Less Pancakes, More Bacon? The Ketogenic Diet for Weight Loss

Clinical Question: Is the ketogenic diet effective for weight loss?

Bottom Line: At best, ketogenic diets help patients lose ~2 kg more than low-fat diets at one year, but higher quality studies show no difference. Weight loss peaks ~5 months but is generally not sustained. There are no randomized controlled trials (RCTs) on mortality or cardiovascular disease. An individual’s weight change can vary -30 to +10 kg with any diet.

Evidence:

- Focusing on most relevant systematic reviews:
  - Systematic review of 13 RCTs of ketogenic versus low-fat diets, 1,577 participants (61% women, BMI 30-43). At 12-24 months ketogenic diet: 1
    - Lost 0.9 kg more than low-fat diet (statistically different).
    - Statistically significant but likely clinically meaningless changes in surrogate markers (example LDL 0.12 mmol/L higher).
    - Drop-out 13-84% across studies.
  - Systematic review of 11 RCTs and 1,369 participants (71% women, BMI 30-36) at 6-24 months: 2
    - Ketogenic-type diet lost 2.2 kg versus low-fat diet, statistically different but results inconsistent.
    - No difference if focus on higher quality studies.
    - Surrogate marker changes similar to above. 1,2
  - Other systematic reviews (5-24 RCTs) confounded by including low-carbohydrate diets that are likely not ketogenic. Results inconsistent: No difference in weight3-5 to 3.6 kg weight loss. 6-8
  - No systematic reviews or RCTs2 examined mortality or cardiovascular disease.
  - 2018 RCT (609 patients): 9 Weight loss at one year:
    - Low-carbohydrate diet (<20 g/day at start) 6.0 kg versus low-fat diet 5.3 kg; not statistically different.
    - Patient genotypes (favouring one diet type) had no impact on weight loss.
    - Individual’s weight change varied from -30 to +10 kg in either group.
Context:

- Typical Canadian diet: 48% carbohydrate, 32% fat, 17% protein.\(^{10}\)
- No standard definition for carbohydrate content in ketogenic diet, but most start with carbohydrate restriction of <20-50 g/day (10% of energy) for ~2 months before slow re-introduction of carbohydrates.\(^{1,11}\)
- Weight loss peaks ~5 months, then slow regain.
  - Example:\(^{12}\) From baseline, weight loss 6.5 kg at five months and 4.7 kg at one year.
- Tendency for decreased caloric intake on ketogenic diet.\(^{9,12,13}\)
- Observational data suggests long-term low-carbohydrate consumption may be associated with increased mortality.\(^{14}\)

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Disclosure:
Authors do not have any conflicts of interest to declare.

References: