Enteral nutrition for the maintenance of remission in Crohn's disease: a systematic review
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CRD summary
This review evaluated enteral nutrition for maintenance of remission in patients with Crohn's disease with medically or surgically induced remission and concluded that it may be useful for maintaining remission. As many details regarding study quality and review process were not reported and the strength of the evidence was uncertain, the reliability of this conclusion is unclear.

Authors' objectives
To evaluate the efficacy of enteral nutrition for the maintenance of remission in patients with Crohn's disease who achieved medically or surgically induced remission.

Searching
MEDLINE, EMBASE and The Cochrane Library were searched without language restrictions for articles published between 1975 and August 2008. Search terms were reported. Additional searching was performed using the related articles feature of searched databases and by handsearching references lists in relevant articles.

Study selection
Studies were eligible for inclusion if participants (adults and children) had Crohn's disease in medically or surgically induced remission. Studies needed to report study sizes and patient characteristics. The intervention needed to be enteral nutrition with either an elemental, semi-elemental or polymeric formula. The outcome had to be clinical or endoscopic relapse. Eligible studies could not compare different types of enteral nutrition. It appeared that trials with no comparison group were eligible for inclusion. Case series were excluded.

Within included studies and where reported: most studies were conducted in Japan (one was in Canada and one in UK); follow-up duration ranged from one to three years for most studies; enteral nutrition delivery included nasogastric tube infusion and oral intake; comparators included low fat diets and low residue diets; prophylactic medications included sulfasalazine, steroids and 5-aminosalicylic acid; relapse or recurrence definitions varied, and used the Crohn's disease activity index, International Organisation for the Study of Inflammatory Bowel Disease scores, Dutch activity indices and Rutgeerts scores; and follow-up duration ranged from one month to over 19 years.

Two reviewers independently conducted the study selection; disagreements were resolved by consensus.

Assessment of study quality
None reported.

Data extraction
The authors stated that data extraction was carried out independently, which implied that at least two reviewers were involved in this stage of the process; no further details regarding the extraction process were reported.

Methods of synthesis
A narrative synthesis was performed. Outcomes for patients with medically and surgically induced remission were considered separately.

Results of the review
Ten studies (n=741 patients, range 40 to 218 patients) were included in the review. Seven studies compared outcomes in enteral nutrition groups with non-enteral nutrition comparison groups and four studies investigated the effects of various factors on the effectiveness of enteral nutrition in terms of outcome; one study contained both types of data.

Within all seven studies that compared enteral nutrition with non-enteral nutrition groups, the maintained clinical remission rate was significantly higher in the enteral nutrition group.
Two of the four studies that investigated factors that affected enteral nutrition effectiveness suggested enteral nutrition was more effective for small bowel disease than colonic disease. Two studies reported that enteral nutrition was not effective for penetrating types of disease for patients with medically induced remission. Three studies suggested that the effect of enteral nutrition was dose-dependent.

**Authors' conclusions**
Enteral nutrition may be useful for maintaining remission in patients with Crohn's Disease.

**CRD commentary**
This review addressed a clear review question using relevant (although not clearly defined) inclusion and exclusion criteria. Case series were excluded, but some uncontrolled studies that appeared to be case series were included. The search was conducted with sufficient attempt to minimise bias; although there was no search for unpublished studies, a reasonable range of sources were searched without language restrictions. The data extraction process was not clearly reported and no quality assessment of primary studies was reported, so the reliability of the evidence was uncertain. Given that most of the studies were conducted in Japan, the generalisability of the findings was unclear. Sufficient primary study details were reported in terms of population and intervention characteristics; study design details were not reported. Due to this, and the lack of study quality assessment, the reliability of the conclusions is unclear.

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

**Practice:** None stated.

**Research:** The authors stated that large randomised trials were necessary to investigate the effectiveness of enteral nutrition for maintenance of remission.

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