

Low-fat or low-carb diet for long-term weight loss

Student EBM presentations

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The clinical scenario

Mr. Smith is a 25-year-old receptionist with a BMI of 35. He is desperate to lose weight as he wants to get married. In the past he has tried different dieting plans but none worked so he has stopped following them; however, he is quite intrigued by the recent news about a low-fat diet being better than a low-carbohydrate diet for weight loss, and asks you if he should try out a low-fat diet.

Health

Low-fat diets 'better than cutting carbs' for weight loss

By James Gallagher
Health editor, BBC News website

🕒 14 August 2015 | Health



The question

Is a low-fat diet or a low-carbohydrate diet more effective in achieving long-term weight loss in obese adults?

P	Obese adults
I	Low-fat diet
C	Low-carbohydrate diet
O	Long-term weight loss

The search and search results

1. PubMed Clinical Queries:

“(obese adults) AND (low-fat OR fat restriction) AND (low-carbohydrate OR carbohydrate restriction) AND (long-term weight loss)”

– Selected:

Bueno *et al.* Very-low-carbohydrate ketogenic diet v. low-fat diet for long-term weight loss: a meta-analysis of randomised controlled trials. *Br J Nutr.* **2013**; 110(7):1178-87. Epub 2013 May 7.

2. NICE guidelines (“Managing overweight and obesity in adults – lifestyle weight management services”; published May 2014)

<https://www.nice.org.uk/guidance/ph53/chapter/1-recommendations>



The study appraisal – QFAST

- Question: clearly focused, relevant to our question
- Find: very comprehensive search
 - MEDLINE, Cochrane Central Register of Controlled Trials (CENTRAL), Science Direct, Scopus, LILACS, SciELO, ClinicalTrials.gov, OpenGrey.eu, etc.
 - Limited search back to August 2012
 - No date or language restrictions
 - Search terms related to intervention and 1° and 2° outcomes
 - When necessary, authors contacted to obtain more information.

The study appraisal – QFAST

- Appraisal:

- Inclusion & exclusion criteria clearly defined *a priori*

- Only RCTs were included
- Include: Participants older than 18 years old, follow-up period 12 months or more, mean BMI of participants $>27.5 \text{ kg/m}^2$.
- Exclude: studies with concomitant pharmacological interventions, duplicate publications of the included trials.

 Did not address participant compliance with either diet.

- Quality assessment of the included studies

- 2 independent assessors
- Criteria assessed were: adequate sequence generation, allocation concealment, blinding of outcome assessors, handling of missing data and selective outcome reporting

 Assessors not blinded to authors or journal titles

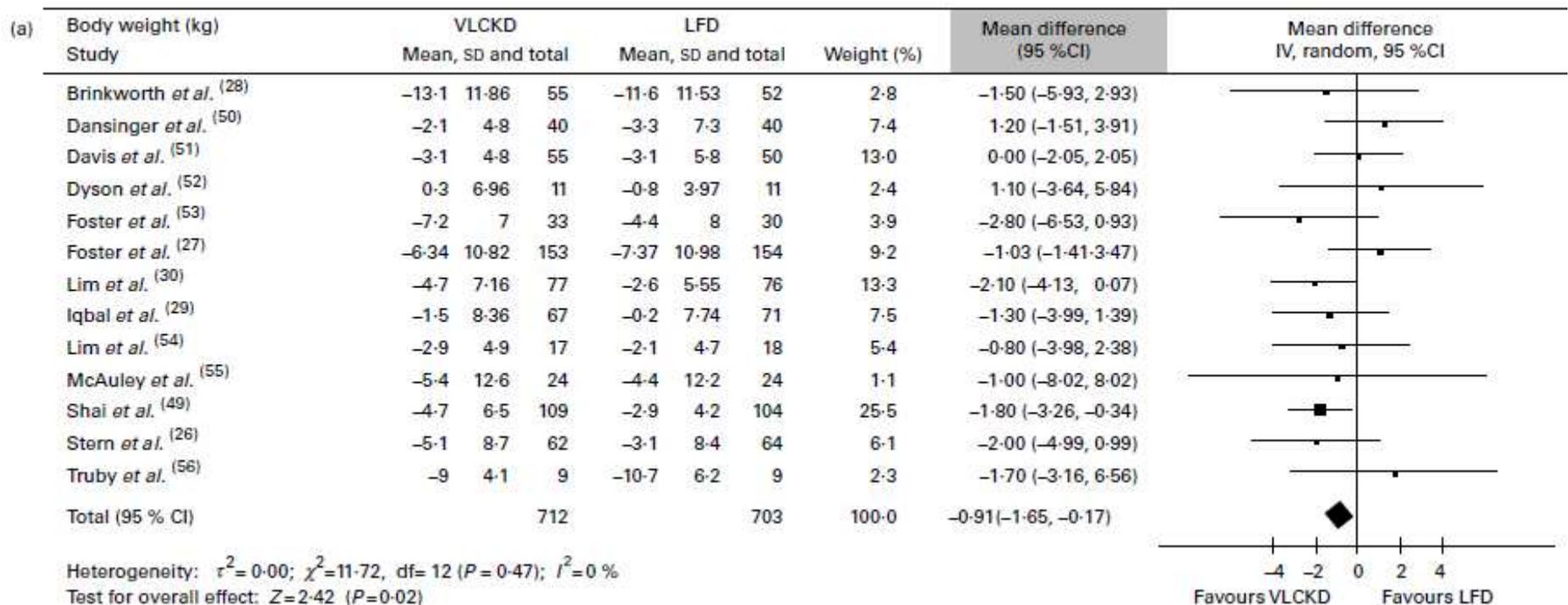
 Nature of studies meant no blinding of trial participants/investigators possible

The study appraisal – QFAST

- Appraisal:
 -  When studies had more than 2 experimental groups, the “most suitable one” was chosen – potential source of bias?
- Synthesis:
 - Appropriate summary tables and forest plots
- Test:
 - Testing for heterogeneity performed
 - Methods for dealing with heterogeneity justified
- Overall judgement: well-conducted systematic review, results are likely to be reliable

The Results (interpretation of findings)

- Primary outcome – body weight:
 - Individuals assigned to a low-carb diet had significantly greater weight loss than those on a low-fat diet.



- BUT clinically the magnitude of the difference is small (1 kg)!



The Results (interpretation of findings)

- Secondary outcomes:
 - TAG – Decreased with a low-carb diet relative to low-fat diet, but two studies were excluded to observe this effect.
 - Other secondary outcomes showed a positive or neutral effect, or were not analysed due to too few studies using the particular outcome measure.
- Risk of publication bias was noted for some secondary outcomes.

The Implications

- Patients hoping to lose weight may wish to follow a low-carb diet, however the benefit is not clinically significant in the long-term.
- Involves serious lifestyle changes; compliance at the end of follow-up was low in most studies.
- Best diet is the one that he can stick to!
- Weight loss should be gradual
- Diet alone is insufficient; combine with lifestyle modifications – get more exercise