
Potential Effects of the Next 100 Billion Hamburgers Sold by McDonald's

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Background: McDonald's has sold >100 billion beef-based hamburgers worldwide with a potentially considerable health impact. This paper explores whether there would be any advantages if the next 100 billion burgers were instead plant-based burgers.

Methods: Nutrient composition of the beef hamburger patty and the McVeggie burger patty were obtained from the McDonald's website; sales data were obtained from the McDonald's customer service.

Results: Consuming 100 billion McDonald's beef burgers versus the same company's McVeggie burgers would provide, approximately, on average, an additional 550 million pounds of saturated fat and 1.2 billion total pounds of fat, as well as 1 billion fewer pounds of fiber, 660 million fewer pounds of protein, and no difference in calories.

Conclusions: These data suggest that the McDonald's new McVeggie burger represents a less harmful fast-food choice than the beef burger.

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Introduction

McDonald's states that the company has sold >100 billion hamburgers, and are continuing to sell "more than 75 hamburgers per second, of every minute, of every hour, of every day of the year."¹ The potentially considerable health impacts of this quantity of beef were considered, at a time when soy-based McVeggie burgers (and other veggie burgers) have multiple national and international outlets,^{2–8} when the American Cancer Society⁹ and World Health Organization¹⁰ (among other health promotion organizations) encourage limiting the amount of grilled/processed meat consumed, and when consumer concerns persist regarding "mad cow disease."^{11,12} This paper does not aim to document the health consequences of beef consumption or of fast food, per se, but rather of one product whose effect on health may be negative,^{10,13} and which has been consumed >100 billion times.¹⁴ Although McDonald's is only one source of beef consumption, it is the leading worldwide hamburger retailer and food service retailer,¹⁵ and holds the leading share (42%) of the U.S. fast-food market.¹⁶ About 8% of Americans eat at a McDonald's on an average day, and 96% of Americans eat a meal there at least yearly.¹⁶ The hypothesis of this manuscript is that there may be fewer health disadvantages if McDonald's next 100 billion cow-derived burgers would instead be 100 billion plant-based burgers.

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Methods

Nutrient composition of the beef hamburger and the McVeggie burger patties were obtained from McDonald's website¹⁷; recent sales and price data were obtained from McDonald's customer service and electronic sources.

McDonald's does not publish sales and profits of individual items.¹⁸ Thus, it is not possible to estimate how many of McDonald's first 100 billion beef burgers sold were 1.6-oz hamburgers, 3.2-oz Big Macs (introduced in 1968),¹⁹ 4.0-oz Quarter Pounders (introduced in 1973),¹⁹ or other sandwiches. This paper conservatively (given progressively larger hamburger sizes)²⁰ projected that the next 100 billion hamburger patties sold by McDonald's would be a 2.4-oz simple average of the 3.2-ounce Big Mac and the 1.6-ounce hamburger patties. (All burger weights reported herein are uncooked weights of U.S. burgers.) The Big Mac provides a conservative burger weight estimate because it is the smallest of the larger burgers that have been sold during McDonald's most sales-intensive years (since the 1980s).¹⁹ It was also selected because (according to a survey of a 10% sample of Atlanta-area McDonald's) the Big Mac now dominates burger sales, and it is reported to be the top seller worldwide.¹⁸ Values for the mean 2.4-oz composite burger weight were conservatively computed by multiplying values for the smaller, less calorically dense (1.6-oz) hamburger by 1.5, and then multiplying by 100 billion (Table 1).

Results

If the next 100 billion beef patties were instead 100 billion McVeggie patties, McDonald's customers would consume an equivalent number of calories, but also hundreds of millions more pounds of fiber and pro-