

The WTH claims

On the dangers of Meat:

Meat causes cancer (Ruling by the World Health Organization) (2:16)

--The scientific paper justifying the ruling is [here](#), and the [principal meta-analysis upon which the ruling relies](#) is here. RR < 2 for both processed meat and fresh meat.

--These epidemiological findings are trivial, and moreover, are contradicted by the more rigorous clinical trial evidence on the subject (which was ignored by the WHO panel), as explained in [this op-ed, a version of which was published in the Financial Times](#) (yet is behind a paywall) by two of the fathers of “Evidence-based Medicine.”

One serving of processed meat per day increased risk of developing diabetes by 51% (11:05)

--[Harvard epidemiological analysis](#) with relative risks of 1.12 (unprocessed meat) to 1.32 (processed meat). These are both < 2.

--[Epidemiological analysis with relative risks all < 2](#).

If you eat meat the chances of getting diabetes are about 1 in 3 (77:47)

--A [Harvard hypothesis study](#) looking at genetic risks. It says that a Western dietary pattern increases the risk of diabetes, and without justification, assigns all of that increased risk to meat rather than other aspects of the dietary pattern, such as sugar and processed foods.

Within minutes of eating dead meat bacteria toxins, the body gets a burst of inflammation, stiffening or paralyzing the arteries (14:17)

--A [post by vegan diet doctor Michael Greger](#)

--A [speculative test tube study](#) using kidney cells.

If you eat meat chances of getting cancer if you're a man 1 in 2, if you're a woman 1 in 3 (77:51)

--A [post by vegan diet doctor and animal-welfare activist Neal Barnard](#)

If you eat meat you're chances of gaining weight about 2 in 3 (77:56)

--A [post by vegan diet doctor Michael Greger](#)

--A [non-peer reviewed paper by the anti-meat advocacy group Environmental Working Group](#)

Men with a high prognostic risk and a high poultry intake had a 4-fold increased risk of recurrence or progression (16:19)

--[Epidemiological study](#) that found no association of prostate cancer recurrence or progression with processed and unprocessed red meat, fish, **total poultry, and skinless poultry**. Only **poultry with skin** had a barely positive finding: (HR: 2.26; 95% CI: 1.36, 3.76; *P* for trend = 0.003). **This study only possibly supports the idea that poultry with skin might have a slightly greater risk of cancer.**

On the Dangers of Eggs:

Eating 1 egg per day is just as bad as smoking 5 cigarettes per day for life expectancy (16:50)

- A [post by vegan diet doctor Michael Greger](#);
- A [Harvard epidemiological study](#) that does not mention eggs.
- An [epidemiological study](#) looking at smoking and egg consumption, yet no risk or hazard ratios reported.

USDA admitted that eggs cannot legally be labeled: nutritious, low fat, part of a balanced diet, low calorie, healthful, healthy, good for you, or safe (52:26)

- A [post by vegan diet doctor Michael Greger](#)
- A [second post by vegan diet doctor Michael Greger](#)

The roles of alcohol, sugar, smoking and meat-based diet towards heart disease (13:41)

- A [Harvard epidemiological study](#) that says nothing about the impact of meat or sugar on heart disease.
- A [Harvard epidemiological study](#) that says nothing about the impact of meat or sugar on heart disease.

On the dangers of Dairy:

There is a strong link between dairy foods and autoimmune diseases (26:07)

- A [blog post by plant-based diet doctor Michael Klaper](#)
- A [blog post by vegan diet doctor and animal rights activist Neal Barnard](#)
- A [blog post by vegan diet doctor Michael Greger](#)
- A [blog post by vegan diet doctor John McDougall](#)
- An [epidemiological study](#) suggesting an association between low-fat yogurt intake in pregnant women and increased child asthma and allergic rhinitis risk. RR < 2.
- An [epidemiological study](#) on 150 Mexican kids showing that those who got cow's milk rather than being breast fed were more likely to get diabetes. This study provides no evidence to support claims regarding auto-immune disease.
- A [clinical trial in Santa Rosa, CA on the plant-based diet](#), looking at the outcome of multiple sclerosis. This trial was funded by the foundation of vegan diet doctor John McDougall. It lasted 1 year and included a total of 61 people. More than 30% of participants in the vegan diet group could not adhere to the diet and withdrew from the study (compared to only 7% of the controls). The study showed "no difference" in multiple sclerosis outcomes. This small study, despite being funded by an interested party, did not achieve results to support the vegan diet.

Children are suffering from conditions linked to dairy consumption (27:30)

- A [post on the website of diet doctor Jay Gordon](#)
- A [post by vegan diet doctor Michael Greger](#)
- A [blog post by a website called "FARE,"](#) dedicated to food allergies
- A [Commentary by "a long-term believer in the relationship between diet and acne,"](#) William Danby. This paper mainly speculates on mechanisms and does not cover rigorous data.
- A [clinical trial in Iran on 140 children diagnosed with persistent constipation.](#) The children responded better to a diet free of cow's milk (that was the only difference in the diet). Yet this study, on a non-Western population of sick children, is not generalizable to a larger Western population.
- [Iranian clinical trial on 81 children](#) < age 2 with symptoms of GERD. Majority saw symptoms disappear with drug treatment. 33% improved with elimination of cow's milk. Trial was uncontrolled, on a non-Western population.
- A paper on the [case studies](#) of two very sick children (Bondi and Lieu). This paper, on only two sick children, cannot be generalized to a larger population.

Dairy linked to many different types of cancer (29:55)

- [Epidemiological study on breast cancer](#) looking at high and low fat dairy with ratios all below 2.
- [Ecological study across countries.](#) The weakest kind of associational data.
- A [commentary review](#) on milk and breast cancer says the data are "blurry and partially contradictory and equivocal."
- A [statement by the Canadian Cancer Society](#) saying dairy "may" cause cancer but does not link to any peer-reviewed studies.
- Review of epidemiological data on dairy and prostate cancer. Positive association has ratio < 2.

Dairy products increase the risk of cancers related to your hormones (30:34)

- [Post by vegan diet doctor Neal Barnard](#)
- [Harvard epidemiological study](#) looking at consumption of dairy and prostate cancer with ratio < 2.

Dairy can increase a man's risk of getting prostate cancer 34% (30:49)

- [Post by vegan diet doctor Neal Barnard](#)

For women who have had breast cancer, just one serving of whole dairy a day can increase their chance of dying from the disease 49%, and dying from any disease 64% (30:56)

- [Epidemiological study with ratios < 2](#)

Casomorphin (in cheese) may play a role in sudden infant death syndrome (sids) and autism (33:12)

- A [post by vegan diet doctor Michael Greger](#)
- A [post by vegan diet doctor Michael Greger](#)

- A study that simply measures casomorphins in breast milk vs. cows milk but makes no health claims.
- A European Food Safety Authority paper on casomorphins that reviews their impact on health. Concludes there is *no evidence* on SIDs or autism:
 - “[A] link between casein-derived peptides and autism in subjects with increased intestinal permeability has been suggested. However, recent data do not provide any support for such a relationship.”
 - “A possible link between BCM intake and sudden infant death syndrome (SIDS) has been suggested in some publications. However, no clear evidence for such a relationship was found during the review.”

Cow milk protein causes antibodies in the bloodstream that attack the pancreas (47:22)

--A newsletter from vegan diet doctor John McDougall

Studies referencing the link between exposure to dairy at a young age and type 1 diabetes (47:12)

--An observational study showing that kids who got cow’s milk rather than being breast fed more likely to get diabetes. Study from Mexico. Because children who aren’t breast fed very likely come from families with other socio-economic or health difficulties, this study is serious confounded. Despite these problems with the study, the ratio > 2, so this study will be coded yellow. (This study is listed 2x in the WTH evidence base.)

--A Finnish study on infants in which some are given cows milk and others formula, in addition to breast milk. While the different groups showed differing reactions to bovine insulin,” they “showed no difference in reaction to human insulin,” which is the relevant factor for human diabetes. This paper is a commentary on the study and not the study report itself, so it is impossible to evaluate.

--A crude ecological analysis of the national food consumption in 40 countries and occurrence of diabetes. Nothing can be concluded about causation from this data.

Any animal protein:

Any animal protein boosts the level of cancer promoting growth hormone (30:20)

--Post by vegan diet doctor Michael Greger

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Low fat, plant-based diet is more than twice as powerful at controlling and/or reversing diabetes, than the American Diabetes Assn. diet recommending meat and dairy (42:51)

--A clinical trial by Neal Barnard: 99 people for 74 weeks. Weight loss was the same in both groups. Numbers who failed to complete the trial: 9 vegans, 7 controls. Dietary adherence was only 50% in both groups. Changes in Hb A1c (glycemic control), the main factor for T2 diabetes. were *not significantly different* between the two groups.

--The same study by Neal Barnard, published by another journal (which is generally not acceptable, as it is considered self-plagiarism).

--[An Italian clinical trial on 18 patients who spent only 4 weeks on the diet.](#)

The high-carb vegetarian diet was compared to a diet high in olive oil, lower in carbohydrates, but with a *higher glycemic index* (including: “white bread, a serving of potatoes, rice, or pasta each twice weekly; a serving of pizza once a week”) The lower-glycemic (vegetarian) diet produced better glycemic control when tested after meals. This trial was too small, too short, and was confounded by the fact that the control group ate diets far higher in refined carbohydrates.

--[Review of the epidemiological evidence on red and processed meat.](#)
Ratios < 2

--[Another review of the epidemiological data on meat consumption](#), by Neal Barnard. A narrative review without any quantitative analysis.

--[An observational study](#) looking at Taiwanese Buddhists that found an association between non-vegetarians and higher rates of diabetes. The vegetarians were part of a group that “are required to abstain from alcohol, tobacco, and are encouraged to adopt a vegetarian diet for reasons of compassion and environmental conservation.” These factors caused significant confounding, as did non-Western population with far different lifestyles.

--[An observational study on 7th Day Adventists in which vegans/vegetarians had lower rates of diabetes than non-vegetarians.](#) But confounded by the fact that the religious sect also has lower rates of smoking, drinking, and other harmful behaviors. However, a Western population and low odds ratios code this study yellow.¹

There are no studies showing that eating eggs and meat in moderation can turn your heart disease around and get better (80:14)

--[A post by vegan diet doctor Michael Greger](#)

Americans get about twice the protein they need (66:20)

--[A commentary on Bloomberg.com](#) by vegan journalist Deena Shankar

--[A blog by a nurse on the Huffington Post](#)

The alleged health benefits of the plant-based diet:

Vitamin intake, overall nutrition go up on a plant-based diet from a meat-based diet (67:41)

--[A case study of a single individual in The Permanente Journal.](#) [cited twice in the WTH evidence base]

You can stop and reverse heart disease with plant-based diets (71:11)

--Two citations, [here](#) and [here](#) (which WTH cites twice), refer to a single study by Dean Ornish. Ornish has for decades promoted this study as the best-possible evidence that a plant-based diet can reverse heart disease, so it is worth examining. The study had data on 41 men (and the blood-flow data, which was used as the basis for his claim that he has reversed heart disease, was obtained from only 35 men). This is a tiny sample, only on men, which cannot be generalized

¹ For a rigorous analysis of the Seventh Day Adventist Study, including the fact that it has been conducted by a Seventh Day Adventist University, see *The Big Fat Surprise*, pp. 108-110.

to a larger population. Moreover, the trial was multifactorial, including exercise, supplements, yoga, and meditation, so one can never know if any observed improvements might have been due to these other factors rather than diet. A little known fact is that 2 people died on the Dean Ornish plan during the experiment vs. only 1 in the control group. And the men on the Dean Ornish diet saw their HDL-cholesterol drop, which is a sign of worsening heart-disease risk. Finally, although several attempts have been made to replicate Ornish's study (replication is the hallmark of trustworthy science), none have been able to confirm his results.²

--A [post from Harvard health newsletter](#) on an uncontrolled trial by Dr. Caldwell B. Esselstyn, Jr.

When people adopt a fully plant-based diet their cholesterol levels plummet within a few days (71:30)

--A [meta-analysis of 11 vegetarian clinical trials](#), half of which were conducted in the U.S., on a total of 832 people for an average duration of 24 weeks. This paper found that subjects significantly lowered total cholesterol and LDL-cholesterol, which could be seen as positive (although these two measures have not been found to reliably track with CVD risk in diet trials). However, these diets also significantly lowered HDL-cholesterol, which is a sign of *increasing* CVD risk. So at best, the results for CHD risk are mixed.

When people adopt a fully plant-based diet blood pressure comes down (71:46)

--A [post](#) by vegan/water-fasting diet doctor Alan Goldhamer published by anti-animal-protein T. Colin Campbell Center

--An [interview](#) with same Alan Goldhamer in a journal called *Integrative Medicine: Clinician's Journal*. In the interview, he describes studying 174 people using his fasting techniques. However, this is just an interview, not a formal publication of study results and presumably fasting confounded the results.

99.4% were able to avoid major cardiac events by going plant-based (71:55)

--An [uncontrolled, non-randomized trial](#) by vegan diet doctor Caldwell Esselstyn on 198 patients on a plant-based diet for 2-3.5 years.

"Adherence" was self reported, and food diaries were only submitted for the first 3.5 weeks, after which it's not clear how dietary data was collected. This is an exploratory study. It is not a rigorous randomized, controlled trial.

We took 174 consecutive patients with high blood pressure and all lowered their blood pressure enough to eliminate the need for medication (73:53)

² For a complete discussion and references all the above statements, see *The Big Fat Surprise*, pp. 140-144.

--[This is the same interview](#) with Alan Goldberg, described above, in a journal called *Integrative Medicine: Clinician's Journal*. It is just an interview and not a formal presentation of study results.

Crohn's disease & multiple sclerosis remission rates best ever achieved from plant-based diet (74:02)

--A [post](#) by vegan diet doctor Michael Greger

--A [letter to the editor](#) by a team of researchers in Japan who did a preliminary study. This is not a formal presentation of study results.

Suppression of human prostate cancer and breast cancer cell growth given the blood of a vegan, *in vitro* (74:25)

(Note that any data “in vitro,” meaning conducted with cells in a test tube, can only suggest a possible mechanism of disease and is far from conclusive).

--A [2005 trial](#) by vegan diet doctor Dean Ornish, which, due to his commercial conflicts of interest (books, franchising of his diet program) and longtime bias in favor of a plant-based diet, is likely to be biased.

--A [post](#) by vegan diet doctor Michael Greger

--[An unpublished study](#) from UCLA

Dr. Walter Kempner, in the 1940's was reversing some of our worst killer diseases from diet alone (75:44)

--A [post](#) by vegan diet doctor Michael Greger

--A [post](#) by vegan diet doctor John McDougall

--[The rice diet report itself](#): This is a report of various experiences with the rice diet administered in a hospital. The diet is very low-calorie (400-800 calories/day) and therefore resulted in initial weight loss and improvements in blood pressure and various CHD outcomes, but there's not much evidence that patients could stay on the diet for longer than a few months. Kempner selects subgroups for analysis, without reporting on the complete population, so overall results are unclear. Although in one group of 500 patients, Kempner reports that 35% of his patients did not improve on his diet and 6% died. Benefits may have been due to near-fasting conditions (periodic fasting does seem to improve various health conditions). Thus, these data are confounded by fasting and cannot be considered a test of rice and sugar.

Defending the plant-based diet against criticisms:

Do we have to eat meat to get enough protein? (65:10)

--A [letter to the editor](#) by vegan diet doctor John McDougall asserting [that if you eat plant foods in combinations, you can get complete amino acids](#).

--A [Post](#) on a non-peer-reviewed post on a website called the “Vegetarian Resource Group”

- [A case study of a single individual in The Permanente Journal](#). The authors assert that plant-based diets are sufficient in protein.
- [A post on Greger's website, Nutritionfacts.org](#)
- [A paper](#) that measures protein consumption in vegetarians vs. non-vegetarians yet does not make the case for plant-based proteins being complete or sufficient.

Plants are loaded with protein (65:48)

- [A post by vegan diet doctor Neal Barnard](#)
- [A post by vegan diet doctor Michael Greger](#)
- [A post on health.com](#)

Plant-based diet makes you hyperthyroid? (80:44)

- [A dead link on the site of vegan diet doctor Neal Barnard](#).

The healthiest, cheapest, safest source of vitamin b12 is a fortified food or supplement

- [A post by vegan diet doctor Michael Greger](#)
- [A newsletter by vegan diet doctor John McDougall](#)

Statements challenging the role of sugar/carbohydrates in diabetes:

Carbohydrate consumption is inversely related to diabetes (9:03)

- [A clinical trial](#) without a control group, on only 13 men for a mere 3 weeks. This trial was too small, too short, and lacked a control group.
- [An epidemiological study](#) with a hazard ratio close to 1.