HEART-HEALTHY DIETS, EVEN THOSE INCLUDING LEAN BEEF, CAN HELP MANAGE CHOLESTEROL

Beef in an Optimal Lean Diet study: effects on lipids, lipoproteins, and apolipoproteins
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Objective

Evaluate the LDL cholesterol–lowering effects of a DASH-like diet that contained lean beef and a moderate protein diet that contained lean beef compared with a healthy American control diet in individuals with elevated LDL-cholesterol concentrations.

Study Design and Setting

A 4-period randomized, crossover, controlled feeding design. Subjects were randomly assigned to consume each of the 4 diets: HAD (33% total fat, 12% SFA, 17% protein, and 20g beef/d), DASH (27% total fat ,6% SFA, 18% protein, and 28g beef/d), BOLD (28% total fat, 6% SFA, 19% protein, and 113 g beef/d), and BOLD+ (28% total fat, 6% SFA, 27% protein, and 153 g beef/d) for 5 weeks. A short compliance break (average of 1 week) separated the diet periods.

Participants

Thirty-six healthy men and women (30–65 years of age) with elevated LDL cholesterol concentrations (2.84–4.55 mmol/L) were recruited.

Additional inclusion criteria:

- BMI (in kg/m2) of 18.5–37
- Triglycerides concentration <3.95 mmol/L
- Blood pressure <140/90 mm Hg

Exclusion criteria:

- Use of cholesterol and lipid-lowering medications or supplements (psyllium, fish oil, soy lecithin, and phytoestrogens)
- Pregnancy or lactation
- Weight loss ≥10% of body weight within the 6 months before enrollment in the study
- Vegetarianism.

Results

- A decrease in total cholesterol (TC) and LDL cholesterol concentrations after consumption of the DASH, BOLD, & BOLD+ diets compared with after consumption of the HAD diet.
- Apolipoprotein A-I, C-III, and C-III bound to apolipoprotein A1 particles decreased after BOLD & BOLD+ diets compared with the HAD.
- There was a greater decrease in apolipoprotein B after consumption of the BOLD+ diet than after consumption of the HAD.
- LDL cholesterol and TC decreased after consumption of the DASH, BOLD, and BOLD+ diets when the baseline C-reactive protein (CRP) concentration was ,1 mg/L; LDL cholesterol and TC decreased when baseline CRP concentration was .1 mg/L with the BOLD and BOLD+ diets.

CONCLUSIONS

- Low-SFA, heart-healthy dietary patterns with increased lean beef consumption elicit favorable effects on cardiovascular disease lipid and lipoprotein risk factors that are comparable to those elicited by a DASH dietary pattern.
- These results, in conjunction with the beneficial effects on apolipoprotein CVD risk factors after consumption of the BOLD and BOLD+ diets, which were greater with the BOLD+ diet, provide support for including lean beef in a heart-healthy dietary pattern.