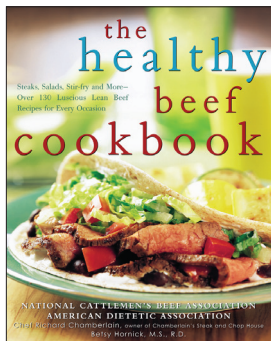




The latest research on heart health and lean beef presents a new way of thinking: lean beef can be part of a solution to one of America's greatest health challenges. A study published in the *American Journal of Clinical Nutrition* demonstrated that a diet including lean beef every day is as effective in lowering total and LDL "bad" cholesterol as the gold standard heart-healthy diet (DASH, Dietary Approaches to Stop Hypertension).¹

The Beef in an Optimal Lean Diet (BOLD) clinical study (Effects on Lipids, Lipoproteins and Apolipoproteins),¹ conducted by The Pennsylvania State University researchers, evaluated adults with moderately elevated cholesterol levels, measuring the impact of diets including varying amounts of lean beef on total and LDL cholesterol levels. Study participants experienced a 10 percent decrease in LDL cholesterol compared to baseline in two different beef diets. The BOLD diet contained 4.0 oz. of lean beef and the BOLD-PLUS diet contained 5.4 oz. (weights before cooking) of lean beef daily with both diets providing less than 7% of calories from saturated fat. After five weeks, there were significant reductions in total and LDL cholesterol.¹ Many of the BOLD and BOLD-PLUS diet menu plans incorporated recipes from *The Healthy Beef Cookbook*.



The study used rigorously designed research—a Randomized Controlled Clinical Intervention Trial—to investigate the effects of cholesterol-lowering diets with varying amounts of lean beef. In this study, 36 participants (adults ages 30-65 with moderately elevated cholesterol) were randomly assigned to a treatment order and in a cross-over design, consumed a total of four diets (BOLD, BOLD-PLUS, DASH and Healthy American Diet (HAD) as control) for five weeks each.

The BOLD study is the latest addition to a body of evidence that supports including lean beef in a heart-healthy diet. To learn more about this study, please visit BeefNutrition.org.

Nutritional Breakdown of Study Diets

	HAD	DASH	BOLD	BOLD-PLUS
Calories	2,097 kcal	2,106 kcal	2,100 kcal	2,104 kcal
Protein (% of total calories)	17%	18%	19%	27%
Carbohydrate (% of total calories)	50%	55%	54%	45%
Fat (% of total calories)	33%	27%	28%	28%
Saturated Fat (% of total calories)	12%	6%	6%	6%
Monounsaturated Fat (% of total calories)	11%	9%	11%	12%
Polyunsaturated Fat (% of total calories)	7%	8%	7%	7%
Lean Beef (oz./day*)	0.7	1.0	4.0	5.4

*Weight before cooking

Healthy American Diet (HAD):

Control diet, included more refined grains, full-fat dairy products, oil and butter to reflect current American dietary habits.

Dietary Approaches to Stop Hypertension (DASH):

Considered the "gold standard" heart-healthy diet, this eating plan featured vegetables, fruits and low-fat dairy and limited red meat and sweets.

Beef in an Optimal Lean Diet (BOLD):

Similar to the DASH diet (rich in vegetables, fruits, whole grains, nuts and beans) and protein amount, but used lean beef (4 oz./day) as the primary protein source, whereas the DASH diet used primarily white meat and plant protein sources.

Beef in an Optimal Lean Diet Plus (BOLD-PLUS):

Similar to the BOLD diet, but with higher protein and lean beef intake (5.4 oz./day).

Eating Lean Beef Daily Can Help Lower Cholesterol As Part of a Heart-Healthy Diet

You can enjoy lean beef every day, follow a low saturated fat diet and meet the *2010 Dietary Guidelines for Americans* recommendations. When included as part of a healthy diet, lean choices—such as Top Sirloin, Tenderloin, T-Bone steak and 95% lean Ground Beef—can reduce risk of heart disease. In fact, 17 of the top 25 most popular fresh meat cuts sold at retail are lean.²

A 3 oz. serving of lean beef contributes less than 10 percent of calories to a 2,000-calorie diet and it supplies more than 10 percent of the Daily Value (DV) for 10 essential nutrients. On average, a 3 oz. serving of lean beef (about the size of a deck of cards) contains about 150 calories and is an excellent source of six nutrients (protein, zinc, vitamin B₁₂, vitamin B₆, niacin and selenium) and a good source of four nutrients (phosphorous, choline, iron and riboflavin).

A Taste of BOLD

You can follow the same heart-healthy diet as the participants of the BOLD study by using the recipes from *The Healthy Beef Cookbook*, a collection of delicious, nutrient-rich recipes featuring America's favorite protein—beef.³

Lean beef is the perfect pairing—easily served with vegetables, grains and dairy—and improves taste and satisfaction and maximizes nutrients to keep your body healthy. Here is a one-day sample menu from the BOLD diet.

BOLD: 4.0 oz. lean beef per day <i>For a BOLD-PLUS menu, increase lean beef to 5.4 oz. per day</i>	
Breakfast	<ul style="list-style-type: none"> ♥ Egg (1) with red pepper and onion (1 Tbsp. each) ♥ Low-fat cheddar (¼ cup) ♥ Whole wheat bagel (1 small) ♥ Margarine (2 tsp.)
Lunch	<ul style="list-style-type: none"> ♥ Sirloin with Sugar Snap Peas & Pasta Salad with Gremolata Dressing (see recipe below) ♥ Apple (1 medium)
Dinner	<ul style="list-style-type: none"> ♥ Beef, Mango and Barley Salad (1¼ cup salad with 3 oz. cooked beef) ♥ Dinner roll (1 small) ♥ Margarine (2 tsp.)
Snacks	<ul style="list-style-type: none"> ♥ Nonfat yogurt (6 oz.) ♥ Low-fat granola (¼ cup) ♥ Almonds (1½ Tbsp.)

Nutrition Information: 1802 calories; 89 g protein; 248 g carbohydrate; 55 g fat (14 g saturated); 326 mg cholesterol; 1677 mg sodium; 31 g zinc

Sirloin with Sugar Snap Pea & Pasta Salad with Gremolata Dressing

Total Recipe Time: 60 min
Makes 4 servings

- 1 boneless beef Top Sirloin, cut ¾ inch thick (about 1 lb)
- 2 cups fresh sugar snap peas
- 2 cups cooked gemelli or corkscrew pasta
- 1 cup grape or teardrop tomatoes, cut in halves
- 3 cloves garlic, minced
- 1 teaspoon black pepper
- Chopped fresh parsley (optional)

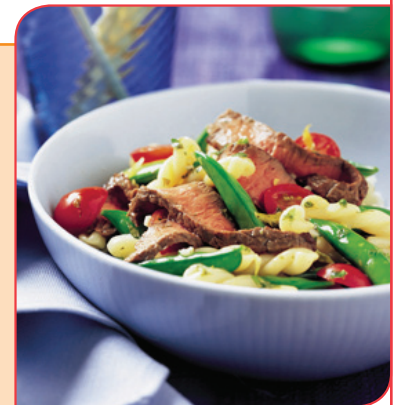
Gremolata Dressing:

- ¼ cup fresh lemon juice
- 2 tablespoons olive oil
- 2 tablespoons chopped fresh parsley
- 2 cloves garlic, minced
- 2 teaspoons freshly grated lemon peel
- ¼ teaspoon salt
- ⅛ teaspoon black pepper

1. Bring water to boil in large saucepan. Add peas; cook 2 to 3 minutes until crisp-tender. Drain; rinse under cold water. Combine peas, pasta and tomatoes in large bowl. Set aside.
2. Whisk dressing ingredients in small bowl until well blended. Toss 2 tablespoons dressing with pasta mixture. Set aside.
3. Combine 3 cloves minced garlic and 1 teaspoon pepper; press evenly onto beef steak. Place steak on rack in broiler pan so surface of beef is 2 to 3 inches from heat. Broil 9 to 12 minutes for medium rare (145°F) to medium (160°F) doneness, turning once.
4. Carve steak into thin slices; season with salt, as desired. Add steak slices and remaining dressing to pasta mixture; toss to coat evenly. Garnish with lemon peel and parsley, if desired.

Nutrition information per serving: 369 calories; 12 g fat (3 g saturated fat; 7 g monounsaturated fat); 5 mg cholesterol; 216 mg sodium; 31 g carbohydrate; 4.2 g fiber; 32 g protein; 1 mg niacin; 0.7 mg vitamin B₆; 1.4 mcg vitamin B₁₂; 4.4 mg iron; 46.5 mcg selenium; 5.3 mg zinc.

Recipe and photo as seen in *The Healthy Beef Cookbook*, published by John Wiley & Sons.



1 Roussel MA, Hill AM, Gaugler TL, West SG, Vanden Heuvel JP, Alaupovic P, Gillies PJ, Kris-Etherton PM. Beef in an Optimal Lean Diet study: effects on lipids, lipoproteins, and apolipoproteins. *Am J Clin Nutr* 2012; 95(1). Internet: [http://www.ajcn.org/content/early/2011/12/13/ajcn.111.016261] (accessed 14 December 2011).

2 Fresh Look Marketing Group, Total US Beef, 52 Weeks Ending 9/25/2011.

3 IPSOS Public Affairs, 10-survey average, 2009-2010.

Reviewed by United States Department of Agriculture