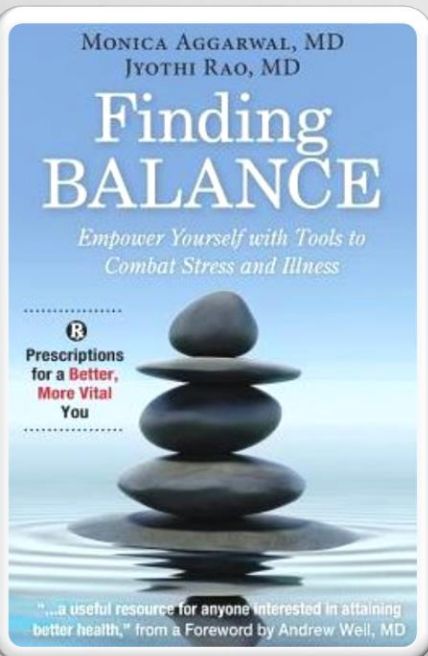# HOW MY DAUGHTER SAVED ME: *MY JOURNEY TO BETTER HEALTH*
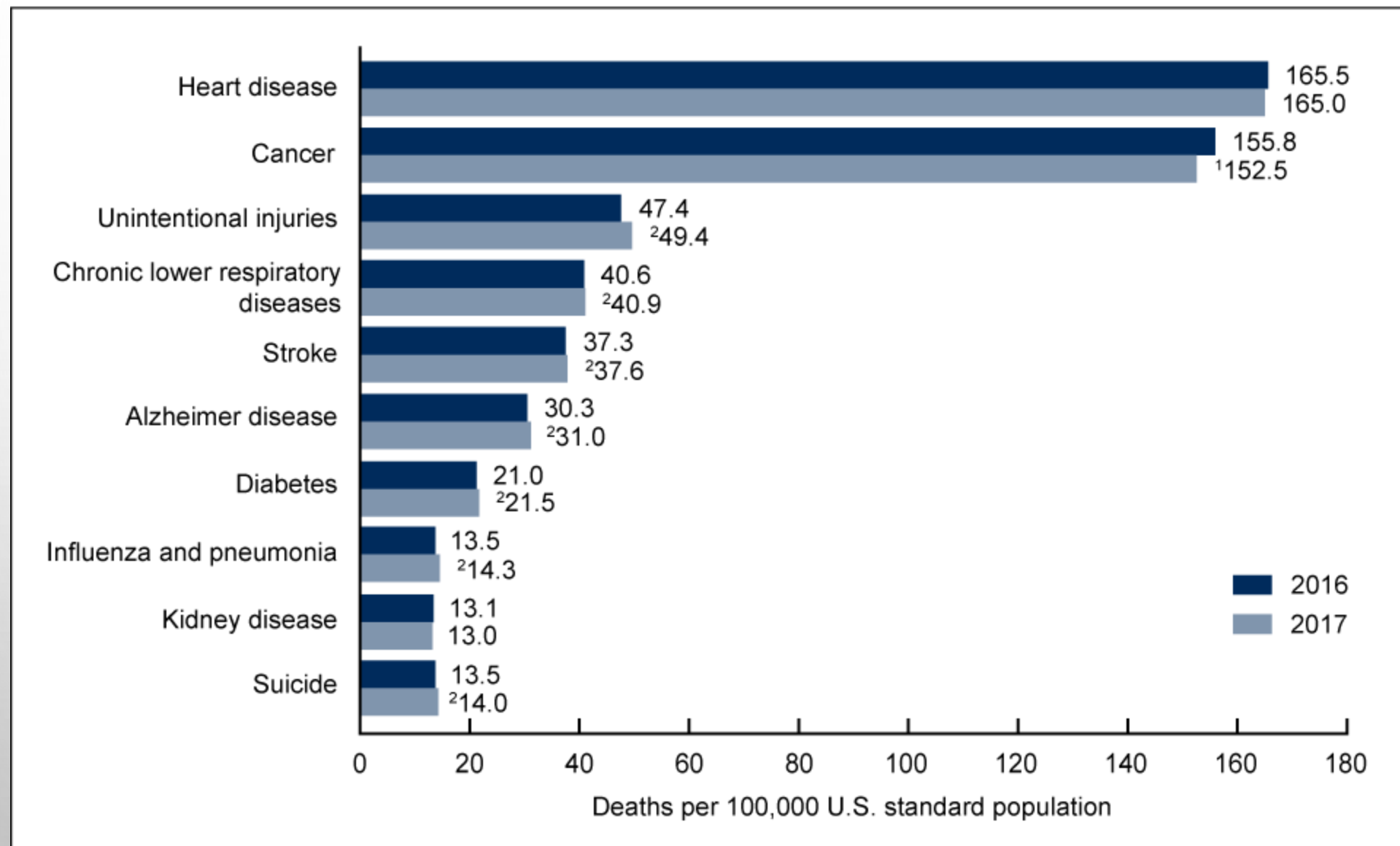
MONICA AGGARWAL, MD

DIRECTOR OF INTEGRATIVE CARDIOLOGY AND PREVENTION

UNIVERSITY OF FLORIDA, GAINESVILLE, FLORIDA

drmaggarwal

drmonicaaggarwal

Figure 4. Age-adjusted death rates for the 10 leading causes of death: United States, 2016 and 2017

¹Statistically significant decrease in age-adjusted death rate from 2016 to 2017 ($p < 0.05$).
²Statistically significant increase in age-adjusted death rate from 2016 to 2017 ($p < 0.05$).
NOTES: A total of 2,813,503 resident deaths were registered in the United States in 2017. The 10 leading causes accounted for 74.0% of all deaths in the United States in 2017. Causes of death are ranked according to number of deaths. Rankings for 2016 data are not shown. Data table for Figure 4 includes the number of deaths for leading causes. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db328_tables-508.pdf#4.
SOURCE: NCHS, National Vital Statistics System, Mortality.

STATS

- AUTOIMMUNE DISEASES AFFECT APPROXIMATELY 5%–8% OF THE POPULATION OR 14–22 MILLION PERSONS

- 78% OF AFFECTED ARE WOMEN

WHAT IS INFLAMMATION?

LIFESTYLE FACTORS IMBALANCE=INFLAMMATION

FIGURE 1. STRESSES vs. RESOURCES

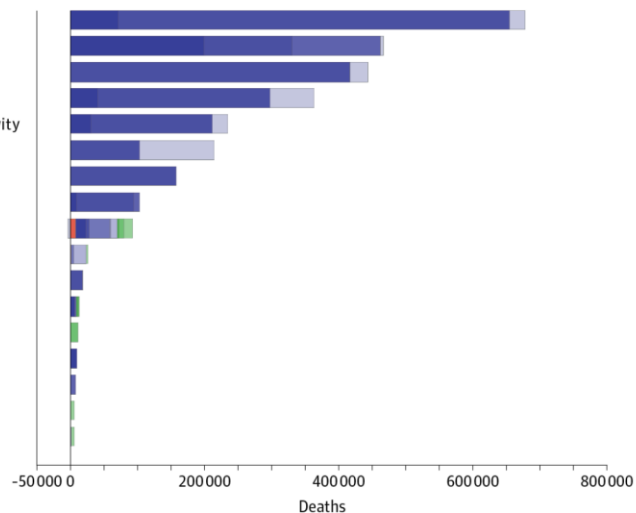Aggarwal M, Rao J. Finding Balance
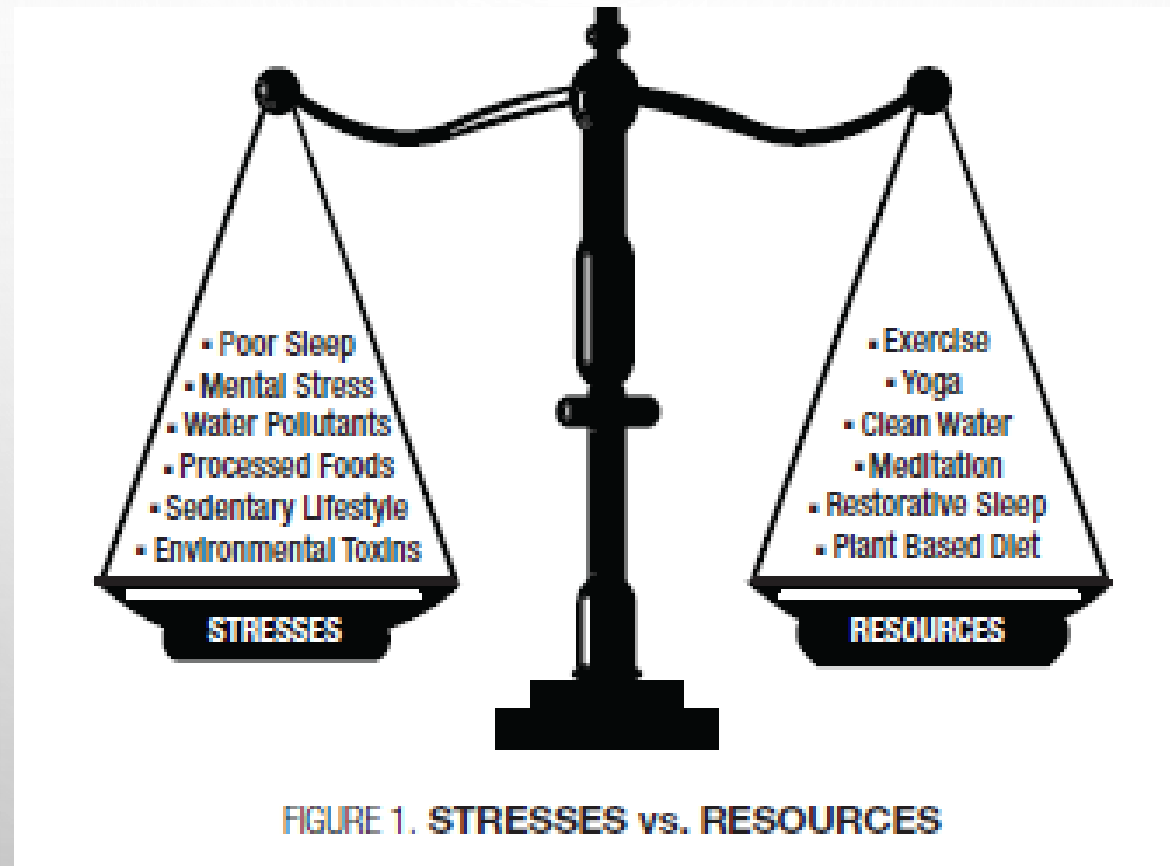
From: **The State of US Health, 1990-2010Burden of Diseases, Injuries, and Risk Factors**

JAMA. 2013;310(6):591-606.

A Event Rates for Major Cardiovascular Disease

Urban areas   Rural areas

Event Rate (no./1000 person-yr)

P=0.27

P<0.001

P<0.001

High income   Middle income   Low income

Country Economic Status

B Case Fatality Rates for Major Cardiovascular Disease

Urban areas   Rural areas

Case Fatality Rate (%)

P=0.66

P<0.001

P=0.85

High income   Middle income   Low income

Country Economic Status

WHATS WRONG WITH OUR FOODS=THE STANDARD AMERICAN DIET (SAD)

SAD DIET

- THIS DIETARY PATTERN IS CHARACTERIZED BY A HIGH CONSUMPTION OF

  - RED MEAT
  - REFINED GRAINS
  - PROCESSED MEAT
  - HIGH-FAT DAIRY PRODUCTS
  - DESSERTS
  - HIGH-SUGAR DRINKS
  - EGGS

Halton et al. Am J Clin Nutr **February 2006,** vol. 83 no. 2 **284-290**

- ALMOST 75% OF PACKAGED FOODS IN THE U.S. NOW CONTAIN ADDED SUGARS, AND MUCH ALSO COMES FROM CONSUMPTION OF SUGAR-SWEETENED BEVERAGE (SSBS)

Bray, GA and Popkin, BM (2014) Dietary sugars and body weight: Have we reached a crisis in the epidemic of obesity and diabetes. Diabetes Care **37**:950-56.

The average restaurant meal today is more than four times larger than in the 1950s

NOW

42 oz.

1950

3.9 oz.

7 oz.

2.4 oz.

6.7 oz.

12 oz.

French fries   Burger   Soda

French fries   Burger   Soda

Vox

13
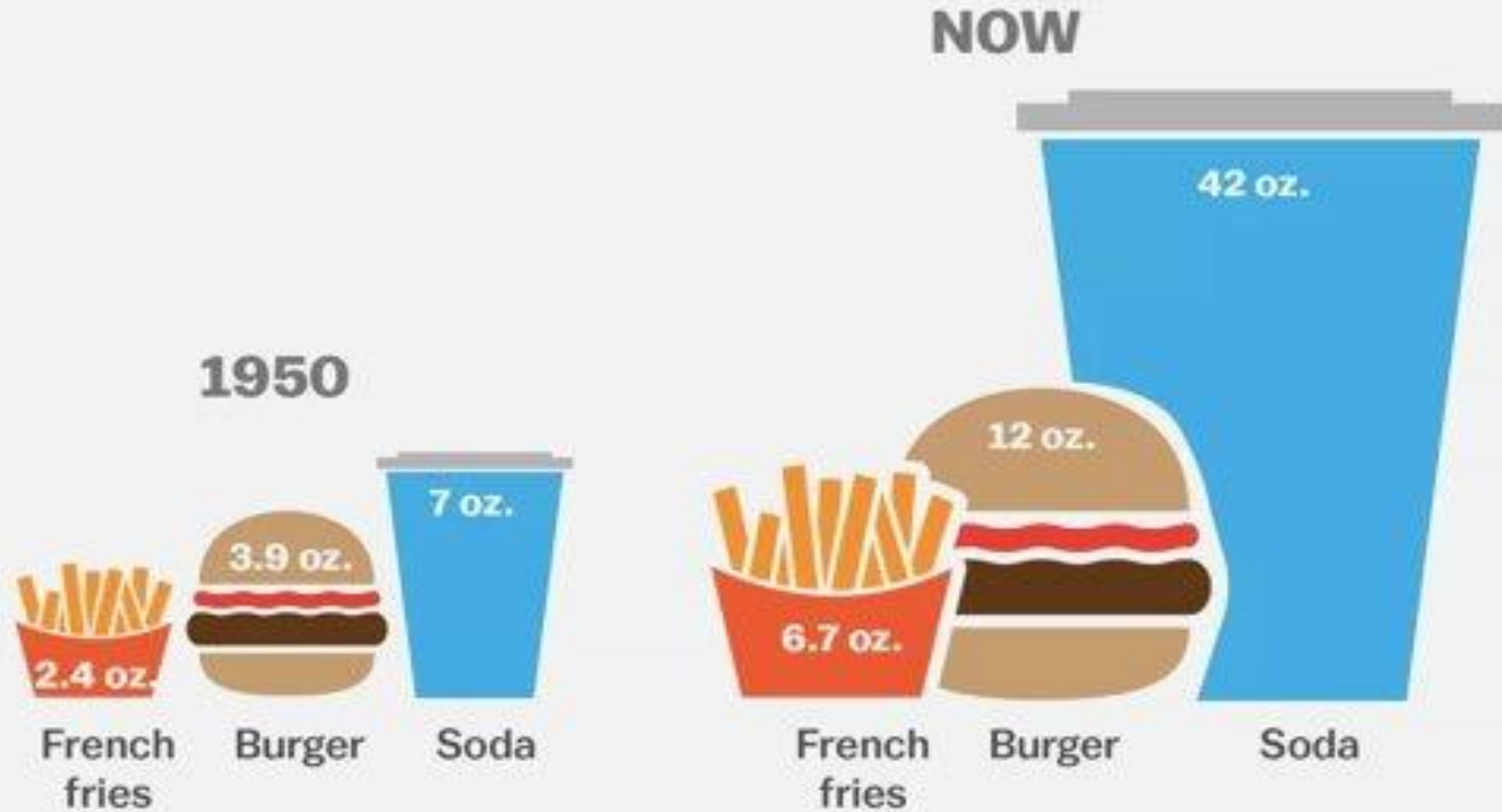
Obesity Rates Among Adults, 2007-2016

■ Adults ■ Women ■ Men
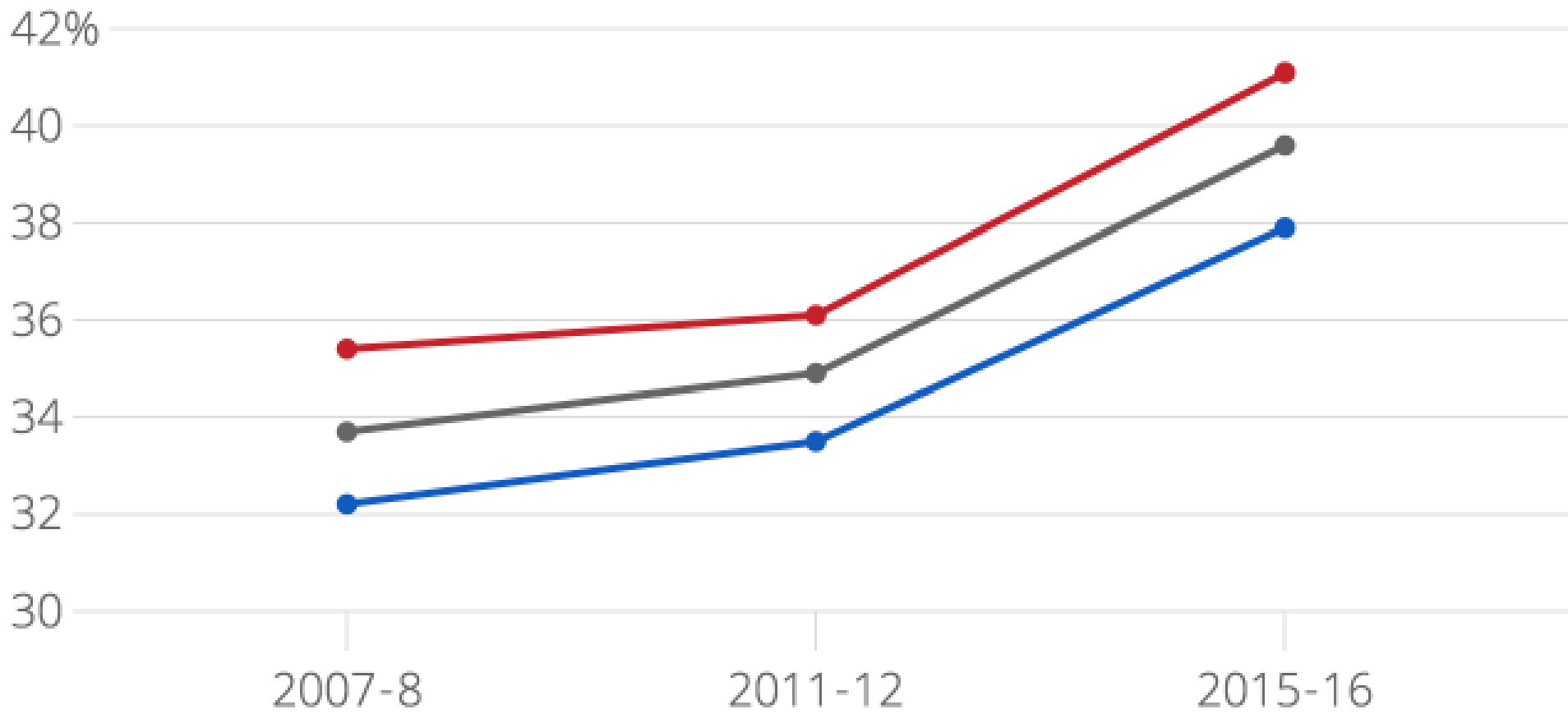
Data: Centers for Disease Control and Prevention, Gabrielle Levy for USN&WR
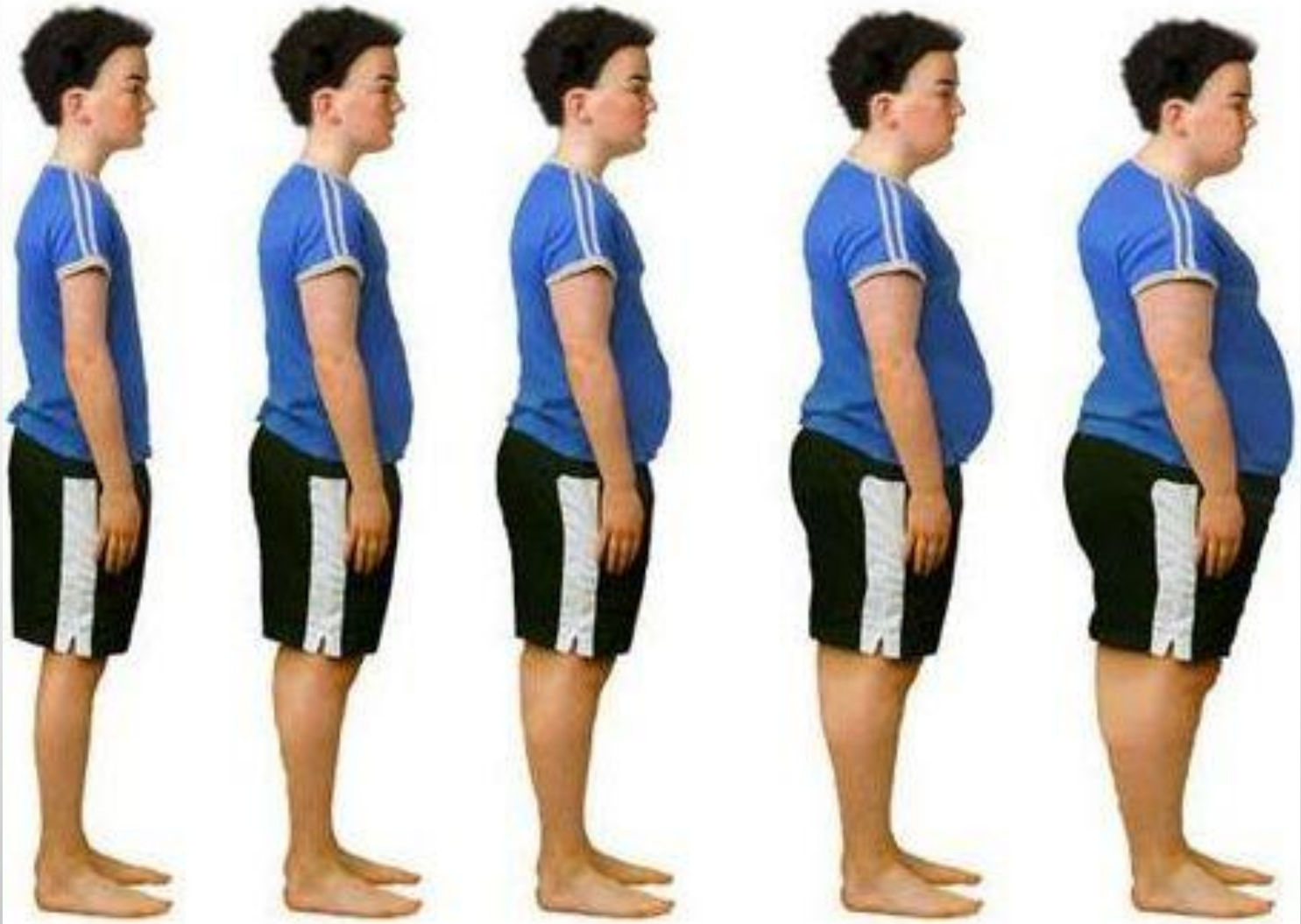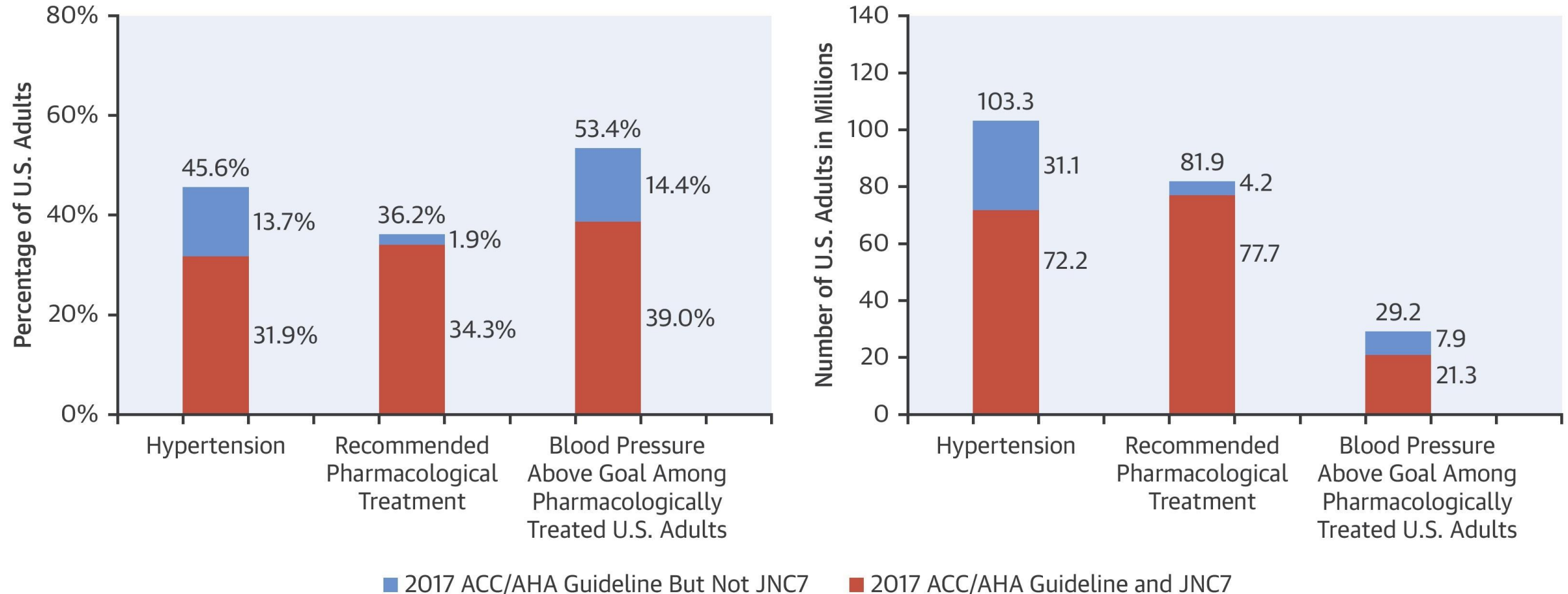
Muntner, P. et al. J Am Coll Cardiol. 2018;71(2):109-18.

Risk of Death from Any Cause per 20-Percentile Increase in Diet-Quality Scores.
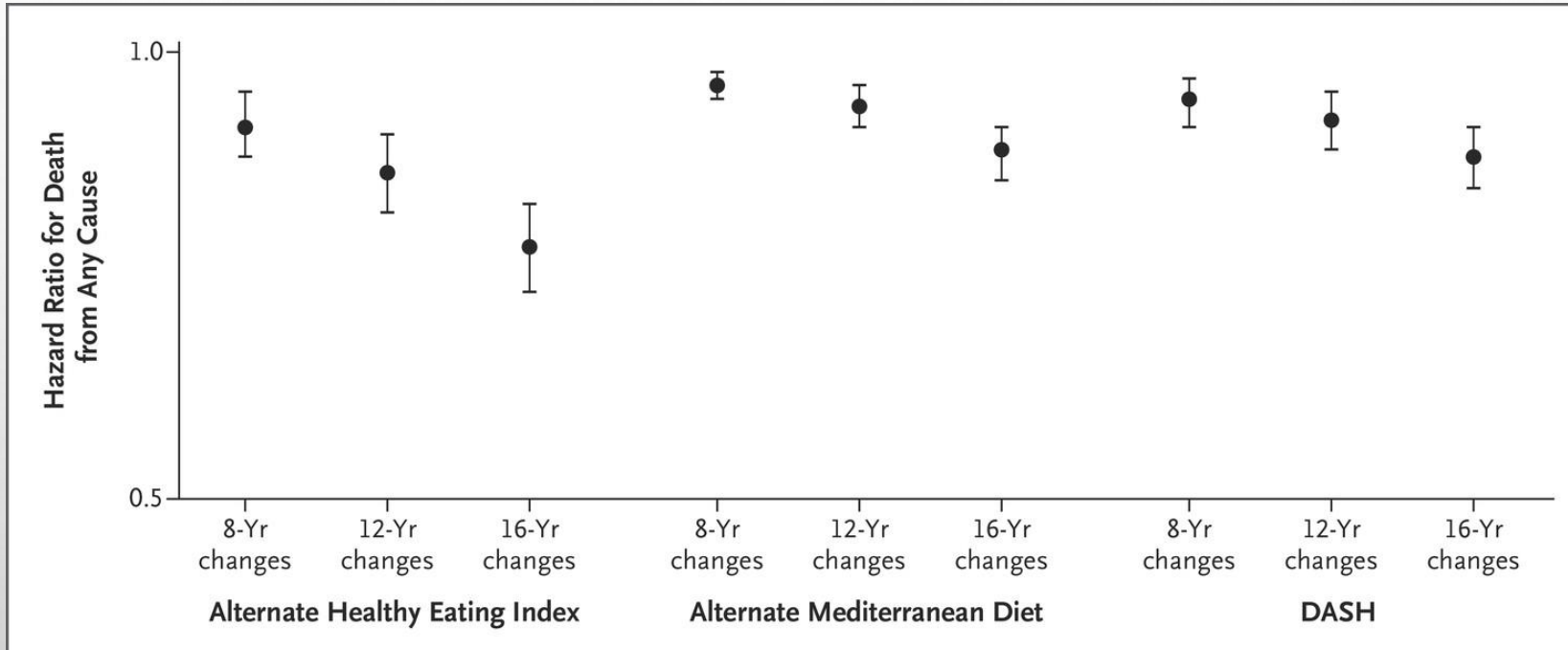
CONCLUSIONS: 20-percentile increase in diet-quality scores was associated with a reduction of 8 to 17% in the risk of death from any cause

WHAT SPECIFICALLY IS WRONG WITH THE DIET?

Figure Legend:

Adjusted Hazard Ratio (HR) of the Usual Percentage of Calories From Added Sugar for Cardiovascular Disease Mortality Among US Adults 20 Years or Older: National Health and Nutrition Examination Survey Linked Mortality Files, 1988-2006Histogram of the distribution of usual percentage of calories from added sugar in the population. Lines show the adjusted HRs from Cox models. Midvalue of quintile 1 (7.4%) was the reference standard. The model was adjusted for age, sex, race/ethnicity, educational attainment, smoking status, alcohol consumption, physical activity level, family history of cardiovascular disease, antihypertensive medication use, Healthy Eating Index score, body mass index, systolic blood pressure, total serum cholesterol, and total calories. Solid line indicates point estimates; dashed lines indicate 95% CIs.

ARE ALL CARBS ALIKE? CARBS VERSUS SUGARS

Test for interaction, $P < 0.01$

FIGURE 1. Multivariate relative risks (RRs) of coronary heart disease according to body mass index (BMI) and dietary glycemic load (GL). The GL is stratified by tertiles and the RRs are adjusted for the same covariates as those in Table 3. The 95% CIs for the 9 RRs are as follows: 1.00 (referent), 1.05 (0.76–1.45), 1.42 (0.96–2.08), 0.94 (0.63–1.40), 1.20 (0.86–1.68), 1.74 (1.18–2.55), 1.11 (0.74–1.66), 2.02 (1.45–2.83), and 1.97 (1.31–2.96).

Liu et al, A prospective study of dietary glycemic load, carbohydrate intake, and risk of coronary heart disease in US women, Am J Clin Nutrition, 2000

FIGURE 5. DOSE-RESPONSE RELATIONSHIP PLOT BETWEEN GL, GI AND RISK OF CHD AND STROKE.
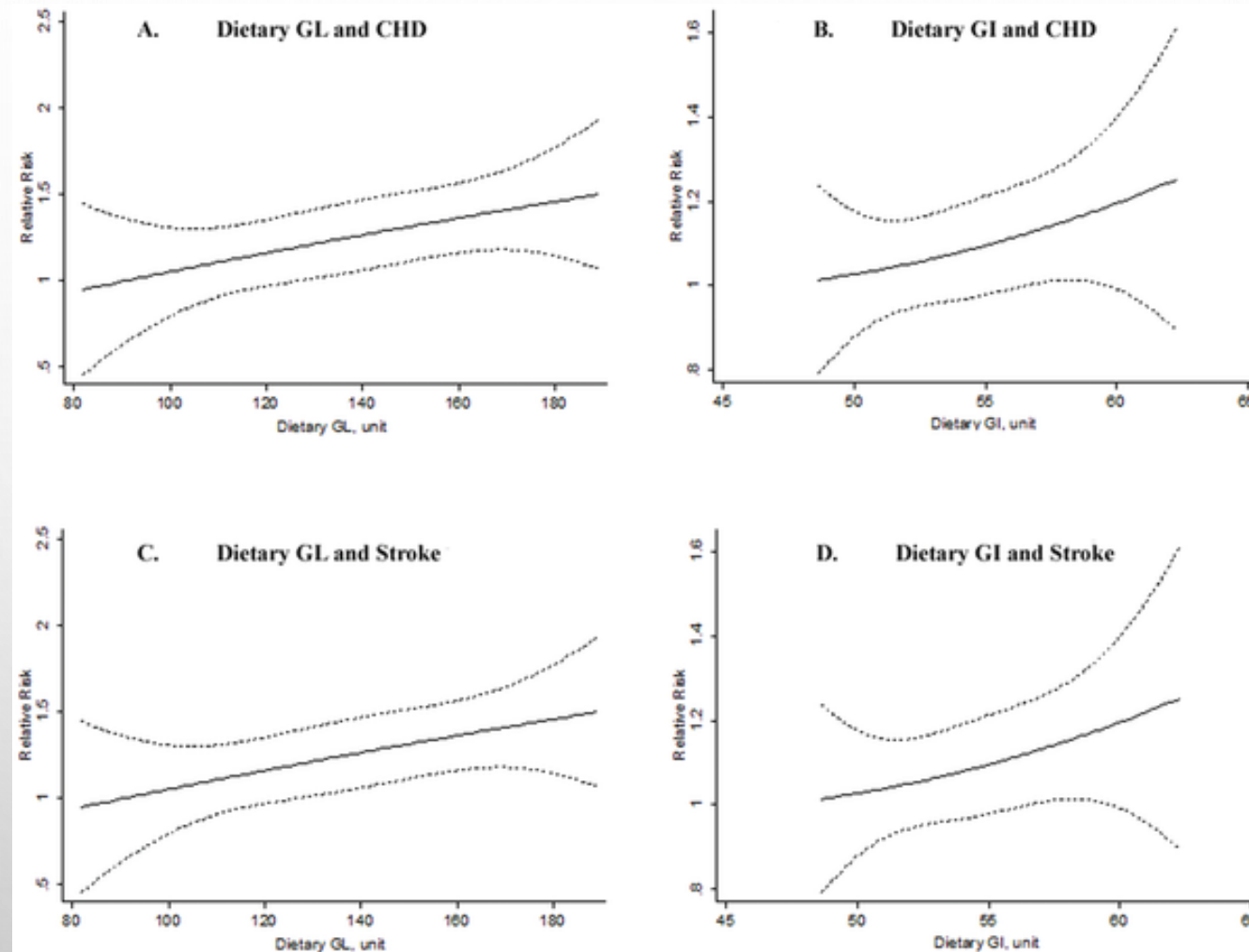
Fan J, Song Y, Wang Y, Hui R, Zhang W (2012) Dietary Glycemic Index, Glycemic Load, and Risk of Coronary Heart Disease, Stroke, and Stroke Mortality: A Systematic Review with Meta-Analysis. PLOS ONE 7(12): e52182. https://doi.org/10.1371/journal.pone.0052182
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0052182

Nutrition Facts Per Serving (16 fl oz)	
Calories 240	Calories from Fat 40
	% Daily Value*
Total Fat 4.5g	7%
Saturated Fat 2g	10%
Trans Fat 0g	
Cholesterol 20mg	7%
Sodium 115mg	5%
Total Carbohydrate 45g	15%
Dietary Fiber 0g	0%
Sugars 42g	
Protein 8g	
Caffeine 95mg**	

CHAI LATTE: BLACK TEA INFUSED WITH CINNAMON, CLOVE, AND OTHER WARMING SPICES IS COMBINED WITH STEAMED MILK AND TOPPED WITH FOAM FOR THE PERFECT BALANCE OF SWEET AND SPICY.

ACCORDING TO THE AMERICAN HEART ASSOCIATION (AHA), THE MAXIMUM AMOUNT OF ADDED **SUGARS** YOU **SHOULD EAT** IN **A DAY** ARE:

1 tsp=4 grams sugar

Daily Added Sugar Limit

MEN

WOMEN

No more than:

9 teaspoons
36 grams
150 calories

6 teaspoons
25 grams
100 calories

Intake of individual saturated fatty acids and risk of coronary heart disease in US men and women: two prospective longitudinal cohort studies

Geng Zong,[1] Yanping Li,[1] Anne J Wanders,[2] Marjan Alssema,[2] Peter L Zock,[2] Walter C Willett,[3]

[1]Depar... Harvar... Public...
[2]Unilev... Devel... Vlaard...
[3]Depar... Epiden... School... Channi... Medici... Medici... Hospit... School...
[4]Depar... Harvar... Public... Divisio...

Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, 665 Huntington Avenue, Boston, MA 02115, USA
Correspondence to: Q Sun qisun@hsph.harvard.edu
Additional material is published

CONCLUSIONS
Higher dietary intakes of major SFAs are associated with an increased risk of coronary heart disease. Owing to similar associations and high correlations among individual SFAs, dietary recommendations for the prevention of coronary heart disease should continue to focus on replacing total saturated fat with more healthy sources of energy.

...diseases at baseline.

MAIN OUTCOME MEASURE
Incidence of coronary heart disease (n=7035) was self-reported, and related deaths were identified by searching National Death Index or through report of next of kin or postal authority. Cases were confirmed by medical records review.

...west

...to .001) ...

...nt of ...ios ...nt of ...ce ...fat, ...at,

0.94 (0.91 to 0.97; P<0.001) for whole grain carbohydrates, and 0.93 (0.89 to 0.97; P=0.001) for plant proteins. For individual SFAs, the lowest risk of coronary heart disease was observed when the most abundant SFA, 16:0, was replaced. Hazard ratios of coronary heart disease for replacing 1% energy from 16:0 were 0.88 (95% confidence interval 0.81 to 0.96;

Overall p<0·0001
Non-linearity p=0·0001
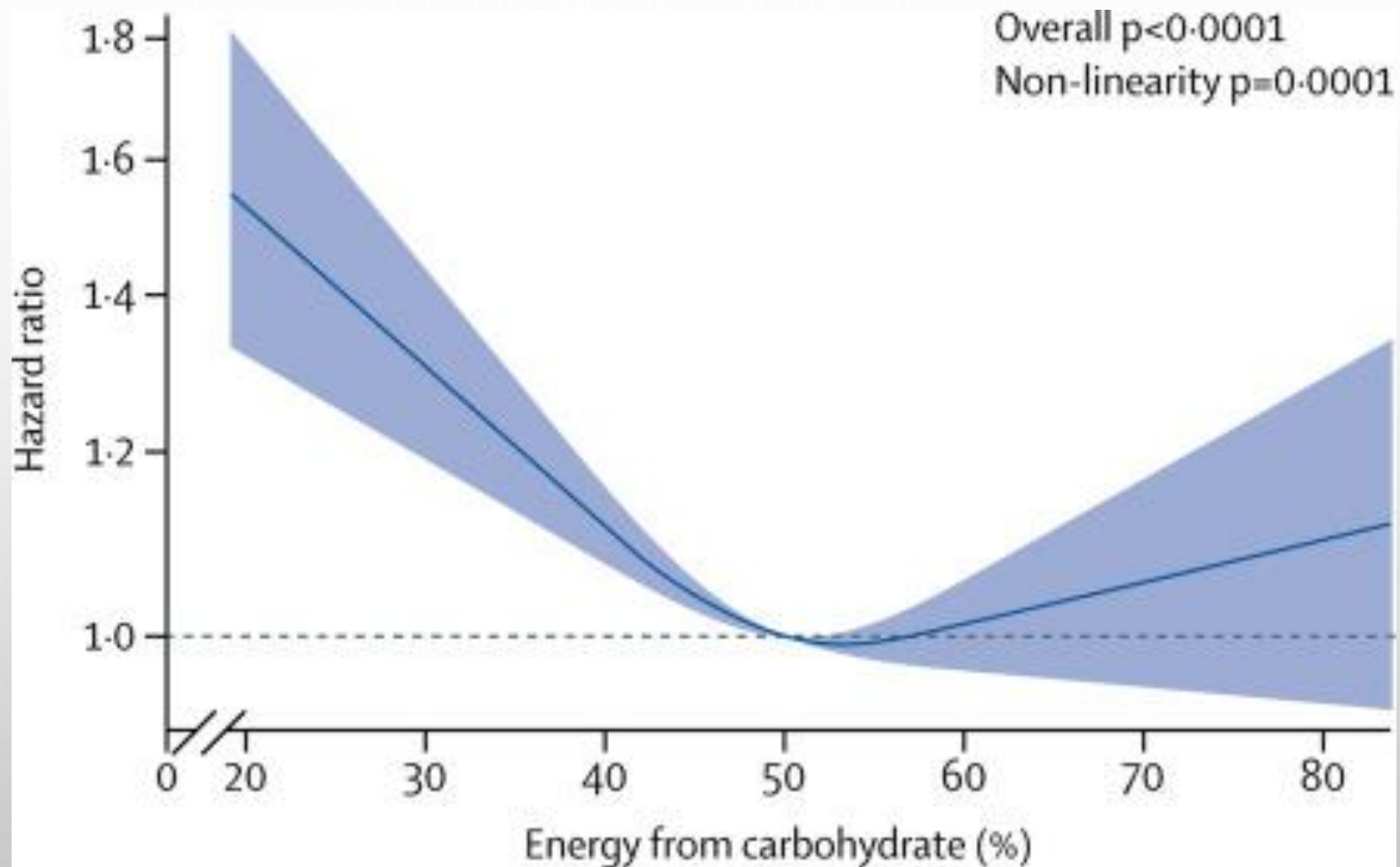
Seidelmann et al. Dietary carbohydrate intake and mortality: a prospective cohort study and meta-analysis, Lancet, August 16, 2018

PROBLEM 3: TRANS FAT

- MOST DANGEROUS OF ALL OF THE FATS

- INCREASE LDL AND DECREASE HDL

- PRO-INFLAMMATORY AND IMPLICATED IN DIABETES, HYPERTENSION, STROKE, CARDIOVASCULAR DISEASE

- MAJOR DECLINE IN INTAKE BUT STILL 2% OF THE US CALORIC INTAKE

Honors MA, Harnack LJ, Zhou X, Steffen LM. Trends in fatty acid intake of adults in the Minneapolis-St Paul, MN Metropolitan Area, 1980–1982 through 2007–2009. Journal of the American Heart Association. 2014 Oct 24;3(5):e001023.

FULL BAN

- IF SAYS 0 TRANS FATS, REMEMBER BUSINESSES DO NOT HAVE TO MENTION 0.5 GRAMS OR LESS

- LOOK FOR ANYTHING HYDROGENATED, PARTIALLY HYDROGENATED

- BY JUNE 18, 2018, HUMAN FOOD MUST NO LONGER CONTAIN PARTIALLY HYDROGENATED OILS FOR USES THAT HAVE NOT BEEN OTHERWISE AUTHORIZED BY FDA.

Associations of Dietary Cholesterol or Egg Consumption With Incident Cardiovascular Disease and Mortality

Victor W. Zhong, PhD; Linda Van Horn, PhD; Marilyn C. Cornelis, PhD; John T. Wilkins, MD, MS; Hongyan Ning, MD, MS; Mercedes R. Carnethon, PhD; Philip Greenland, MD; Robert J. Mentz, MD; Katherine L. Tucker, PhD; Lihui Zhao, PhD; Arnita F. Norwood, PhD; Donald M. Lloyd-Jones, MD, ScM; Norrina B. Allen, PhD

IMPORTANCE Cholesterol is a common nutrient in the human diet and eggs are a major source of dietary cholesterol. Whether dietary cholesterol or egg consumption is associated with cardiovascular disease (CVD) and mortality remains controversial.

OBJECTIVE To determine the associations of dietary cholesterol or egg consumption with incident CVD and all-cause mortality.

DESIGN, SETTING, AND PARTICIPANTS Individual participant data were pooled from 6 prospective US cohorts using data collected between March 25, 1985, and August 31, 2016. Self-reported diet data were harmonized using a standardized protocol.

EXPOSURES Dietary cholesterol (mg/day) or egg consumption (number/day).

MAIN OUTCOMES AND MEASURES Hazard ratio (HR) and absolute risk difference (ARD) over the entire follow-up for incident CVD (composite of fatal and nonfatal coronary heart disease, stroke, heart failure, and other CVD deaths) and all-cause mortality, adjusting for demographic, socioeconomic, and behavioral factors.

- Each additional 300 mg of dietary cholesterol consumed per day was significantly associated with higher risk of incident CVD (adjusted HR, 1.17 [95%CI, 1.09-1.26] and all-cause mortality (adjusted HR, 1.18 [95%CI, 1.10-1.26]

- Each additional half an egg consumed per day was significantly associated with higher risk of incident CVD and all-cause mortality.

- The associations between egg consumption and incident CVD were no longer significant after adjusting for dietary cholesterol consumption.

ANIMAL FATS/FATS

Amount Per 4 oz (113.4 g)

Calories 307

	% Daily Value*
Total Fat 22 g	33%
Saturated fat 9 g	45%
Polyunsaturated fat 1 g	
Monounsaturated fat 10 g	
Cholesterol 89 mg	29%
Sodium 66 mg	2%
Potassium 316 mg	9%
Total Carbohydrate 0 g	0%
Dietary fiber 0 g	0%
Sugar 0 g	
Protein 28 g	56%

Carnitine → TMAO

Sodium Intake

Iron Intake

Atherosclerosis

Saturated fat and cholesterol intake

Nitrites

A. Pan et. al. Ann Int Med. 2012
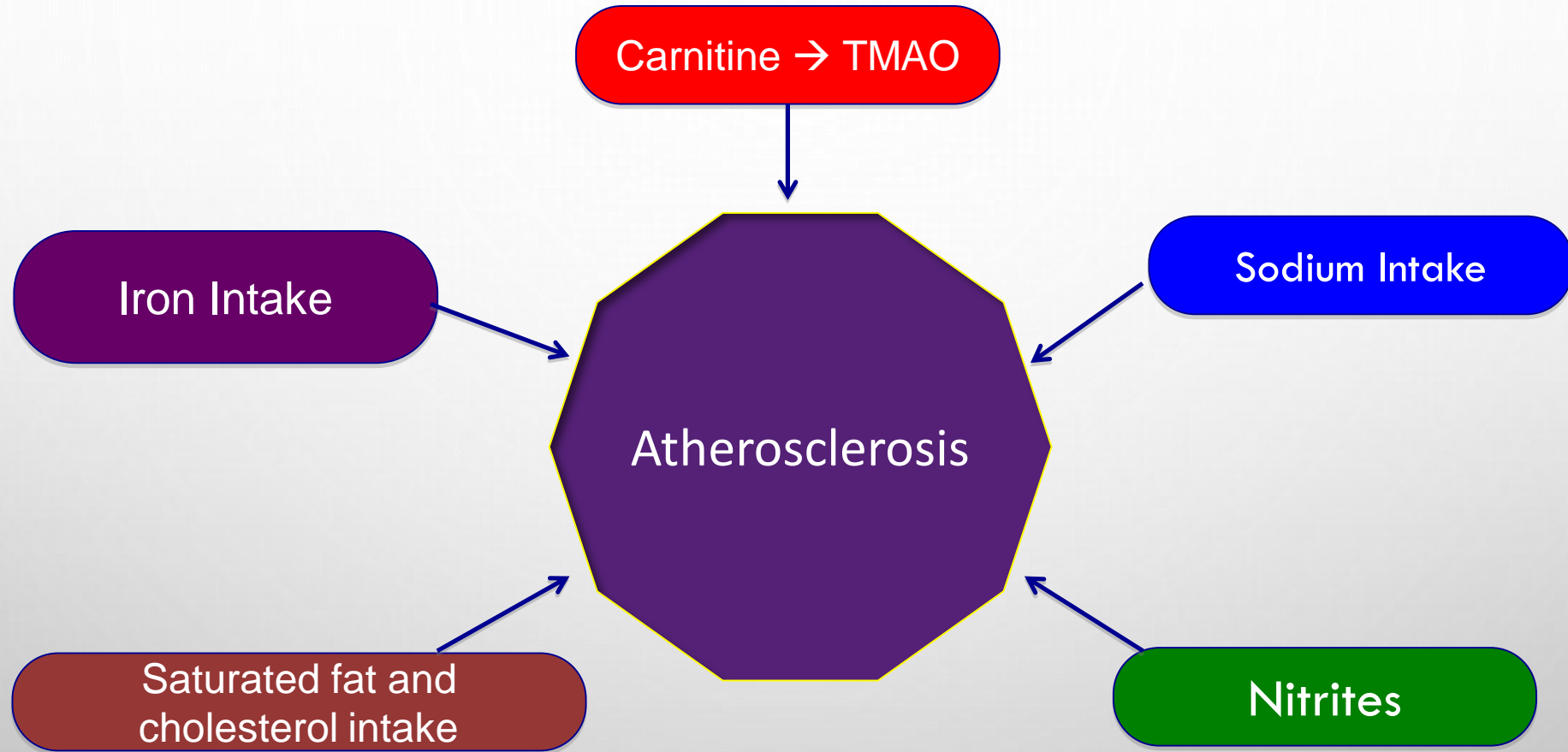
ONLINE FIRST

Red Meat Consumption and Mortality

Results From 2 Prospective Cohort Studies

An Pan, PhD; Qi Sun, MD, ScD; Adam M. Bernstein, MD, ScD; Matthias B. Schulze, DrPH; JoAnn E. Manson, MD, DrPH; Meir J. Stampfer, MD, DrPH; Walter C. Willett, MD, DrPH; Frank B. Hu, MD, PhD

Conclusions: Red meat consumption is associated with an increased risk of total, CVD, and cancer mortality. Substitution of other healthy protein sources for red meat is associated with a lower mortality risk.

Results: We documented 23 926 deaths (including 5910 CVD and 9464 cancer deaths) during 2.96 million person-years of follow-up. After multivariate adjustment for major lifestyle and dietary risk factors, the pooled hazard ratio (HR) (95% CI) of total mortality for a 1-serving-per-day increase was 1.13 (1.07-1.20) for unprocessed red meat and 1.20 (1.15-1.24) for processed red meat. The corresponding HRs (95% CIs) were 1.18 (1.13-

Conclusions: Red meat consumption is associated with an increased risk of total, CVD, and cancer mortality. Substitution of other healthy protein sources for red meat is associated with a lower mortality risk.
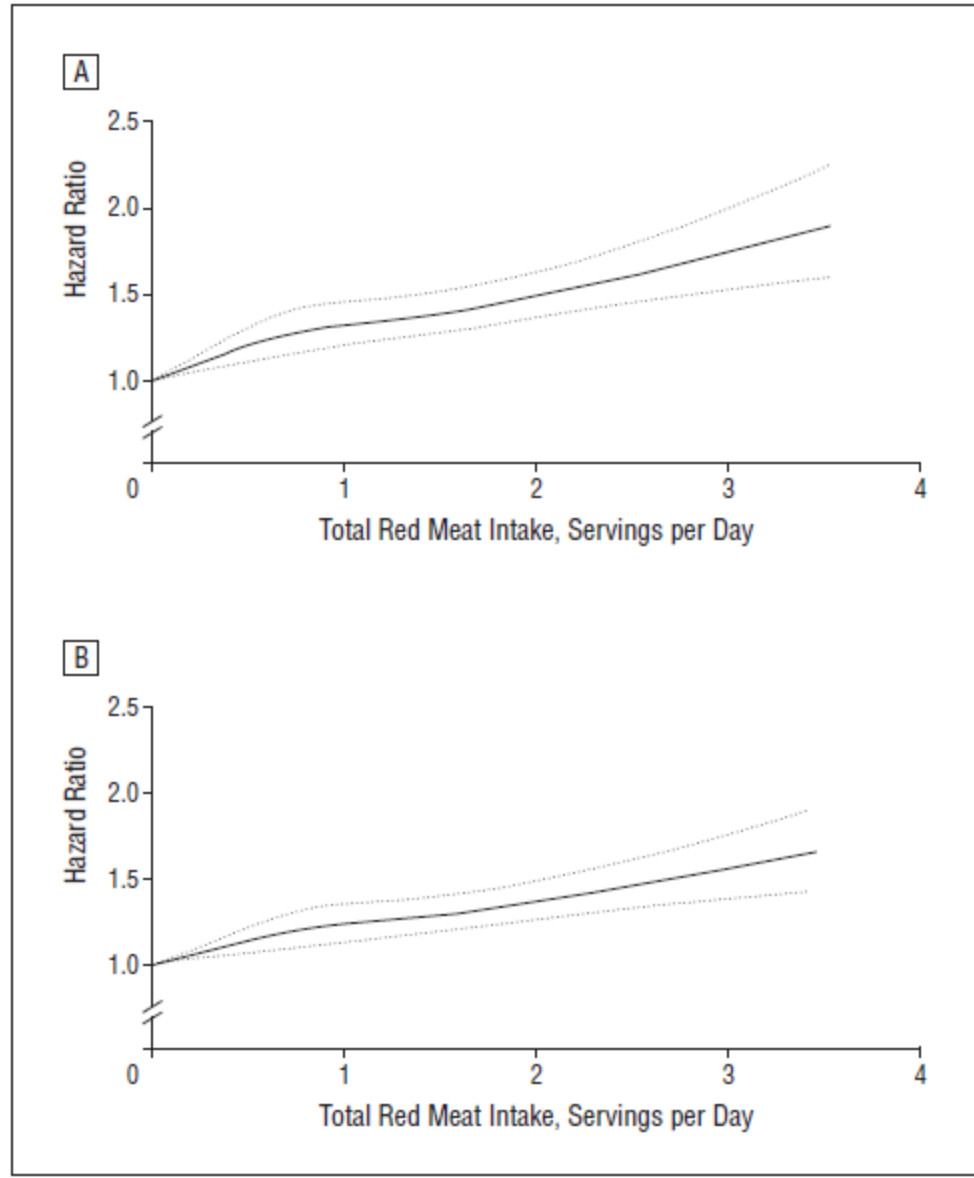
Figure 1. Dose-response relationship between red meat intake and risk of all-cause mortality in the Health Professionals Follow-up Study (A) and the Nurses' Health Study (B). The results were adjusted for age (continuous); body mass index (calculated as weight in kilograms divided by height in meters squared) category (23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, or 35); alcohol consumption (0, 0.1-4.9, 5.0-29.9, 30.0 g/d in men; 0, 0.1-4.9, 5.0-14.9, or 15.0 g/d in women); physical activity level (3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, or 27.0 hours of metabolic equivalent tasks per week); smoking status (never, past, or current [1-14, 15-24, or 25 cigarettes per day]); race (white or nonwhite); menopausal status and hormone use in women (premenopausal, postmenopausal never users, postmenopausal past users, or postmenopausal current users); family history of diabetes mellitus, myocardial infarction, or cancer; history of diabetes mellitus, hypertension, or hypercholesterolemia; and intakes of total energy, whole grains, fruits, and vegetables, all in quintiles. Broken lines represent 95% CI.

Favors plant protein   Favors alternate source

Hazard ratio
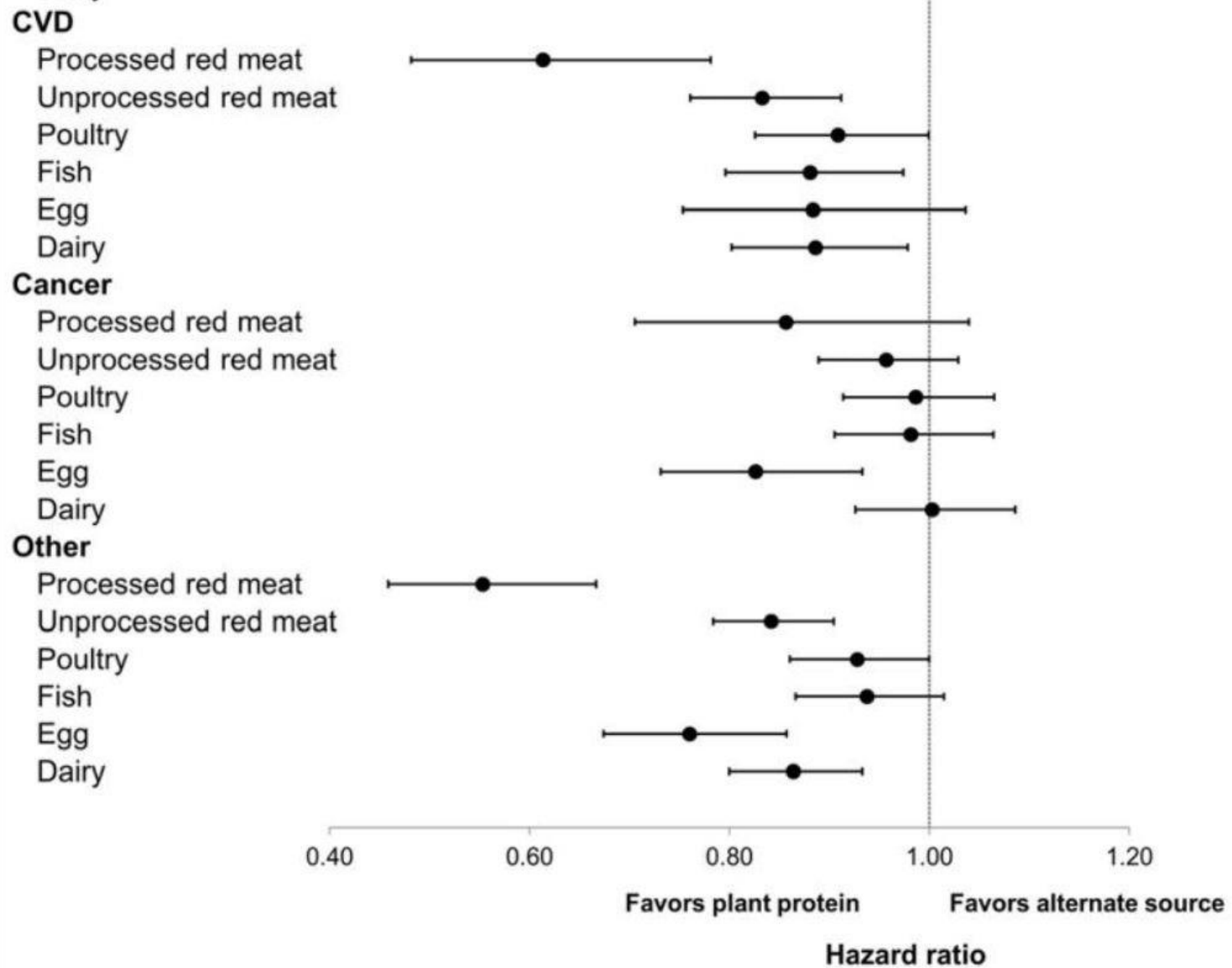
This prospective cohort study of US health care professionals included 131 342 participants from the Nurses' Health Study and Health Professionals Follow-up Study (Animal and plant protein intake was assessed by regularly updated validated food frequency questionnaires.

Song M, Fung TT, Hu FB, Willett WC, Longo VD, Chan AT, Giovannucci EL. Association of animal and plant protein intake with all-cause and cause-specific mortality. JAMA internal medicine. 2016 Oct 1;176(10):1453-63.

IF NOT THAT, THEN WHAT SHOULD WE EAT?
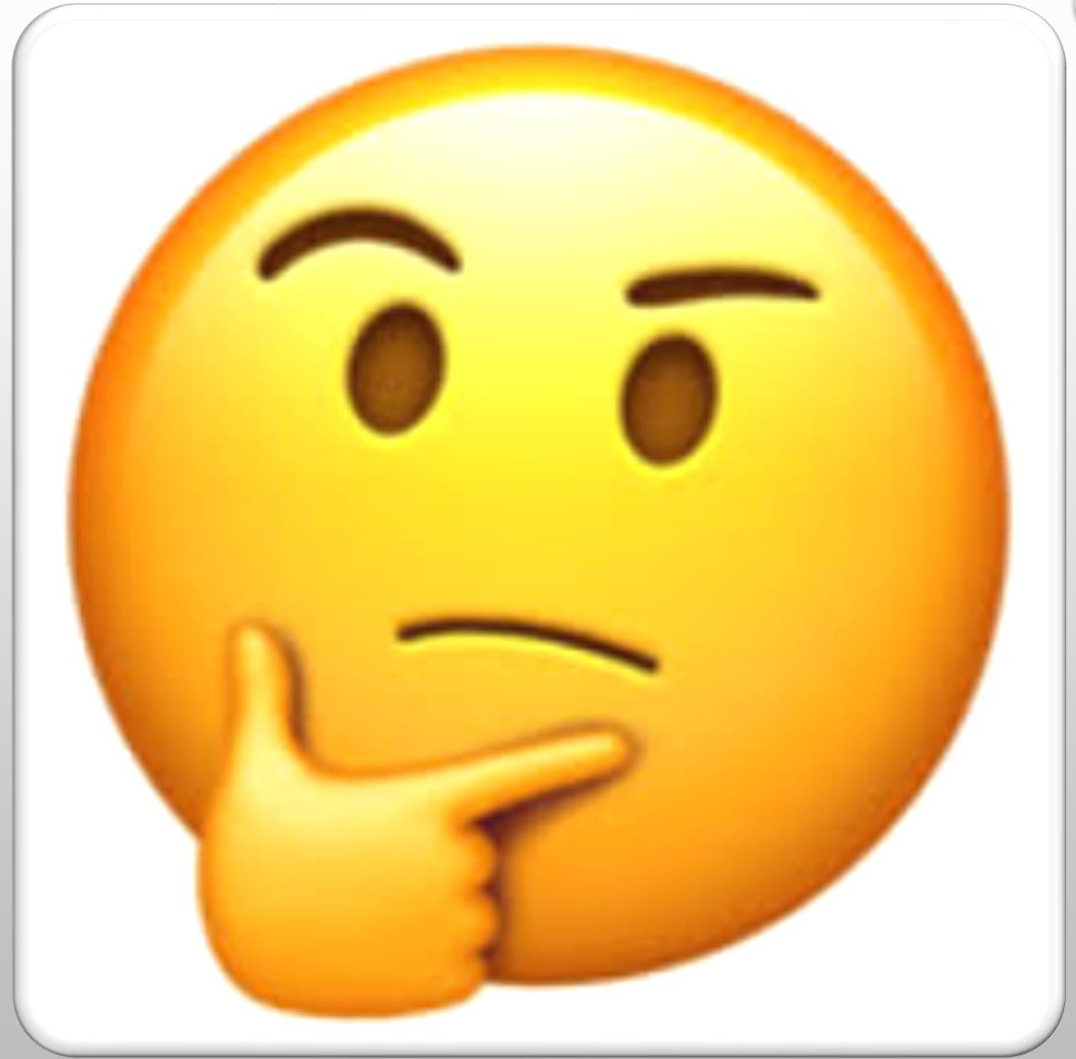
TABLE 1

Mean BMI (in kg/m^2) and the prevalence of diabetes and hypertension in different types of vegetarians compared with nonvegetarians in California Seventh-day Adventists: preliminary analyses adjusted for age, sex, and race[1]

Diet group	BMI[2]	Diabetes[3]	Hypertension[3]
Nonvegetarian	28.26 (28.22, 28.30)	1.00	1.00
Semivegetarian	27.00 (26.96, 27.04)	0.72 (0.65, 0.79)	0.77 (0.72, 0.82)
Pescovegetarian	25.73 (25.69, 25.77)	0.49 (0.44, 0.55)	0.62 (0.59, 0.66)
Lactoovo-vegetarian	25.48 (25.44, 25.52)	0.39 (0.36, 0.42)	0.45 (0.44, 0.47)
Vegan	23.13 (23.09, 23.16)	0.22 (0.18, 0.28)	0.25 (0.22, 0.28)
P[4]	0.0001	0.0001	0.0001

[1] $n = 89,224$.
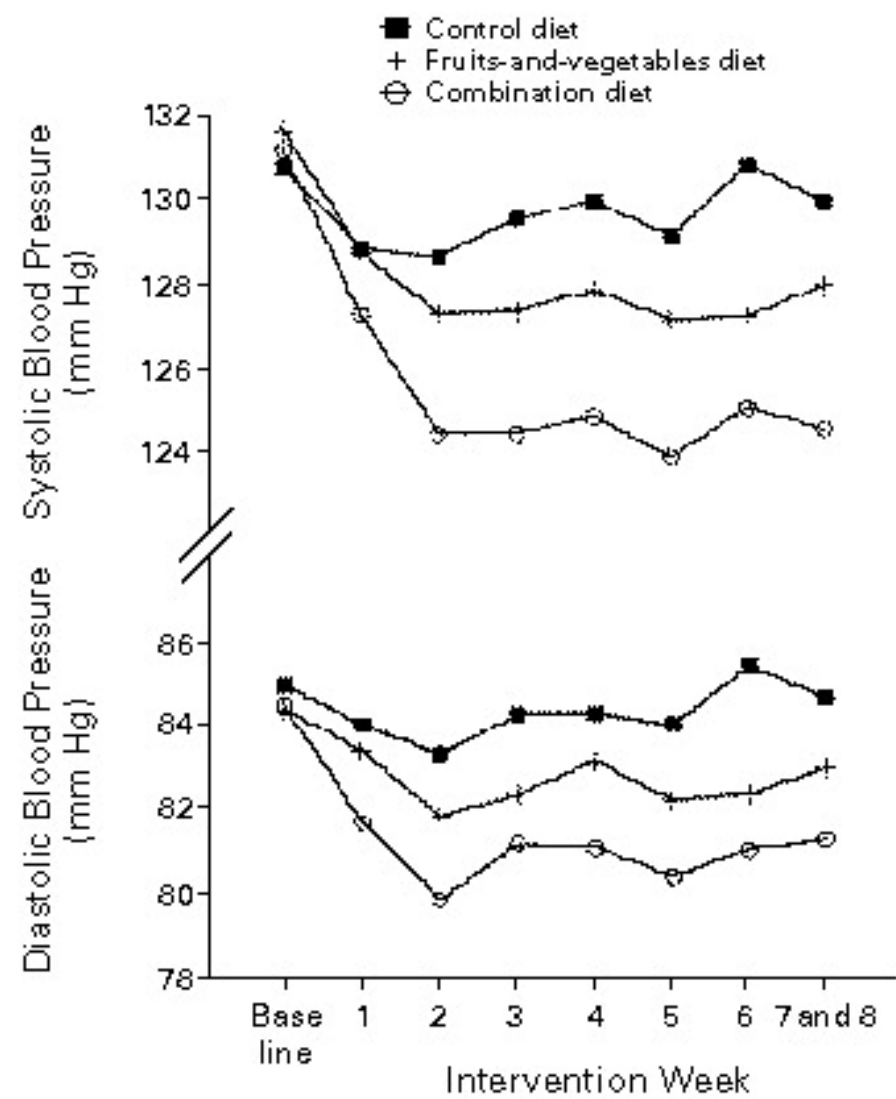
FDA requirement for new antihypertensive drugs (Center for Drug Evaluation and Research)

Angiotensin-converting enzyme inhibitors (*Manisty et al*)

Beta blockers (*Manisty et al*)

Calcium channel blockers (*Manisty et al*)

Sodium reduction (on a control diet) in participants with a baseline SBP ≥150 mm Hg

DASH versus control (at high sodium) in participants with a baseline SBP ≥150 mm Hg

DASH-low sodium (vs control-high sodium) in participants with a baseline SBP ≥150 mm Hg

-25   -20   -15   -10   -5   0   5

Effect on systolic blood pressure, mm Hg
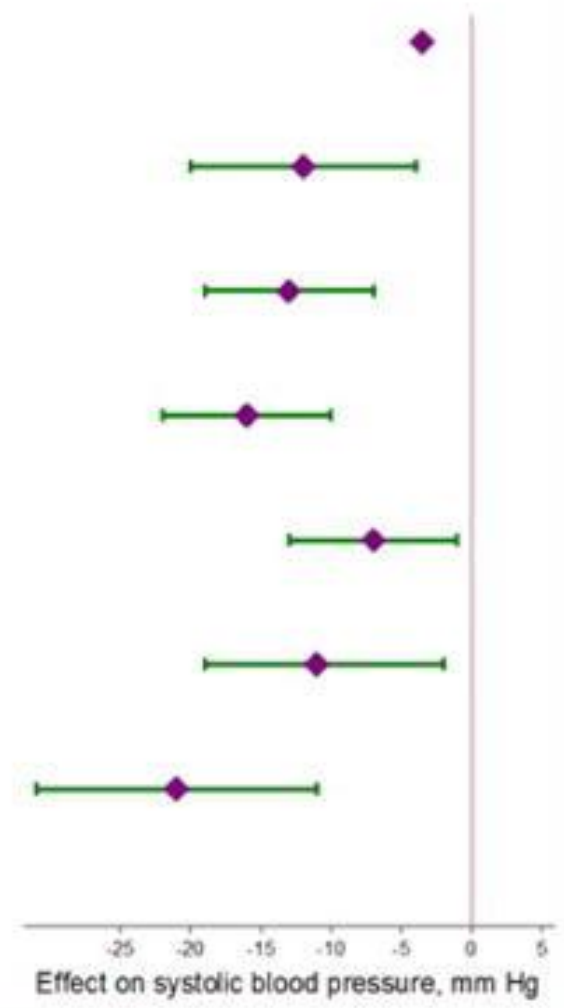
LIFESTYLE HEART TRIAL

- 48 PATIENTS WITH MODERATE-SEVERE CAD WERE RANDOMIZED TO INTENSIVE LIFESTYLE CHANGES (10% FAT WHOLE FOODS VEGETARIAN DIET, AEROBIC EXERCISE, STRESS MANAGEMENT TRAINING, SMOKING CESSATION, GROUP PSYCHOSOCIAL SUPPORT) FOR 5 YEARS VERSUS CONTROL

- 35 COMPLETED THE STUDY

Ornish et al., JAMA 1998
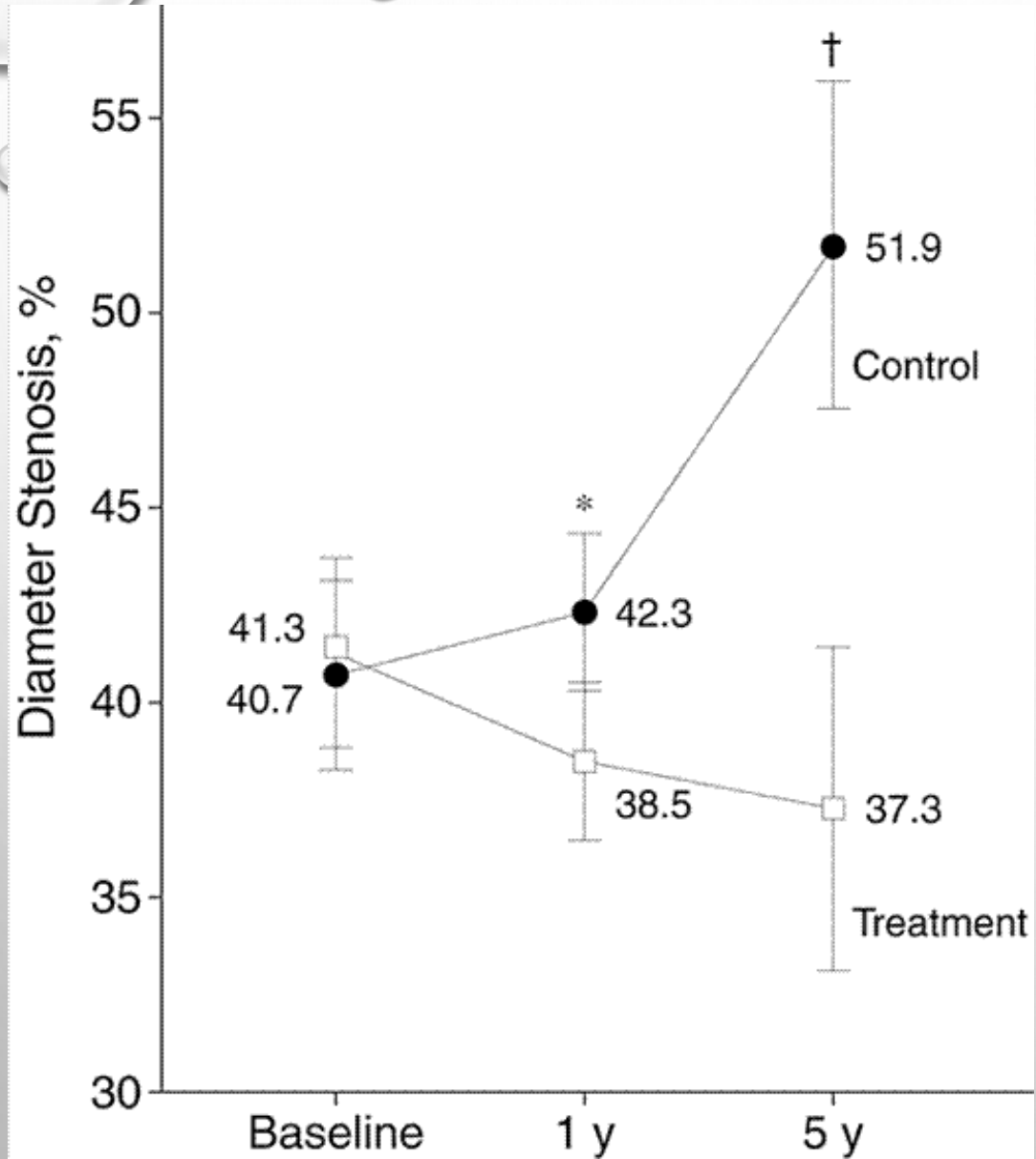
LIFESTYLE GROUP HAD 3% REDUCTION IN ABSOLUTE DIAMETER STENOSIS AND CONTROL GROUP HAD 12% PROGRESSION

PREDIMED STUDY

PREDIMED

A Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)

Med diet, EVOO: hazard ratio, 0.70 (95% CI, 0.53–0.91); P=0.009
Med diet, nuts: hazard ratio, 0.70 (95% CI, 0.53–0.94); P=0.02

B Total Mortality

Med diet, EVOO: hazard ratio, 0.81 (95% CI, 0.63–1.05); P=0.11
Med diet, nuts: hazard ratio, 0.95 (95% CI, 0.73–1.23); P=0.68

30% RRR
End point driven by reduction in strokes

Estruch et al., Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts, NEJM, 2013

A provegetarian food pattern and reduction in total mortality in the Prevención con Dieta Mediterránea (PREDIMED) study[1–4]

Miguel A Martínez-González, Ana Sánchez-Tainta, Dolores Corella, Jordi Salas-Salvadó, Emilio Ros, Fernando Arós, Enrique Gómez-Gracia, Miquel Fiol, Rosa M Lamuela-Raventós, Helmut Schröder, Jose Lapetra, Lluis Serra-Majem, Xavier Pinto, Valentina Ruiz-Gutierrez, and Ramon Estruch for the PREDIMED Group

ABSTRACT

Background: Vegetarian diets have been associated with reduced mortality. Because a pure vegetarian diet might not easily be embraced by many individuals, consuming preferentially plant-derived foods would be a more easily understood message. A provegetarian food pattern (FP) emphasizing preference for plant-derived foods might reduce all-cause mortality.

Objective: The objective was to identify the association between an a priori–defined provegetarian FP and all-cause mortality.

Design: We followed 7216 participants (57% women; mean age: 67 y) at high cardiovascular risk for a median of 4.8 y. A validated 137-item semiquantitative food-frequency questionnaire was administered at baseline and yearly thereafter. Fruit, vegetables, nuts, cereals, legumes, olive oil, and potatoes were positively weighted. Added animal fats, eggs, fish, dairy products, and meats or meat products were negatively weighted. Energy-adjusted quintiles were used to assign points to build the provegetarian FP (range: 12–60 points). Deaths were confirmed by review of medical records and the National Death Index.

Results: There were 323 deaths during the follow-up period (76 from cardiovascular causes, 130 from cancer, 117 for noncancer, noncardiovascular causes). Higher baseline conformity with the provegetarian FP was associated with lower mortality (multivariable-adjusted HR for ≥40 compared with <30 points: 0.59; 95% CI: 0.40, 0.88). Similar results were found with the use of updated information on diet (RR: 0.59; 95% CI: 0.39, 0.89).

Conclusions: Among omnivorous subjects at high cardiovascular risk, better conformity with an FP that emphasized plant-derived foods was associated with a reduced risk of all-cause mortality. This trial was registered at www.controlled-trials.com as ISRCTN35739639. *Am J Clin Nutr* 2014;100(suppl):320S–8S.

analysis of 5 prospective studies (10). Subsequently, a meta-analysis of 7 cohort studies confirmed a lower cardiovascular mortality in vegetarians, but inconsistent results for the association between vegetarian diets and death from any cause were found (11). More recently, a 5-y follow-up of the Adventist Health Study 2 cohort showed an overall association of vegetarian dietary patterns with lower mortality (12). Most available comparisons between vegetarians and nonvegetarians relied on a single measurement of diet at baseline, but dietary patterns may change over time and the length of exposure to vegetarianism may account for heterogeneity between results from different cohorts (10, 13, 14). In a pooled analysis of 5 cohort studies, vegetarian diets were inversely associated with CAD mortality, but when vegetarians were subdivided according to whether or not they had followed their current diet for ≥5 y, the cardiovascular benefits were confined only to those who had been vegetarian for >5 y (15).

Given that in most cultures the proportion of true vegetarians is low, it would be interesting to examine whether moderate or intermediate approaches to a predominantly plant-based FP relate

FIGURE 1. Absolute risk of death across baseline quintiles of the pro-vegetarian food pattern: the Prevención con Dieta Mediterránea trial, 2003–2010. Quintile score limits were as follows for quintiles 1–5: <33, 33–35, 36–37, 38–40, >40, respectively.

A Low-Fat Vegan Diet Improves Glycemic Control and Cardiovascular Risk Factors in a Randomized Clinical Trial in Individuals With Type 2 Diabetes

- Body weight decreased 6.5 kg in the vegan group and 3.1 kg in the ADA group (p =0.001)

- LDL cholesterol fell 21.2% vegans and 10.7% in the ADA group (p = 0.02).

- Urinary albumin reductions were greater in the vegan group (15.9 mg/24h) than in the ADA group (10.9 mg/24 h) (p = 0.013)

- A1C fell 1.23 points in the vegan group compared wit h 0.38 points in the ADA group (P 0.01).

Barnard ND, Diabetes Care 29:1777–1783, 2006
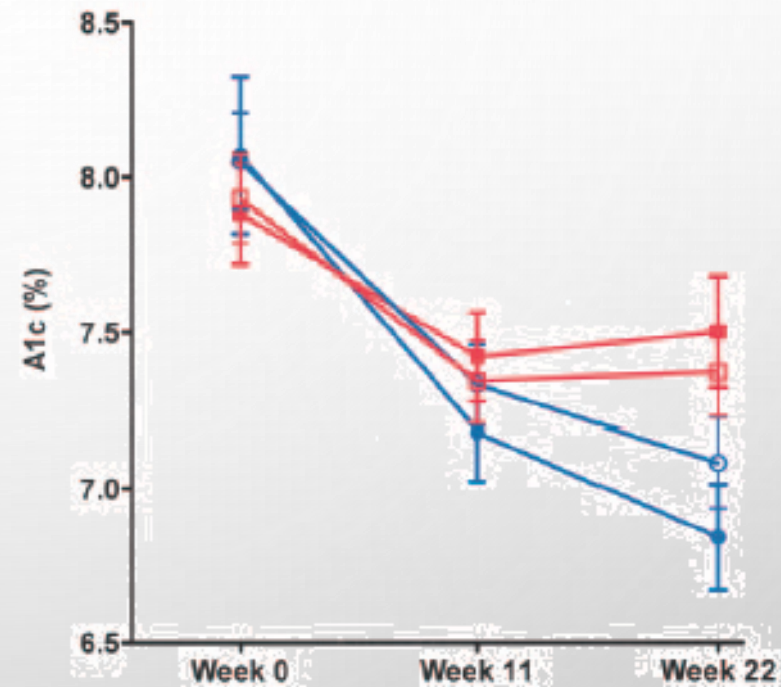
FIGURE 1

Restoration of myocardial perfusion[2]

Before Rx

After Rx

Positron emission tomography performed on a patient with coronary artery disease shows an area of myocardium with insufficient blood flow (top). Following only 3 weeks of plant-based nutritional intervention, normal blood flow was restored (bottom).
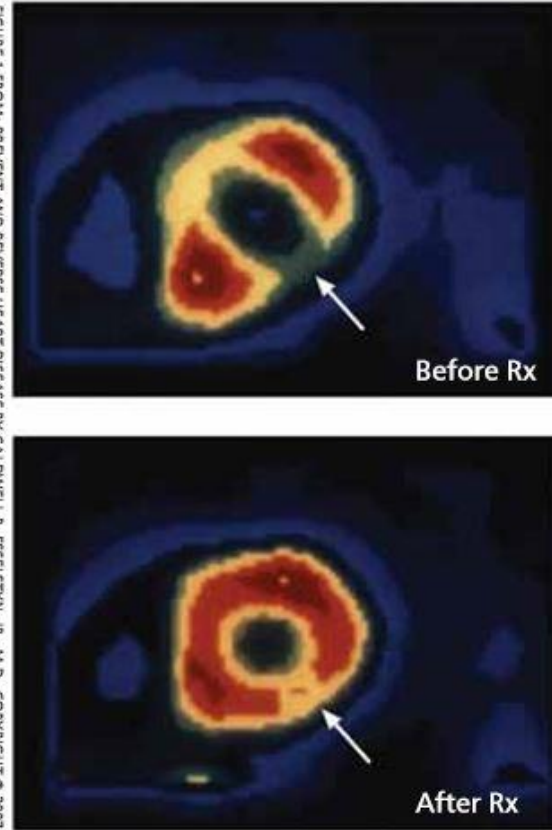
FIGURE 1 FROM: *PREVENT AND REVERSE HEART DISEASE* BY CALDWELL B. ESSELSTYN, JR., M.D., COPYRIGHT © 2007 BY CALDWELL B. ESSELSTYN, JR., M.D. USED WITH PERMISSION OF AVERY PUBLISHING, AN IMPRINT OF PENGUIN GROUP (USA) LLC.

FIGURE 2

Reversal of coronary artery disease[4]

A

B
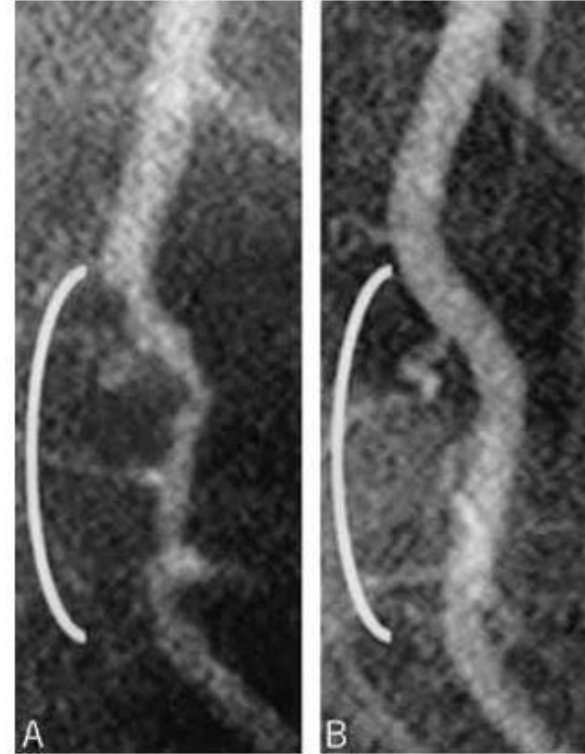
Coronary angiography reveals a diseased distal left anterior descending artery (A). Following 32 months of a plant-based nutritional intervention without cholesterol-lowering medication, the artery regained its normal configuration (B).

Esselstyn et al. J Fam Practice

ALL COMES BACK TO INFLAMMATION

Pre to Post-Measurement Change in CRP (mg/ml) (n=23)

$p=0.03$

2.07 — pre
1.60 — post

Serum level

VARIABLES OF INTEREST IN FASTING PLASMA OF VEGETARIANS AND OMNIVORES*

	Vegetarians ($n = 30$)	Non-vegetarians ($n = 30$)
Ascorbic acid (μM)	90.5 (21.0)‡	61.8 (17.0)
α-Tocopherol (μM)†	22.0 (5.9)§	27.0 (7.9)
Lipid-standardized α-tocopherol (μMol/mM TC+TAG)	3.76 (0.57)§	4.23 (0.58)
Cholesterol (mM)	4.8 (1.1)	4.9 (1.3)
Triacylglycerol (mM)†	1.06 (0.45)‡	1.35 (0.57)
Uric acid (μM)	239 (87.7)§	306 (68.3)
FRAP value (μM)	1028 (180)	1040 (178)
C-reactive protein (mg/L)†	0.77 (1.29)§	1.30 (1.38)
MDA (μM)	0.56 (0.15)	0.61 (0.17)

Pre to Post-Measurement Change in IL-6 (pg/ml) (n=23)

$p=0.02$

2.53 — pre
1.24 — post

Serum level

Pre to Post-Measurement Change in TNFα (pg/ml) (n=23)

$p=0.2$

5.58 — pre
2.4 — post

Serum level
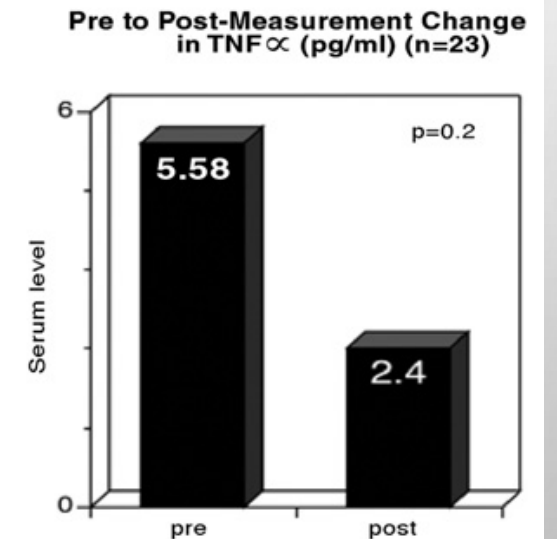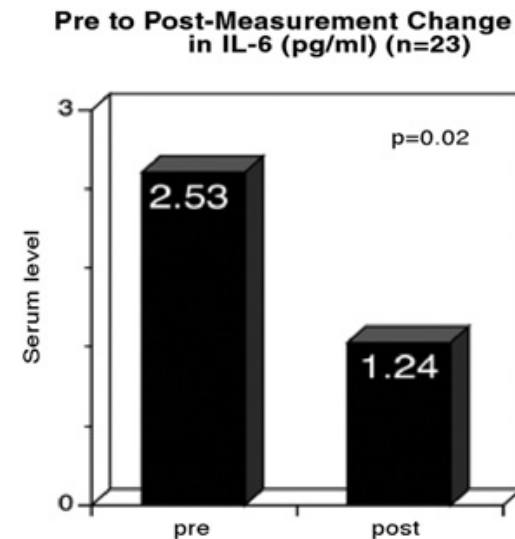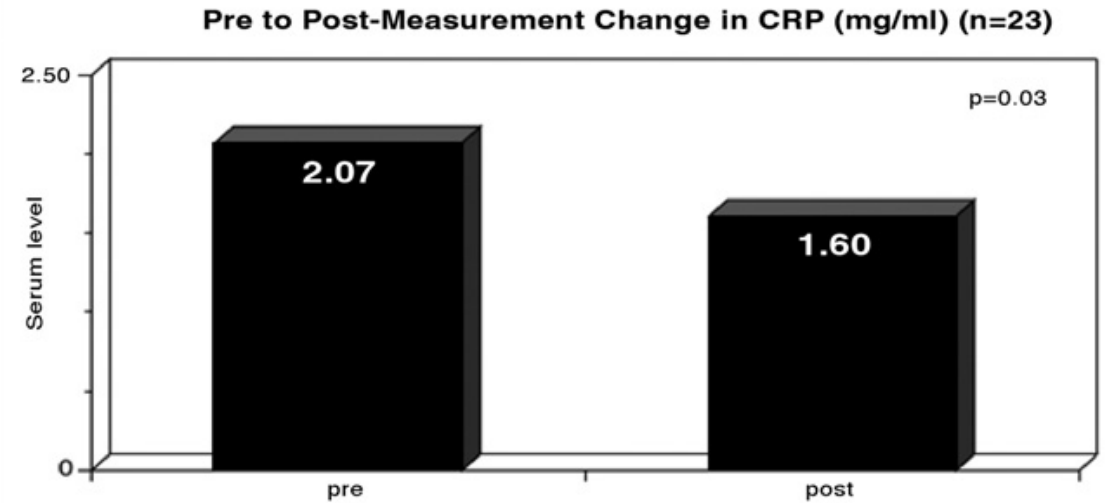
Dod HS, et al. Am J Cardiol 2010;105:362–367
Szeto YT, Ornish D. Nutrition 20:863–866, 2004

Inflammatory markers only measured in intervention group

Nutrition and Diet

COR	LOE	Recommendations for Nutrition and Diet
		Recommendations
I	B-R	1. A diet emphasizing intake of vegetables, fruits, legumes, nuts, whole grains, and fish is recommended to decrease ASCVD risk factors.
IIa	B-NR	2. Replacement of saturated fat with dietary monounsaturated and polyunsaturated fats can be beneficial to reduce ASCVD risk.
IIa	B-NR	3. A diet containing reduced amounts of cholesterol and sodium can be beneficial to decrease ASCVD risk.

Healthful and Unhealthful Plant-Based Diets and the Risk of Coronary Heart Disease in U.S. Adults

Ambika Satija, ScD,[a] Shilpa N. Bhupathiraju, PhD,[a,b] Donna Spiegelman, ScD,[a,b,c,d,e] Stephanie E. Chiuve, ScD,[a,f] JoAnn E. Manson, MD, DrPH,[c,g,h] Walter Willett, MD, DrPH,[a,b,c] Kathryn M. Rexrode, MD, MPH,[i] Eric B. Rimm, ScD,[a,b,c] Frank B. Hu, MD, PhD[a,b,c]

ABSTRACT

BACKGROUND Plant-based diets are recommended for coronary heart disease (CHD) prevention. However plant foods are necessarily beneficial for health.

OBJECTIVES This study sought to examine associations between plant-based diet indices and CHD incidence

METHODS We included 73,710 women in NHS (Nurses' Health Study) (1984 to 2012), 92,329 women in NHS 2012) and 42,260 men in Health Professionals Follow-up Study (1986 to 2012), free of chronic diseases at base

CENTRAL ILLUSTRATION Dose-Response Relationship of Plant-Based Diet Indices and Animal, Healthy Plant, and Less Healthy Plant Foods With CHD Incidence
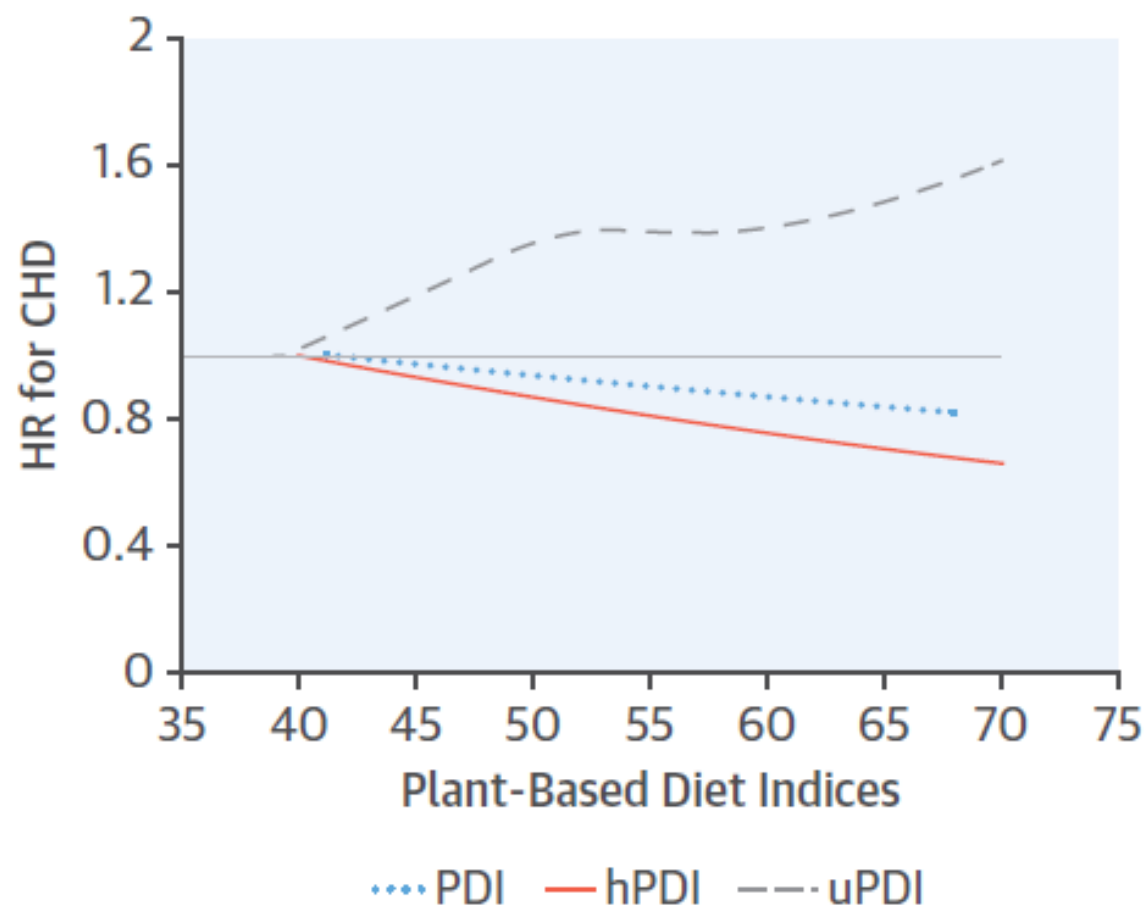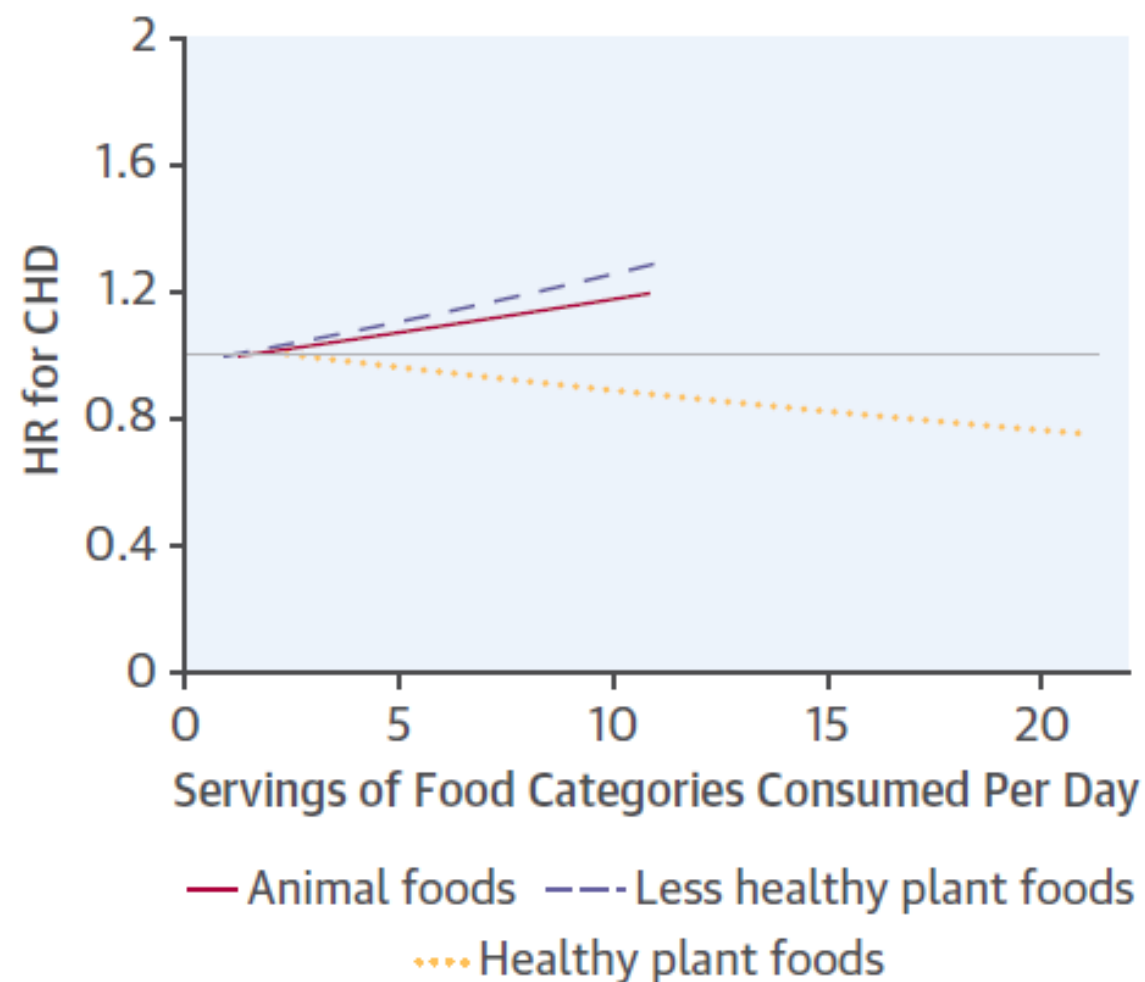
Healthy

Unhealthy

HOW SHOULD WE ADVISE OUR PATIENTS?

Devries S, Agatson A, Aggarwal, M et al. Am J Medicine, 2017

FRUITS AND VEGETABLES: DASH DIET
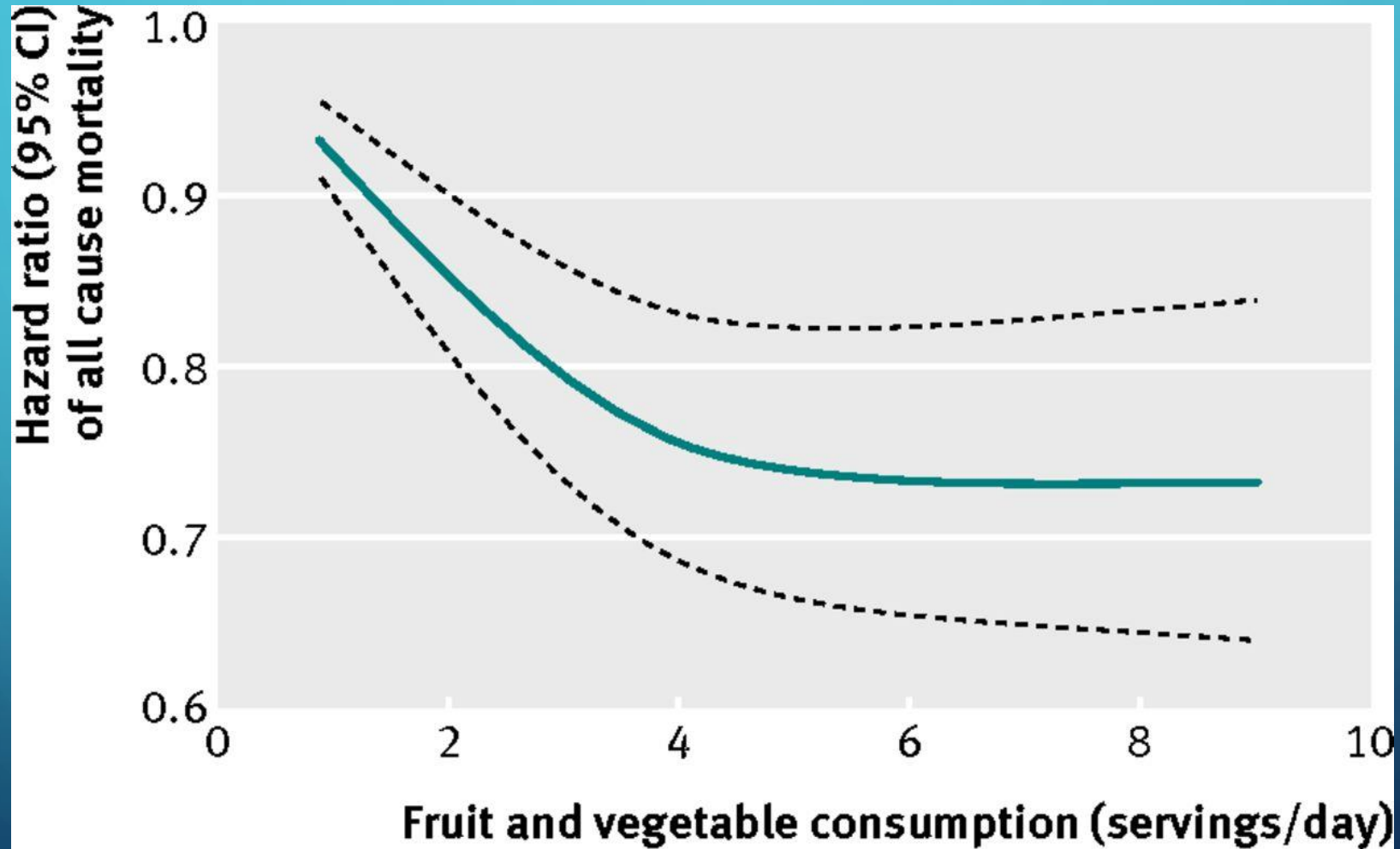
Whole Food Plant Based Diet Pyramid

FATS AND OILS
ALMONDS, PECANS
WALNUTS, AVOCADO
OLIVE OIL
(IN MODERATION)

LEAFY GREENS
SPINACH, BROCCOLI
KALE, LETTUCE
(2-3 SERVINGS
DAILY)

LEGUMES
BLACK BEANS
CHICKPEAS, EDAMAME
FLAX SEEDS, CHIA
SEEDS, SUNFLOWER
SEEDS, LENTILS
(2-3 SERVINGS
DAILY)

GRAINS
WHOLE WHEAT BREAD
OATS, BROWN RICE
PASTA, WHOLE WHEAT
TORTILLA, GRANOLA
QUINOA, BARLEY
(5 SERVINGS
DAILY)

VEGETABLES
CAULIFLOWER, SWEET
POTATO, MUSHROOMS
SQUASH, BRUSSELS
SPROUTS,ASPARAGUS
CUCUMBERS, CORN
CARROTS,CELERY
BELL PEPPERS
(UNLIMITED
AMOUNT DAILY)

FRUIT
PINEAPPLE, GRAPES
BERRIES, TOMATO
BANANA, APPLE
PEARS, ORANGES
GRAPEFRUIT
(3-4 SERVINGS
DAILY)

ΔThisIsMyYear

GOALS

Eliminate red meat>>CHICKEN>>fish	Eliminate dairy-All dairy (whey, casein)	Eliminate simple sugars and simple carbs
Eliminate processed foods • Preservatives • Artificial sweeteners	Watch your omega 6:3 ratio • Eat nuts and seeds • Job of omega 6 • Job of omega 3: full of DHA and EPA	Avoid trans fats
Add in lots and lots of fruits and vegetables • 5-7 servings per day	Eat complex carbohydrates	Anti-inflammatory spices

1 serving= 1 cup uncooked, 1 cup cooked

PLANT-BASED
MENU

The healthiest diets are those that are high in lentils, fruits and vegetables, beans, and whole grains. Eating these foods puts you on a path to lowering your risk of heart disease. We hope you enjoy this plant-based menu: *for your health, for your future.*

How many fruits and vegetables do I need to eat?

The American Heart Association recommends eight or more servings of fruits and/or vegetables per day. Eating more fruits and vegetables may help keep you at a healthy weight, live longer, and help lower your cholesterol and blood pressure.

What is a serving size?

FRUITS:

4-5 servings per day
- 1 medium fruit
  (about the size of a baseball)
- 1/4 cup dried fruit
- 1/2 cup fresh, frozen or canned fruit

VEGETABLES:

4-5 servings per day
- 1 cup raw leafy vegetables
  (about the size of a small fist)
- 1/2 cup cut-up raw or cooked vegetables
- 1/2 cup vegetable juice

Breakfast

( ) **STEAMING OATMEAL**
With raisins, almonds and brown sugar

( ) **OVERNIGHT OATS**
Oatmeal rolled oats, chia seeds and fruit

( ) **CHEERIOS**
With soy milk

( ) **WHOLE WHEAT TOAST**
With peanut butter or avocado spread

( ) **FRESH FRUIT PLATE**
With bran muffin

Lunch

( ) **BLACK BEAN BURGER**
Hearty black bean patty over a warm bun with option of lettuce, tomato and onion

( ) **HUMMUS TOMATO SANDWICH**
Fresh hummus over whole grain sandwich thins topped with tomato and spinach

( ) **FRESH VEGETABLE WRAP**
Tomatoes, carrots, cucumbers, olives and lettuce wrapped in an avocado spread whole grain wrap

Dinner

( ) **VEGETABLE PASTA PRIMA VERA**
A mix of sautéed fresh vegetables in a light sauce over penne pasta

( ) **TOFU VEGETABLE STIR FRY**
Seasoned grilled tofu with sautéed green & red peppers, onions and broccoli

( ) **BLACK BEANS & YELLOW RICE**
Seasoned black beans over fluffy yellow rice

Chef Specials

( ) **SWEET POTATO & KALE OVER BARLEY**

( ) **LENTIL BOLOGNESE OVER PASTA**

( ) **CHICKPEA POTATO COCONUT CURRY**

Beverages

( ) **HOT TEA**
( ) **ORANGE JUICE**
( ) **APPLE JUICE**

( ) **GRAPE JUICE**
( ) **CRANBERRY JUICE**
( ) **SOY MILK**

For more information on heart healthy nutrition, prevention and more, visit UFHealth.org/IntegrativeCardio.

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RESEARCH

Successful Implementation of Healthful Nutrition Initiatives into Hospitals

Monica Aggarwal[a,*] 📝 ✉, Ariel Grady[b], Daya Desai[c], Katrina Hartog[d], Lilian Correa[e], Rober
Andrew M. Freeman[g], Michelle McMacken[h], Eugenia Gianos[i], Koushik Reddy[j], Columbus Ba
Wenger[l], Ron Blankstein[m], Kim Williams[n], Kathleen Allen[o], Rebecca M. Seifried[p], Neal D. Bar

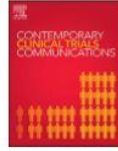⊞ Article Info

The effect of a vegan versus AHA DiEt in coronary artery disease (EVADE CAD) trial: Study design and rationale

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A Deficiency of Nutrition Education and Practice in Cardiology

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ABSTRACT

BACKGROUND: Nutrition is one of the foundations of cardiovascular guidelines for risk reduction and treatment. However, little is known about whether cardiologists, cardiology fellows-in-training, and cardiovascular team members have the nutrition education and knowledge necessary to implement these guidelines. The aim of this study was to describe the educational experiences, attitudes, and practices relating to nutrition among cardiovascular professionals.

COMMENTARY

How Pure is PURE? Dietary Lessons Learned and Not Learned From the PURE Trials

The Prospective Urban Rural Epidemiology (PURE) cohort studies add a new level of understanding of some key environmental components of health.[1] The population is diverse, and represents individuals from various socioeconomic levels with a long period of follow-up. The dietary macronutrient and low glycemic index). In fact, many of the low-income countries that had high consumption of carbohydrates obtain them from carbohydrates from refined sources, such as white rice and white bread, which appear to correlate with the obesity epidemic[4] and the rapid increase of diabetes in low-income

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THE PRESENT AND FUTURE

COUNCIL PERSPECTIVES

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

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