were searched. Reference lists of studies excluded from the Cochrane Review were also hand searched for relevant studies. Search terms were reported.

Study selection
Randomised controlled trials (RCTs) that compared oral nutrition with no intervention or placebo in participants over 65 years old living in a nursing home were eligible for inclusion. The functional outcomes of interests were muscle function (muscle strength, mobility, endurance, balance) and activities of daily living. The nutritional outcome of interest was change in weight.

Participants’ mean age ranged from 75 to 89 years. Duration of intervention ranged from seven weeks to nine months. Interventions ranged from oral supplements, milk powder, family style meals, ordinary food and fortified food. Exercise and oral health care were also offered in some studies, combined with nutrition.

It appeared only one reviewer was involved in the study selection.

Assessment of study quality
Study quality was assessed based on Krsitensen & Sigmung (Danish Health Technology Assessment handbook, 2007) and included randomisation, comparison of groups, blinding, outcomes, withdrawals and intention-to-treat analysis. The authors did not state how many reviewers were involved in quality assessment.

Data extraction
Data were extracted on the change from baseline to follow-up for weight and function. Also results of the weighted mean difference (WMD) of changes in weight were extracted from the previous review.

The authors did not state how many reviewers extracted the data.

Methods of synthesis
Studies were combined in a narrative synthesis. A study that showed an improvement or adverse effect in body weight was considered as concordant when a parallel effect was shown in the functional outcome.

Results of the review
Eight studies were included in the review (709 patients; range 35 to 178). Only one study reported the follow-up period which was approximately 29 weeks. The quality of the studies varied: six studies described method of randomisation; two studies reported comparable groups at baseline, one study reported blinding, six studies reported relevant endpoints, six studies reported number of drop-outs and three studies reported an intention-to-treat analysis.

Muscle function (six studies): Two studies reported statistically significant improvements in muscle function for
intervention groups compared with control groups at follow-up.

**Activities of daily living (six studies):** One study reported statistically significant improvements in activities of daily living for the intervention group using family style meals compared with ordinary food at follow-up.

**Weight changes (eight studies):** Six studies reported statistically significant improvements in weight in intervention groups compared with control groups at follow-up.

Overall, there was concordance in five of the eight studies.

**Authors' conclusions**
There was some evidence for a positive effect on oral nutrition interventions on function through weight gain.

**CRD commentary**
The review question and inclusion criteria were clear. The authors searched limited databases so eligible studies may have been missed. No attempts were made to find the unpublished studies or studies published in different languages and there was the potential for language and publication bias. The authors did not report how many authors performed data extraction and quality assessment, so reviewer bias and error was possible in this process.

The quality assessment did not consider pertinent criteria of the quality of RCTs (such as allocation concealment) and the quality of the included studies were moderate to poor. The results were appropriately presented in narrative format as included trials were small and there were substantial differences between the included studies, such as interventions and duration.

The authors’ conclusion reflects the evidence presented, but the limited database search, potential bias in the review process, small sample sizes and differences in the included studies means that this conclusion should be interpreted with caution.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that larger, high quality randomised controlled trials were needed to enable definite conclusions to be drawn as to the effect of oral nutritional interventions for residents in nursing homes.

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