



Reducing Fat Levels in Ground Beef

Ground beef is undoubtedly the most consumed individual meat product in the United States. Per capita beef consumption in the United States in 2003 was roughly 64.9 pounds, and a majority of that was ground beef. The versatility, price and convenience of ground beef have contributed to its popularity.

Along with its high level of consumption, ground beef has also been a major contributor of fat to the American diet. Food standards permit up to 30% fat in raw ground beef. This type of product (70% lean to 30% fat) is a popular and inexpensive form of ground beef most often labeled in grocery stores as “ground beef” or “regular ground beef.” Larger grocery stores offer several types of ground beef, ranging in raw fat content from 3% to 30%. Product simply labeled “ground beef” contains the most fat, and usually has the lowest cost. Other ground product may be labeled as to the cut from which it is derived, i.e. “ground chuck” must be produced from chuck cuts, and usually have lower fat content. Table 1. lists standard ground beef formulations, compared by lean and fat levels, and estimated cost per pound.

Table 1. Standard ground meat formulations and estimated cost per pound.

| Label [#] | % Lean | % Fat | Cost per Pound* |
|--------------------|--------|-------|-----------------|
| Ground beef | 70 | 30 | \$2.50 |
| Ground chuck | 85 | 15 | \$2.78 |
| Ground round | 90 | 10 | \$3.48 |
| Ground sirloin | 97 | 3 | \$3.68 |

[#]Ground product may be labeled as %Lean, i.e. 90% Lean, or as the type of ground product, i.e. ground round. *The percentages given here are approximations.* *Cost estimates per pound are given for the purpose of illustration and may not reflect actual purchase cost.

The new (2005) Dietary Guidelines recommend lean meats and poultry as choices within the Meat group. The Dietary Guidelines also recommend cooking ground beef to 160°F to ensure safety. Cooking ground beef to a safe internal temperature may also lower the fat content. Because of its ground and ‘open’ structure, ground beef can lose much of its fat during cooking. It is not unusual for 50% or more of the original fat in ground beef to be lost in preparation (Table 2).

Table 2. Calories, Fat, and Cholesterol in Cooked Ground Beef Patties^a

| Ground Beef | Raw (3 oz.) | Pan Fried (3 oz.) | | | Broiled (3 oz.) | | |
|-------------|-------------|-------------------|----------------------|----------|-----------------|------------------|----------|
| | | % Fat | Fat (g) [*] | Calories | Fat (g) | Cholesterol (mg) | Calories |
| 27 | 35 | 262 | 20 | 76 | 248 | 18 | 77 |
| 20 | 23 | 231 | 16 | 71 | 228 | 15 | 74 |
| 15 | 17 | 203 | 12 | 69 | 204 | 12 | 71 |
| 10 | 11 | 164 | 9 | 70 | 169 | 9 | 70 |
| 5 | 5 | 127 | 5 | 66 | 132 | 5 | 66 |

^aSource: USDA National Nutrient Database. *Fat (g) per patty.

The greatest loss in fat content is seen when high-fat ground beef is cooked, either pan-fried or broiled. The amount of fat in a meat patty prepared from 27% fat ground beef may decrease from 35 grams to 18 grams when broiled; slightly more fat is retained on pan frying (20 grams). While the resulting fat content can be lowered significantly when high-fat ground beef is cooked; the change in fat content is negligible when ground beef with a high lean content is cooked. Extra lean ground beef with 5% initial fat loses little or no fat on subsequent cooking. Protein content among all the cooked ground beef products (3 ounce servings) is not affected by cooking, varying from 20% to 22%, iron is also unaffected, ranging from 1.9 to 22. milligrams. Note that fat content of raw ground beef has very little effect on cooked cholesterol values.

A study conducted at Iowa State University in 1992 focused on methods to further reduce fat in ground beef during preparation. Ground beef of three different fat levels (10%, 20% and 30%) was prepared by three different methods: pan-fried as patties; pan-fried crumbles; and pan-fried crumbles which were subsequently rinsed. All products tested (patties and crumbles) were placed on paper towels after cooking and blotted for 30 seconds. The rinsed crumbles were subsequently placed in a strainer, rinsed with four cups of hot water (150°F), and allowed to drain for five minutes. The results are shown in Table 3.

Table 3. Changes in Fat Content of 100 grams* of Ground Beef Due to Pan-Frying and Blotting, and Warm-Water Rinsing

| Raw Product | Grams of Fat | | |
|-----------------------------|---------------|---------------|---------------|
| | 10% Fat Level | 20% Fat Level | 30% Fat Level |
| Raw ground beef | 10 g | 20 g | 30 g |
| Pan-Fried – patties | 8 g | 11 g | 11 g |
| Pan-Fried – crumbles | 7 g | 9 g | 9 g |
| Pan-Fried crumbles – rinsed | 3 g | 4 g | 4 g |

*100 grams = 3.5 ounces

In this study, 50% or more of the original fat of the 20% and 30% fat ground beef was lost during cooking and blotting of both patties and crumbles. Slightly more fat was lost from ground beef cooked as crumbles. Further warm water (150°F) rinsing of the crumbles was effective in removing about half of the fat still left in the crumbles after cooking and blotting, producing very similar final fat amounts in all three types of ground beef.

While warm water rinsing greatly reduced fat in crumbled beef, it did not substantially reduce the amounts of protein, iron, zinc or vitamin B-12. However, warm water rinsing of crumbles did significantly reduce the beef flavor and juiciness in the 20% and 30% fat ground beef, and resulted in increased chewiness in all types. Thus the acceptability of rinsed crumbles may be enhanced in mixed dishes such as casseroles or sauces such as spaghetti sauce.

Implications for Consumers: When ground beef cooking is followed by careful blotting and warm-water rinsing, the fat content can be dramatically reduced. High-fat ground product can be manipulated on cooking and handling so that the result is a fat content that mimics a high-cost lean cooked ground product. Where money is tight, purchasing lean or extra lean ground beef (3% -10% fat) can be reserved for those times when fat

cannot be removed by blotting and rinsing, i.e. in the preparation of meatloaf or stuffed peppers.

References

Buege, D. 1993. Reducing fat in ground beef. Wisconsin Meat Facts and Analysis. ME 93-1.
Love, J.A. and K.J. Prusa. 1992. Nutrient composition and sensory attributes of cooked ground beef: Effect of fat content, cooking method, and water rinsing. J Am Diet Assoc 92:1367-1371.
USDA National Nutrient Database <http://www.nal.usda.gov/fnic/foodcomp/>

Tips for Reducing Fat in Cooked Ground Beef Crumbles by Rinsing

When preparing a dish that calls for cooked ground beef crumbles such as spaghetti sauce, chili, Sloppy Joes, taco filling or pizza topping, the fat content can be reduced by rinsing after cooking. This is an excellent way to take advantage of the lower-priced 70% lean (30% fat) ground beef and still have the benefits of a leaner product.

1. Brown 1-pound ground beef in skillet over medium heat 8 to 10 minutes or until meat reaches 160°F (or the juices run clear). Stir meat occasionally to break beef into large pieces (about ½ inch).
2. Meanwhile place 4 cups water in 1-quart glass measuring cup or microwaveable bowl and microwave on HIGH 5 to 6 minutes or until very hot, but not boiling (150°F to 160°F). Careful, the water will be very hot!!
3. Using a slotted spoon, remove beef crumbles to large plate or other container lined with 3 layers of white, non-recycled paper towels and let sit 30 seconds to 1 minute, blotting top of beef with an additional paper towel.
4. Transfer beef to a fine mesh strainer or colander. Pour hot water over beef to rinse fat. Drain 5 minutes.
5. Proceed as recipe directs.

Note: if your recipe calls for browning ground beef with onion or garlic, it can be done at the same time and then rinsed without significant loss of flavor. Additional seasonings, such as salt and pepper, and herb should be added after rinsing beef crumbles to minimize any loss of flavor.

Tips for Reducing Fat in Cooked Ground Beef Burgers

To reduce the fat content of panbroiled or grilled ground beef burgers, follow these simple steps.

1. Shape ground beef into 1/2 –inch thick patties, approximately 4 inches in diameter.
2. Heat skillet over medium heat 5 minutes. (Do not add oil). Or prepare hot grill.
3. Panbroil or grill patties 7 to 8 minutes, turning once.
4. Remove to large plate lined with 3 layers of paper towels; let sit 1 minute, turning over after 30 seconds.
5. Season as desired and serve.

Blotting to reduce fat can easily be applied to other shaped ground beef products such as **meatballs**, and sometimes to **meatloaf**. Roast the meatballs or meatloaf on a rack so that the fat drips away during cooking. After roasting, place on a surface lined with several layers of paper towels. Blot the sides and top (if not glazed) for further fat reduction.

Other Fat Reducing Tips when Cooking with Ground Beef

- For recipes where rinsing and blotting is not feasible, it is best to use 90% lean or extra lean (97% lean) ground beef product.
- If time does not allow for the blotting and/or rinsing of ground beef, remove any excess fat from the skillet during cooking. Using a crumpled white paper towel, carefully soak up fat as it accumulates during browning and before additional ingredients are added.
- Substitute low-fat, low-calorie versions of ingredients; such as low-fat or non-fat sour cream for regular sour cream.
- Cook with fresh ingredients that do not contribute extra fat and contain few calories such as hot and sweet peppers, onion, garlic and tomatoes.