Easy to chew means easy to swallow - or does it: the place of diet modification in the management of dysphagia

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CRD summary
This review assessed the use of diet modification in the management of dysphagia in stroke. The author concluded that the limited evidence suggests there are variables that impact on swallowing outcomes, but further research is generally required. There were considerable limitations in the conduct of this review, but the overall conclusion that further research is required is likely to be reliable.

Authors' objectives
To assess the efficacy of diet modification as a therapy technique for the management of dysphagia in stroke.

Searching
PubMed, CINAHL, the Cochrane Library, and the Joanna Briggs Institute for Evidence Based Nursing and Midwifery were searched; the search terms were provided, although the search dates were not. It was also not reported whether any language restrictions were applied.

Study selection
Study designs of evaluations included in the review
No explicit inclusion criteria were defined in relation to the study designs eligible for inclusion in the review; it appears that any type of study was eligible for inclusion.

Specific interventions included in the review
It appears that studies of diet modification, considered as an indirect therapy or management technique (i.e. modifications controlled by a clinician and external to the patient), were the focus of the review. The studies in the review investigated the effects of bolus variables (such as viscosity) and other indirect diet modifications.

Participants included in the review
It appears that studies with participants that were suffering from dysphagia after stroke were the focus of the review; however, no inclusion criteria were explicitly defined. The review also included participants who had not had a stroke, including neurologically intact participants and patients with other causes of neurological impairments. No further details of the participants were given.

Outcomes assessed in the review
No explicit inclusion criteria were defined in relation to the outcomes included in the review; it appears that any outcomes relating to dysphagia were eligible for inclusion. The included studies reported on a variety of swallowing parameters, such as timing of swallow and the amounts of residue.

How were decisions on the relevance of primary studies made?
The author did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The primary studies were assessed using eight criteria developed by Sackett et al. (see Other Publications of Related Interest): blinding of interpretation of screening tests, results and outcome; inclusion criteria; attrition; generalisability of the patients; details of screening test; documentation of reliability; sample size and inclusion of adequate raw data to allow the calculation of the sensitivity, specificity and likelihood ratios. In addition, the studies were graded through level 1 to 4 on the basis of study type, according to the Joanna Briggs Institute.
The author did not state who performed the validity assessment.

**Data extraction**
The author did not state how the data were extracted for the review, or how many reviewers performed the data extraction. For each study, the conclusions of the study authors were extracted.

**Methods of synthesis**

**How were the studies combined?**
The studies were grouped according to whether they assessed the effects of bolus variables or whether they assessed diet modifications, and then synthesised narratively.

**How were differences between studies investigated?**
The differences between the primary studies were discussed in the text of the review.

**Results of the review**

Twelve studies (n=528) were included in the review. There appeared to be 3 randomised controlled trials (n=191), at least 2 studies with a control group, and 1 retrospective study; the designs of other studies were not always clear.

The level of evidence was high to moderate in 1 study (n=20), moderate in 5 studies (n=234), moderate to limited in 4 studies (n=185), and limited in 1 study (n=69). One study (n=20) was not presented in the tables and was not explicitly graded.

Results data for the individual studies were not reported.

Effects of therapy (5 studies). The author reported that the studies provided moderate levels of evidence for the impact of bolus variables on swallowing. The studies suggested that there are longer cricopharyngeal opening times with thicker bolus consistencies; shorter pharyngeal delay and transit times for pudding consistencies; and shorter oral discharge times for viscous materials. More residue is associated with pureed consistencies than with other consistencies.

Effects of therapy incorporating diet modification (7 studies). The author reported that the studies provide moderate to limited levels of evidence, with all studies containing small to moderate sample sizes. The conclusions from the primary studies should be regarded with caution.

**Authors’ conclusions**

There is some evidence to suggest that certain bolus variables have an impact on swallowing, but in general the evidence remains inconclusive. As only mid-level evidence exists with regards to diet modification, there is insufficient evidence to confirm its efficacy as a dysphagia treatment in stroke; further research is required.

**CRD commentary**
The review question appears to have been very broad and the inclusion criteria were not explicitly defined; this reduces the transparency and reproducibility of the review and increases the possibility of reviewer bias or error. Electronic databases were searched and the search terms were provided, but it was unclear whether any unpublished studies were sought and whether any language restrictions were applied. It is therefore not possible to assess whether any relevant studies might have been missed. The methods used to select studies, extract the data and assess the validity of the studies were not described, so it is not known whether any efforts were made to reduce reviewer errors and bias during these processes. The validity of the included studies was assessed, but the criteria used seemed more appropriate for diagnostic rather than intervention studies. In addition, the study design was not always reported clearly.

The author appropriately acknowledged some of the limitations of the studies in the text of the review and conclusions. Given the diversity of the included studies, the narrative synthesis was appropriate. However, the studies were poorly described, with inadequate reporting of the results and reliance upon the conclusions of the study authors rather than
actual data. Various potential sources of bias in the review process meant that it was difficult to assess the reliability of the author's conclusions. However, overall, the conclusions about the limited evidence and the need for further research appear reasonable and appropriate.

**Implications of the review for practice and research**

Practice: The author did not state any implications for practice.

Research: The author stated that further research into diet modification, the impact of bolus variables, and other interventions for dysphagia management in stroke, is required.

**Bibliographic details**

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**Other publications of related interest**


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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.