2017: The Year of Plant-Based Diets?

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Dr Oz: The Vegan Diet Is 'The Single Biggest Movement of 2017'

The popular TV show continued its vegan coverage - this time with an epic sound bite





The Dr. Oz Show just dedicated an entire episode to the vegan diet. A three minute segment can be seen in the video below.

In the episode, "<u>The Beginner's Guide to Going Vegan Without Going Crazy</u>," Dr. Oz confidently told his audience that the vegan diet will be the "single biggest movement of 2017," before busting a few myths about the lifestyle.



Or Has It Always Been

I have lived temperately, eating little animal food, and that as a condiment for the vegetables, which constitute my principal diet. -Thomas Jefferson



It's Mainstream Now





Start Early

- Lifestyle habits start early in life
- Make changes now for the next generation
- "In the large longitudinal Coronary Artery Risk Development in Young Adults (CARDIA) study," individuals "with any coronary artery calcification at ages 32-46 had markedly increased frequencies of incident coronary heart disease" and "and cardiovascular events...over the next 12.5 years."

JJ Carr et al. JAMA Cardiol. Published online February 8, 2017. doi:10.1001/jamacardio.2016.5493







School Lunches Can be Vegan

- Oakland Unified School District in California
- The school district replaced meat, poultry, and cheese with plant-based foods in an effort to reduce its environmental impact and overall costs.
- 30% reduction in animal products served resulted in:
 - 14% reduction in the district's carbon footprint
 - 42 million gallons of water saved
 - Cost savings of more than \$40,000.
- May serve as a model for aspiring schools elsewhere.







Getting Enough Protein?

Yes, yes, yes. Only 30 grams per day needed (and maybe even less).

Top 10 Sources of Veggie Protein

design / layout by: Q-Mars Imandel www.facebook.com/viberider

Tomatoes

8% protein

Where do you get your protein? (brought to you by The GIVE Project)



Beef

25.8% protein

Protein in Meat:

Chicken 23% protein

Eggs

12% protein

thegiveproject.org

www.facebook.com/aiveproject





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.





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Leading Causes of Death

Leading causes of death in perspective



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Health'

Obesity Continued

CDC's National Center for Health Statistics data from 2011 to 2014:

- Average man, who's about 5 ft. 9 in., weighs 195.7 lb.
- Average woman, almost 5 ft. 4 lb., weighs 168.5 lb.
- Men: 15 lb. more than average in 1988–94
- Women: 16 lb. heavier.
- Kids are similarly heavier today than they were in the past.
- On average, an 11-year-old boy weighs about 13 lb. more now than in 1988–94, and a girl of the same age weighs about 7 lb. more.
- Boys are about an inch taller on average, and girls this age are the same height.



USA Obesity Stats

• 2014 Data

- 35% of males were obese
- 40% of females
- Results showed a particular increase among women in both overall obesity and more severe obesity.

Flegal et al. JAMA. 2016;315(21):2284-2291.







Genes Can't Hold You Hostage

- 55,685 participants
- 4 factors: no current smoking, no obesity, regular physical activity and a healthy diet.
- Relative risk of coronary events was 91% higher among high genetic risk patients than those at low genetic risk, independent of healthy lifestyle behaviors.
- Those at highest genetic risk had 46% lower relative risk of coronary events in those with a healthy lifestyle, compared to those with an unfavorable lifestyle (no or only one factor).

Khera AV, Emdin CA. Drake I. et al. N Engl J Med. December 2016, DOI: 10.1056/NEJMoa1605086







Diabetes is No Better

- Diabetes rates increased in the United States from 1999 to 2012
- Overall diagnosed and undiagnosed diabetes rates rose 40% in this time period from $10 \rightarrow 14\%$.
- The highest rates were among the southern states, areas along the Texas-Mexico border, and Native American reservations when compared to New England and the Midwest.

Dwyer-Lindgren L, Mackenbach JP, van Lenthe FJ, Flaxman AD, Mokdad AH. Diagnosed and undiagnosed diabetes prevalence by county in the U.S., 1999-2012. *Diabetes Care*. 2016;39:1556-1562.







Diabetes

- Korean study of 93 participants with type 2 diabetes
- Followed for 12 weeks
- Assigned to a completely vegan diet or a diet based on recommendations from the Korean Diabetes Association.
- Vegan group lost weight, reduced their HbA1C levels (a measure of blood glucose over time), and had better glycemic control better than conventionally recommended diet.
- The authors recommend treatments and dietary guidelines for type 2 diabetes patients include a vegan diet.

Lee YM, Kim SA, Lee IK, et al. Effect of a brown rice based vegan diet and conventional diabetic diet on glycemic control of patients with type 2 diabetes: a 12-week randomized clinical trial. *PLoS One*. 2016;11: e0155918.



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Diabetes



- 200,000 participants from the Nurse's Health Study 1 + 2 and the Health Professionals Follow-Up Study
- Included 69,949 women from the Nurses' Health Study (1984–2012), 90,239 women from the Nurses' Health Study 2 (1991–2011), and 40,539 men from the Health Professionals Follow-Up Study (1986–2010), free of chronic diseases at baseline.
- Assessed their diets and type 2 diabetes incidence rates.
- Those who consumed the most plant-based foods, lowered their risk for type 2 diabetes (by 20-49%) when compared to those who consumed animal products such as dairy, eggs, and meat.

Satija A, Bhupathiraju SN, Rimm EB, et al. Plant-based dietary patterns and incidence of type 2 diabetes in US men and women: results from three prospective cohort studies. *PLoS Med*. 2016;13:e1002039.



Fats and DM2



- Researchers followed the consumption of omega-3 and omega-6 fats in the diets of 71,334 women and tracked diabetes incidence rates.
- Those who consumed the most fats: increased their risk for diabetes by 26%
- Omega-3 docosapentaenoic acid (DPA) and omega-6 arachidonic acid (AA), both of which are mostly found in animals, nearly **doubled the risk** for type 2 diabetes
- When controlling for weight: risk increased 41% for DPA and 49% for AA.

Dow C, Mangin M, Balkau B, et al. Fatty acid consumption and incident type 2 diabetes: evidence from the E3N cohort study. Poster presented at: the European Association for the Study of Diabetes (EASD) 52nd Annual meeting; September 14, 2016: Munich, Germany.



Plant Based Diets in DM

- Large review of the literature
- 13 studies that explored the efficacy and acceptability of plant-based diets as treatment for diabetes.
- Improved insulin sensitivity, reduced diabetes medications, and lowered intakes of saturated fat and cholesterol.
- High acceptance rates
- "Based on current published research, PBDs lend support in the management of type 2 diabetes."

Rinaldi S, Campbell EE, Fournier J, O'Connor C, Madill J. A comprehensive review of the literature supporting recommendations from the Canadian Diabetes Association for the use of a plant-based diet for management of type 2 diabetes. *Can J Diabetes*. Published online July 28, 2016.







Plants Fight Diabetes

- Pooled data from studies that assessed plant-based eating patterns and disease risk.
- 20-25% risk reduction in heart disease and DM2
- Also lower cholesterol levels, blood pressure, and inflammatory markers for those who consumed plant-based diets.
- Long-term adherence to these diets resulted in better weight management, too.

Harland J, Garton L. An update of the evidence relating to plant-based diets and cardiovascular disease, type 2 diabetes and overweight. *Nutr Bull*. 2016;41:323-338.





ADA Finally Says

PhysiciansCommittee for Responsible Medicine



In its 2017 Standards of Medical Care in Diabetes, the American Diabetes Association maintains that a plant-based eating pattern is an effective option for type 2 diabetes management and encourages clinicians to always include education on lifestyle management.

American Diabetes Association. Standards of Medical Care in Diabetes - 2017. Diabetes Care. 2017;40(Suppl 1):S1-S135.



Infertility

- High fat, high dairy eating reduces sperm count, increases estrogens, and reduces sperm quality
- Dairy contains large amounts of estrogens (up 70% of estrogens consumed)

Ganmaa et al Med Hypotheses. 2001 Oct;57(4):510-4.

- Increased saturated fats may reduce semen quality Jensen et al. <u>Am J Clin Nutr.</u> 2013 Feb;97(2):411-8. doi:
- Processed meats reduce sperm count

Afeiche et al. Epidemiology. 2014 May;25(3):323-30



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Beer: Potent Phytoestrogen

 In 1999, a potent phytoestrogen called 8-prenylnaringenin (8PN) was discovered in hops—in fact, the most potent phytoestrogen found to date; 50 times more potent than the genistein in soy

S R Milligan, J C Kalita, A Heyerick, H Rong, L De Cooman, D De Keukeleire. Identification of a potent phytoestrogen in hops (Humulus lupulus L.) and beer. J Clin Endocrinol Metab. 1999 Jun;84(6):2249-52.

• Colon microflora and liver convert 8-PN into estrogens

S Possemiers, A Heyerick, V Robbens, D De Keukeleire, W Verstraete. Activation of proestrogens from hops (Humulus lupulus L.) by intestinal microbiota; conversion of isoxanthohumol into 8-prenylnaringenin. J Agric Food Chem. 2005 Aug 10;53(16):6281-8.







Ovarian Cancer

- Researchers followed 1,146 women from the African American Cancer Epidemiology Study
- Calculated consumption of dairy products, lactose, calcium, and vitamin D and cancer incidence rates.
- Those with the highest intake of whole milk and lactose increased their risk for ovarian cancer, compared with those who consumed the least, while those who consumed the most calcium decreased their risk for cancer by 49%.
- Get calcium for plants, green leafy veggies in particular!

Qin B, Moorman PG, Alberg AJ, et al. Dairy, calcium, vitamin D and ovarian cancer risk in African–American women. *Br J Cancer*. Published online September 15, 2016.







Cholesterol and Breast Cancer

- Meta-analysis published in Nutrition Research.
- 9 studies with 387,069 participants
- Those who consumed the most cholesterol had a 29% increased risk for breast cancer when compared to those who consumed the least.

Li C, Yang L, Zhang D, Jiang W. Systematic review and meta-analysis suggest that dietary cholesterol intake increases risk of breast cancer. *Nutr Res*. 2016;36:627-635.



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Biomarkers



- 29 study meta-analysis with a total of 2,689 participants
- Consumption of plant-based diets was associated with a reduction in:
- CRP [effect size, -0.55 mg/l, 95% confidence intervals (CI): -0.78; -0.32, I² = 94.4%]
- IL-6 [effect size, -0.25 ng/l, 95% CI: -0.56; 0.06, I² = 74
- Trend only: sICAM (-25.07 ng/ml [95% CI: -52.32; 2.17, $I^2 = 93.2\%$]).

Eichelmann et al. Effect of plant-based diets on obesity-related inflammatory profiles: a systematic review and meta-analysis of intervention trials. Obesity Reviews. 13 July 2016



Alzheimer's Disease (AD)

- 10 countries (Brazil, Chile, Cuba, Egypt, India, Mongolia, Nigeria, Republic of Korea, Sri Lanka, and the United States) along with dietary supply data 5, 10, and 15 years before the prevalence data.
- Consumption of meat increased disease risk the most, followed by eggs and high-fat dairy, while high intakes of fruits, vegetables, and grains reduced the risk for Alzheimer's disease.
- Possible mechanisms include increased intakes of metal ions, such as copper, and saturated fat, both prevalent in meat.

Grant WB. Using multicountry ecological and observational studies to determine dietary risk factors for Alzheimer's disease. *J Am Coll Nutr*. Published online July 25, 2016.



Red Meat and CKD

- Singapore Chinese Health Study, a prospective study with 63,257 Chinese adults aged 45–74 years from 1993 to 1998.
- Collected diet from questionnaire and identified ESRD via record linkage with a nationwide registry.
- 951 cases of ESRD occurred over a mean follow-up of 15.5 years.
- Red meat intake strongly associated with ESRD risk in a dosedependent manner (hazard ratio for highest quartile versus lowest quartile,1.40 [95% CI, 1.15 to 1.71; P_{trend} <0.001])

Authors conclude "Our study shows that red meat intake may increase the risk of ESRD in the general population and substituting alternative sources of protein may reduce the incidence of ESRD."

Lew et al. Red Meat Intake and Risk of ESRD. JASN. Published online before print July 14, 2016, doi:10.1681/ASN.2016030248



Feeding CKD Patients Right

- 108 kidney disease patients and monitored their blood pressure and medications.
- 3 groups: one treated with sodium bicarbonate, another with three to four daily servings of fruit and vegetables, and a control group.
- The fruits and vegetables group lowered their blood pressure, compared with the other two groups, and lowered medications every year for the five-year study
- Cost savings in medications saved the dietary intervention group and estimated \$80,000 in medication costs.

Goraya N, Simoni J, Pruszynski J, Xiang P, Wesson D. Blood pressure control is better and less expensive in chronic kidney disease when associated metabolic acidosis is treated with fruits and vegetables rather than sodium bicarbonate. Report presented at: the American Heart Association's High Blood Pressure meeting; September 15, 2016: Orlando, FL.





Tea – The Good Stuff!

- 6508 ethnically diverse participants with available coffee and tea data from the Multi-Ethnic Study of Atherosclerosis (MESA)
- Intake for each was classified as never, occasional (<1 cup per day), and regular (≥1 cup per day).</p>
- Median follow-up of 5.3 years for coronary artery calcium and 11.1 years for cardiovascular events
- 1 Cup Per Day = significant lower incidence of cardiovascular events (adjusted hazard ratio 0.71; 95% confidence interval 0.53-0.95).
- This is a nearly 30% reduction!

Miller PE, Zhao D, Frazier-Wood AC, et al. Associations between coffee, tea, and caffeine intake with coronary artery calcification and cardiovascular events. *Am J Med* 2016; DOI:10.1016/j.amjmed.2016.08.038.



Tea II

- 487,000 adults in China (199,293 men and 288,082 women aged 30 to 79 years at baseline from 10 areas in China)
- Ischemic Heart Disease:
- → 3% reduction (For Less Than Daily)
- AND: 0.92 (95% CI, 0.88-0.95) for daily consumption
- → 8% reduction (For Daily Consumption)
- Major Coronary Events:
- → 8%-10% reduction

Li X, et al. Heart. 2017; doi: 10.1136/heartjnl-2016-310462.



Replace Animal with Plant Protein

- Diets of 131,342 participants from the Nurses' Health Study and Health Professionals Follow-up Study.
- Animal protein intake was associated with an increased risk for death from diseases, especially cardiovascular disease, and plant protein intake was associated with a lower risk for mortality.
- Replacing animal protein of various origins with plant protein was associated with lower mortality.
- HRs for all-cause mortality were 0.66 (95% CI, 0.59-0.75) when 3% of energy from plant protein was substituted for an equivalent amount of protein from processed red meat, 0.88 (95%CI, 0.84-0.92) from unprocessed meat, and 0.81 (95%CI, 0.75-0.88) from egg.
- This is a 44% reduction, 12% reduction, and 19% reduction!

Song M, Fung TT, Hu FB, et al. Association of animal and plant protein intake with allcause and cause-specific mortality. JAMA Intern Med. Published online August 1, 2012. National Jewish

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Plant vs. Animal Protein Intake in CV Mortality Risk

Animal protein intake may be associated with a higher risk for cardiovascular mortality, as compared to plant protein intake in patients with at least one lifestyle risk factor, according to a study published Aug. 1 in *JAMA Internal Medicine*.

The prospective cohort study, by Mingyang Song, MD, ScD, et al., looked at 131,342 participants in the Nurses' Health Study and the Health Professionals Follow-up Study. The median protein intake was 14% for animal protein and 4% for plant protein.

After adjusting for major lifestyle and dietary risk factors, results showed that animal protein intake was "weakly associated" with higher mortality, particularly cardiovascular mortality since "every 10% increment of animal protein from total calories was associated with a 2% higher risk" for all-cause mortality, and an 8% increased risk for cardiovascular mortality. In comparison, plant protein intake "was associated with a 10% lower risk" of all-cause mortality "for every 3% increment of total calories and a 12% lower risk" for cardiovascular mortality.

The authors add that these associations "were confined to participants with at least one unhealthy lifestyle factor based on smoking, heavy alcohol intake, overweight or obesity, and physical inactivity," but not seen in patients without any of these risk factors.

"Substitution of plant protein for animal protein, especially from processed red meat, may confer substantial health benefit. Therefore, public health recommendations should focus on improvement of protein sources, the authors conclude.

"The findings are very consistent with prior research, but with some new statistically significant elements that further support the benefits of substituting plant protein for animal protein," said **Kim Allan Williams Sr., MD**, immediate past president of the ACC. "Consider the lives that could be saved by changing dietary protein intake from animals to vegetables!"

Consider the lives that could be saved t tein inta from animals to

—Kim Allan Williams, M

Song M, Fung TT, Hu FB, et al. JAMA Intern Med. 2016doi:10.1001/jamainternmed.2016.4182

Data From the Study

Figure. Risk for Mortality Associated With Replacement of 3% Energy From Various Animal Protein Sources With Plant Protein

Animal Protein Source		Favors Plant	Favors Alternate
	nk (95% CI)	- Protein	Source
Processed red meat	0.66 (0.59-0.75)		
Upprocessed red most	0.88 (0.84-0.92)	· · ·	
Doultry	0.00 (0.04-0.92)	· · · · · · · · · · · · · · · · · · ·	
Fould y	0.94 (0.90-0.99)	-	
Fig	0.94 (0.89-0.99)	· · · · · ·	
Eyy Dainy	0.01 (0.75-0.00)		
	0.92 (0.87-0.96)	_	
	0.01 (0.40.0.70)		
Processed red meat	0.61 (0.48-0.78)		
Onprocessed red meat	0.83 (0.76-0.91)		
Poultry	0.91 (0.83-1.00)		
FISN	0.88 (0.80- 0.97)		
Egg	0.88 (0.75-1.04)		
Dairy	0.89 (0.80-0.98)		
Cancer			
Processed red meat	0.86 (0.71-1.04)		
Unprocessed red meat	0.96 (0.89-1.03)		<u> </u>
Poultry	0.99 (0.91-1.06)		
Fish	0.98 (0.91-1.06)		
Egg	0.83 (0.73-0.93)		
Dairy	1.00 (0.93-1.09)		
Other			
Processed red meat	0.55 (0.46-0.67)		
Unprocessed red meat	0.84 (0.78-0.90)		
Poultry	0.93 (0.86-1.00)		
Fish	0.94 (0.87-1.01)		
Egg	0.76 (0.67-0.86)		
Dairy	0.86 (0.80-0.93)		
		0.45 1	.0
		HR (95% CI)	

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Some Insights

- A reason for eggs being high in cholesterol yet weakly associated with CV events was because subjects were dying of cancer at an increased rate, decreasing the at-risk population studied.
- Note how both eggs and fish increase CV death by 12%, but only fish reaches statistical significance
- These smaller data confidence intervals are likely due to more at-risk people being alive since fish doesn't cause as much cancer.







Protein Excess and CHF

- 103,878 women from the Women's Health Initiative.
- Those who consumed the most protein overall increased their risk for heart failure, compared with those who consumed the least.
- Increased vegetable protein lowered the risk for heart failure, suggesting the link is with animal protein specifically.

Barbour MF, Ashraf F, Roberts MB, et al. Association of dietary protein, animal and vegetable protein with the incidence of heart failure among postmenopausal women. Abstract presented at: American Heart Association, annual meeting; November 13-15, 2016; New Orleans, LA.







TMAO updated

- Trimethylamine N-oxide (TMAO)
- Researchers monitored TMAO levels for 530 participants
- Those with elevated TMAO levels increased their risk for heart attacks or strokes and increased their risk of death from these events.
- Authors suggested dietary interventions may mitigate these risks by reducing TMAO levels.

Li XS, Obeid S, Klingenberg R, et al. Gutmicrobiota-dependent trimethylamine N-oxide in acute coronary syndromes: a prognostic marker for incident cardiovascular events beyond traditional risk factors. *Eur Heart J.* Published online January 11, 2017.

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Health


Nuts for CVD?

• 20 prospective studies

- "a handful of nuts a day may be enough to reduce the risk for death from heart disease and other ills." Eating nuts associated with "reduced the risk for coronary heart disease by 29%, for cardiovascular disease by 21% and for cancer by 15%," compared to those who ate the fewest.
- In addition, "there was also a 52% reduced risk for respiratory disease, 39% for diabetes and 75% reduced risk for infectious disease in those who ate the most nuts."
- Suggested ~20g/day of nuts
- Watch calories and excess

Dagfinn, A et al. BMC Medicine 2016 14:207 DOI: 10.1186/s12916-016-0730-3



Academy of Nutrition and Dietetics

- "Vegetarian and vegan diets are healthful, may prevent and treat chronic diseases, and are better for the environment"
- Vegetarian and vegan diets appropriate for all stages of the life cycle (pregnancy, infancy, childhood, etc.), but they also help reduce the risk for heart disease, high blood pressure, type 2 diabetes, stroke, obesity, and some types of cancer.



Melina V, Craig W, Levin S. Position of the Academy of Nutrition and Dietetics: vegetarian diets. *J Acad Nutr Diet*. 2016;116:1970-1980.



Hypertension

- Comparison of hypertension rates for 4,109 participants who followed vegetarian or nonvegetarian diets.
- Vegetarians had 34% lower risk for hypertension.

 These findings remained significant after adjusting for obesity, insulin resistance, and inflammation.

Chuang SY, Chiu TH, Lee CY, et al. Vegetarian diet reduces the risk of hypertension independent of abdominal obesity and inflammation: a prospective study. *J Hypertens*. Published online August Heath 2016.

Weight and Meat Consumption

EPIC-PANACEA study

- 103,455 men and 270,348 women aged 25-70 y were recruited between 1992 and 2000 in 10 European countries
- With adjustment for estimated energy intake, an increase in meat intake of 250 g/d (eg, one steak at approximately 450 kcal) would lead to a 2-kg higher weight gain after 5 y (95% CI: 1.5, 2.7 kg). Positive associations were observed for red meat, poultry, and processed meat.
- ** This is assuming the same calories/energy input i.e. even if you ate the same number of calories, you still gained weight
- Strongest association with chicken!

Vergnaud AC, et al. Meat consumption and prospective weight change in participants of the EPIC-PANACEA study. Am J Clin Nutr. 2010 Aug;92(2):398-407.







Dairy and Heart Disease

- 222,234 participants from the Health Professionals Follow-Up Study and the Nurses' Health Study I and II
- Monitored dietary fat intake and cardiovascular disease incidence rates. The results showed that replacing 5% of dairy fat with an equal amount of vegetable and polyunsaturated fats decreased heart disease risk by 10% and 24%, respectively.
- Also 28% lowered risk for cardiovascular disease,
- 34% lowered risk coronary heart disease
- 16% lowered risk for stroke when participants replaced dairy fat with whole grains.



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Chen M, Li Y, Sun Q, et al. Dairy fat and risk of cardiovascular disease in 3 cohorts of US adults. Am J Clin Nutr. Published online August 24, 2016.

Got pus? Milk does.

What's in a glass of milk?

135 million Pus Cells Bovine Growth Hormones Antibiotics Feces 51 milligrams of Cholesterol 300 Calories 16 grams of Fat Acidic Protein which leeches Calcium from Bones







Can Veggies Cancel Out Meat?

- Followed 74,645 participants from the Swedish Mammography Cohort and the Cohort of Swedish Men studies
- Assessed diet and mortality due to heart disease.
- Those who consumed the highest amounts of red meat increased their risk of dying from heart disease by 29% when compared to those who consumed the least.
- Risk was the same when meat was coupled with various fruit and vegetable intakes.
- High fruit and vegetable intake did not prevent meat-related deaths.

No cheeseburger piled with veggies

Bellavia A, Stilling F, Wolk A. High red meat intake and all-cause cardiovascular and cancer mortality: is the risk modified by fruit and vegetable intake? *Am J Clin Nutr*. Published online August 24, 2016.



Saturated Fat – It Matters

- 73 147 women in the Nurses' Health Study (1984-2012) and 42 635 men in the Health Professionals Follow-up Study (1986-2010), who were free of major chronic diseases at baseline. > 20 years in follow up
- Comparing Highest to Lowest Intakes:
- Coronary heart disease OR were 1.18 (1.09 to 1.28; P_{trend}<0.001) (for all types of Sat Fat)
 → Meaning 18% higher chance of CHD
- 7% lower risk of CHD if 1% of calories replaced with plant proteins (instead of sat fats)

Zong G, Li Y, Wanders AJ, et al. Intake of individual saturated fatty acids and risk of coronary heart disease in US men and women: two prospective longitudinal cohort studies. *BMJ*. 2016;355:i5796.







Chronic Disease from Diet

- New work shows correlation between disease risk and meat consumption in six cohort studies.
- Eating 100 grams of red meat per day increased the risk for stroke 11%, and for breast cancer 11%, death from heart disease 15%, colorectal cancer 17%, and advanced prostate cancer 19%
- At 50 grams per day, processed meats increased the risk for several chronic diseases including colorectal cancer 18%, pancreatic cancer 19%, death from heart disease 24%, and diabetes by 32%.

Wolk A. Potential health hazards of eating red meat. *J.Intern Med*. Published online September 6, 2016.



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Health

10 Foods To Change

- ~ 50% of deaths from CVD are associated with low intakes of fruits and vegetables and high intakes of sodium, sugary beverages, and processed meats.
- Consumption of 10 foods/nutrients associated with CVD: fruits, vegetables, nuts/seeds, whole grains, unprocessed red meats, processed meats, sugarsweetened beverages (SSBs), polyunsaturated fats, seafood omega-3 fats, and sodium.

Micha R, Peñalvo JL, Cudhea F. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *JAMA*. 2017;317:912-924.



10 Foods To Change II

 The largest numbers of estimated diet-related cardiometabolic deaths were related to high sodium (9.5% of all cardiometabolic deaths), low nuts/seeds (8.5%), high processed meats (8.2%), low seafood omega-3 fats (7.8%), low vegetables (7.6%), low fruits (7.5%), and high sugarsweetened beverages (7.4%). Between 2002 and 2012, population-adjusted US cardiometabolic deaths per year decreased by 26.5%





Micha R, Peñalvo JL, Cudhea F. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *JAMA*. 2017;317:912-924.

The Sugar Expose

- JAMA Internal Medicine
- Authors uncovered correspondence and other documentation that exposed the sugar industry's influence on scientific results. An accompanying commentary supports these findings with discussion of industries', including meat and dairy, attempts to skew research in their favor.
- "The documents show that a trade group called the Sugar Research Foundation, known today as the Sugar Association, paid three Harvard scientists the equivalent of about \$50,000 in today's dollars to publish a 1967 review of research on sugar, fat and heart disease. The studies used in the review were handpicked by the sugar group, and <u>the article</u>, which was published in the prestigious New England Journal of Medicine, minimized the link between sugar and heart health and cast aspersions on the role of saturated fat."

Kearns CE, Schmidt LA, Glantz SA. Sugar industry and coronary heart disease research: a historical analysis of internal industry documents. *JAMA Intern Med*. Published online September 12, 2016. Nestle M. Food industry funding of nutrition research: the relevance of history for current debates. *JAMA Intern Med*. Published online September 12, 2016.



NY Times

WELL How the Sugar Industry Shifted Blame to Fat



nenu



2. U.S. Airports, Prompting Legal Challenges to ...





OP-ED CONTRIBUTOR Trump's Immigration Ban Is Illegal



In Private, Republica Lawmakers Agonize Over Health Law Repeal

How the Sugar Industry Shifted Blame to Fat

By ANAHAD O'CONNOR SEPT. 12, 2016





The sugar industry paid scientists in the 1960s to play down the link between sugar and heart disease and promote saturated fat as the culprit



https://www.nytimes.com/2016/09/13/well/eat/how-the-sugar-industry-shifted-blame-to-fat.html? r=1



Sugar as Bad as Fat

Which is why a whole foods diet is so important





Number One SNAP Purchase

#1 = Soda 5% of food dollars

https://www.nytimes.com/2017/01/13/ well/eat/food-stamp-snapsoda.html?WT.mc_id=SmartBriefs-Newsletter&WT.mc_ev=click&adkeywords=smartbriefsnl&_r=0



In the Shopping Cart of a Food Stamp Household: Lots of Soda

By ANAHAD O'CONNOR JAN. 13, 2017

6000



A government report shows that sugary soda is the most popular item in the shopping carts of families that receive federal food stamps. Karsten Moran for The New York Times

What do households on food stamps buy at the grocery store?

The answer was largely a mystery until now. The United States Department of Agriculture, which oversees the \$74 billion food stamp program called SNAP, has published a <u>detailed report that provides a glimpse into the</u> <u>shopping cart</u> of the typical household that receives food stamps.

The findings show that the No. 1 nurchases by SNAP households are soft

Not All Bad News

- Atrial fibrillation may be reduced by eating chocolate
- Women can eat just one ounce, or 30g, of chocolate to have the protective effect, while men need to eat between two and six servings a week.
 A 30g serving is around a third of the standard 100g chocolate bar.
- 23% risk reduction
- Better to avoid the added sugars and milk if possible





Prostate Cancer

- 1,854 prostate cancer patients from the North Carolina-Louisiana PC Project
- Higher saturated fat intake was associated with a greater risk for aggressive prostate cancer, compared with those who consumed the least.

Allott EH, Arab L, Su LJ, et al. Saturated fat intake and prostate cancer aggressiveness: results from the population-based North Carolina-Louisiana Prostate Cancer Project. *Prostate Cancer Prostatic Dis*. Published online September 6, 2016.





Prostate and Dairy (Again)

- 11 studies that encompassed more than 700,000 participants
- Male participants who consumed the most whole milk increased their risk of death from prostate cancer by as much as 50%, compared with those who consumed the least amount.





Dairy and Survival

- 525 men with recent prostate cancer diagnoses had tracked dairy product intake
- 3+ servings of high-fat dairy a day, including butter, increased their risk of death from cancer when compared to those who consumed less dairy.
- Can be as much as 6x the risk
- IGF-1 and other hormones specific to dairy may be the mechanisms behind the increased risk.



Downer et al. Int J Cancer. 2017 Feb 10. doi: 10.1002/ijc.30642.



Dairy and Mortality (Again)

- 140,000 followed for dietary intakes
- Those who consumed the most milk and the fewest servings of fruits or vegetables had higher mortality rates.
- The increase in risk was almost threefold among the women participants.



Michaëlsson K, Wolk A, Melhus H, Byberg L. Milk, fruit and vegetable, and total antioxidant intakes in relation to mortality rates: cohort studies in women and men. *Am J Epidemiol*. Published online February 10, 2017.



Breast cancer is the number one cancer killer of women

Dairy and Breast Cancer

- Dietary intakes of 1,941 women diagnosed with breast cancer
- Those who consumed the most American, cheddar, and cream cheeses had a 53% increased risk for breast cancer.
- With ER- breast ca, those who drank the most fluid milk had a 58% increased risk for breast cancer.

McCann SE, Hays J, Baumgart CW, et al. Usual consumption of specific dairy foods is associated with breast cancer in the Roswell Park Cancer Institute Databank and BioRepository. *Curr Dev Nutr*. 2017. cdn.117.000422; DOI: https://doi.org/10.3945/cdn.117.000422.



Cholesterol and Breast Cancer

- 9 studies of 387,069 participants
- Dietary cholesterol intake assessed and cancer incidence rates assessed.
- Those who consumed the most cholesterol 29% increased risk for breast cancer when compared with those who consumed the least.

Li C, Yang L, Zhang D, Jiang W. Systematic review and meta-analysis suggest that dietary cholesterol intake increases risk of breast cancer. Nutr Res. 2016;36:627-

635.



Plants Aid in ALS?

- 302 participants from the Amyotrophic Lateral Sclerosis Multicenter Cohort Study of Oxidative Stress study
- Assessed muscle and respiratory function.
- Higher intake of antioxidants and carotenes from fruits and vegetables improved symptoms when compared to those with lower intakes of these key nutrients.
- Authors thus recommend dietary interventions to improve quality of life in ALS.

Nieves JW, Gennings C, Factor-Litvak P, et al. Association between dietary intake and function in amyotrophic lateral sclerosis. *JAMA Neurology*. Published online October 24, 2016.





National Jewish Health[°] Science Transforming Life[®]

A Quick Reminder

- Alzheimer's may be due to suppressing sirtuins, by excessive glycotoxins
- Glycotoxins come predominantly from smoking and high fat/protein foods cooked at high temperatures (chicken, pork, beef, and fish, and even tofu)
- More glycotoxins in blood = more neuro decline
- Most meat (including fish) = 3x risk of dementia

Giem, P et al. <u>Neuroepidemiology</u>. 1993;12(1):28-36. Julien et al. <u>J Neuropathol Exp Neurol</u>. 2009 Jan;68(1):48-58. doi: 10.1097/NEN.0b013e3181922348. Cai et al. <u>Proc Natl Acad Sci U S A.</u> 2014 Apr 1;111(13):4940-5. doi: 10.1073/pnas.1316013111. Epub 2014 Feb 24.





YoYo Dieting?

- Women who were normal weight at the study's start but who reported a history of weight cycling
- +/- 10 lbs 4 times or more (not sick or pregnant)
- = 3.5x greater risk for sudden cardiac death than those with stable weights.
- 66% increased risk of dying from coronary heart disease





Rasla S, Gras M, Roberts B, et al. Poster T2041. Risk of Sudden Cardiac Death and Coronary Heart Disease Mortality in Postmenopausal Women With History of Weight Cycling. Presented at: <u>American Heart Association Scientific</u> <u>Sessions 2016</u>; November 12-16, 2016; New Orleans.



Diverticulitis

- 6,461 men from the Health Professionals Follow-Up Study.
- Those who consumed the most unprocessed red meat increased their risk for diverticulitis.
- 18% increased risk per serving per day.



Cao Y, Strate LL, Keeley BR, et al. Meat intake and risk of diverticulitis among men. *Gut*. Published online January 9, 2017.



Athletic Vegans?

- 70 participants had strength and endurance patterns monitored.
- Athletic performance from those who followed vegetarian diets matched or exceeded those who followed omnivorous diets
- No differences in protein intake as relative to body mass index.
- Vegetarian eating patterns provide for good cardiorespiratory and oxygen efficiency and may provide advantages over nonvegetarian diets.

Lynch HM, Wharton CM, Johnston CS. Cardiorespiratory fitness and peak torque differences between vegetarian and omnivore endurance athletes: a cross-sectional study. *Nutrients*. 2016;8:piiE726.





Vitality and Wellbeing

- More fruit and vegetables improve psychological well-being in young adults who reported depressive symptoms, anxiety
- 171 participants (18-25 years old) to one of three groups:
 - a control group
 - a group that received reminders via text message to consume more fruits and vegetables
 - a dietary intervention group with additional daily servings of fruits and vegetables.
- The dietary intervention group increased their vitality and motivation when compared to groups that consumed fewer fruits and vegetables.
- Authors call for diet to improve psychological health across this population.

Conner TS, Brookie KL, Carr AC, Mainvil LA, Vissers MC. Let them eat fruit! The effect of fruit and vegetable consumption on psychological well-being in young adults: A randomized controlled trial. *PLoS One*. 2017;12:e0171206.



While on The Exercise Topic

- 63,591 adult respondents
- Weekend warriors = ≥150 minutes/week in moderateintensity or ≥75 minutes/week in vigorous-intensity activities from 1 or 2 sessions
- "Weekend warrior and other leisure time physical activity patterns characterized by 1 or 2 sessions per week may be sufficient to reduce all-cause, CVD, and cancer mortality risks regardless of adherence to prevailing physical activity guidelines."
- Nearly a 40% CVD risk reduction compared to sedentary individuals

O'Donovan et al. Association of "Weekend Warrior" and Other Leisure Time Physical Activity Patterns With Risks for All-Cause, Cardiovascular Disease, and Cancer Mortality. JAMA Intern Med. Published online Jan

Get Moving!



Hungry After All These Slides?

- 3 different meals: one high in animal protein, another high in plant-based protein, and one plant-based, low-protein meal.
- 43 participants: those who consumed the plant-based, highprotein meal felt more satisfied while consuming fewer calories, compared with those who consumed the meal high in animal protein.
- The low-protein meal was as satiating and palatable as the animal-based, high-protein meal.
- Does higher fiber lead to satiety?



Kristensen MD, Bendsen NT, Christensen SM, Astrup A, Raben A. Meals based on vegetable protein sources (beans and peas) are more satiating than meals based on animal protein sources (veal and pork) - a randomized cross-over meal test study. *Food Nutr Res*. 2016;60:32634.



Get Your 10

- 95 studies analyzed
- 2.5 servings of fruits/vegetables per day could reduce one's risk for heart disease, stroke, all-cause mortality, and cancer by 8, 16, 8, and 10%.
- 7.5 servings per day offered the greatest protection against cancer
- 10 servings offered the greatest protection against heart disease, stroke, and all-cause death.

Aune D, Giovannucci E, Boffetta P, et al. Fruit and vegetable intake and the risk of cardiovascular disease, total cancer and all-cause mortality–a systematic review and doseresponse meta-analysis of prospective studies. *Int J Epidemiol*. Published online February 22, 2017.



Colorectal Ca

Compared with adults born circa 1950, those born circa 1990 have **double the risk** of colon

Cancer (IRR = 2.40, 95% CI = 1.11 to 5.19) and **quadruple the risk** of rectal cancer (IRR = 4.32, 95% CI = 2.19 to 8.51).

https://academic.oup.com/jnci/article-lookup/doi/10.1093/jnci/djw322

Colorectal Cancer Incidence Patterns in the United States, 1974–2013 @

Rebecca L. Siegel ☎; Stacey A. Fedewa; William F. Anderson; Kimberly D. Miller; Jiemin Ma; Philip S. Rosenberg; Ahmedin Jemal

J Natl Cancer Inst (2017) 109 (8): djw322. DOI: https://doi.org/10.1093/jnci/djw322 Published: 28 February 2017 Article history ▼

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Background: Colorectal cancer (CRC) incidence in the United States is declining rapidly overall but, curiously, is increasing among young adults. Age-specific and birth cohort patterns can provide etiologic clues, but have not been recently examined.

Methods: CRC incidence trends in Surveillance, Epidemiology, and End Results areas from 1974 to 2013 (n = 490 305) were analyzed by fiveyear age group and birth cohort using incidence rate ratios (IRRs) and age-period-cohort modeling.

Results: After decreasing in the previous decade, colon cancer incidence rates increased by 1.0% to 2.4% annually since the mid-1980s in adults age 20 to 39 years and by 0.5% to 1.3% since the mid-1990s in adults age 40 to 54 years; rectal cancer incidence rates have been increasing longer and faster (eg, 3.2% annually from 1974-2013 in adults age 20-29 years). In adults age 55 years and older, incidence rates generally declined since the mid-1980s for colon cancer and since 1974 for rectal cancer. From 1989-1990 to 2012-2013, rectal cancer incidence rates in adults age 50 to 54 years went from half those in adults age 55 to 59 to equivalent (24.7 vs 24.5 per 100 000 persons: IRR = 1.01, 95% confidence interval [CI] = 0.92 to 1.10), and the proportion of rectal cancer diagnosed in adults younger than age 55 years doubled from 14.6% (95% CI = 14.0% to 15.2%) to 29.2% (95% CI = 28.5% to 29.9%). Agespecific relative risk by birth cohort declined from circa 1890 until 1950, but continuously increased through 1990. Consequently, compared with adults born circa 1950, those born circa 1990 have double the risk of colon cancer (IRR = 2.40, 95% CI = 1.11 to 5.19) and quadruple the risk of rectal cancer (IRR = 4.32, 95% CI = 2.19 to 8.51).

Conclusions: Age-specific CRC risk has escalated back to the level of those born circa 1890 for contemporary birth cohorts, underscoring the need for increased awareness among clinicians and the general public,

Food Beats Genes

- 4,080 participants from the MCC-Spain casecontrol study (Colon Cancer)
- Analyzed risk factors, including red meat and vegetable intake and cancer rates.
- Changes in lifestyle, such as achieving a healthful weight or consuming less meat and more vegetables, influences cancer risk more than genetics.



Ibáñez-Sanz G, Díez-Villanueva A, Alonso MH, et al. Risk model for colorectal cancer in Spanish population using environmental and genetic factors: results from the MCC-Spain study. *Sci Rep*. Published online February 24, 2017.



National Jewish

Science Transforming Life

Health

The Packaging is Dangerous Too!

- The prevalence of fluorinated chemicals in fast food packaging demonstrates their potentially significant contribution to dietary PFAS exposure and environmental contamination during production and disposal.
- We found that 46% of food contact papers and 20% of paperboard samples contained detectable fluorine.
- Have been associated with cancer, developmental toxicity, immunotoxicity, and other health effects.





Don't Forget The Stress

- PET scans of 293 patients
- Amygdala = Stress Brain Center
- Perceived stress was associated with amygdalar activity (r=0.56; p=0.0485), arterial inflammation (r=0.59; p=0.0345), and C-reactive protein (r=0.83; p=0.0210).
- Novel insights into the mechanism through which emotional stressors can lead to cardiovascular disease in human beings.

Tawakol et al. The Lancet. January 11 2017. DOI: <u>http://dx.doi.org/10.1016/S0140-6736(16)31714-7</u>





While on the Topic of Health

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Environmental Health Trust

American Academy of Pediatrics Issues New Recommendations to "Reduce Exposure to Cell Phones"

Nation's largest group of children's doctors responds to new government study linking cell phone radiation to cancer



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Teton Village, WY -- (ReleaseWire) -- 09/26/2016 -- In response to the U.S. National Toxicology Program study results finding exposure to wireless radiation significantly increased the prevalence of highly malignant heart and brain cancers in rodents, the American Academy of Pediatrics (AAP) has issued specific recommendations to reduce wireless cell phone exposure and updated their online resources for parents concerning cell phones and wireless devices.

"They're not toys. They have radiation that is emitted from them and the more we can keep it off the body and use (the phone) in other ways, it will be safer," said Jennifer A. Lowry, M.D., FAACT, FAAP, chair of the AAP Council on Environmental Health Executive Committee in the AAPs press release on the NTP Study Results.

"The findings of brain tumors (gliomas) and malignant schwann cell tumors of the heart in the NTP study, as well as DNA damage in brain cells, present a major public health concern because these occurred in the same types of cells that have been reported to develop into tumors in epidemiological studies of adult cell phone users," stated Ronald L. Melnick, PhD, the National Institutes of Health toxicologist who lead the NTP study design and senior advisor to the Environmental Health Trust. "For children the cancer risks may be greater than that for adults because of greater penetration and absorption of cell phone radiation in the brains of children and because the developing nervous system of children is more susceptible to tissue-damaging agents. Based on this new information, regulatory agencies need to make strong recommendations for consumers to take precautionary measures and avoid close contact with their cell phones, and especially limit or avoid use of cell phones by children."

The AAP has updated their Healthy Children Webpage on Cell Phones entitled Cell Phone Radiation & Children's Health: What Parents Need to Know. The webpage reiterated children's unique vulnerability to cell phone radiation stating, "Another problem is that the cell phone radiation test used by the FCC is based on the devices' possible effect on large adults—not children. Children's skulls are thinner and can absorb more radiation."


- May not be as safe as thought
- Most carry instruction to "keep away" from the body by ~ ½ an inch







Soundbites

"There are two kinds of cardiologists: vegans and those who haven't read the data."

Dr. Kim Allan Williams, MD, FACC, FASNC, FAHA President, American College of Cardiology (2015) Chief of Cardiology, Rush University in Chicago







Vegan Life Is Hard





Game Changers

• Eric Schmidt, CEO

 "He named the number one "game-changing" trend of the future as the consumption of plant-based proteins instead of meat."

https://www.riseofthevegan.com/blog/google-confirms-the-plant-based-revolution-is-coming



Google confirms the Plant-Based Revolution is coming!

June 25, 2016

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Eric Schmidt, Executive Chairman of Google's parent company Alphabet, predicts a plant-based revolution is coming.

Replacing livestock with growing and harvesting plants will reduce greenhouse gas emissions and fight climate change, he stated. The meat industry, particularly cattle producers, emit significant greenhouse gases.

He named the number one "game-changing" trend of the future as the consumption of plantbased proteins instead of meat.

At the Milken Institute's Global Conference in Los Angles Schmidt spoke to a room packed with thousands of investors and business executives.

The replacement of meat with plant proteins would also lower the cost of foods in developing countries where food is sometimes scarce. Delivering a pound of meat to the grocery store (raising, slaughtering, and shipping) is a very inefficient and costly process relative to delivering a pound of many protein-based plants. In short, our growing population can be fed more efficiently and less expensively on plant-based proteins.

Schmidt said the world is now ready to better produce synthetic food from plants with the help of computers and data crunching. Technology is able to help researchers and scientists identify the best plant combinations for both palatability and enhanced nutrition.

Google attempted to purchase the plant-protein based startup Impossible Foods for \$300 million in July 2015, but the offer was rejected. Impossible Foods are working on producing a meatless burger that is indistinguishable from a meat patty. Their stated mission is to "give people the great taste and nutritional benefits of foods that come from animals without the negative health and environmental impact".

Bratwurst No More

WORLDPOST 02/22/2017 08:59 pm ET

German Environment Minister Bans Meat Official Functions

The decision, prompted by climate concerns, unleashed a beefy backlash.

By Dominique Mosbergen

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Currywurst, a German dish of fried pork and sauce, won't be served at functions hosted by Germany's environment ministry. The ministry recently announced a ban on all meat and fish products at official events.

Animal agriculture is a leading cause of climate change and environmental degradation, which is why a German ministry says it's taking a stand for vegetarianism in a new - and controversial - ban.

Barbara Hendricks, Germany's environment minister, announced that her ministry would no longer be serving meat, fish or meat-derived products at official functions. Hendricks said her ministry must serve as a "role model" on environmental and sustainability issues.



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"We want to set a good example for climate protection, because vegetarian food is more

The Amazon

- Tsimane, a Bolivian population living a subsistence lifestyle of hunting, gathering, fishing, and farming with few cardiovascular risk factors, but high infectious inflammatory burden.
- "Atherosclerosis can be avoided in most people by achieving a lifetime with very low LDL, low blood pressure, low glucose, normal body-mass index, no smoking, and plenty of physical activity."
- A high carbohydrate diet of rice, plantain, manioc (a tuber aka cassava) and corn, with a small amount of wild game and fish – plus around six hours' exercise every day



Kaplan et al. The Lancet: 17 March 2017 http://thelancet.com/journals/lancet/article/PIIS0140-6736(17)30752-3/fulltext?elsca1=tlpr



Back in Time

20 NEWS

Health & Science

Dental pl

Neanderthals are g simpleminded carr breaking new study found that some of vegetarians and m certain plants as pa analyzed DNA that in dental plaque frc that lived between years ago-two fro

the grasslands of Spy are mostly meat, including woolly rhino and wild sheep, some of the inhabitants of the dense forests of El Sidrón probably ate no meat

at all, subsisting instead on moss, pine nuts, and fungi. "It is very indicative of a vegetarian diet," study co-author Laura Weyrich, from the University of Adelaide, tells NPR.org. "Probably the true paleo Spain and one from diet." The DNA analysis also suggested



s upper jaw

uggests the speor sharing food.

plaque also contained traces of the mold used to make penicillin. Another surprising finding was that Neanderthals had mouth bacteria that was acquired from

The discovery, Weyrich says, indicates that relations between modern humans and Neanderthals were probably "much more friendly than anyone imagined."



The Week, March 2017



Future is Bright



Major Beef Supplier, Cargill, Sold Off Their Last U.S. Feedlots to Invest in Plant-Based Proteins

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The name Cargill might not be familiar to your average grocery shopper in the United States, but they are the largest privately held food and agriculture company in the world. Cargill has managed to gain this status primarily from their agricultural commodity business, working in trading, purchasing, and distributing goods like grains, palm oil, and common food ingredients like starch, vegetable oils, glucose syrups and other items. While these different business dealings have helped Cargill amass an enormous amount of wealth, one of their largest endeavors is raising livestock and producing feed. This company is one of the nation's four largest beef producers that collectively control more than 70 percent of the U.S. beef market.

As such a powerful force in the global agro-economy, Cargill has been the subject of much criticism in the past. From their ties to deforestation in their palm oil business to the abject devastation wrought on the Gran Chaco region of South America for livestock feed production, Cargill has been the target of many environmental campaigns.

Knowing the stake Cargill has in the livestock industry, their recent move to sell off two of their cattle feedlots in the U.S. comes as a huge shock. According to a press release in Reuters

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http://www.onegreenplanet.org/news/cargillsold-u-s-feedlots-to-invest-in-plant-basedproteins/

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Even Our Prez is Plant Based



lational Jewish lealth^{°°} cience Transforming Life*



 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



Convinced?

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











National Jewish Health[~] Science Transforming Life*