



SCIENTIFIC PUBLICATIONS

HEART DISEASE

1. Ornish, D, Scherwitz, L, Billings, J. Intensive lifestyle changes for reversal of coronary heart disease. JAMA 1998;280:2001-07. 5-year results Lancet 1990;336:129-133. 1 year results.

Intensive lifestyle changes (10% fat whole foods vegetarian diet, aerobic exercise, stress management training, smoking cessation, group psychosocial support) for 5 years vs standard care control group. More regression of coronary atherosclerosis occurred after 5 years in the experimental group (7.9% widening of the coronary artery diameter). In the control group, coronary atherosclerosis showed 27.7% progression and more than twice as many cardiac events occurred.

2. Crowe, FL, Appleby PN, Travis, RC, and Key TJ. Risk of hospitalization or death from ischemic heart disease among British vegetarians and non vegetarians: Results from the EPIC-Oxford cohort study. Am J Clin Nutr 2013;97:597-603.

In the European Prospective Investigation into Cancer (EPIC) and Nutrition study, vegetarians had a 32% lower risk of developing coronary heart disease, compared with non-vegetarians.

3. Kwok CS, Umar S, Myint, PK, Mamas MA and Loke, YK. Vegetarian diet, Seventh Day Adventists and risk of cardiovascular mortality: A systematic review and meta-analysis. Int J Cardiol 2014;76:680-6.

In this systematic review and meta-analysis of 8 prospective studies among Seventh-day Adventists, vegetarian diets were associated with a 40% reduced risk of coronary heart disease events and a 29% reduction in cerebral vascular disease events, compared with non-vegetarians.

4. Dinu, M Abbate R, Gensini, GF, Casini A and Sofi F. **Vegetarian, vegan diets and multiple health outcomes: A systematic review with meta-analysis of observational studies.** Crit Rev Food Sci Nutr. 2017;57:3640-9.

A systematic review and meta-analysis of 86 cross-sectional and 10 cohort prospective studies reporting a significant protective effect of a vegetarian diet against the incidence and/or mortality from ischemic heart disease. The observed risk reduction, compared with non-vegetarian dietary patterns, was 25%.

5. VW, Van Horn L, Greenlandy P, et al. **Associations of processed meat, unprocessed red meat, poultry, or fish intake with incident cardiovascular disease and all-cause mortality.** JAMA Intern Med. Published online: 3rd Feb 2020.

An analysis of six cohort studies found that two or more servings of processed meat, red meat, or poultry per day incrementally increased the risk for cardiovascular disease.

6. Barnard, N, et al. **A Mediterranean Diet and Low-Fat Vegan Diet to Improve Body Weight and Cardiometabolic Risk Factors: A Randomized, Cross-over Trial.** JACN. Published online: 5th Feb 2021.

This recently-published study compares the health benefits of a Mediterranean diet against a low-fat vegan diet. The latter was found to have a greater effect on body fat and blood lipid reduction.

Conclusion: the risk of developing [heart disease](#) (the number one killer in Australia) can be reduced when eating vegetarian or whole, plant-based foods. The risk reduction for heart disease is between 25 and 32%.

TYPE 2 DIABETES

1. Neuenschwander, M, Ballon, et al. **Role of diet in type 2 diabetes incidence: umbrella review of meta-analyses of prospective observational studies** BMJ 2019 3;366:l2368. doi: 10.1136/bmj.l2368.

This large systematic review and meta-analysis of 53 prospective observational studies provided us with the most reliable and current evidence. They concluded that red meat and processed red meat are linked to a significantly increased risk of developing Type 2 diabetes:

For red meat: 17% increased T2D risk if people ate:

- An extra 100 grams per day

For processed meat 37% increased T2D risk if people ate:

- An additional 50 grams eaten per day

For bacon: 207% increased T2D risk (more than doubling) if:

- Two more slices of bacon were eaten every day.

2. Eposito, K, Kastorini, C-M et al. **Prevention of type 2 diabetes by dietary patterns: a systematic review of prospective studies and meta-analysis.** Metab Syndr Relat Disord. 2010 Dec;8(6):471-6. doi: 10.1089/met.2010.0009.

All ten of the studies that were analysed showed consistent results: when eating a predominantly plant-based diet, the relative risk reduction of type 2 diabetes ranged from 15-83%. Dietary patterns characterised by high consumption of fruit and vegetables, whole grains, fish, and poultry, and by decreased consumption of red meat, processed foods, sugar-sweetened beverages, and starchy foods may slow down the progression of type 2 diabetes.

3. Sajita, A, Bhupathiraj, SN, et al. **Plant-Based Dietary Patterns and Incidence of Type 2 Diabetes in US Men and Women: Results from Three Prospective Cohort Studies.** 2016. PLOS
<https://doi.org/10.1371/journal.pmed.1002039>

Included were 69,949 women from the Nurses' Health Study, 90,239 women from the Nurses' Health Study 2 and 40,539 men from the Health Professionals Follow-Up Study. This large prospective cohort study, done in the USA, concluded that meat eaters had a 16% increased risk of developing type 2 diabetes. Participants eating plant-rich foods (whole grains, fruits, vegetables, nuts, legumes, vegetable oils and tea/coffee) had a 49% ($P < 0.001$) lower risk of developing Type 2 Diabetes. The more plant-based their diets were, the lower their T2DM risk (dose-responsiveness).

4. Pan, A, Sun, Q, Bernstein, AM. **Red meat consumption and risk of type 2 diabetes: 3 cohorts of US adults and an updated meta-analysis.** Am J Clin Nutr. 2011;94:1088-96.

Eating meat has, in all studies, been found to increase risk of developing T2DM. As another example, Pan and colleagues analysed a predominantly white American population. People who ate the largest amount of processed meat (such as bacon, hot dog, sausage, salami and hamburgers) per day had a 79% higher risk of developing T2DM compared to those eating the lowest amount. People with a plant-only or plant-rich diet were unfortunately not included. What difference did the meat intake have? The risk of developing Type 2 diabetes was increased by 19% for every 100 grams of unprocessed red meat consumed per day, and 51% for every 50 grams of processed red meat consumed per day, compared to the group eating the lowest amount of meat.

5. McMacken, M, and Sapana Shah, J. **A plant-based diet for the prevention and treatment of type 2 diabetes.** *Geriatr Cardiol.* 2017 May; 14(5): 342–54.

The prevalence of type 2 diabetes is rising worldwide, especially in older adults, with approximately 422 million cases worldwide. Diet and lifestyle, particularly plant-based diets, are effective tools for type 2 diabetes prevention and management. This extensive article deals not only with the prevention of Type 2 Diabetes, its treatment, and its complications, but also with heart disease and renal disease. How can a plant-rich diet influence these chronic conditions?

6. Aune, D, Ursin, G, and Veierød, MB. **Meat consumption and the risk of type 2 diabetes: a systematic review and meta-analysis of cohort studies.** *Diabetologia.* 2009;52:2277-87.

These Norwegian authors combined data (systematic reviews and meta-analyses) from 12 cohort studies. Meat intake was linked with an increased risk of Type 2 Diabetes. When comparing high with low meat intake this risk was increased by 17% for total meat, 21% for red meat and 41% for processed meat.

7. Tonstad, S, Butler, T, Yan, R, and Fraser, GE. **Type of vegetarian diet, body weight, and prevalence of type 2 diabetes.** *Diabetes Care* 2009;32:791-6.

Compared with non-vegetarians, the likelihood of having Diabetes was 49% lower among people who didn't eat any animal products (vegans). (In scientific terms: the Odds Ratio was 0.51; 95% CI 0.40–0.66) . Compared to omnivores and vegetarians the new cases of diabetes were the lowest among vegans (OR 0.38; 95% CI 0.24–0.62).

8. Orhlich MJ and Fraser GE, British Journal of Nutrition, 2014. **Patterns of food consumption among vegetarians and non-vegetarians.** doi:10.1017/S000711451400261X.

Another study demonstrating that eating a plant-based diet reduces the risk of developing type 2 diabetes. The percentage of risk reduction was found to be 45%.

Conclusion: The standard Australian diet, heavy in meat and refined carbohydrates, increases the risk of T2D by up to 75% compared to healthier plant based diets.

EARLY DEATH

1. Pan, A, Sun, Q and Bernstein, AM. **Red meat consumption and mortality: results from 2 prospective cohort studies.** Arch Intern Med. 2012;172:555-63.

In this US-based study 37,698 men from the Health Professionals Follow-up Study and 83,644 women from the Nurses' Health Study were prospectively followed. The total mortality was 13% higher for 65 gram (one serve) per day increase of unprocessed red meat, 20% for processed red meat. The corresponding increased risks were 18% and 21% for heart disease mortality, 10% and 16% for cancer mortality. The risks for vegetarians/vegans are not reported. They were not represented in this study.

The authors estimated that 9.3% of deaths in men and 7.6% in women in our cohorts could be prevented at the end of follow-up if all individuals consumed <0.5 serving/d (\approx 42 gram per day) of red meat. The mortality risk could be reduced by replacing one serving of red meat with nuts, whole grains, or legumes which decreased the risk of early death by 19%, 14% and 10%, respectively.

2. Sinha R, Cross AJ, Graubard BI, Leitzmann MF and Schatzkin A. **Meat intake and mortality: a prospective study of over half a million people.** Arch Intern Med. 2009;169:562-71.

This is one of the largest prospective cohort studies ever performed over a period of 10 years. Men and women with the highest versus the lowest intake of red meat had an 31% increased risk for overall mortality. For processed meat intake this risk was 16% higher. An 22% elevated risk was found for cancer mortality for red meat and 12% for processed meat. Moreover, CVD risk was elevated by 27% for men and women in the highest meat intake group and 9% for processed meat.

Conclusion: eating processed and red meat is linked with increased risk of dying early.

BOWEL (COLORECTAL) CANCER

1. World Cancer Research Fund. Continuous Update Project Report Summary. **Food, Nutrition, Physical Activity, and the Prevention of Colorectal Cancer.** Washington, DC: American Institute for Cancer Research; 2011.

Table on page 3 and page 13 of this 43-page report: processed meat and red meat result in an increased risk for cancer of the rectum and large bowel (colon). Red meat is a convincing cause of colorectal cancer. Page 11: Foods containing dietary fibre (plant foods) were considered probably to protect against colorectal cancer. Meat contains no fibre.

World Cancer Research Fund:

<https://www.wcrf.org/sites/default/files/Colorectal-Cancer-2011-Report.pdf>. All studies showed a significant increased risk - varying between 16% and 37%- for bowel cancer when eating more red and processed meat.

2. Chan, DS, Lau R and Aune, D. **Red and processed meat and colorectal cancer incidence: meta-analysis of prospective studies.** PLoS One. 2011;6(6):e20456.

Colorectal cancer is the third most frequently diagnosed cancer worldwide. When combining the data of 11 different studies (systematic review and meta-analysis). The so-called relative risk (RR) of colorectal cancer for the highest versus the lowest intake was 1.22 (95% CI =1.11–1.34), or a 22% increase. For every extra 100 gram of meat consumed per day, the risk for bowel cancer increased by 14%.

Conclusion: processed meats (e.g. salami, ham, sausages, and hamburgers) cause bowel and stomach cancer. Red meat (beef, pork, lamb) probably does so.

For more information on the association between meat and cancer, please refer to this World Health Organisation (WHO) Q & A.

https://www.iarc.fr/wp-content/uploads/2018/07/Monographs-QA_Vol114.pdf

DIETARY GUIDELINES AND THE ENVIRONMENT

1. Willett, W, Rockström, J, Loken, B, Springmann, M, Lang, T, Vermeulen, S, Garnett, T, Tilman, D, DeClerck, F, Wood, A, Jonell, M, Clark, M, Gordon, L, Fanzo, J, Hawkes, C, Zurayk, R, Rivera, J, De Vries, M, Sibanda, L, Afshin, A, Chaudhary, A, Herrero, M, Agustina, R, Branca, F, Lartey, A, Fan, S, Crona, B, Fox, E, Bignet, V, Troell, M, Lindahl, T, Singh, S, Cornell, S, Reddy, K, Narain, S, Nishtar, S, Murray, C. **Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems.** The Lancet 2019. DOI:[https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4).

The landmark EAT-Lancet commission details the results of an investigation into the most healthy and environmentally sustainable diet. The result: a 'planetary health diet' which emphasises food from plant sources. The following link offers a simple explanation of the EAT-Lancet commission's goals: <https://eatforum.org/learn-and-discover/can-healthy-food-save-the-planet-animation/>.

2. Springmann, M, Spajic, L, Clark, M, Poore, J, Herforth, A, Webb, P, Rayner, M, Scarborough, P. **The healthiness and sustainability of national and global food based dietary guidelines: modelling study.** BMJ 2020; 370 doi: <https://doi.org/10.1136/bmj.m2322>.

A study which evaluated 85 food-based dietary guidelines and their implications for human health and the environment. Lifestyle changes such as limiting animal-source foods and eating more plant-based options (e.g. fruits, vegetables, legumes) were associated with increased health outcomes and environmental sustainability.

INFORMATION FOR HEALTHCARE PROFESSIONALS

Plant-based nutrition and health: a guide for health professionals (Doctors for Nutrition).

<https://www.doctorsfornutrition.org/professionals>.

Do you want to know more about a health-promoting plant-based eating pattern which improves chronic non-nosocomial diseases? In September 2020, the Australian and New Zealand-based charity Doctors For Nutrition (DFN) issued a helpful, evidence-based e-resource to assist all healthcare professionals. It explains the why and how of a healthy plant-based diet, and includes a simple dietary assessment tool, amongst other resources. A highly recommended source of information for health care practitioners who, like most of us, have received limited nutritional education.

OVERALL CONCLUSION ON PROCESSED AND RED MEAT

Based on the above publications, there is convincing scientific evidence that the standard Australian diet, high in processed meat (bacon, salami, ham, hot dogs, hamburgers), red meat (beef, steak, lamb, pork) and refined carbohydrates (sugars, white bread, donuts, pizza, pasta, pastries, white flour, white rice, desserts), is not health-promoting. Furthermore, red and processed meat produce more damaging greenhouse gases than any other food, as well as damaging soil and water.

There are plenty of reasons to move towards a whole-food plant-based diet, avoiding processed meat in particular, and minimising the amount of red meat you eat.

As a doctor's organisation, DEA feel responsible for helping ensure that healthy people live on a healthy planet. We have shared this information to help support you in making a positive change in your eating habits.

Additionally, we will endeavour to regularly update this document when new information comes to light.