

2019: Plant Based Living *Exponential Growth in Acceptance and Knowledge*

Andrew M. Freeman, MD, FACC

National Jewish Health
Denver, CO

freemana@njhealth.org

Scariest Data Yet!

AHA - March 2019

Circulation On the basis of NHANES 2013 to 2016 data, the prevalence of CVD (comprising CHD, HF, stroke, and hypertension) in adults ≥ 20 years of age is **48.0% overall** (121.5 million in 2016) and increases with advancing age in both males and females.

Heart Disease and Stroke Statistics— 2019 Update

A Report From the American Heart Association



Moses Maimonides

Maimonides
Moses ben Maimon



18th-century depiction of Maimonides

Born 30 March^[1] or 6 April^[2] 1135
Possibly born 28 March or 4 April^[3]
1138
Córdoba, Almoravid Empire
(present-day [Spain](#))

Died 12 December 1204 (aged 69)
Fostat, Ayyubid Sultanate (present-day [Egypt](#))^[4]

*"No disease that
can be treated by
diet should be
treated with any
other means."*



Disclosures

No relevant disclosures to this presentation.

Other disclosures:

Consulting Fees – BI



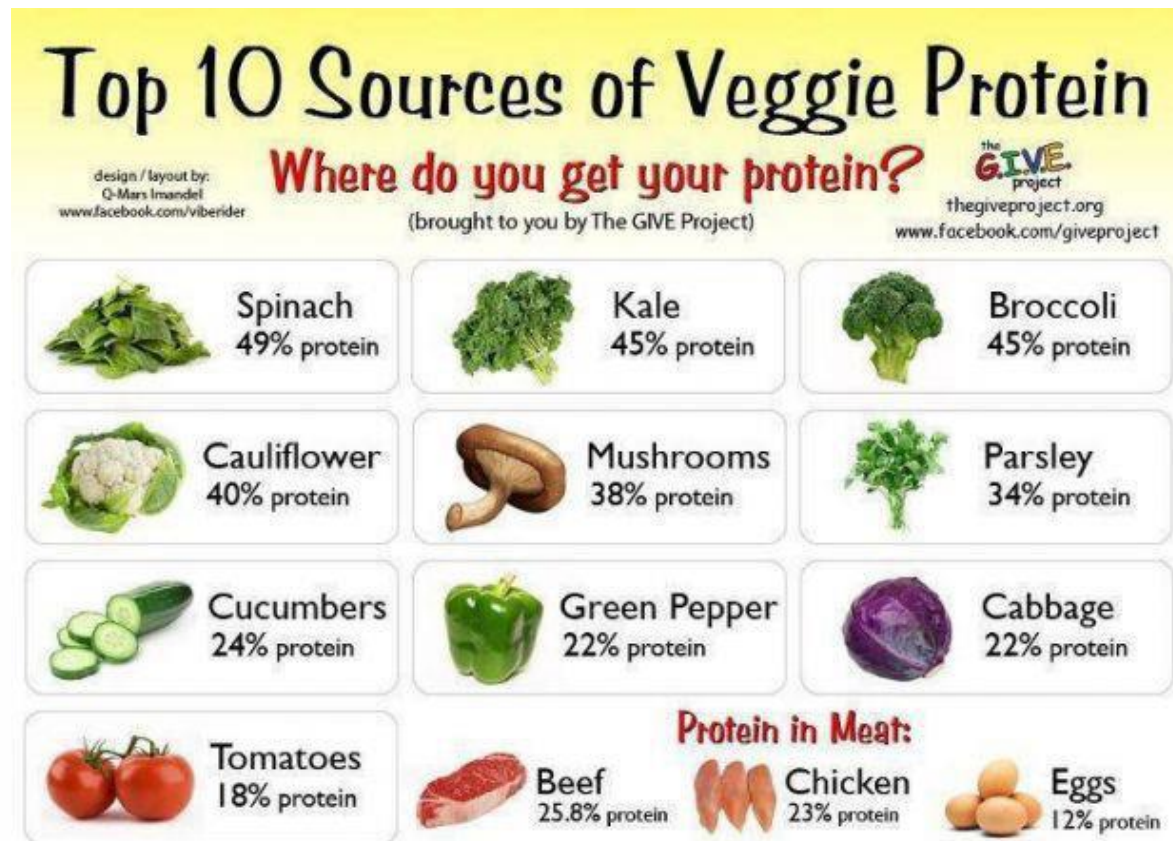
Notice

- It is impossible to do a nutrition study purely without imprisoning people and ensuring nutritional intake.
- Many studies are observational, and do not show cause, but show significant relationships.



Getting Enough Protein?

- Yes, yes, yes. Only 30 grams per day needed.



Really?

"MY DOCTOR SAID I NEED TO EAT MEAT"

According to repeated nationwide surveys,

More Doctors Smoke **CAMELS** than any other cigarette!

Doctors in every
branch of medicine

You'll enjoy Camels for the same reasons
so many doctors enjoy them. Camels have
cool, cool mildness, pack after pack, and



NEWSFLASH: We Still Eat Poorly

- US Department of Agriculture Food Acquisition and Purchasing Survey, a nationally representative household survey conducted from April 2012 - January 2013
- 23.4% of working adults obtained foods at work during the week, and the foods they obtained averaged 1,292 kcal per person per week.
- Most common: pizza, regular soft drinks, cookies or brownies, cakes and pies, and candy.
- Healthy Eating Index scores suggest that work foods are high in empty calories, sodium, and refined grains and low in whole grains and fruit.



Onufrak SJ, Zaganjor H, Pan L, Lee-Kwan SH, Park S, Harris DM. Foods and beverages obtained at worksites in the United States. *J Acad Nutr Diet*. Published online January 22, 2019.

WeWork

- Told staff that they will no longer be able to expense meals including meat, and that it won't pay for any red meat, poultry or pork at WeWork events
- "New research indicates that avoiding meat is one of the biggest things an individual can do to reduce their personal environmental impact," said McKelvey (CEO) in the memo, "even more than switching to a hybrid car."



A Clinician's Guide for Trending Cardiovascular Nutrition Controversies



Part II

Andrew M. Freeman, MD,^a Pamela B. Morris, MD,^b Karen Aspry, MD,^c Neil F. Gordon, MD, PhD,^d Neal D. Barnard, MD,^e Caldwell B. Esselstyn, MD,^f Emilio Ros, MD, PhD,^{g,h} Stephen Devries, MD,^{i,j} James O'Keefe, MD,^k Michael Miller, MD,^l Dean Ornish, MD,^{m,n} Kim A. Williams, MD,^o Travis Batts, MD,^p Robert J. Ostfeld, MD, MSc,^q Sheldon Litwin, MD,^r Monica Aggarwal, MD,^s Andrea Werner, MSW,^t Kathleen Allen, BA,^u Beth White, DNP, RN, NP-C, AACC,^v Penny Kris-Etherton, PhD, RD^w

ABSTRACT

The potential cardiovascular (CV) benefits of many trending foods and dietary patterns are still incompletely understood, and scientific inquiry continues to evolve. In the meantime, however, a number of controversial dietary patterns, foods, and nutrients have received significant media attention and are mired by "hype." This second review addresses some of the more recent popular foods and dietary patterns that are recommended for CV health to provide clinicians with current information for patient discussions in the clinical setting. Specifically, this paper delves into dairy products, added sugars, legumes, coffee, tea, alcoholic beverages, energy drinks, mushrooms, fermented foods, seaweed, plant and marine-derived omega-3-fatty acids, and vitamin B12. (J Am Coll Cardiol 2018;72:553-68) © 2018 by the American College of Cardiology Foundation.

Key Message

“Available evidence supports CV benefits of plant-based proteins, OM3 (from both marine and plant sources, although with some concerns regarding marine sources), vitamin B12 (but not in excess, and when dietary deficiencies are present), mushrooms, legumes of all sorts, coffee, tea, modest if any alcohol, fermented foods, and seaweed. The evidence to date suggests adverse CV outcomes with high intake of both red meat and added sugar, excessive vitamin B12, and any amounts of energy drinks. Finally, there is still debate over the effects of dairy products on CVD, although they remain the top source of saturated fat and sodium in the United States.”



Just 5

34 years of 78,865 women and 27 years of 44,354 men participating in the Nurses' Health Study and Health Professionals Follow-up Study

1. not smoking
 2. Normal BMI (18.5-24.9 kg/m²),
 3. 30+ minutes or more per day of moderate to vigorous physical activity
 4. moderate alcohol
 5. healthy diet
- **Follow None: life expectancy at age 50 was 29 years for women and 25.5 years for men.**
 - **Follow 5: life expectancy at age 50 was projected to be 43.1 years for women and 37.6 years for men.**
 - Those who followed all five were 74% less likely to die during the study period.



"The Impact of Healthy Lifestyle Factors on Life Expectancies in the US Population,"
Yanping Li, An Pan, Dong D. Wang, Xiaoran Liu, Klodian Dhana, Oscar H. Franco,
Stephen Kaptoge, Emanuele Di Angelantonio, Meir Stampfer, Walter C. Willett, Frank
B. Hu, *Circulation*, April 30, 2018, doi: 10.1161/CIRCULATIONAHA.117.032047

Healthier Diets and Less Liver Disease

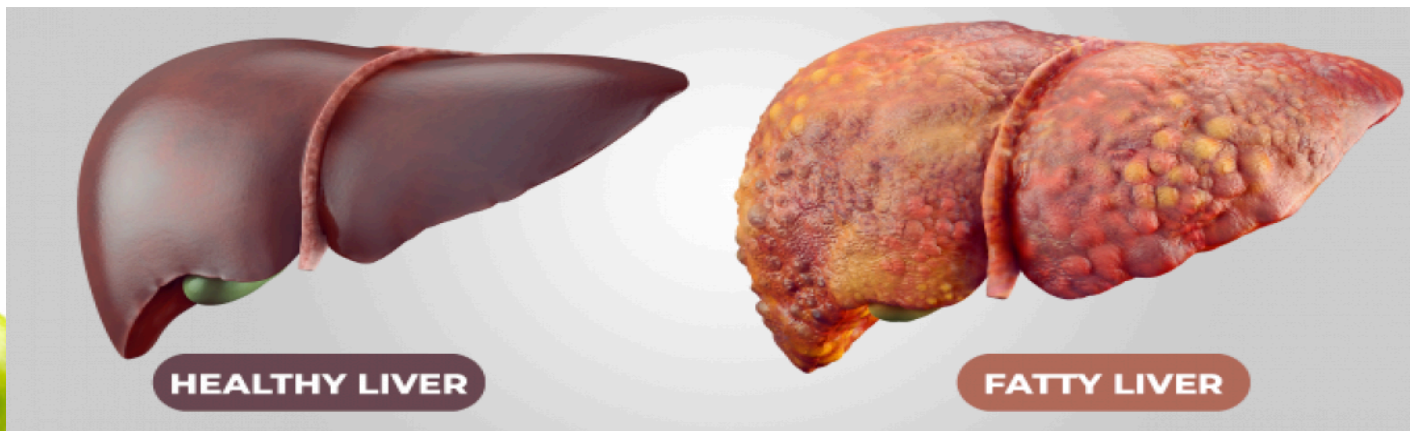
- #1 Hepatitis in US is NASH
- 1521 subjects from Framingham Heart Study
- Liver CT Scans to assess liver fat
- Correlated to Med-Style Diet Score or AHEI
- For each 1 standard dev increase in MDS liver fat decreased by 43% (95% confidence interval [CI] 0.27–0.86; $P < .001$)
 - Fatty liver decreased by 26% (95% CI 10%–39%; $P = .002$).
- For each 1 standard dev increase in AHEI liver fat decreased by 44% (95% CI 0.29–0.84; $P < .001$)
 - Fatty liver decreased by 21% (95% CI 5%–35%; $P = .02$).



[bit.ly/2r6sVG3](https://doi.org/10.1053/j.gastro.2018.03.038) Ma et al. Gastroenterology, online March 28, 2018
<https://doi.org/10.1053/j.gastro.2018.03.038>

Saturated Fats Harm Livers

- 1,000 extra calories a day to 30 overweight participants in the form of saturated fat, unsaturated fat, or simple sugars for three weeks
- Intrahepatic triglyceride, a marker of fatty liver disease, increased by 55% in the saturated fat group, compared with 15 and 33% for the unsaturated fat and simple sugar groups, respectively.
- Saturated fat increases also induced insulin resistance



Luukkonen PK, Sädevirta S, Zhou Y, et al. Saturated fat is more metabolically harmful for the human liver than unsaturated fat or simple sugars. *Diabetes Care*. 2018;41:1732-1739.

How Quick for CVD Prevention?

QUICK!

- 31 participants: low fat whole food plant-based diet

In 4 weeks:

- Significant reductions were observed for systolic (-16.6 mmHg) and diastolic (-9.1 mmHg) blood pressure ($P < 0.0005$)
- Drop in serum lipids ($P \leq 0.008$)
- Reduction in total medication usage ($P < 0.0005$).
- Other CVD risk factors, including weight ($P < 0.0005$), waist circumference ($P < 0.0005$), heart rate ($P = 0.018$), insulin ($P < 0.0005$), glycated hemoglobin ($P = 0.002$), and high-sensitivity C-reactive protein ($P = 0.001$) were also reduced.



Najjar RS, Moore CE, Montgomery BD. A defined, plant-based diet utilized in an outpatient cardiovascular clinic effectively treats hypercholesterolemia and hyper tension and **reduced** medications. *OpinCardiol.* 2018;41:307-313.

Cooked Meat and Hypertension

- 32,925 women from the Nurses' Health Study (NHS 1996-2012), 53,852 women from the NHSII (2001-2013), and 17,104 men from the Health Professionals Follow-Up Study (HPFS 1996-2012)
- Independent of the amount of meat consumption, open-flame and/or high-temperature cooking and high doneness level for both red meats and white meats are associated with an increased risk of hypertension → 15% or more!
- Even fish!



<http://www.abstractsonline.com/pp8/#!/4589/presentation/1568>

Liu G. Meat cooking methods and risk of ***hypertension***: results from three prospective cohort studies.

Abstract presented at ***EPI LIFESTYLE*** 2018 Scientific Sessions; March 20-23, 2018; New Orleans. LA.



And What About Lifestyle Recommendations for Lipids?

Dietary Modification	Recommendation	~LDL-C Reduction
Saturated fat	<7% calories	8%-10%
Dietary cholesterol	<200 mg/d	3%-5%
Plant stanols/sterols	Up to 2 g/d	6%-10%
Viscous dietary fiber	5-10 g/d	3%-5%
Soy protein	20-30 g/d	5%-7%
Almonds	>10 g/d	1%/10 g
Weight reduction	Lose 10 lb (4.5 kg)	5%-8%
Total		30%-45%



Ripsin CM, et al. *JAMA*. 1992;267:3317-3325.
Rambjor GS, et al. *Lipids*. 1996;31:S45-S49.
Jones PJH. *Curr Atheroscler Rep*. 1999;1:230-235.
Lichtenstein AH. *Curr Atheroscler Rep*. 1999;1:210-214.
Expert Panel on Detection, Evaluation, and Treatment of
High Blood Cholesterol in Adults. *Circulation* 2002;106:3143-3421.
Jenkins DJ, et al. *JAMA*. 2003;290:502-510.

What You Eat Affects Your Sleep

- 104 patients, diagnosed with OSA
- Overweight subjects who ate a diet high in fat (>35% of their total diet) had twice the severity of sleep apnea.
 $AHI\ 18.2 \pm 10.1$ vs 36.6 ± 27.5 ; $P = .001$
- Also worse with more processed meats (trend: $p=0.56$)
- Dairy consumption of more than 2 servings per day and processed meat intake also worsened symptoms.
 $AHI\ 26.2 \pm 15.6$ vs 39.7 ± 31 ; $P = .04$

Bove C, Jain V, Younes N, Hynes M. What you eat could affect your sleep: dietary findings in patients with newly diagnosed obstructive sleep apnea. *Am J Lifestyle Med*. Published online April 27, 2018.



Preventing Heart Disease

- “Healthy lifestyle choices may reduce the risk of myocardial infarction by >80%, with nutrition playing a key role.”
- Vegetarian dietary patterns reduce CVD mortality and the risk of coronary heart disease (CHD) by 40%.
- Plant-based diets are the only dietary pattern to have shown reversal of CHD. Blocked arteries are unblocked partially or fully in as many as 91% of patients.
- Hypertension risk drops by 34%.



Kahleova H, Levin S, Barnard ND. Vegetarian dietary patterns and cardiovascular disease. *Prog Cardiovasc Dis*. Published online May 29, 2018.

Mediterranean Diet

- 25994 women from the Women's Health Study – followed 12 years
 - 40 biomarkers measured
 - Those with the highest MED intake had up to 28% less CVD events
- Remember this is a mostly plant based diet



Ahmad S et al. JAMA Netw Open. 2018;1(8):e185708.
doi:10.1001/jamanetworkopen.2018.5708



More on CVD Prevention

- 7 Clinical Trials based on the Portfolio Diet
- LDL dropped 17%
- The 10-year coronary heart disease (CHD) risk decreased by 13%.



Chiavaroli L, Nishi SK, Khan TA, et al. Portfolio Dietary Pattern and Cardiovascular Disease: A Systematic Review and Meta-Analysis of Controlled Trials. *Prog Cardiovasc Dis*. Published ahead of print May 25, 2018.

Portfolio Diet (2003)

- The Portfolio dietary pattern includes daily consumption of at least 45 grams of nuts, at least 50 grams of plant protein, at least 20 grams of viscous fiber, and 2 grams of plant sterols.
- Developed for patients needing to lower cholesterol in 2002



Jenkins, DJ; Kendall, CW; Marchie, A; et al. (2003). "Effects of a dietary portfolio of cholesterol-lowering foods vs Lovastatin on serum lipids and C-reactive protein". *JAMA*. **290**: 502–510. [doi:10.1001/jama.290.4.502](https://doi.org/10.1001/jama.290.4.502).

Portfolio Diet

WHAT DOES THE PORTFOLIO DIET LOOK LIKE?

Expected LDL-Cholesterol lowering:

1

NUTS 45g DAILY

All nuts are good for your heart and cholesterol and contrary to concerns do not contribute to weight gain. Add nuts as a snack between meals, adding to salads, cereals, or yogurt. Trying nut butter on your toast is an option. 45g is about a handful of nuts. If allergic to peanuts or tree nuts, try seeds.



• 5 - 10%

2

PLANT PROTEIN 50g DAILY

This is the most challenging component of the Portfolio diet. Start by trying to get 25g daily. Consider replacing milk with soy milk, try tofu, soy nuts and beans.



• 5 - 10%

3

VISCOUS (STICKY) FIBRE 20g DAILY

Aim to eat 2 servings of oatmeal, beans, lentils, and chickpeas a day. Replace bread with rye or pumpernickel or oatcakes. Eat at least 5 servings of fruit and vegetables every day. Aim to eat 2 servings per day of oatmeal, barley, or cereals enriched with psyllium or oat bran. Replace white bread with whole grain oat breads. Put oat bran or psyllium into smoothies. Eat at least 5 servings per day of vegetables (eggplant, okra) and fruit (apples, oranges, berries) high in viscous fibre.



• 5 - 10%

4

PLANT STEROLS 2g DAILY

These occur naturally (soyabean, corn, squash, etc.) but to get this amount of sterol you will require fortified foods such as spreads, juices, yogurt, milk and even supplements as part of a meal.



• 5 - 10%

TOTAL: • ~30%



Back to 2011: Mount Abu Open Heart Trial

- 123 angiographically documented moderate to severe coronary artery disease (CAD)
- Healthy and happy lifestyle (HLS) low-fat, high-fiber vegetarian diet, moderate aerobic exercise and stress-management through Rajyoga meditation
- Training in self-responsibility and self-empowerment through inner-self consciousness approach using Rajyoga meditation
- 7 Day intensive, then followed for 2 years every 6 months



Back to 2011: Mount Abu Open Heart Trial

- 360 coronary lesions were analyzed by two independent angiographers.
- In CAD patients with most adherence, percent diameter stenosis regressed by $18.23 \pm 12.04\%$.
- 91% patients showed a trend towards regression and 51.4% lesions regressed by more than 10%.
- The cardiac events in coronary artery disease patients were: 11 vs 38 (most vs least adherent) ver 6.48 yrs. (risk ratio; most vs least adherence: 4.32; 95% CI: 1.69-11.705; $P < 0.002$).
- $> 50\%$ adherence is essential to achieve a significant change.



Back to 2011: Mount Abu Open Heart Trial

Angiography at baseline and 2 years (N = 73)

Adherence:	High	Medium	Low
Regression (participants):	91%	88%	12%
Lesions regressed >10%:	51%	41%	6%
Average % diameter change (absolute % points):	-18	-12	+11

Gupta et al. Indian Heart J. 2011 Sep-Oct;63(5):461-9.



Vegan Diet vs AHA Diet

- 100 participants with CAD
- Randomized to a whole food plant-based diet or the usual AHA heart healthy diet
- 32% lower high-sensitivity C-reactive protein
- Nonsignificant 13% reduction in LDL



American
Heart
Association®



Shah B, et al. J Am Heart Assoc. 2018;7: e011367. DOI: 10.1161/JAHA.118.011367

Meat Allergen May be Linked to Atherosclerosis

- IgE sensitization to the mammalian oligosaccharide galactose- α -1,3-galactose (α -Gal)—the target allergen of delayed anaphylaxis to red meat
- IgE to α -Gal was detected in 26%, and atheroma burden was higher in sensitized subjects ($P=0.02$)
- Increased atheroma burden and plaques with more unstable features were associated with IgE to α -Gal—an effect most pronounced in subjects ≤ 65 years of age



Wilson J.M., Nguyen A.T., Schuyler A.J., et al. "IgE to the Mammalian Oligosaccharide Galactose- α -1,3-Galactose Is Associated With Increased Atheroma Volume and Plaques With Unstable Characteristics." *Arteriosclerosis, Thrombosis, and Vascular Biology*, June 14, 2018. <https://doi.org/10.1161/ATVBAHA.118.311222>

Living Longer

- 11,879 participants in the NHANES III study
- Authors developed an index (hPDI) that scored plant-based and animal-based foods differently to quantify adherence to a vegetarian diet.
- This allowed for comparisons between plant-based diets of differing nutritional quality
- A 10-unit increase in hPDI was associated with a 5% lower risk in all-cause mortality in the overall study population (HR: 0.95; 95% CI: 0.91, 0.98)



Kim H, Caulfield LE, Rebholz CM. Healthy plant-based diets are associated with lower risk of all-cause mortality in US adults. *J Nutr.* 2018;4:624-631.

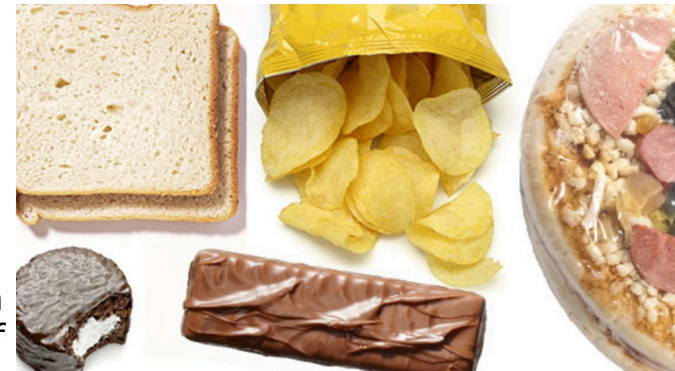


Living Shorter

- 44,551 participants and tracked mortality rates.
- Increases in consumption of ultraprocessed foods increased salt, sugar, and saturated fat intake and decreased fiber intake
 - ultraprocessed foods group: characterized as ready-to-eat or heat formulations made mostly from ingredients usually combined with additives
- For every 10% more ultraprocessed foods eaten there was a 14% increased risk of death from hypertension, cancer, obesity, and dyslipidemia.
 - HR per 10% increment, 1.14; 95% CI, 1.04-1.27; P = .008



Schnabel L, Kesse-Guyot E, Allès B, et al. Association between ultraprocessed food consumption and risk of mortality among middle-aged adults in France. *JAMA Intern Med*. Published online February 11, 2019.





Ketogenic Diets

- Noto et al: 272,216 subjects – low carb diet = 30% more death
- Li et al. (Harvard): 2258 women from the Nurses' Health Study and 1840 men from the Health Professional Follow-Up Study who had survived a first heart attack- low carb diet = 33% higher death and 51% higher CVD mortality
- Sjogren et al. 900 elderly Swedish men: Carb restricted diet = 19% more death; 44% for CVD mortality
- Fung et al: 85 168 women (aged 34 to 59 years at baseline) and 44 548 men (aged 40 to 75 years at baseline) without heart disease, cancer, or diabetes. Low carb, high animal diet = 23% higher death; a lower carb veggie diet was somewhat protective



[Noto et al. J Am Heart Assoc.](#) 2014 Sep 22;3(5):e001169. doi: 10.1161/JAHA.114.001169.

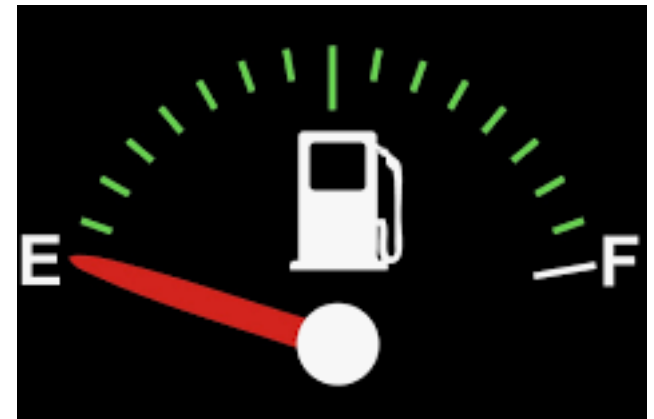
[Li et al. J Am Heart Assoc.](#) 2014 Sep 22;3(5):e001169. doi: 10.1161/JAHA.114.001169.

[Sjoren et al. Am J Clin Nutr.](#) 2010 Oct;92(4):967-74. doi: 10.3945/ajcn.2010.29345. Epub 2010 Sep 8.

[Fung et al. Ann Intern Med.](#) 2010 Sep 7;153(5):289-98. doi: 10.7326/0003-4819-153-5-201009070-00003.

Keto Fuel?

- 16 participants who consumed either a ketogenic diet or a high-carbohydrate diet for four days
- Those who consumed the ketogenic diet lowered their average and peak performance power levels and ran shorter distances as well, compared with those who ate a high-carbohydrate diet.
- Low-carbohydrate diets impair intense, short-term physical activities.



Wroble KA, Trott MN, Schweitzer GG, Rahman RS, Kelly PV, Weiss EP. Low-carbohydrate, ketogenic diet impairs anaerobic exercise performance in exercise-trained women and men: a randomized-sequence crossover trial. *J Sports Med Phys Fitness*. Published online April 4, 2018.

Too Much Protein

- 2,441 middle-aged men followed for more than two decades
- Those who ate the most total protein and dairy protein had a 33% and 49% higher risk of heart failure



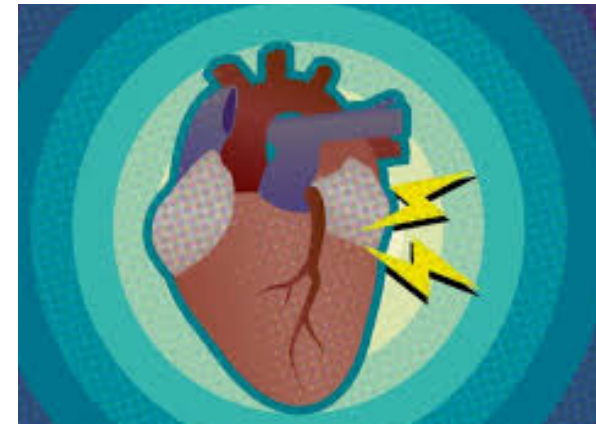
Virtanen HEK, Voutilainen S, Koskinen TT, Mursu J, Tuomainen TP, Virtanen JK. Intake of different dietary proteins and risk of heart failure in men: the Kuopio Ischaemic Heart Disease Risk Factor Study. *Circ Heart Fail*. Published online May 29, 2018.

Low Carb and Afib?

- Daily carbohydrate intake in 14,000 diet records from the Atherosclerosis Risk in Communities (ARIC) study
- 22 years of follow-up
- Those who consumed the least amount of carbohydrate increased Afib by 18%
- Groups broken into carbs being 44.8% or less of daily calories, 44.8-52.4%, 52.4% or more



Zhuang X. U-shaped relationship between carbohydrate intake proportion and incident atrial fibrillation. Poster presented at: 68th American College of Cardiology's Annual Scientific Session. March 16-18, 2019; New Orleans, LA.



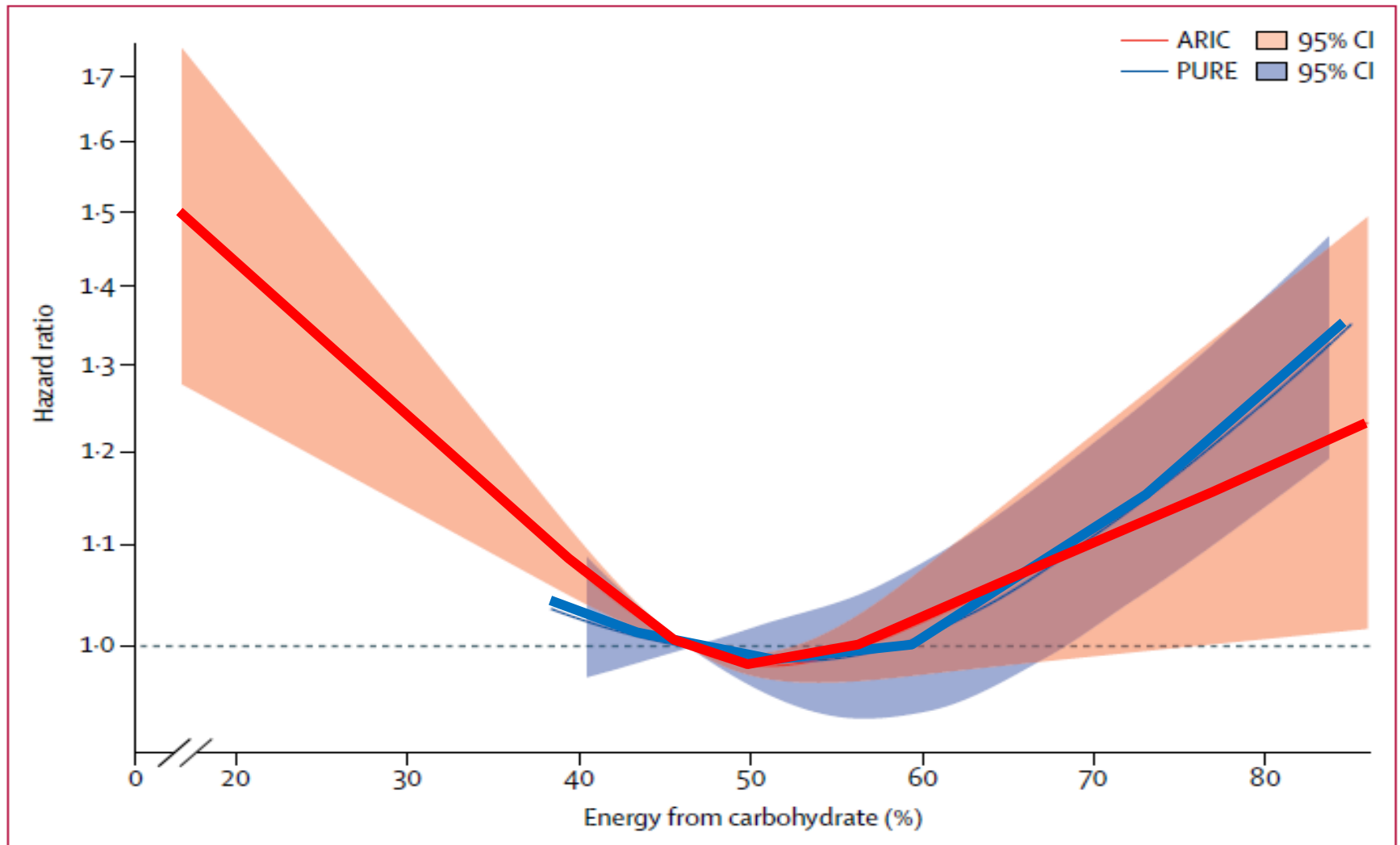
Goldilocks Zone on Carbs?

- Researchers combined data from the U.S.-based Atherosclerosis Risk in Communities (ARIC) study and seven other multinational prospective studies: 15,428 adults aged 45–64 years
- Consuming < 40% or >70% of calories from carbohydrate was associated with a higher risk for dying, compared with consuming 50-55% of calories from carbohydrate
- When carbohydrate sources were exchanged for animal-based protein or fat sources (chicken, beef, lamb, pork), the risk for death increased by 18%
- 18% lower risk for death when those substitutions were plant-based (nuts, whole-grain breads, and vegetables)



Seidemann SB, Claggett B, Cheng S, et al. Dietary carbohydrate intake and mortality: a prospective cohort study and meta-analysis. *Lancet*. Published online August 16, 2018.

Carbohydrate Intake & Mortality



Courtesy of Dr. James O'Keefe: Seidelmann et al, *Lancet* Sept 2018

Carbs, Friend of Diabetes

- 7417 participants from 55,465 participants aged 50-65 from the Danish Diet, Cancer, and Health cohort
- Daily intake of high-fiber whole grains, including rye bread, oatmeal, and whole-grain bread lowered risk for DM2 by 11% for men, 7% per women
- Per serving!
- Rye bread, whole-grain bread, and oatmeal/muesli were most associated



Kyrø C, Tjønneland A, Overvad K, Olsen A, Landberg R. Higher whole-grain intake is associated with lower risk of type 2 diabetes among middle-aged men and women: the Danish Diet, Cancer, and Health Cohort. J Nutr. 2018;148:1434-1444.

Fiber and CVD Risk

- 135 million person-years
- 185 prospective studies and 58 clinical trials
- 4635 adult participants were included in the analyses.
- Observational data suggest a 15–30% decrease in all-cause and cardiovascular related mortality, and incidence of coronary heart disease, stroke incidence and mortality, type 2 diabetes, and colorectal cancer when comparing high fiber and lower fiber diets
- Greatest gain when daily intake of dietary fiber was 25-29 g/day



PBD and DM2

- 11 trials on plant-based diets in diabetics
- Plant-based diets improved well-being overall when compared to dietary interventions from various diabetes associations.
- **Subjects reported less pain and saw improvements in depression, weight, quality of life, cholesterol and HbA1c levels, and other health outcomes.**
- Adherence was higher which suggests this diet approach was more easily accepted as well.



Toumpanakis A, Turnbull T, Alba-Barba I. *BMJ Open Diab Res Care*. 2018;6:e000534.

Raspberries: Magic Bullet for Diabetes?

- Frozen raspberries given to 32 participants with Pre Diabetes
- Either 1 cup, 2 cups, or no raspberries consumed and tracked insulin resistance.
- Those who consumed 2 cups of raspberries saw the most improvement in blood sugar control when compared to those who consumed fewer or no raspberries.



Xiao D, Zhu L, Edirisinghe I, et al. Attenuation of postmeal metabolic indices with red raspberries in individuals at risk for diabetes: A randomized controlled trial. *Obesity*. Published online February 14, 2019.

Gluten-FULL ?

- Subjects from: Nurses' Health Study (NHS, n = 71,602, 1984-2012) and NHS II (n = 88,604, 1991-2013) and men from the Health Professionals Follow-Up Study (HPFS, n = 41,908, 1986-2012)
- 4.24 million years of follow-up
- **11-20% less DM2 as the amount of gluten-containing carbs increased**
- Authors conclusion: "Gluten intake is *inversely* associated with type 2 diabetes risk among largely healthy US men and women. Limiting gluten in the diet is associated with lower intake of cereal fibre and possibly other beneficial nutrients that contribute to good health."



Zong G, Lebwohl B, Hu FB, et al. Gluten intake and risk of type 2 diabetes in three large prospective cohort studies of US men and women. *Diabetologia*. 2018;61:2164-2173.

Gut Flora

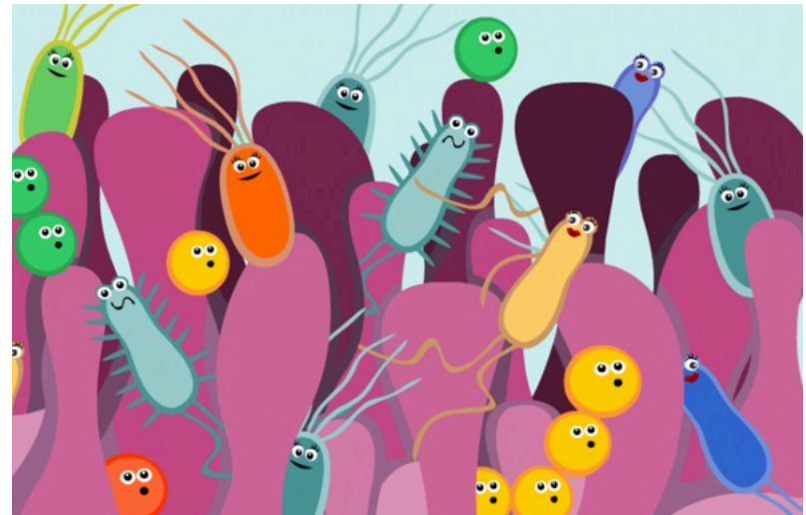
- Gut bacteria diversity measured in 248 participants – followed over 2 week dietary intervention
- Those who consumed more fruits, vegetables, and grains improved gut bacterial diversity when compared to those who did not increase these foods.
- **Higher-fiber diets increase bacteria associated with anti-inflammatory compounds linked to improved glucose tolerance and metabolism.**
- Genetic analysis was used to make measurements, and bacteria which helped to produce **butyrate** were sustained in the more plant-based eating groups



Klimenko NS, Tyakht AV, Popenko AS, et al. Microbiome responses to an uncontrolled short-term diet intervention in the Frame of the Citizen Science Project. *Nutrients*. Published online May 8, 2018.

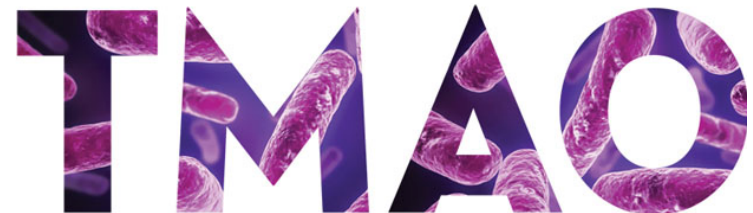
Butyrate

- Depletion of butyrate-producers has been linked to type 2 diabetes (T2D) obesity and CVD.
- Butyrate, produced by the intestinal microbiota, is essential to maintaining host health by providing energy to the intestinal epithelium, modulating the immune system, and affecting diverse metabolic routes throughout the body, e.g., in the liver and the brain and others.



More on TMAO

- From Hazen's work: Increased TMAO levels are linked to atherosclerosis, chronic kidney disease, and heart failure
- 113 participants fed red meat, white meat, or no meat daily
- Chronic daily red meat, but not white meat or non-meat ingestion, increased plasma and urine TMAO (each >two-fold; $P < 0.0001$).
- Red meat also reduced fractional renal excretion of TMAO ($P < 0.05$)
- Discontinuation of dietary red meat reduces plasma TMAO within 4 weeks.



Wang Z, Bergeron N, Levison BS, et al. Impact of chronic dietary red meat, white meat, or non-meat protein on trimethylamine N-oxide metabolism and renal excretion in healthy men and women. *Eur Heart J*. Published online December 10, 2018.



Cancer Prevention

- From the 3rd Expert Report from World Cancer Research Fund and American Institute for Cancer Research
- **“One of our Cancer Prevention Recommendations is to make whole grains, vegetables, fruit, and pulses (legumes) such as beans and lentils a major part of your usual daily diet.”**



Soy and Breast Cancer Again

- 365 breast cancer survivors
- Tracked symptoms such as hot flashes, joint pain, fatigue, and memory issues with soy and cruciferous vegetable consumption.
- Higher intakes of these foods lowered the odds of these symptoms, compared with women who consumed little or no soy or cruciferous vegetables.
- Soy intake was higher in survivors
- Higher soy and cruciferous vegetable intake was associated with less treatment-related menopausal symptoms and fatigue.



Nomura SJO, Hwang YT, Gomez SL, et al. Dietary intake of soy and cruciferous vegetables treatment-related symptoms in Chinese-American and non-Hispanic White breast cancer survivors. *Breast Cancer Res Treat.* 2018;168:467-479.



Even more

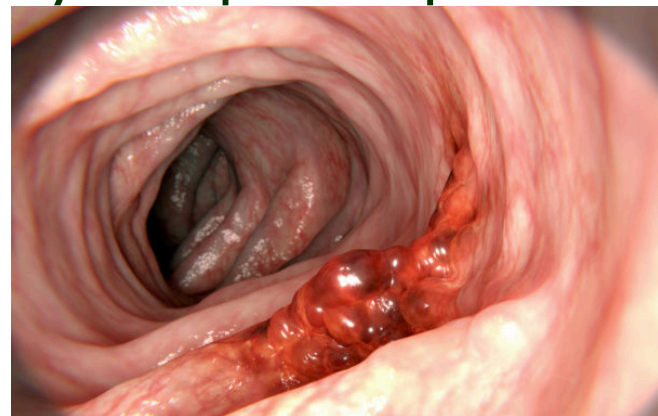
- 18 studies and evaluated the relationship between breast cancer rates and intake of red and processed meat
- Red meat = 6% more breast cancer
- Processed red meat = 9% more



Farvid MS, Stern MC, Norat T, et al. Consumption of red and processed meat and breast cancer incidence: a systematic review and meta-analysis of prospective studies. *Int J Cancer*. Published online September 5, 2018.

Colon cancer recurrence

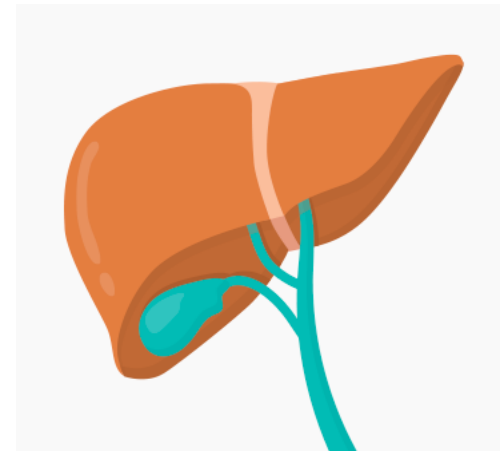
- In the Cancer Prevention Study-II Nutrition Cohort, 2,801 participants
- ~25% less cancer recurrence with a more plant based diet
- ~30% more cancer recurrence with Western diet
- Authors suggest that dietary interventions effectively reduce cancer mortality despite a poor diet before diagnosis



Guinter MA, McCullough ML, Gapstur SM, Campbell PT. Associations of pre- and postdiagnosis diet quality with risk of mortality among men and women with colorectal cancer. *J Clin Oncol*. Published online October 19, 2018.

Gallstones?

- 4,839 participants and tracked diet, cholesterol levels, and gallstone incidence rates.
- Women who consumed a nonvegetarian diet had an increased risk for gallstones, compared with women who consumed a vegetarian diet.
- Women with high cholesterol = 4x more gallstones, compared with vegetarian women who had normal cholesterol levels.



Chang CM, Chiu THT, Chang CC, Lin MN, Lin CL. Plant-based diet, cholesterol, and risk of gallstone disease: a prospective study. *Nutrients*. 2019;11:335-349.

Healthy Diet Reduces Stroke

- 306,473 men and women, aged 40-73 years, recruited between 2006 and 2010
- Followed for ~ 7 years
- 66% more strokes in those with unfavorable lifestyle – independent of genetic risk
- Healthy lifestyle = no current smoking, healthy diet (increased consumption of fruit, vegetables, and fish and the decreased consumption of processed meats and red meats), body mass index $<30 \text{ kg/m}^2$, and moderate physical activity two or more times weekly



Want More Strokes?

Women who consumed 2+ artificially sweetened beverages per day:

- 23% more stroke; 31% more ischemic stroke
- 29% more heart attack
- 16% more death

2+ artificially sweetened beverages **doubled stroke risk** with

- obese women without previous heart disease or diabetes, who were 2.03 times as likely to have a clot-caused stroke; and
- African-American women without previous heart disease or diabetes, who were 3.93 times as likely to have a clot-caused stroke.



<https://doi.org/10.1161/STROKEAHA.118.023100>

Mossavar-Rahmani Stroke. 2019;50:555–562

Preventing CHF Development

2392

Aggarwal et al.
Lifestyle Modifications for Preventing and Treating HF

JACC VOL. 72, NO. 19, 2018
NOVEMBER 6, 2018:2391-405

Lifestyle Modifications for More exercise, stress management, and plant-based eating proved most effective for reduced risk for heart failure

an

Longer survival and increasing numbers of unhealthy lifestyle factors and behaviors leading to occurrence of HF at younger ages are both contributors to an increase in the overall prevalence of HF. Clinicians treating this complex disease tend to focus on pharmacological and device therapies, but often fail to capitalize on the significant opportunities to prevent or treat HF through lifestyle modification. Herein, the authors review the evidence behind weight management, exercise, nutrition, dietary composition, supplements, and mindfulness and their potential to influence the epidemiology, pathophysiology, etiology, and management of stage A HF. (J Am Coll Cardiol 2018;72:2391-405)

© 2018 by the American College of Cardiology Foundation.

Aggarwal M, Bozkurt B, Panjraht G, et al. [Lifestyle modifications for preventing and treating heart failure.](#) *J Am Coll Cardiol.* 2018;72:2391-2405.

COPD and Diet?

- 12,449 twins aged 40-80 years recruited
- 11,458 individuals were included in the analyses (48% male, mean age 58.9 years, mean body mass index [BMI] 26.6)
- The twin individual with a low intake of fruit and raw vegetables is at greater risk of COPD compared to the co-twin with a high intake.



Meteran H, Thomsen SF, Miller MR, Hjelmberg J, Sigsgaard T, Backer V. Self-reported intake of fruit and vegetables and risk of chronic obstructive pulmonary disease: A nationwide twin study. [Published online ahead of print September 20, 2018]. *Respir Med*. doi:10.1016/j.rmed.2018.09.013.

Just Say No to Vitamins

- “Popular vitamin and mineral supplements didn’t provide any measurable health benefits to prevent cardiovascular disease, stroke or early death”
- Large review and meta-analysis in JACC
There were some exceptions: Folate and other B-vitamins (B6 and B12) did have some minor evidence of reducing heart disease risk and risk of stroke.
- Niacin (B3) and antioxidants actually proved harmful in this analysis, increasing risk of death.



Antioxidants Still Matter

- They just need to come from whole fruits and veggies.
- Recent analysis of 41 studies measured mortality rates and diet
- Higher concentrations of antioxidants, including vitamin C, lycopene, beta-carotene, and selenium, were associated with lower risk for all-cause mortality
- 40% lower mortality for specific antioxidants such as total carotenes

Jayedi A, Rashidy-Pour A, Parohan M, Zargar MS, Shab-Bidar S. Dietary antioxidants, circulating antioxidant concentrations, total antioxidant capacity, and risk of all-cause mortality: a systematic review and dose-response meta-analysis of prospective observational studies. *Adv Nutr.* 2018;9:701-716.



Buh-Bye to Fish Oil?

- 79 studies that compared consumption of eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and alpha-linolenic acid (ALA) with cardiovascular health
- Significant evidence suggests: Long-chain fatty acids from fish oil supplements did not protect against all-cause mortality and did not reduce the risk for cardiovascular events.
- Some evidence suggests: Increased consumption of ALAs from plant-foods provided a protective effect against coronary heart disease, arrhythmia, and other cardiovascular events.



Abdelhamid AS, Brown TJ, Brainard JS, et al. Omega 3 fatty acids for the primary and secondary prevention of cardiovascular disease. *Cochrane Database Syst Rev*. Published online July 18, 2018.



Fish Oil?

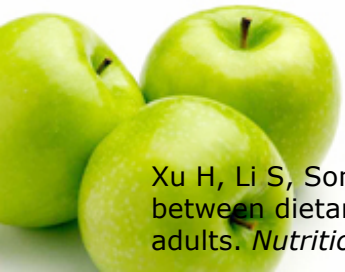
- 15,480 DM2 patients without heart disease got fish oil supplements or a placebo
- Examined cardiovascular event occurrences, including heart attacks, strokes, or death from heart disease
- ➔ No Difference: Time to stop using these?



The ASCEND Study Collaborative Group. Effects of n-3 Fatty Acid Supplements in Diabetes Mellitus. *N Engl J Med*. Published online August 26, 2018.

Less Depression

- 16 807 adults ages 20 y or older
- 21 grams of fiber per day from fruits, vegetables, and all sources were less likely (up to 40% less) to exhibit depressive symptoms, compared with those who consumed less fiber

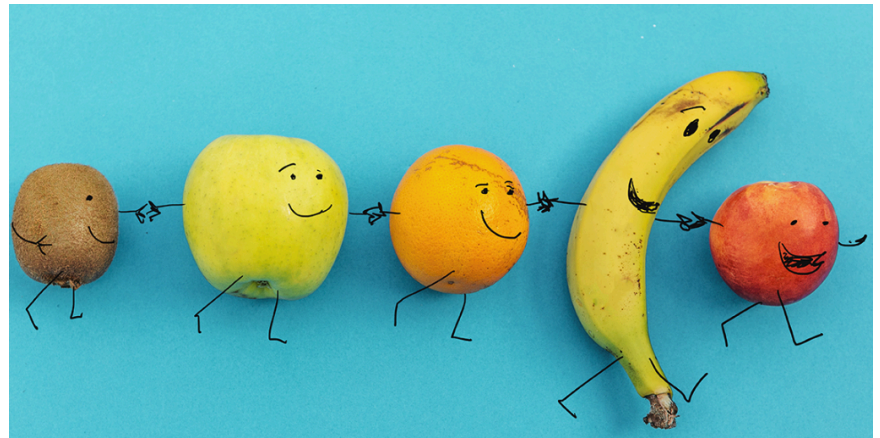


Xu H, Li S, Song X, Li Z, Zhang D. Exploration of the association between dietary fiber intake and depressive symptoms in adults. *Nutrition*. Published online March 21, 2018.



Less Depression 2

- Meta-analysis of 41 studies on diet and depression occurrence
- High amounts of processed meats and trans fats, found in junk foods, increased incidence rates for clinical depression.
- Healthful foods such as vegetables, nuts, and fruits help regulate emotions among other protective effects
- About 25% reduction of depression with a lower Dietary Inflammatory Index



Lassale C, Batty GD, Baghdadli A, et al. Healthy dietary indices and risk of depressive outcomes: a systematic review and meta-analysis of observational studies. *Mol Psychiatry*. Published online September 26, 2018.

Bacon Mania?

- An analysis of 1101 people with and without psychiatric disorders
- Mania was significantly associated with the consumption of cured meat products
- “We found that a history of eating nitrated dry cured meat but not other meat or fish products was strongly and independently associated with current mania (adjusted odds ratio 3.49, 95% confidence interval (CI) 2.24–5.45, $p < 8.97 \times 10^{-8}$)”
- Feeding meat preparations with added nitrate to rats resulted in hyperactivity reminiscent of human mania, alterations in brain pathways that have been implicated in human bipolar disorder, and changes in intestinal microbiota.



Khambadkone SG, Cordner ZA, Dickerson F, et al. Nitrated meat products are associated with mania in humans and altered behavior and brain gene expression in rats. *Mol Psych*. Published online July 18, 2018.



Alzheimer's

- 70 participants ages 30 to 60
- Those who consumed more plant-based foods (Mediterranean-style diet) showed fewer Alzheimer's disease-related biomarker changes on their brain scans when compared to those who did not follow the diet as closely.
- Followed brain β -amyloid load via 11C-Pittsburgh compound B [PiB] PET and neurodegeneration via 18F-fluorodeoxyglucose [FDG] PET and structural MR
- Higher diet adherence was estimated to **provide 1.5-3.5 years of protection against AD.**



Berti V, Walters M, Sterling J, et al. Mediterranean diet and 3-year Alzheimer brain biomarker changes in middle-aged adults. *Neurology*. 2018;90:e1789-e1798.

Mediterranean vs Other?

- No longer “truly randomized”

Medscape Business of Medicine ▾

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News > Medscape Medical News

PREDIMED Trial of Mediterranean Diet Retracted and Republished

Sue Hughes
June 14, 2018

17 Read Comments      

The *New England Journal of Medicine (NEJM)* has retracted, and republished a new version of, the PREDIMED study of the Mediterranean diet following concerns about the validity of some of the data.

The journal has also made minor corrections to five other studies. All these corrections were [published online](#) June 13 in *NEJM*.

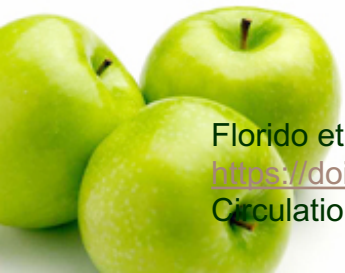
The corrections follow concerns raised about baseline data distributions by a UK anesthesiologist with a track record of exposing fraudulent research.

https://www.medscape.com/viewarticle/898110?nlid=123260_3922&src=WNL_mdplsnews_180615_mscpedit_card&uac=11879MK&spon=2&impID=1658783&faf=1



Don't Forget the Exercise

- Get Your 150 minutes per week!
- 11,351 ARIC study (Atherosclerosis Risk in Communities) participants (mean age 60 years)
- Each 1 SD higher PA at 6 years (512.5 METS*minutes/week, corresponding to \approx 30 minutes of brisk walking 4 times per week) was associated with **significantly lower future HF** risk – about 11% drop per each (hazard ratio, 0.89, 95% confidence interval, 0.82–0.96).
- **As little as 6 years** of sedentary living increases your odds for HF, which is the leading cause of hospitalization in people over age 65



Florio et al. 31 Jan 2018
<https://doi.org/10.1161/CIRCULATIONAHA.117.030226>
Circulation. 2018;137:2142–2151



It's Never Too Late

- 315,059 participants from National Institutes of Health–AARP Diet and Health Study
- Maintaining physical activity from adolescence into later adulthood was associated with 29% to 36% lower risk for all-cause mortality
- If inactive but **increasing physical activity during midlife was associated with 32% to 35% lower risk for mortality**
- Also 14-16% less cancer mortality



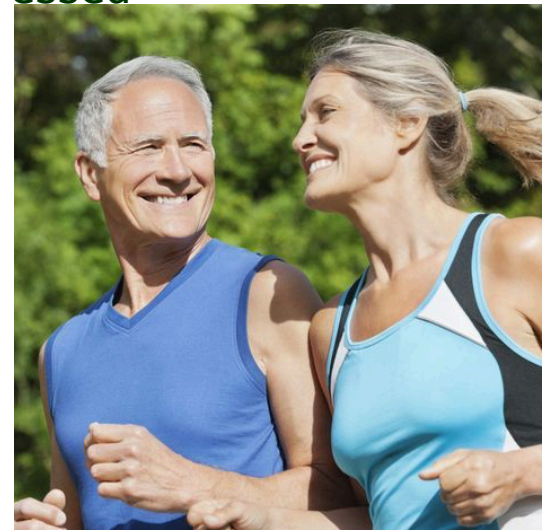
aint-Maurice PF, Coughlan D, Kelly SP, et al. [Association of Leisure-Time Physical Activity Across the Adult Life Course With All-Cause and Cause-Specific Mortality. JAMA Netw Open 2019;2:e190355.](#)

Stay Fit in Middle Age

- Physical fitness in middle age is linked with lower risk of later-life depression and death from cardiovascular disease
- 17,989 men and women, average age 50, from 1971 to 2009 from when they started Medicare coverage through 2013
- Highest fitness category =
 - 16% less likely to have depression
 - 61% less likely to have CVD without depression
 - 56% less likely to die from CVD after becoming depressed



*Willis et al. JAMA Psychiatry. 2018;75(9):911-917.
doi:10.1001/jamapsychiatry.2018.1467*



Connection, Support, Love

- 34 Studies with 2 million subjects
- Those who weren't married were at a 42% higher risk of developing cardiovascular disease
- And 16% higher risk of developing coronary artery disease compared to married people.
- Those who were unmarried people had higher risk of dying from CHD (43% higher), stroke (55% higher)
- Singles with a heart attack had 42% higher mortality



Unhappy Marriage?

- 2262 men surveyed
- Followed ~ 26 years
- After adjusting for risk factors, hazard ratio (95% CI) of SCD was 1.90 (CI 1.09 to 3.32; $p = 0.02$) for men who were dissatisfied with their marriage, compared with men who were satisfied with their marriage
- The association remained consistent on further adjustment for preexisting coronary heart disease, socioeconomic status, and years of education 1.86 (CI 1.07 to 3.25; $p = 0.03$)
- **→ This equal a 90% higher chance of SCD**



THE LANCET

Editorial

We need to talk about meat

Humans and the livestock they consume is a tale that impacts lives in a deep and meaningful sense. Human history is interwoven with production of meat for consumption, and its availability and nutritional value as a source of protein has played a major part in diet as far back as we can imagine, shaping regional identities and global movements. The emotionally charged debate over the ethical suitability of meat consumption may never reach a conclusion, but it is only comparatively recently that the climate impact of livestock rearing, and the nutritional and health issues caused by meat have become a pressing concern.

Achieving a healthy diet from a sustainable source is a struggle new enough to countries with an abundance of food that it has proven difficult to enact meaningful change. Government efforts to curb consumption and thus curb weight gain in high-income countries are yet to display a meaningful effect, and most of these efforts are focused on sugar or fat. Similarly, the global ecological sustainability of farming habits has not been a major topic of conversation until the last few decades. It's only now that we're beginning to have a conversation about the role of meat in both of these debates, and the evidence suggests a reckoning with our habits is long overdue.

Meat production doesn't just affect the ecosystem by production of gases, and studies now question the system of production's direct effect on global freshwater use, change in land use, and ocean acidification. A recent paper in *Science* claims that even the lowest-impact meat causes "much more" environmental impact than the least sustainable forms of plant and vegetable production. Population pressures, with global population predicted to increase by a third between 2010 and 2050, will push us past these breaking points.

this causal mathematical model should be taken with a pinch of salt, but it does follow on from the 2015 WHO classification of some meats as proven carcinogens, based on the International Agency For Research On Cancer assessment of a "strong" link between red meat and the mechanistic evidence for carcinogenicity.

The question of what can be done is more challenging than the question of what should be done. Countries, and their citizens, should look to limit their consumption of intensively farmed meats, both for health and environmental reasons. The issue of how this change comes about is part of a wider conversation that we all need to start having about meat. Will a simple tax on red and processed meat change habits to the extent required? A simple measure enacted alone runs the risk of unfairly targeting those whose budgets only stretched to the cheaper processed meats. Stating that those who can suddenly not afford meat should just switch to a vegetarian diet anyway is not a balanced addition to the debate over meat's role in society. However, targeted taxation has shown positive results in areas of strong health concern such as tobacco, although these successes are similarly accompanied by discussions of the regressive nature of such a tax.

The likelihood is that action will need to take a wider systems approach, with a very public conversation about meat informing a host of measures from deciding the appropriate application of government farming subsidies and finding a way to ameliorate the true costs to humans and the planet of certain processing methods, all the way through to slowly changing consumer habits over time, possibly through use of targeted taxation but certainly through an engaging, balanced conversation. No one system fits every country. Meat might be common to almost every society but its role is different and deeply



For more on the effect of the food system on freshwater use see *Nature* 2018; 562: 519-25

For more on the lowest-impact meat's environmental impact see *Science* 2018; 360: 987-92

For more on meat taxation see *PLoS One*; published online Nov 6, 2018. <https://doi.org/10.1371/journal.pone.0201111>

Physicians Committee
for Responsible Medicine

eat:
s a
."

EAT – Lancet Commission on Healthy Diets

“Our universal healthy reference diet largely consists of vegetables, fruits, whole grains, legumes, nuts, and unsaturated oils, includes a low to moderate amount of seafood and poultry, and includes no or a low quantity of red meat, processed meat, added sugar, refined grains, and starchy vegetables.”

“Our definition of sustainable food production stays within safe planetary boundaries for six environmental processes that together regulate the state of the Earth system, and include climate change, land-system change, freshwater use, biodiversity loss, and interference with the global nitrogen and phosphorus cycles.”

“Applying a global food system modelling framework, we show that **it is possible to feed a global population** of nearly 10 billion people a healthy diet within food production boundaries by 2050. ”



Our Poor Environment

- 5 biggest meat and dairy producers emit more combined greenhouse gases than ExxonMobil, Shell, or BP.
- The report calls for a reduction of greenhouse gases by 38 billion tons by 2050.
- Many meat and dairy producers do not report emissions, and many are increasing production
- If production remains unregulated, by 2050, meat and dairy farms will account for 80% of the budgeted greenhouse gas emissions.



Emissions impossible: How big meat and dairy are heating up the planet. GRAIN and the Institute for Agriculture and Trade Policy (IATP) web site. Available at: <https://www.grain.org/article/entries/5976--impossible-how-big-meat-and-dairy-are-heating-up-the-planet>. Published July 18, 2018. Accessed July 19, 2018.

Major Publication in *Nature*

- Environmental pressures on the world's food system will increase between 50-90% by 2050
- "... reaching levels that are beyond the planetary boundaries that define a safe operating space for humanity"
- Authors recommend a major shift in western diets, including a 90% reduction in beef consumption, and consumption of a more plant-based diet



Springmann et al. Options for keeping the food system within environmental limits. *Nature*. **Volume 562**, pages519–525 (2018). <https://doi.org/10.1038/s41586-018-0594-0>

National Geographic



PHOTOGRAPH BY ROBIN HAMMOND, NAT GEO IMAGE COLLECTION

Eating meat has 'dire' consequences for the planet, says report

To feed a growing global population and curtail climate change, scientists say we need to radically change our food systems.

BY SARAH GIBBENS
PUBLISHED JANUARY 16, 2019



NEJM: January 17 2019

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

Caren G. Solomon, M.D., M.P.H., *Editor*

The Imperative for Climate Action to Protect Health

Andy Haines, M.D., and Kristie Ebi, M.P.H., Ph.D.

CLIMATE CHANGE IS ALREADY ADVERSELY AFFECTING HUMAN HEALTH and health systems,^{1,2} and projected climate change is expected to alter the geographic range and burden of a variety of climate-sensitive health outcomes and to affect the functioning of public health and health care systems. If no additional actions are taken, then over the coming decades, substantial increases in morbidity and mortality are expected in association with a range of health outcomes, including heat-related illnesses, illnesses caused by poor air quality, undernutrition from reduced food quality and security, and selected vec-



NEJM: January 17 2019

“If no additional actions are taken, then over the coming decades, substantial increases in morbidity and mortality are expected in association with a range of health outcomes, including heat-related illnesses, illnesses caused by poor air quality, undernutrition from reduced food quality and security, and selected vectorborne diseases in some locations; at the same time, worker productivity is expected to decrease, particularly at low latitudes. ”



Haines et al. N Engl J Med 2019; 380:263-273
DOI: 10.1056/NEJMr1807873

NEJM: January 17 2019

- “The food system is a major driver of land-use change, demands for fresh water, and green- house-gas emissions.”
- “In general, the environmental effects of animal-source foods are higher than those of plant-based foods.”



Haines et al. N Engl J Med 2019; 380:263-273
DOI: 10.1056/NEJMr1807873

NEJM: January 17 2019

- A systematic review showed that by shifting present dietary intakes to environmentally more sustainable healthy diets, greenhouse-gas emissions could be reduced by a median of 20 to 30% in high-income areas and reductions in water and land use could also be achieved.
- Reductions in environmental effects were generally proportional to the magnitude of the reduction in animal-based food. Dietary changes were projected to modestly reduce all- cause mortality in high-income countries



Haines et al. N Engl J Med 2019; 380:263-273
DOI: 10.1056/NEJMr1807873

While We're At It

- 408 people – measuring urinary epinephrine and other markers
- Authors commented that “**Living in a neighborhood dense with trees, bushes and other green vegetation may be good for the health of your heart and blood vessels.**”
- Authors concluded “Independent of age, sex, race, smoking status, neighborhood deprivation, statin use, and roadway exposure, **residential greenness** is associated with lower levels of sympathetic activation, reduced oxidative stress, and higher angiogenic capacity.”



Yeager et al. JAHA. 5 Dec
2018 <https://doi.org/10.1161/JAHA.118.009117> Journal of the
American Heart Association. 2018;7

A Quick Plug for Sleep

- Remember: It's not JUST diet
- A new study from Spain with ~ 4000 people with no prior CAD
- < 6 hrs sleep = 27% more atherosclerosis
- Frequent waking, or trouble sleeping: 24% more atherosclerosis



Ordovas et al. *Journal of the American College of Cardiology* (2019). DOI: [10.1016/j.jacc.2018.10.060](https://doi.org/10.1016/j.jacc.2018.10.060)

Physician Heal Thyself!

With the 100-hour workweek and the national epidemic of obesity and heart disease, we need to do something proactive. As an associate dean, I have seen firsthand what happens when faculty do not take care of themselves. Outstanding, productive faculty are compromised by preventable diseases. Innovation and medical advances suffer because, as physicians, we feel we are invincible until we are not. We all agree that lifestyle changes are best for our patients and the overall health of the population, yet we do not take the time to heal ourselves. We need to change our thinking about health maintenance.

"peak performance time" for exercise was 11:00 a.m. I had played basketball at 6:00 a.m., lifted weights at 7:00 p.m., and enjoyed my share of midnight rambles. The hour before lunch was always best for me. As I approached 50, I watched my waist size increase slowly and made promises to myself that I would be in better

hospitals need to follow that lead—to ensure that their employees can be models for patients to follow.

With the 100-hour workweek and the national epidemic of obesity and heart disease, we need to do something proactive. As an associate dean, I have seen firsthand what happens when faculty do not take care of

Thomas NJ. Ann Intern Med. 2019;170:135. doi:10.7326/M18-2032

Intensive Cardiac Rehabilitation

National Jewish Health and Saint Joseph Hospital are working together to help patients with severe heart disease improve or reverse their health through our Intensive Cardiac Rehabilitation program based on Ornish Lifestyle Medicine™.

Ornish Lifestyle Medicine is backed by the results of more than 35 years of [scientific research](#) to reverse the progression of heart disease.

Now Enrolling

February 7, 2018

Scientifically Proven to Reverse Heart Disease

99%

of patients stopped
or reversed their
heart disease after
5 years

40%

reduction in LDL cholesterol
in the first year without
cholesterol lowering drugs

400%

improvement in coronary
blood flow

91%

of patients adhere
to the program

Lifestyle Change Coaching

- Activity/Exercise supervised by certified exercise physiologists
- Nutrition counseling from a registered dietitian
- Stress management training overseen by a certified yoga and mindfulness instructor
- Emotional support groups led by a psychologist or social worker



Program Details

- 9-week program, 4 hours per session

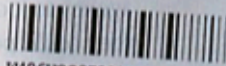
Consumer Reports Oct 2018

What's Really in Your Meat?

Banned drugs have been detected in beef, poultry, and pork. How did they get there? What's known about the risks? And what can be done to keep these drugs off our plates?

by Rachel Rabkin Peachman





W496VOO873082334

BEEF

**MAY CONTAIN: CHLORAMPHENICOL,
KETAMINE, NITROIMIDAZOLES**

**SAMPLES COLLECTED
OCT 2015 TO SEPT 2016**

CR's investigation suggests that the Department of Agriculture's Food Safety and Inspection Service is failing to ensure that meat is free of potentially unsafe drug residue. We urge it to:

or other chemicals. "The USDA Organic seal can't guarantee that the meat will be drug-free, but the additional rules and oversight do increase the odds," says Charlotte Vallaeys, Consumer Reports' organic food expert.

Banned Drugs:

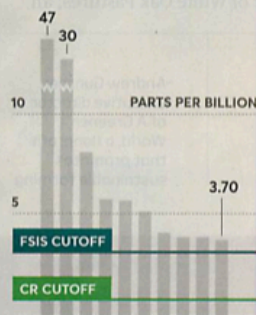
WHAT THE DATA SHOW

CR's analysis of data from the Food Safety and Inspection Service, a branch of the Department of Agriculture, suggests that banned or restricted drugs may appear in the U.S. meat supply more often than was previously known. Below are descriptions of four of these drugs, along with estimates of how many meat samples tested by the FSIS were above a cutoff used by the agency to determine when a drug is present in the meat, as well as how many were above a cutoff that CR's scientists and outside experts say is more scientifically justified.

A POWERFUL ANTIBIOTIC

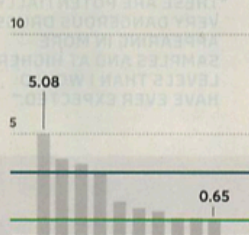
Chloramphenicol

This antibiotic, at any exposure level, can trigger life-threatening aplastic anemia, or the inability to produce enough new blood cells, in 1 in 10,000 people. For poultry, beef, and pork samples combined, 148 (2.6 percent) of 5,756 samples had chloramphenicol levels above CR's expert cutoffs; 25 were above the FSIS cutoff. Below are the 10 highest samples for beef, chicken, pork, and turkey.



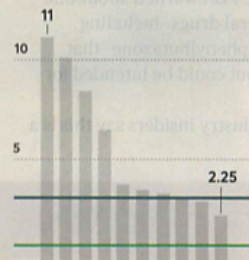
Beef

81 of 2,865 samples had levels above the CR cutoff; 12 were above the FSIS cutoff.



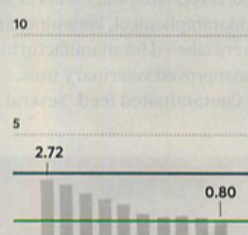
Chicken

12 of 702 samples had levels above the CR cutoff; four were above the FSIS cutoff.



Pork

40 of 1,448 samples had levels above the CR cutoff; nine were above the FSIS cutoff.



Turkey

15 of 741 samples had levels above the CR cutoff; none was above the FSIS cutoff.

THREE OTHER WORRISOME DRUGS

Phenylbutazone

An anti-inflammatory and pain drug no longer used in humans because it can cause aplastic anemia and other blood disorders, and could be carcinogenic in humans. In pork, 24 of 1,448 samples were above the CR threshold; one was above the FSIS cutoff. (The FSIS has not validated its test for phenylbutazone in beef or poultry muscle.)

Ketamine

An anesthetic also used experimentally as an antidepressant that is restricted by the government because it is sometimes used as an illegal hallucinogenic party drug. In pork and beef combined, 225 of 4,313 samples were above the CR threshold; 15 were above the FSIS cutoff. (The FSIS has not validated its test for ketamine in poultry muscle.)

Nitroimidazoles

Antifungal medications used with great caution because they are likely carcinogens. In poultry, beef, and pork combined, 667 of 5,756 samples were above the CR threshold; 136 were above the FSIS cutoff.

ICONS: SODAVERT

Source: Consumer Reports' analysis of data from the Department of Agriculture's Food Safety and Inspection Service, October 2015 through September 2016.

There's Hope

- California Bill Passes – Sept 2019
- "Governor Jerry Brown on Tuesday afternoon signed into law S.B. 1138, legislation to require that state-licensed healthcare facilities and state prisons provide plant-based food options to patients and currently incarcerated individuals. Friends of the Earth sponsored the legislation."



VICTORY!

California Passes Bill Requiring PLANT-BASED MEALS IN HOSPITALS

Physicians
Committee
for Responsible Medicine



SCIL
Social Compassion
in Legislation



SACRAMENTO—The Physicians Committee—a nonprofit with 12,000 doctor members—applauds California Gov. Jerry Brown for signing into law a landmark bill that guarantees patients a healthful plant-based option at every meal. Sen. Nancy Skinner (D-Berkeley) authored Senate Bill 1138, which was co-sponsored by the Physicians Committee and Social Compassion in Legislation.

"Whether to protect animals, our climate or our health, those of us who choose to eat a vegan diet can celebrate today with Gov. Brown's signing of SB 1138," says Sen. Skinner. "SB 1138 ensures that people in hospitals, healthcare facilities, or prison have access to plant-based meals."

SB 1138 will require licensed California health care facilities and state prisons to make available plant-based meal options containing no animal products or by-products, including meat, poultry, fish, dairy, or eggs.



[Home](#) / [News Releases](#) /[Landmark California Legislation Encourages Climate-Friendly, Plant-Based School Lunch Options](#)

Landmark California Legislation Encourages Climate-Friendly, Plant-Based School Lunch Options

February 13, 2019

State bill would help California's schools cut greenhouse gases by serving healthier food

LOS ANGELES – Yesterday, Assemblymember Adrin Nazarian (D-Van Nuys) introduced landmark legislation incentivizing K-12 public schools across the state to offer healthier, climate-friendly lunch options. Under AB 479, the Healthy, Climate-friendly School Lunch Act, schools would receive additional state funding for serving a plant-based entree and plant-based milk. The bill is co-sponsored by Animal Hope in Legislation, Friends of the Earth, Physicians Committee for Responsible Medicine and Social Compassion in Legislation.

AB 479 also includes critical state support for staff training, student engagement, recipe development and other technical assistance needed to help public schools boost participation rates and successfully serve plant-based foods.

"AB 479 will increase access to healthy food options for low-income communities and reduce our carbon footprint at the same time," stated **Assemblymember Nazarian**.

The Economist: Vegan Prediction

The World in 2019

The year of the vegan

Where millennials lead, businesses and governments will follow

John Parker correspondent *The Economist*



Illustration: Nick Lowndes

The Economist: Vegan Prediction

- “Fully a quarter of 25- to 34-year-old Americans say they are vegans or vegetarians.”
- “The business of providing vegan meals is booming. Sales of vegan foods in America in the year to June 2018 rose ten times faster than food sales as a whole.
- “Giant food firms are clambering onto the bandwagon, creating vegan lines of their own, buying startups, or both. Tyson Foods, a meat behemoth, has a 5% stake in Beyond Meat, which sells meat-free patties to TGI Friday’s, a restaurant chain. Even Big Meat is going vegan, it seems.”
- “The school district of Los Angeles, America’s second-largest, will start serving vegan meals in all its schools during the 2018-19 academic year.”
- “In its annual meeting in 2018, the American Medical Association called on hospitals to offer more such meals.”



Bacon Break Up

#BreakUpWithBacon is the message of a new ad campaign at D.C. bus stops and on TV

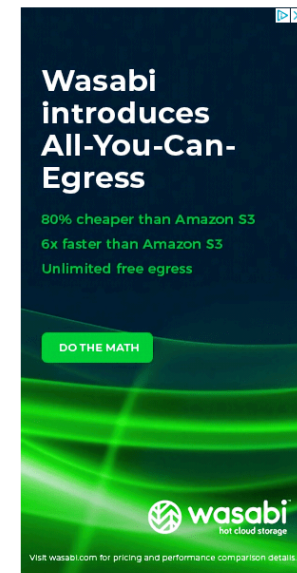


This bus shelter ad by the Physicians Committee for Responsible Medicine is one component of a quarter-million dollar ad campaign that launched this fall on TV, radio and bus kiosks in the District. (Physicians Committee for Responsible Medicine)

By [Dana Hedgpeth](#)
September 28, 2018

Bacon.

It smells good and tastes good, but a quarter-million dollar ad campaign that launched this fall on TV, radio



Fighting the Free Bacon Hour



<https://vegnews.com/2019/1/doctors-fight-mcdonalds-bacon-hour-with-science>

Good News, Too

≡ Forbes

Here to help _____ go right.

3,280 views | Jan 31, 2019, 08:58pm

More Major U.S. Restaurant Chains Are Putting Plant-Based Meals On The Menu



Janet Forgrieve Contributor ⓘ

Food & Drink

I cover the plant-based and sustainable food industries.

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in



White Castle earned high marks from the Good Food Institute for its plant-based Impossible Sliders. CREDIT: IMPOSSIBLE FOODS

The word “vegan” now shows up on 11% of U.S. chain restaurant menus, and 55% of the top U.S. restaurant chains now offer at least one plant-based entree, according to the [Good Food Institute's](#) latest restaurant assessment.



Even with a hurricane coming,
people would rather starve than eat
vegan food.



Success

Low fat, 100% whole grain, minimally processed, whole food, plant-based diet



Geniuses Agree...

“Nothing will benefit human health and increase our chances of survival for life on Earth as much as the evolution to a vegetarian diet.” – Albert Einstein



FREE

Rain, Snow,
or Shine!



Walk with a Doc

Take a Step Toward Better Health

Saturday, May 11th 8am

César Chávez Park

Off of Tennyson in the Highlands of Denver
Meet near the Tennyson Sidewalk Entrance

TOPIC: Retirement Health +

Cooking Demo at *Vital Root*

Saturday, July 13^h 8am

Bible Park

Off of Yale Between Monaco and Quebec in Denver
Meet near the Baseball Diamond

TOPIC: Pulmonary Embolism

Saturday, June 8th 8am

Crestmoor Park

Off of S. Locust and Cedar (Near Alameda) in Denver
Meet near the Tennis Courts

TOPIC: Mitral Valve Disease

Saturday, August 24th 8am

Crestmoor Park

Off of S. Locust and Cedar (Near Alameda) in Denver
Meet near the Tennis Courts

TOPIC: Pulmonary Hypertension

MEET NEW PEOPLE • LEARN ABOUT HEALTH • WALK AND GET FIT WITH DOCTORS

FREE BLOOD PRESSURE CHECKS, GIVEAWAYS, COFFEE, AND BREAKFAST.

Many more walks all over the Denver metro region! See the full list at:

NJHEALTH.ORG/WWAD



Generously Sponsored By:

Transitioning to Plant-Based Eating Support Group: Explore Health from your Food!

Make an Appointment

Patient Education

Find Faculty

Details

The Transitioning to Plant-Based Eating Support Group provides education and support to those wishing to eat more plant-based. Whether you need to adopt this lifestyle due to health conditions such as high blood pressure, high cholesterol, osteoporosis, being overweight, etc., or you want to eat plant-based for other reasons, this group can help. Interact with experts who can help you get on a path that is sustainable, creates healthy change and handles challenges that may arise. Be with people who share your interest and who want to hear about your successes and help with roadblocks.



All are welcome for these FREE events!

2019 Schedule:

May 18th

June 15th

July 20th

August 17th

For more information, please contact:

Jeff Doucette, Coordinator

BotanicallyDelicious@gmail.com

720.590.0162

<https://www.nationaljewish.org/education-training/patient-education/support/transitioning-to-plant-based-eating-support-group>

Convinced?

- Forks Over Knives
- The China Study
- The Starch Solution
- Diet for a New America
- Planeat
- Eating You Alive
- What the Health
- Earthlings

