

Richard Smith’s article *Are some diets “mass murder”?* uses a work of a popular commentator to reach his conclusions in his editorial in The BMJ published on 15 December 2014. Responses to Smith’s article, including mine, can be viewed at www.bmj.com/content/349/bmj.g7654/rapid-responses

Smith writes:

By far the best of the books I’ve read to write this article is Nina Teicholz’s *The Big Fat Surprise*, whose subtitle is “Why butter, meat, and cheese belong in a healthy diet.” [...] the forensic demolition of the hypothesis that saturated fat is the cause of cardiovascular disease is impressive.

Smith’s conclusion that Teicholz demolishes the saturated fat hypothesis fails with just a little scrutiny. Below are several paragraphs from Smith’s editorial, followed by a brief commentary.

Teicholz begins her examination by pointing out that the Inuit, the Masai, and the Samburu people of Uganda all originally ate diets that were 60-80% fat and yet were not obese and did not have hypertension or heart disease.

According to Teicholz, Mann found that “he could identify almost no heart disease at all” in the Maasai. Mann’s paper, *Atherosclerosis in the Masai*, stated, “Measurements of the aorta showed extensive atherosclerosis with lipid infiltration and fibrous changes but very few complicated lesions. The coronary arteries showed intimal thickening by atherosclerosis which equaled that of old U.S. men.”¹ Smith’s and Teicholz’s assertion that heart disease was non-existent in the Maasai is clearly false.

“[Keys is] possessing a very quick, bright intelligence” but also “direct to the point of bluntness, and critical to the point of skewering.”

The actual quote from Blackburn is “Ancel Keys has a quick and brilliant mind, a prodigious energy, and great perseverance. He can also be frank to the point of bluntness, and critical to the point of sharpness.”² Blackburn’s words of “can be” has been transformed into “as being”. Participants in the Minnesota starvation experiment spoke of Keys’s compassion.

Keys launched his “diet-heart hypothesis” at a meeting in New York in 1952, when the United States was at the peak of its epidemic of heart disease, with his study showing a close correlation between deaths from heart disease and proportion of fat in the diet in men in six countries (Japan, Italy, England and Wales, Australia, Canada, and the United States). Keys studied few men and did not have a reliable way of measuring diets, and in the case of the Japanese and Italians he studied them soon after the second world war, when there were food shortages.

Keys could have gathered data from many more countries and people (women as well as men) and used more careful methods, but, suggests Teicholz, he found what he wanted to find. A subsequent study by other researchers of 22 countries found little correlation between death rates from heart disease and fat consumption, and these authors suggested that there could be other causes, including tobacco and sugar consumption.

According to Truswell, USA male mortality reached its peak in 1967 or 1968 – 15 years after Teicholz claims. Truswell also states that heart disease reached its peak in 1978 in England

and Wales and Scotland in 1973.³ These dates are nowhere near the unsupported date of 1952 as claimed by Teicholz.

Smith is confusing the later *Seven Countries Study* with Keys’s minor discussion paper of 1953. Keys did not gather the data for this paper but used data from a number of existing sources.

Y&H criticised the 1953 paper in a document published in 1957.⁴

The Y&H paper (which uses FAO data from 1951-1953 that was published in 1956) shows the correlation between heart disease and total calories consumed, animal fat consumption and animal protein consumption at approximately 70%. They were disputing the classifications of heart disease and Keys’s methodology – not the lack of correlation.

Even if data from *all the 22 countries* are included, it still shows:

- positive correlations between heart disease and total calories consumed, fat consumption, animal fat consumption, and animal protein consumption, and
- negative correlations with heart disease and carbohydrate consumption, vegetable protein consumption, and vegetable fat consumption.

The above correlations are clearly noted in Y&H’s paper.

Note that Keys first presented his discussion paper in Amsterdam in 1952 which is before the time that the data used by Y&H was available.

Tobacco is not mentioned in this paper. Possibly Smith and Teicholz are confused by a later disagreement that Yerushalmy had with researchers who claimed that women who smoked had lower birth-weight infants. He suggested that smoking was not the cause of low-birth weight but the result of “mode of life” differences between the smoking population and non-smoking populations.

In recent years, far too much attention is paid to one page of a discussion paper written in the early 1950s. Keys writes, “the fact that the present high rate from degenerative heart

disease in the United States is not inevitable is easily shown by the comparison with some other countries.” This was the purpose of the paper.

The comment that Keys could have gathered data from many more countries and people (women as well as men) obviously refers to Keys’s later Seven Countries Study – not the 1953 discussion paper. Keys explained why women were not involved – the invasiveness of the physical examinations and the fact that heart disease is much less prevalent in women.

An average of 95.9% of all eligible men participated in the Seven Countries Study – excluding the cohorts in the Netherlands and the U.S.

William Banting, in 1864 in his best selling Letter on Corpulence and widely recommended by medical authorities until the 1950s. The diet was tested in the A TO Z Weight Loss Study in 311 overweight or obese premenopausal women over a year against three other diets, including that advocated by Dean Ornish, another US physician, which requires that fewer than 10% of energy comes from saturated fat.

Banting was 165 cm tall and weighed 92 kg at the start of his high-fat, low-carbohydrate diet. Over twelve months he lost 21 kg resulting in a weight of 76 kg. It was a big improvement but not exactly slim. He is still overweight with a BMI of 28.

Smith states that the Ornish Diet requires fewer than 10% energy from saturated fat. This simple view assumes that a criteria for a healthy diet is defined by the macronutrient ratio by energy intake. A person consuming a whole-food, plant-based diet as advocated by Ornish will consume about 10% fats, 10% protein and 80% carbohydrate. This diet will also be high in fibre, phytonutrients and low in saturated fats. Added oils are absent.

The Gardner study ⁵ referenced by Smith completely misrepresented the Ornish Diet. The diet consumed by the participants comprised of 52% carbohydrate, 30% fat and 18% protein.

The amount of fibre consumed was very low at 19.3 g/d. Ornish wrote a letter to the editor of the journal complaining about the misrepresentation of his diet but it was not published.

Unfortunately, both Smith and Teicholz have numerous mistakes. For example, Teicholz describes cholesterol as being “yellow”—it is white. Lent is a 40-day period – not 48 days as described by Teicholz.

From the conclusion of *The Big Fat Surprise*, Teicholz proclaims:

The advice that comes out of this book is that a higher-fat diet is almost assuredly healthier in every way than one low in fat and high in carbohydrates. [...] Moreover, we now know that there are many good reasons to eat animal foods like red meat, cheese, eggs, and whole milk: they are particularly dense in nutrients— far more so than fruits and vegetables. [...] And after all, red meat, cheese, and cream are delicious! Not to mention eggs fried in butter, cream sauces, and the drippings from a pan of roasted meats.

According to Ancel Keys, who originated the term, the best Mediterranean diet is “almost vegetarian (or lactovegetarian)” and consists of “pasta in many forms, leaves sprinkled with olive oil, all kinds of vegetables in season, and often cheese, all finished off with fruit, and frequently washed down with wine.”⁶

Perhaps Smith’s conclusion could be extended to, “it’s surely time for better science and for humility among popular commentators.”

Footnotes

1. Mann, G. V. et al. (1972) Atherosclerosis in the Masai. *American Journal of Epidemiology*. 95 (1), 26.
2. Blackburn, H. (n.d.) *Ancestral Keys – by Henry Blackburn, MD* [online]. Available from: mbbnet.umn.edu/firsts/blackburn_h.html
3. Truswell, A. S. (2010) *Cholesterol and Beyond: The Research on Diet and Coronary Heart Disease 1900-2000*. Sections 31.1, 31.4
4. Yerushalmy, J. & Hilleboe, H. E. (1957) Fat in the Diet and Mortality from Heart Disease. *New York State Journal of Medicine*. 57 (14), 2343-2354.
5. Gardner, C. D. et al. (2007) Comparison of the Atkins, Zone, Ornish, and LEARN diets for change in weight and related risk factors among overweight premenopausal women: the A TO Z Weight Loss Study: a randomized trial. *Journal of the American Medical Association* . 297 (9), 969-977.
6. Keys, A. (1995) Mediterranean diet and public health : personal reflections. *American Journal of Clinical Nutrition*. 61 (6), 1321S-1323S.