

# Revenge of the Piggies: Does Bacon Really Cause Cancer?



By *Chuck Dinerstein, MD, MBA* — April 18, 2019



Can this increase your risk of cancer?

Courtesy of [Made2Order555](#) [1]

Another day, another report from epidemiologists on how what we eat kills us; today's culprit, a perennial favorite, red and processed meat. The study in the *International Journal of Epidemiology* makes use of an old friend, data-wise, the UK Biobank, and while they primarily collect genome sequencing, they also capture demographics and lifestyle factors, like eating. The current authors make use of the non-genomic data in looking at the risk factors associated with colon and rectal cancer, CRC.

The study looked at approximately 470,000 adults who had dietary data from both their initial evaluation and at least one additional survey during the mean five years of follow up. They looked at several food groups, and those with an increased risk of CRC were red meat, processed meat (hence the mention of pigs in my title and the media reports that one slice of bacon daily increases your risk of cancer), red and processed meat, cheese, and alcohol. Both cheese and alcohol were associated with a 9% increased risk, while those meats, red or processed were responsible for a seventeen to twenty percent increase – let's call it 20%. The dietary data was based upon how many servings a day the participants self-reported which were multiplied by some measure of weight to get grams. Now if you are like me, portion size varies, one slice of roast beef can be cut thin or thick, so the quantification of intake into grams is on shaky ground. By the way, it is a British study, so perhaps they had a better idea of what a “rasher” of bacon means. [1]

## **Describing Risk in Absolute or Relative Terms**

2609 cases of CRC were identified for an overall absolute incidence of 0.548%. [2] Consuming the

greatest amount of red meat was associated with an incidence by itself of 0.630%. But presentation can be everything on stage and in the journals. Which number seems more important, a 20% relative increase risk or an absolute increased risk of 0.082%. Or we can talk in terms of how many cases of CRC were seen in a thousand people. The overall incidence resulted in 5.48 cancers, eating the greatest amount of red meat increased it to 6.3 cancers or 1 more person out of a thousand.

Even if you accept these numbers, and there are other issues to consider in a moment, I wouldn't personally be in a rush to stop eating meat. I would eat meat as we have recommended, in moderation. If you look at the folks with moderate red meat or processed meat in their diet, their incidence of CRC was 0.59% and 0.56% respectively. And if you believe epidemiology studies and this one in particular, maybe eating more fiber, coffee, and tea, the only food groups associated with a lower rate of CRC would even things out. A bacon sandwich made with whole wheat bread and two cups of coffee might do the trick.

When they looked at those individuals who ate the most meat and processed foods, compared with those that ate the least, there were other significant differences in risk factors. The most critical, gender; the association of a heightened risk of CRC with red and processed meat was "stronger in men and null in women." Those big meat eaters were older, more likely to smoke, had a higher BMI and greater body fat, and drank more alcohol; they also ate fewer fruits, vegetables, and fiber. The group that ate the most meat also had more family members with CRC. Using the author's term of comparison, 25% higher (relatively), but in absolute terms 9% versus 7% in the group used as the control. But of course, statistical analysis and regressions can smooth over those differences.

The media reports echoed the author's conversion of servings into grams, but unless they were all getting their meals at a state-run institution, like a prison, portion size varies. While those reported gram amounts seem concrete, as numbers always do, they can be safely ignored. The diet survey used "servings" as the measure, converting servings into grams introduces unnecessary error.

We are left with the finding that a balanced, nutritious diet may be helpful but is not protective in developing CRC, after all those who never ate processed meat had an incidence of 0.396% and the red meat eaters at the lowest level, they had an incidence of 0.391%.

[1] According to [Culinary Lore](#) [2], a rasher is one thin slice of bacon or ham, although it can also mean 2 or 3 slices. For the etymologists among us, it also is used in the term, "a ride and a rasher" where the rasher refers to breakfast, and the ride involve neither horses or motor vehicles.

[2] For the math inclined I am using the actual number from the study rather than the rounded numbers I am reporting.

Source: Diet and colorectal cancer in UK Biobank: a prospective study International Journal of Epidemiology DOI: 10.1093/ije/dyz064

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**Links**

[1] <https://en.wikipedia.org/wiki/Bacon#/media/File:Made20bacon.png>

[2] <https://culinarylore.com/food-history/what-is-a-rasher-of-bacon/>