



Is there a path to healthy and sustainable diets for all?

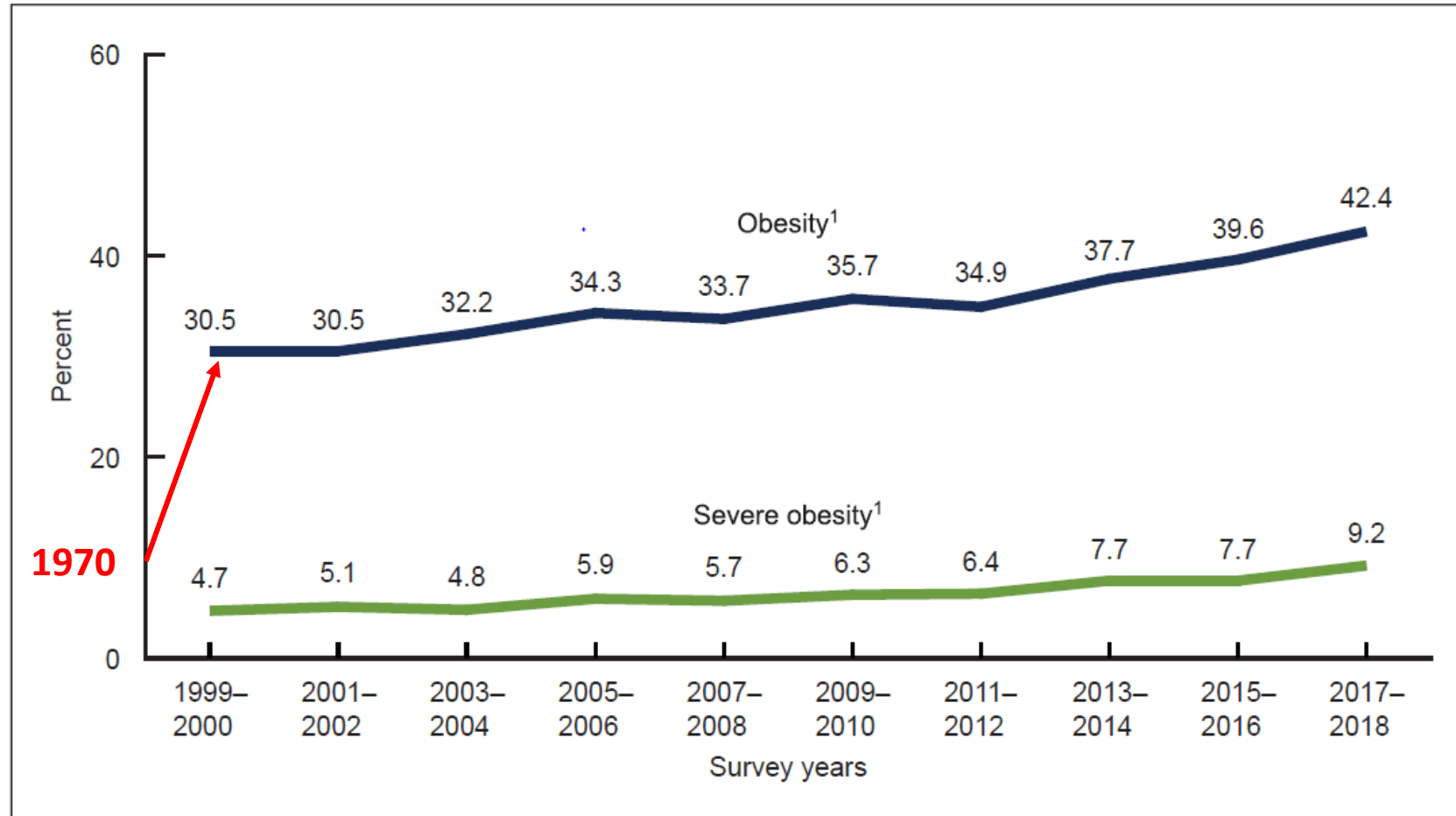
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Department of Nutrition

Harvard T. H. Chan School of Public Health

June 12, 2023

Figure 4. Trends in age-adjusted obesity and severe obesity prevalence among adults aged 20 and over: United States, 1999–2000 through 2017–2018

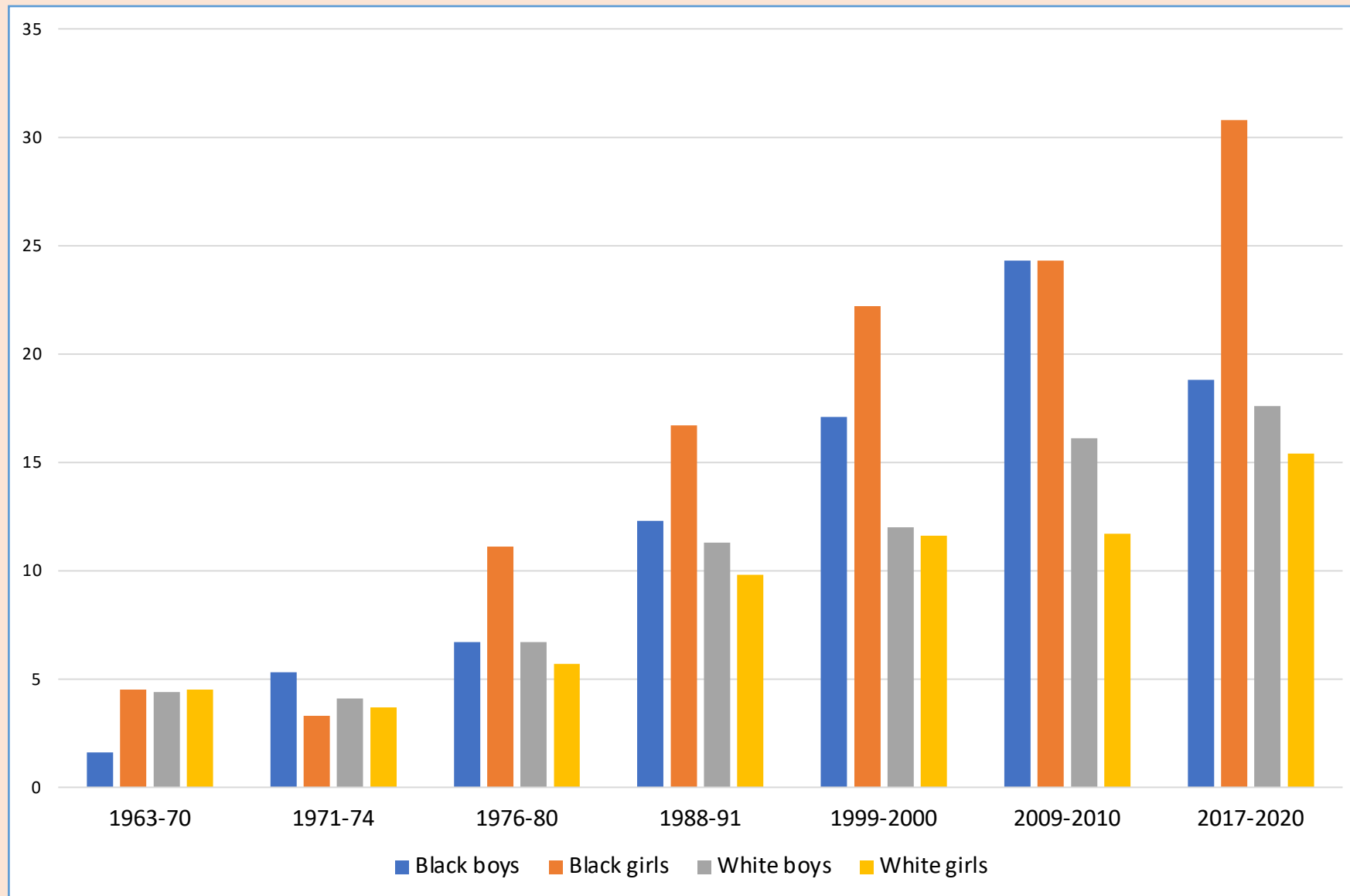


¹Significant linear trend.

NOTES: Estimates were age adjusted by the direct method to the 2000 U.S. Census population using the age groups 20–39, 40–59, and 60 and over. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db360_tables-508.pdf#4.

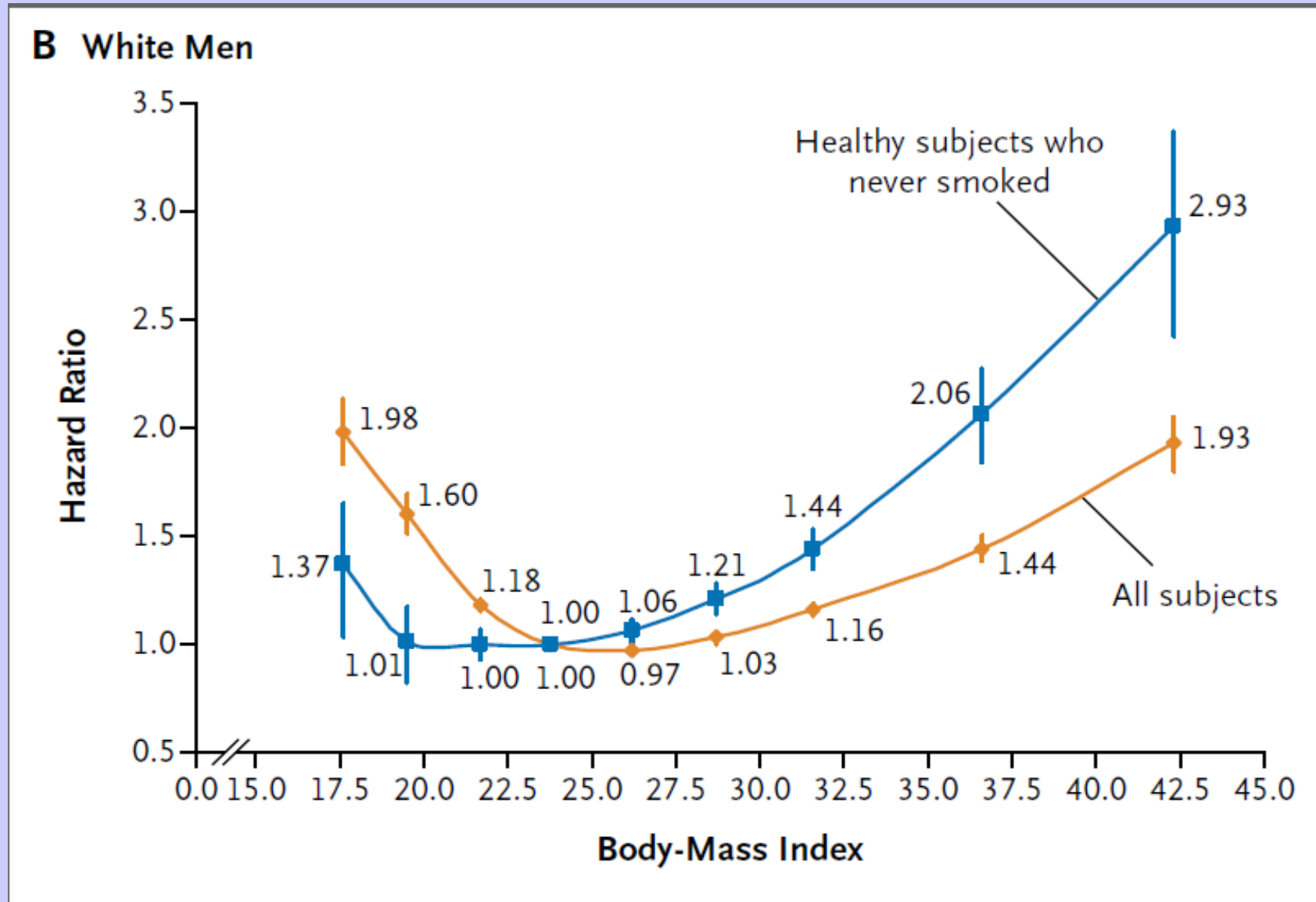
SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2018.

Prevalence of Obesity U.S. Boys and Girls by Race, Ages 6-11, 1963-2020

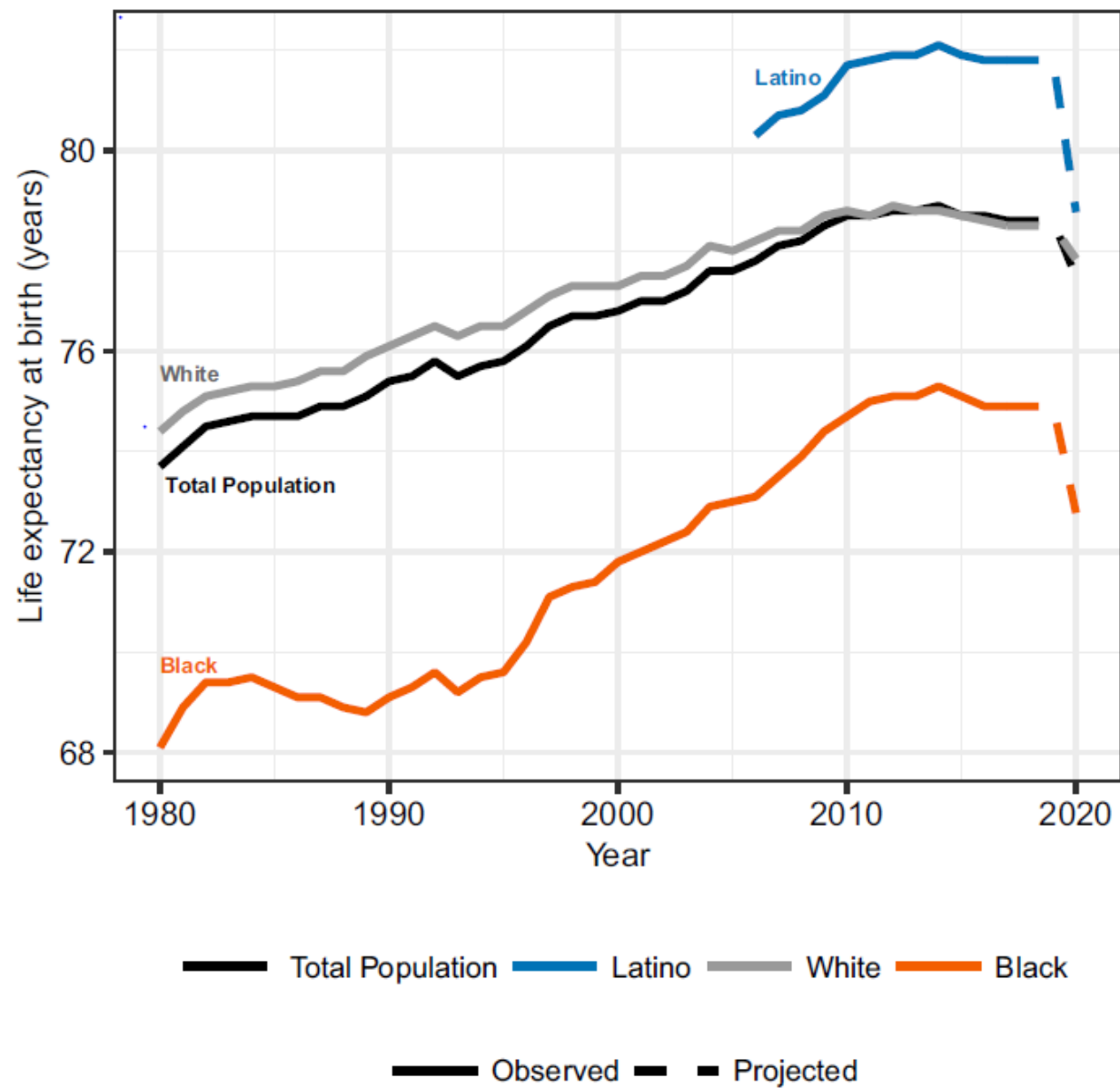


(Cuevas A et al., 2023)

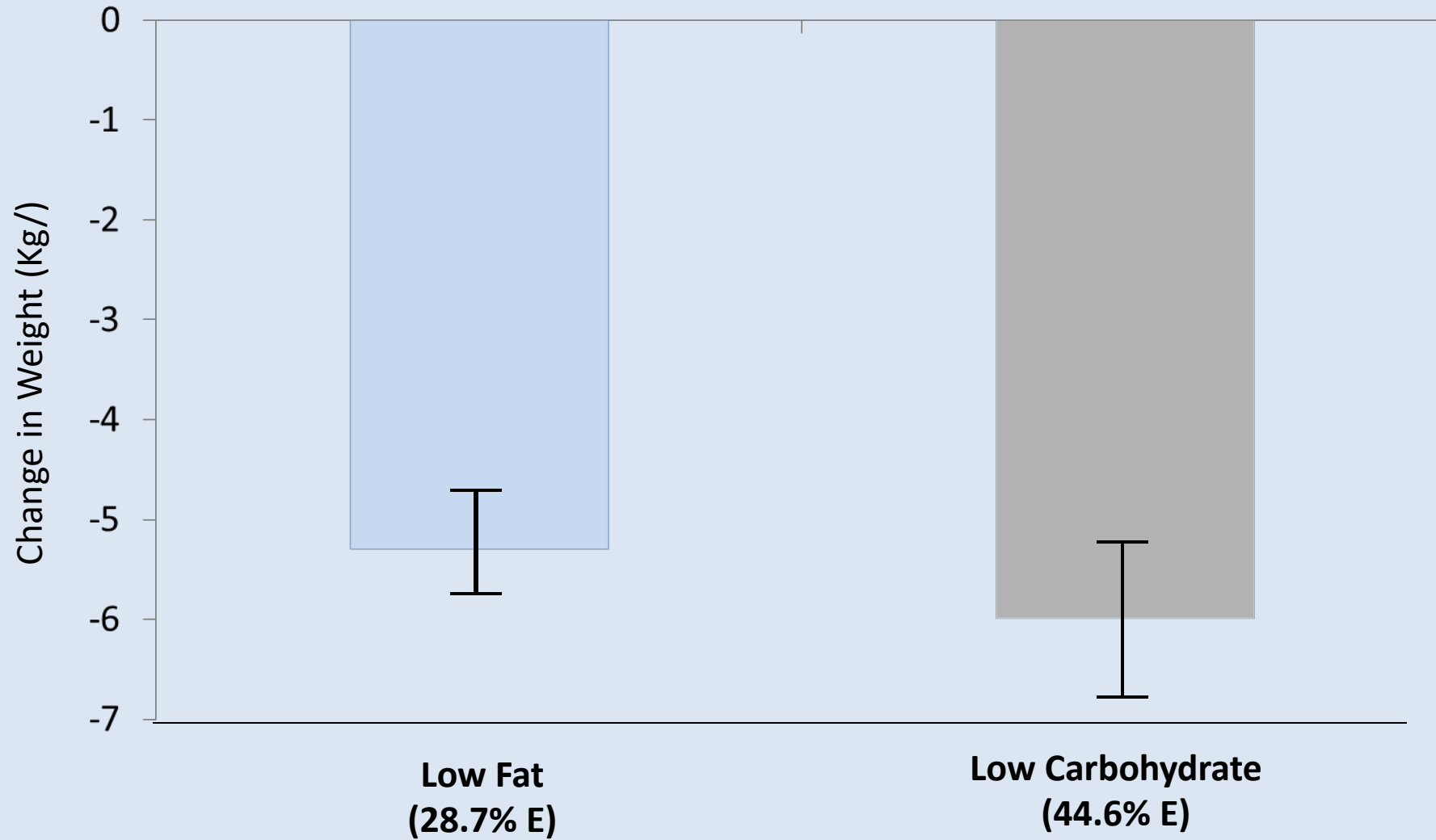
Estimated hazard ratios for death from any cause according to BMI for all study participants and for healthy subjects who never smoked



Effect of COVID on life expectancy

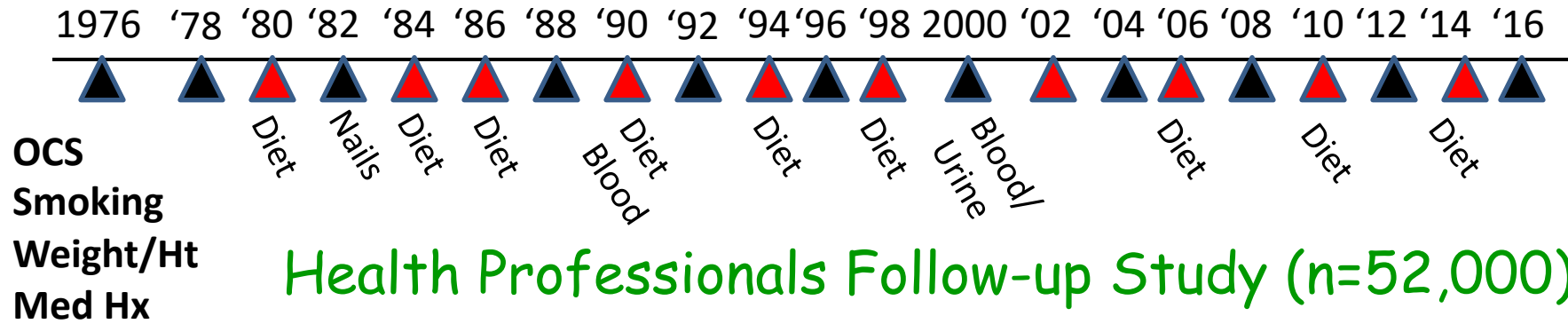


12-month change in weight

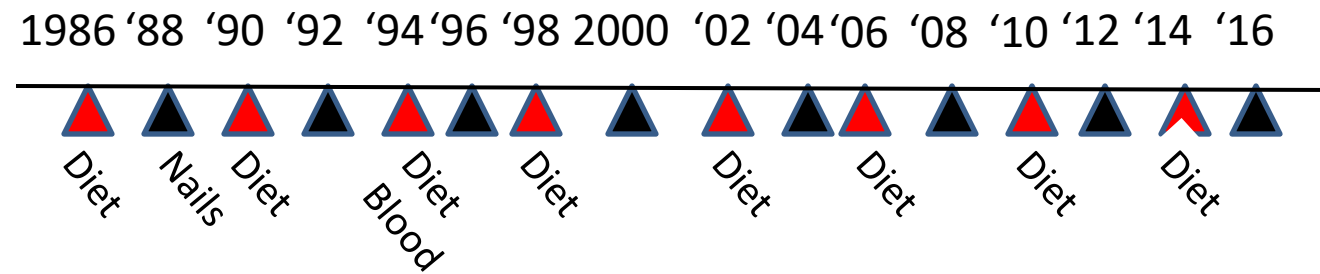


(Gardner CD et al. JAMA 2018)

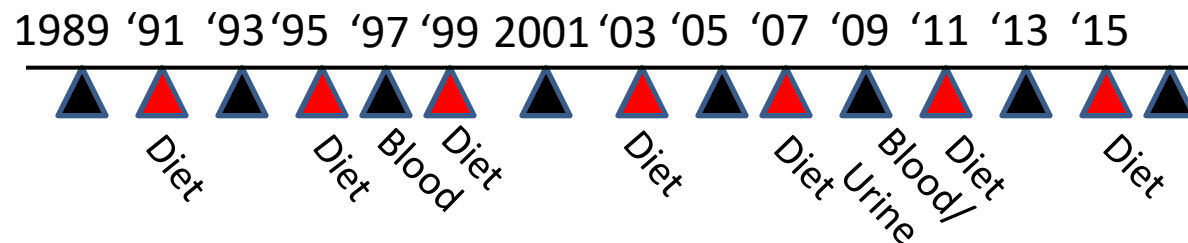
Nurses' Health Study (n=121,700)



Health Professionals Follow-up Study (n=52,000)

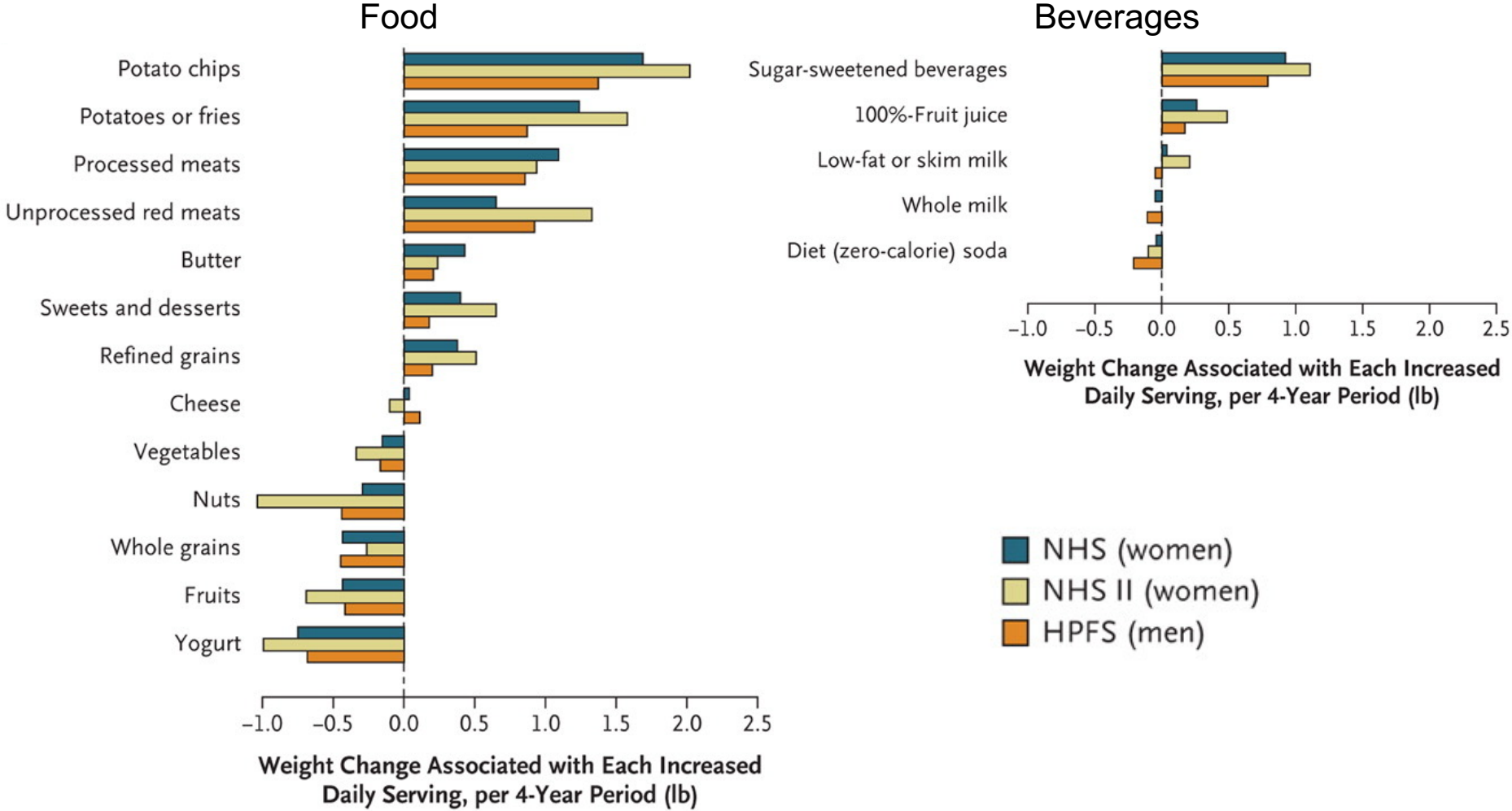


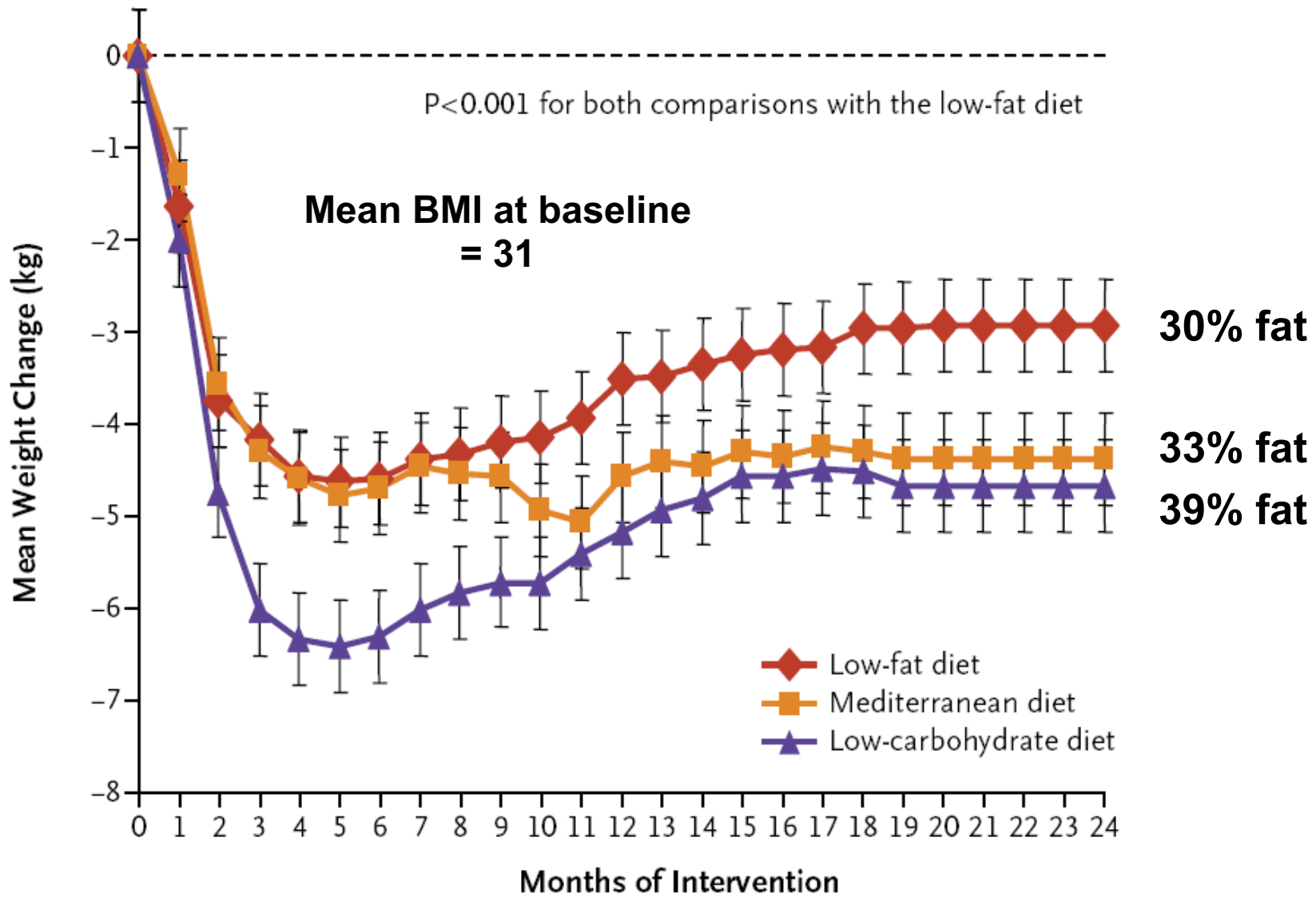
Nurses' Health Study II (n=116,000)



Investigators: Frank Speizer, Bernie Rosner, Meir Stampfer, Graham Colditz, David Hunter, JoAnn Manson, Sue Hankinson, Eric Rimm, Edward Giovannucci, Alberto Ascherio, Gary Curhan, Charles Fuchs, Fran Grodstein, Michelle Holmes, Donna Spiegelman, Frank Hu, Heather Eliassen, Lorelei Mucci

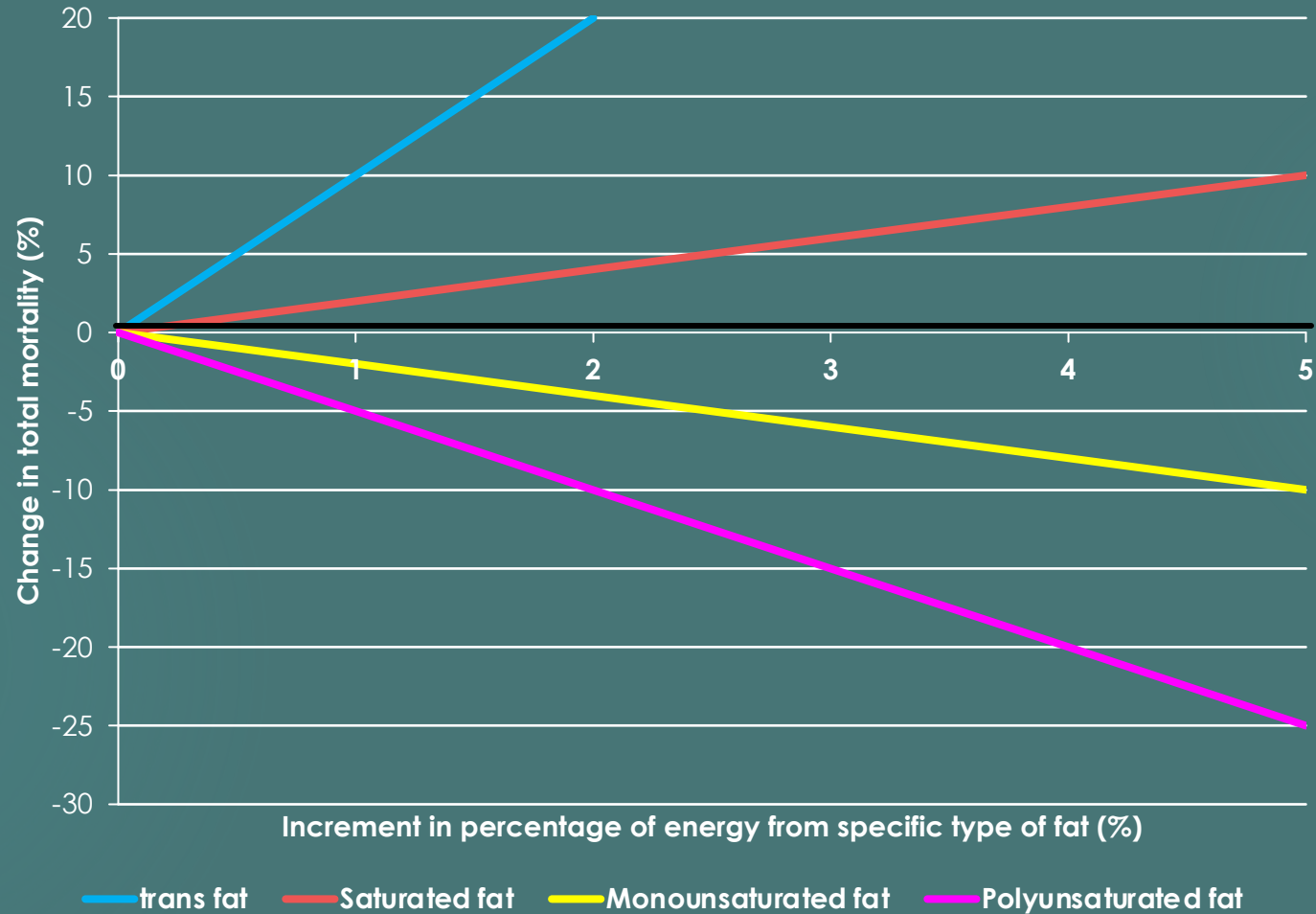
Changes in Food and Beverage Consumption and Weight Changes Every 4 Years According to Study Cohort





Types of Fat and Total Mortality

- ▶ MV-adjusted results, isocaloric comparison is CHO





Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the NutriRECS Consortium

Bradley C. Johnston, PhD; Dena Zeraatkar, MSc; Mi Ah Han, PhD; Robin W.M. Vernooij, PhD; Claudia Valli, MSc; Regina El Dib, PhD; Catherine Marshall; **Patrick J. Stover, PhD**; Susan Fairweather-Taitt, PhD; Grzegorz Wo´jcik, PhD; Faiz Bhatia, PEng; **Russell de Souza, ScD**; Carlos Brotons, MD, PhD; Joerg J. Meerpohl, MD; Chirag J. Patel, PhD; Benjamin Djulbegovic, MD, PhD; Pablo Alonso-Coello, MD, PhD; Malgorzata M. Bala, MD, PhD; and Gordon H. Guyatt, MD

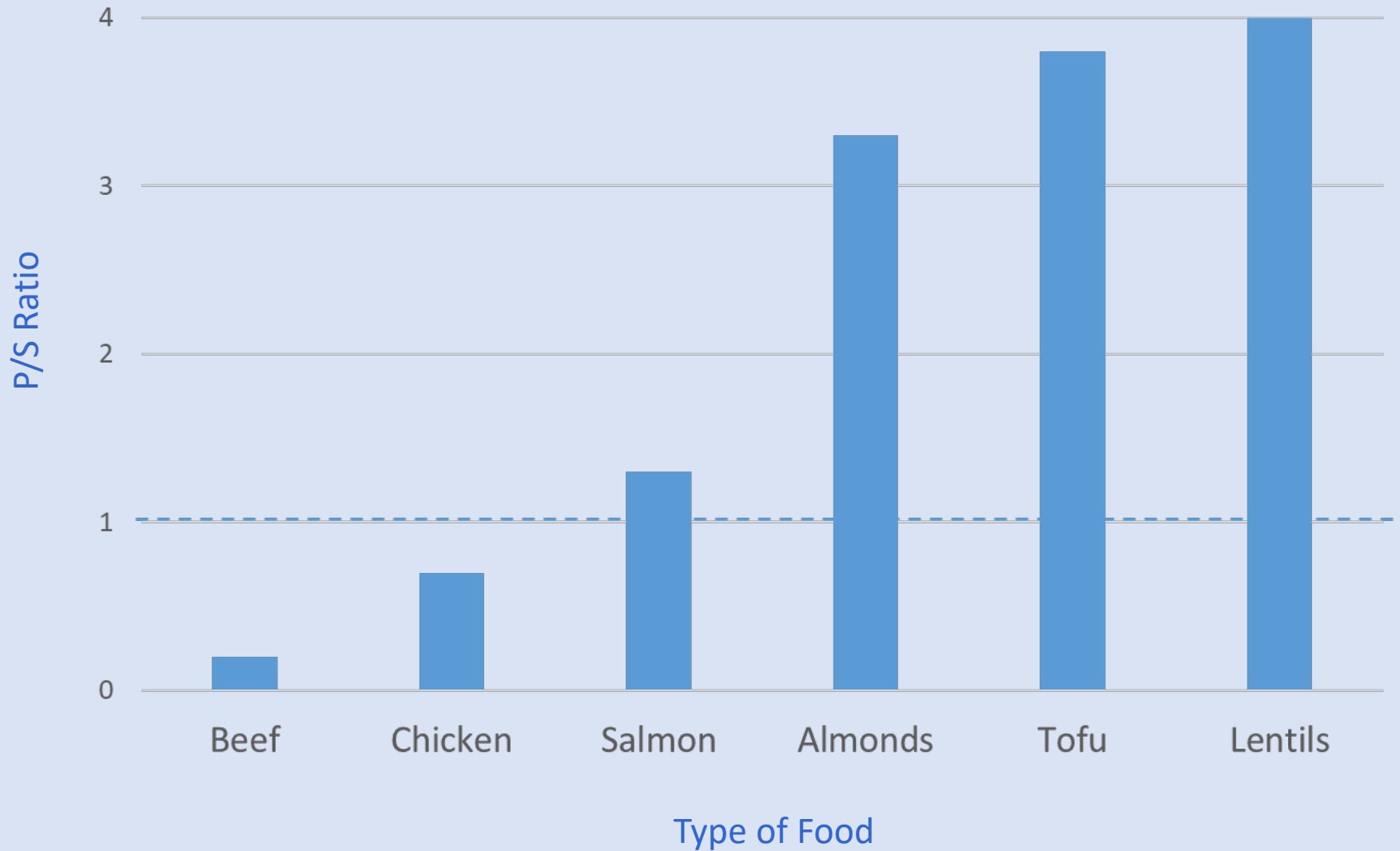
Conclusion: "The panel suggests that adults continue current unprocessed red meat consumption (weak recommendation, low-certainty evidence). Similarly, the panel suggests adults continue current processed meat consumption (weak recommendation, low-certainty evidence)."

News Release from the *Annals of Internal Medicine*, September 30, 2019.

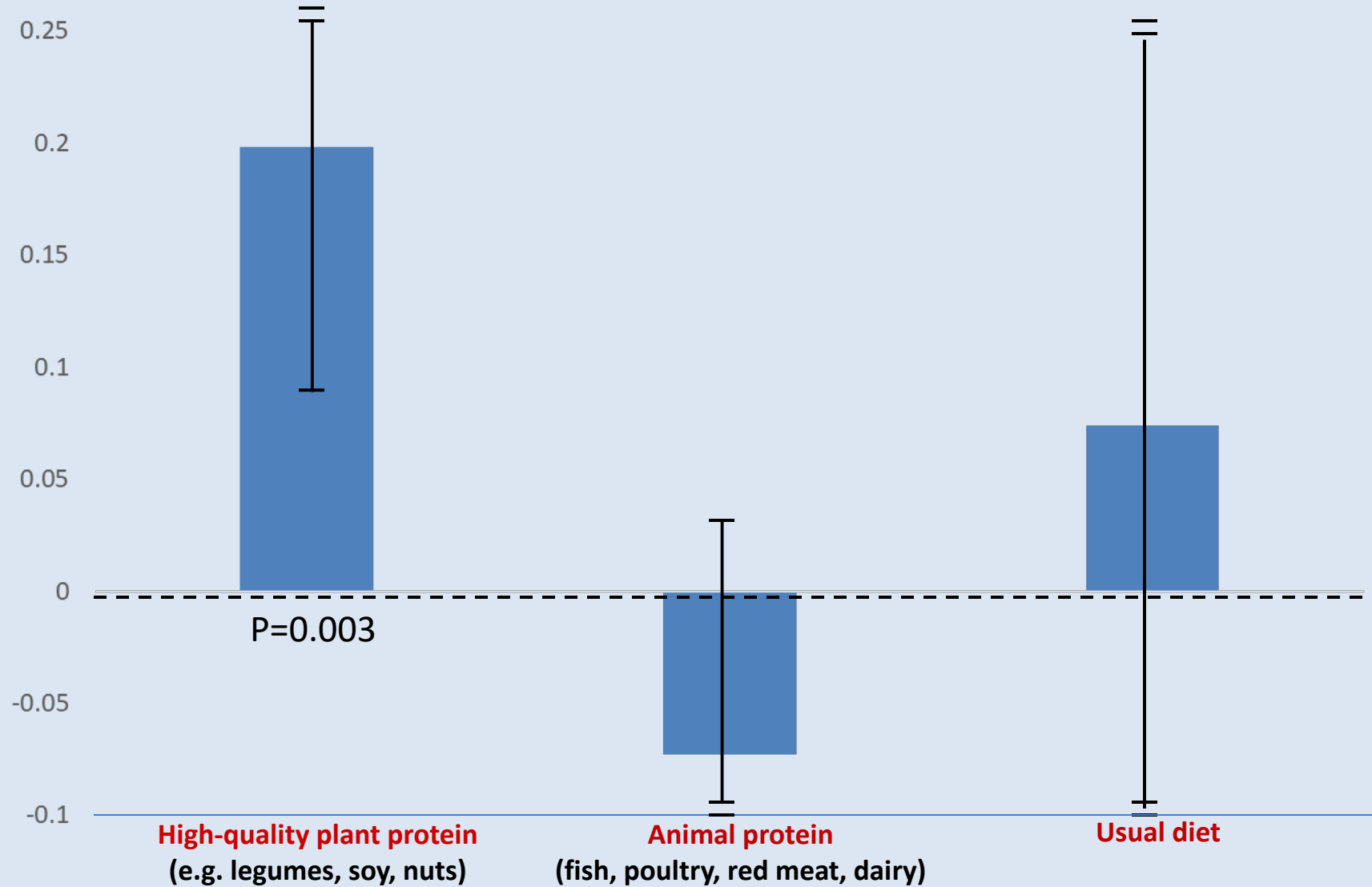
New guidelines: No need to reduce red or processed meat consumption

No Funding; strict avoidance of conflict of interest

Ratio of Polyunsaturated Fat to Saturated Fat (P/S Ratio) for Major Protein Sources

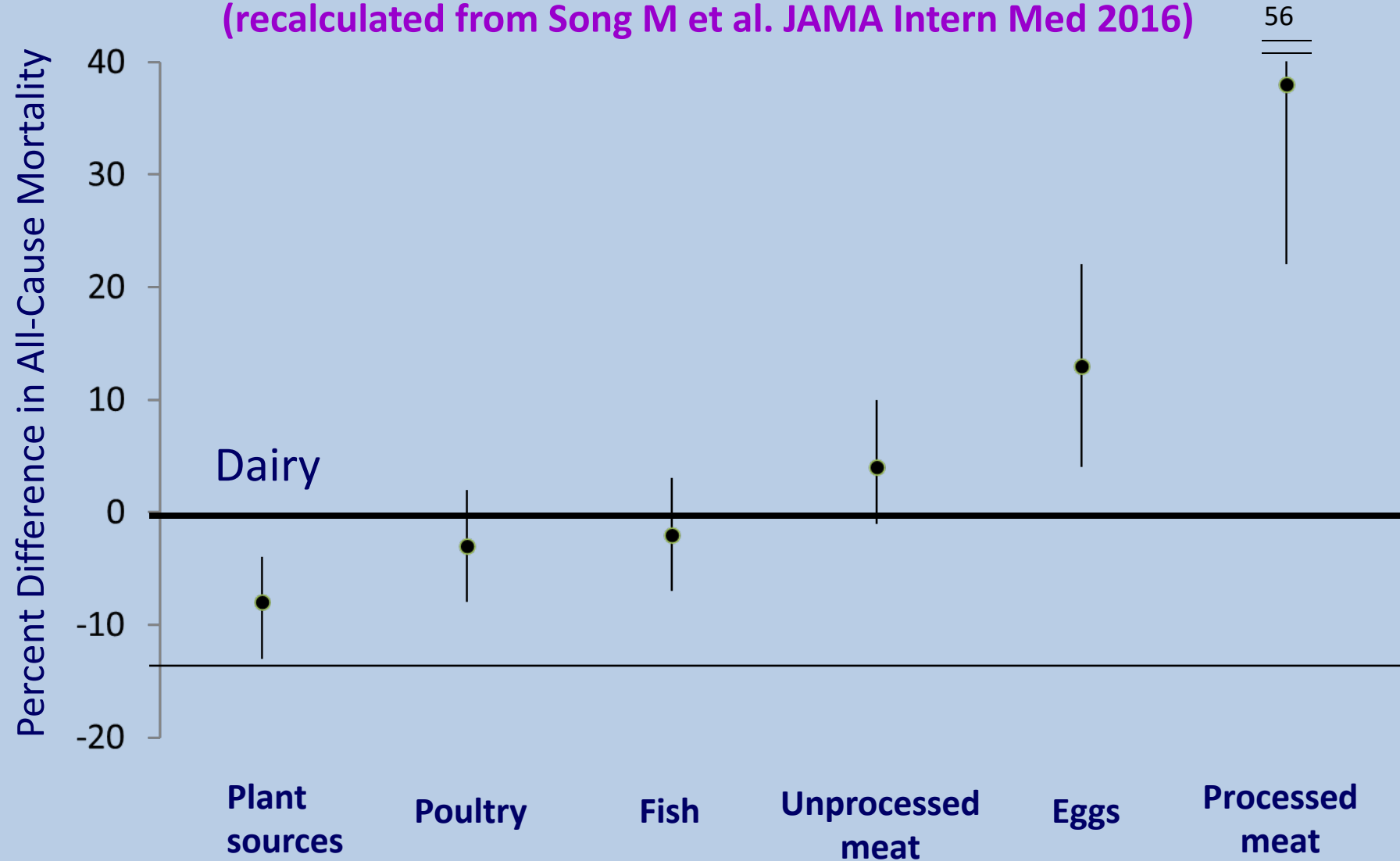


**Meta-analysis assessing the effects of red meat on LDL cholesterol (mmol/L)
from RCTs by type of comparison diet**
(Guasch-Ferre M et al. Circulation 2019)



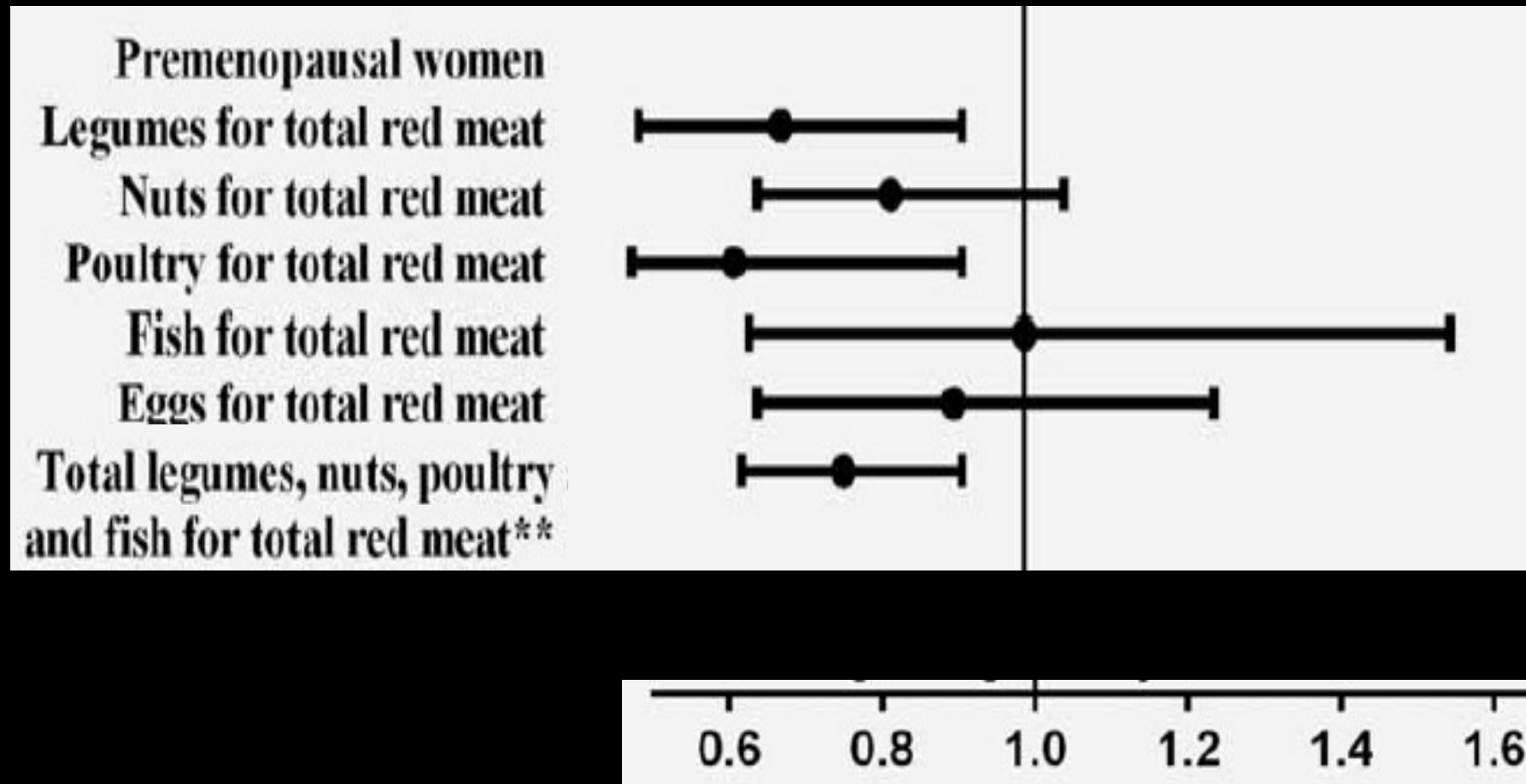
Differences in all-cause mortality for major protein sources vs dairy (for 3% of energy from protein)

(recalculated from Song M et al. JAMA Intern Med 2016)



56

Substitution for 1 serving/day of total red meat in relation to premenopausal breast cancer



(Farvid MS et al., Int J Cancer 2014)

Plant-based Diets and Athletic Performance

Design: Randomized, 4-week cross-over study of 22 college athletes on three diets: Whole Food Plant-Based (WFPB), Plant-Based Meat Alternative (PBMA), Animal Protein (Animal)

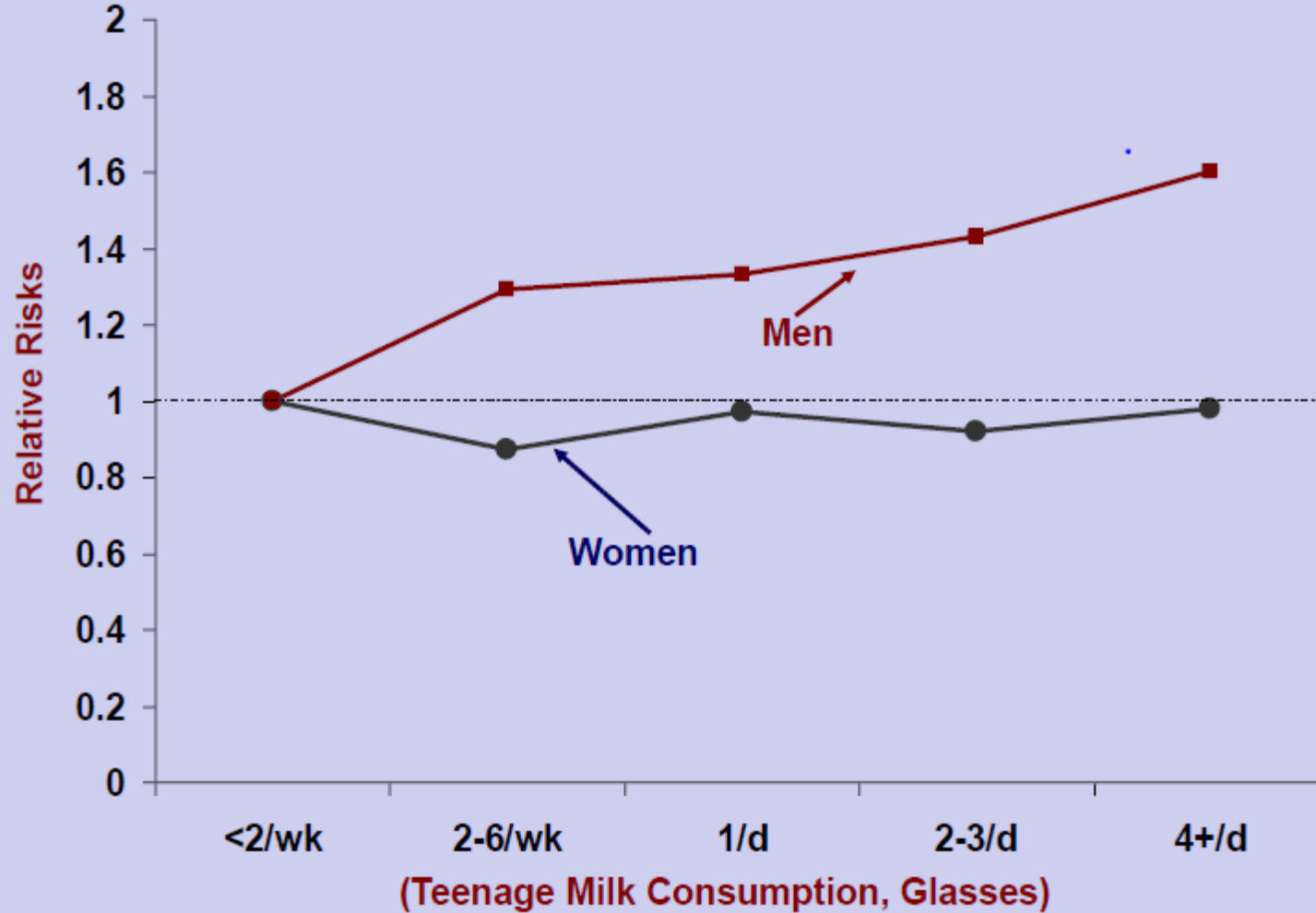
Outcomes	WFPB	PBMA	Animal
Runners <i>12-minute time run, meters</i>	2768	2789	2791
Resistance Trainers <i>Machine composite strength, total kg</i>	298	303	313

Conclusion: No significant difference between different sources of protein intake

Summary of Protein Sources

Replacing red meat with a variety of other protein sources, especially nuts, soy, and other legumes, will have major health benefits.

RR of hip fractures by frequency of milk consumption during teenage years among men aged 50+ years in HPFS and among postmenopausal women in NHS

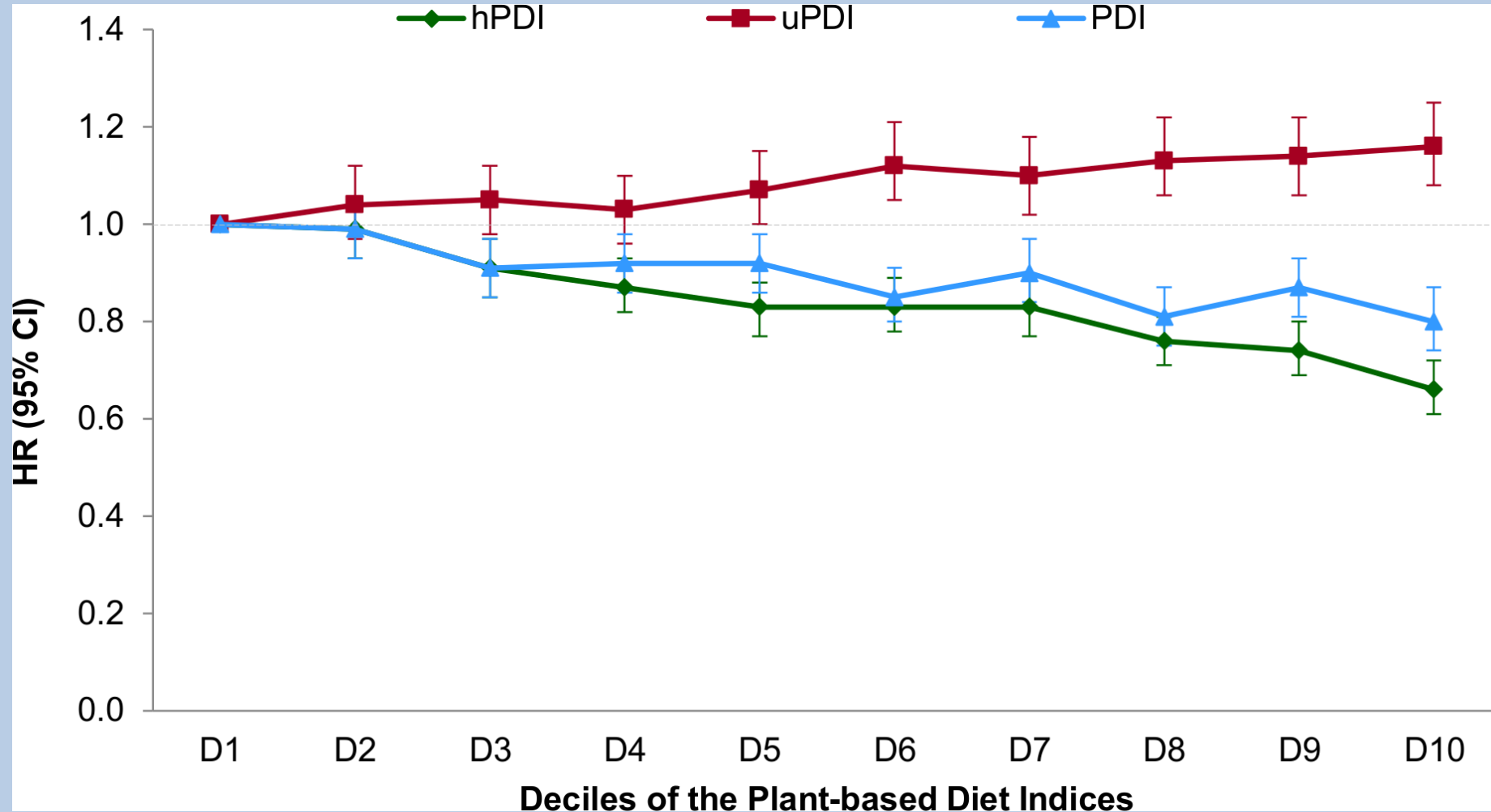


Composition of milk from humans, cows, and plants (per cup, 8 oz, or 240 mL)

Type of Milk		Calor	Prot. (g)	Sugar (g) Natural/ Added	Fat (g)			Calc. (mg)	Pot. (mg)	Fiber (mg)
					Sat.	Mono.	Poly.			
Human		172	2.5	17/0	4.9	4.1	1.2	79	125	0
Cow	Whole milk (3.5% fat)	149	7.5	12/0	4.5	2	0.5	276	322	0
	Low fat milk (1% fat)	102	8	12.5/0	1.5	0.7	0.1	305	366	0
Soy	“Unsweet Soymilk” <i>Silk</i>	80	7	1/0	0.5	1	2.5	300	350	2
Almond	“Unsweetened Almondmilk” <i>Califa Farms</i>	35	1	0/0	0	N/A	N/A	430	35	1
Cashew	“Cashew Unsweetened” <i>Pacific Foods</i>	50	1	0/0	0.5	N/A	N/A	44	N/A	N/A
Coconut	“Coconut Unsweetened” <i>So Delicious</i>	45	0	0/0	3.5	N/A	N/A	130	40	1
Rice	“Enriched Unsweetened” <i>Rice Dream</i>	70	0	<1/0	0	1.5	0.5	325	N/A	0
Hemp	“Hemp Unsweetened” <i>Pacific Foods</i>	60	3	0/0	N/A	0.5	3.5	257	100	N/A
Oat	“Oat Yeah, the 0g sugar one” <i>Silk</i>	60	1	0/0	0	N/A	N/A	460	170	1

(Willett & Ludwig, NEJM 2020)

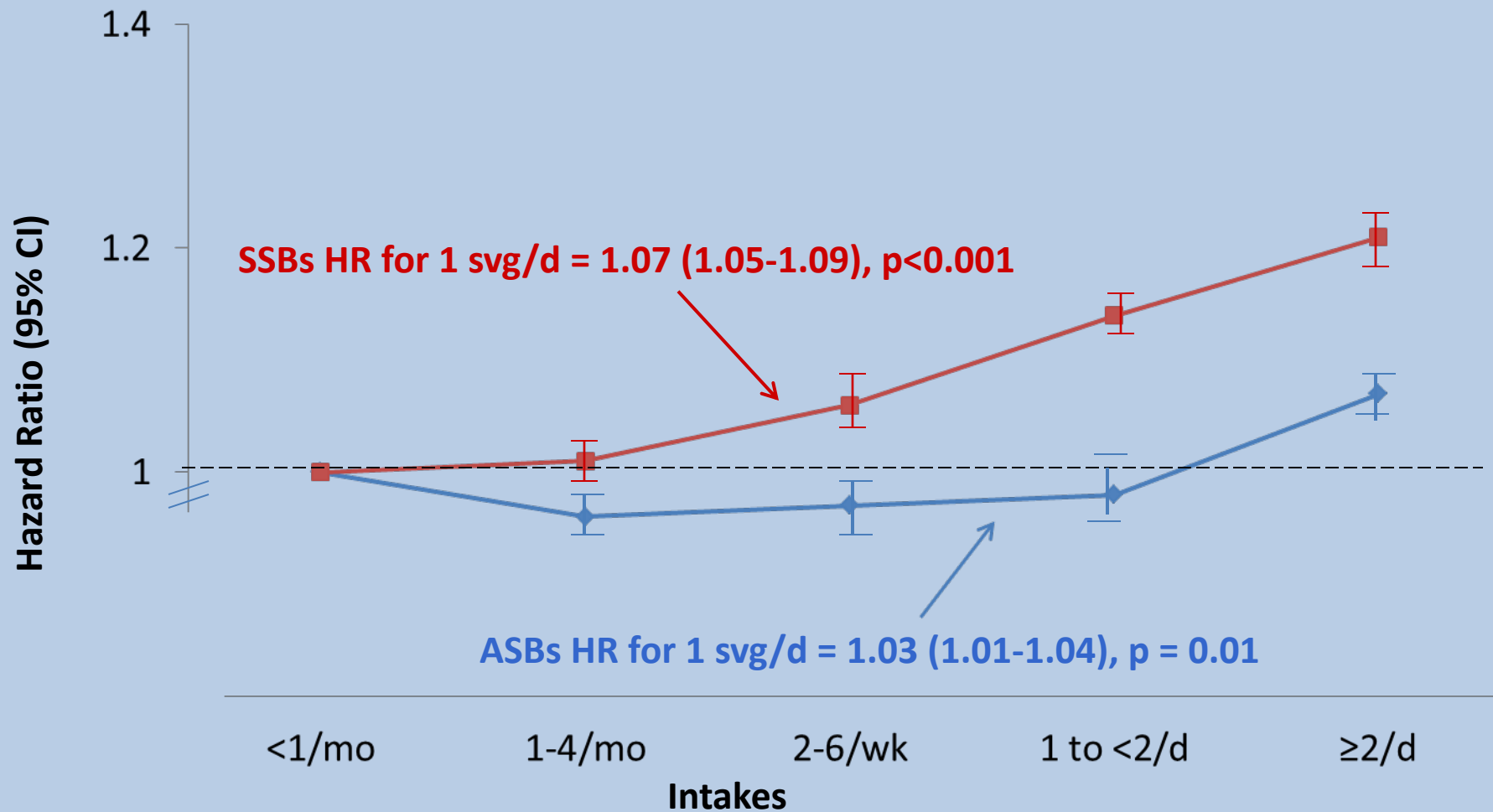
Pooled hazard ratios (95% CI) for type 2 diabetes according to overall, healthful, and unhealthful plant-based diet indices



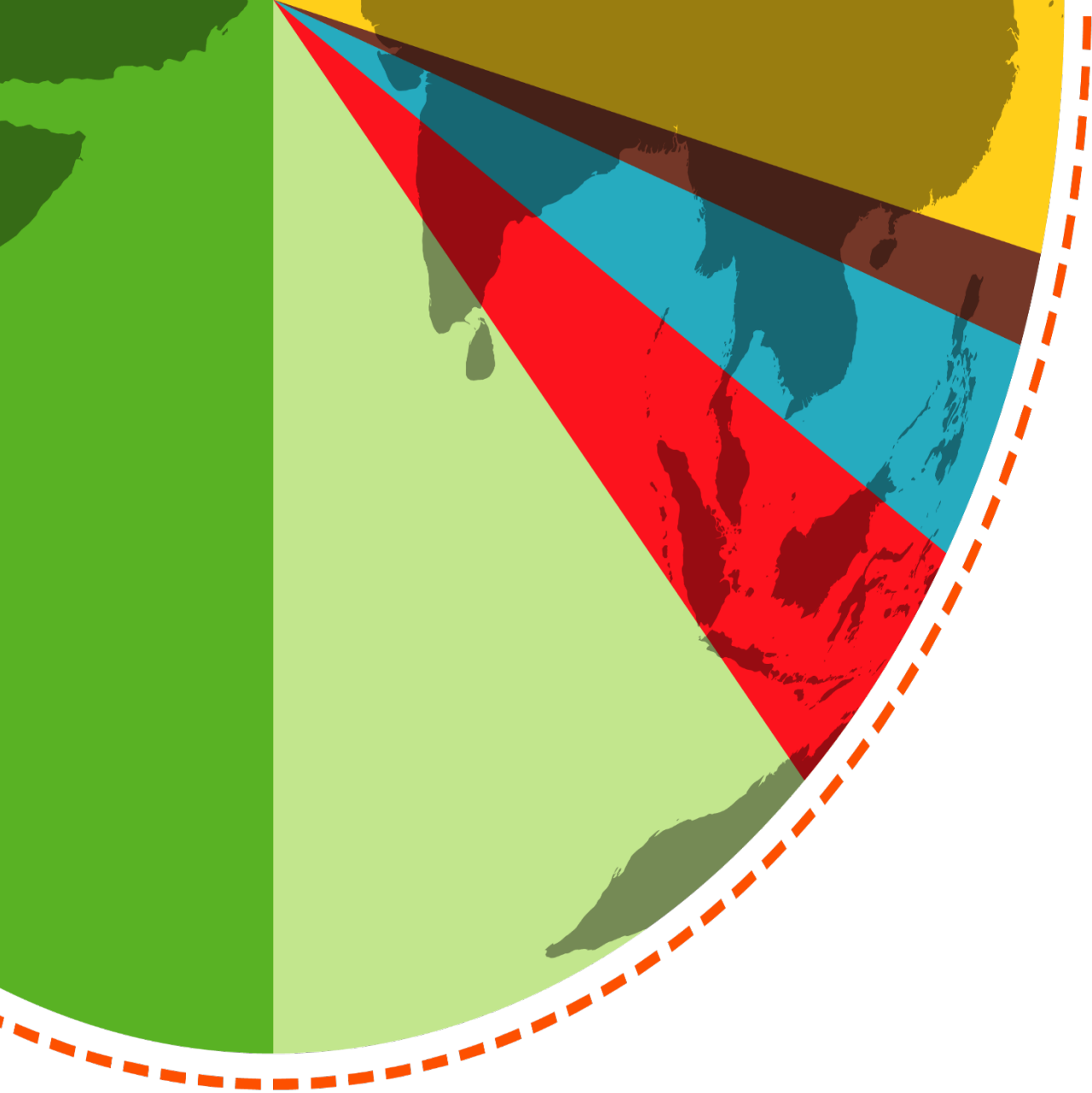
(Satija A et al. PLOS Med 2016)

SSBs and ASBs in relation to total mortality

($n = 118,316$ men and women with 36,436 deaths)



(Malik VS et al. Circulation 2019)



The EAT-Lancet Commission on
Healthy Diets From
Sustainable Food Systems

Food Planet Health

Planetary Health Diet Bottom Line (Flexitarian)

Servings/Day of Animal Source Foods (Optional)

1

Dairy

+

1

Other

(fish, poultry, eggs, red meat)



**Base: Nuts, soy, beans, fruit,
vegetables, whole grains, plant oils**



HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.



The more veggies—and the greater the variety—the better. Potatoes and french fries don't count.

Eat plenty of fruits of all colors.

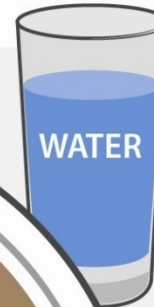


STAY ACTIVE!

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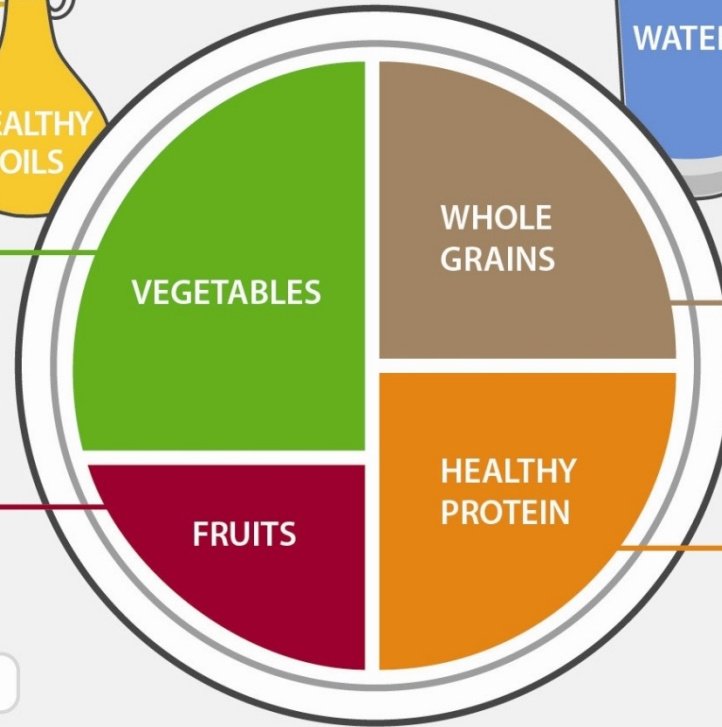
Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource



Drink water, tea, or coffee (with little or no sugar).
Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day).
Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta).
Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.



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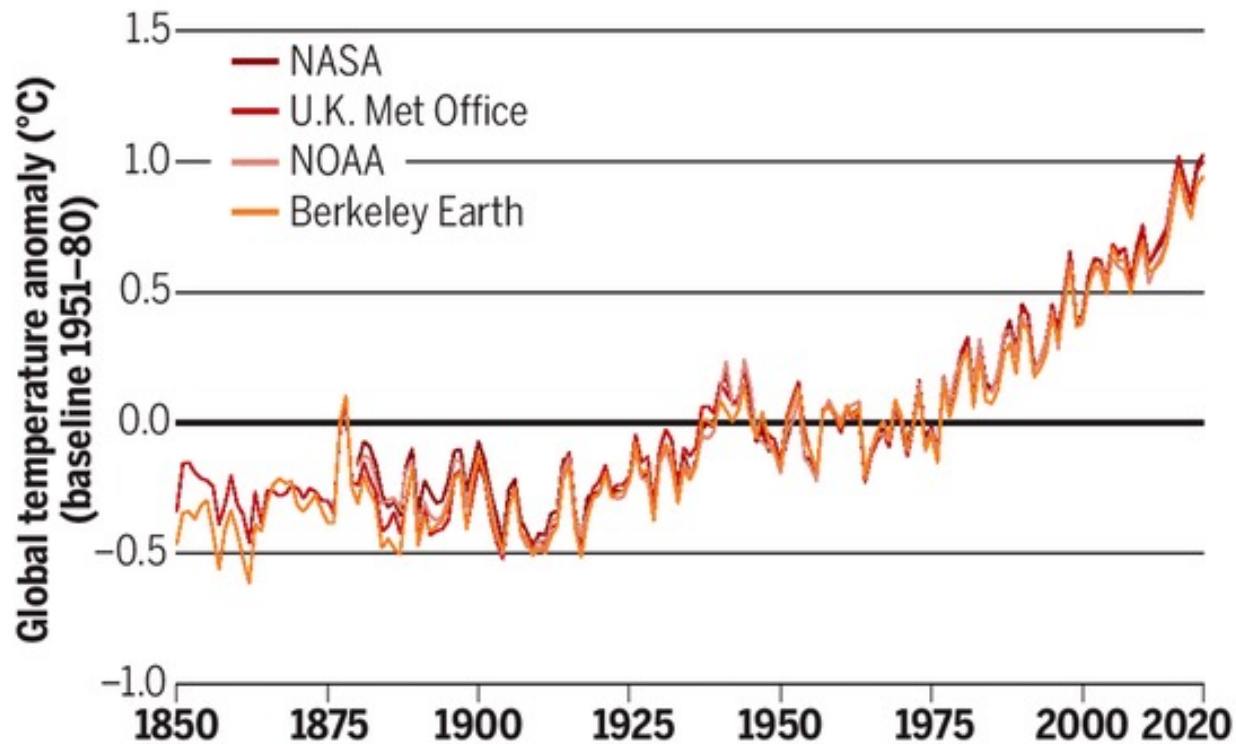


Estimated avoided premature deaths among adults by global adoption of reference diet

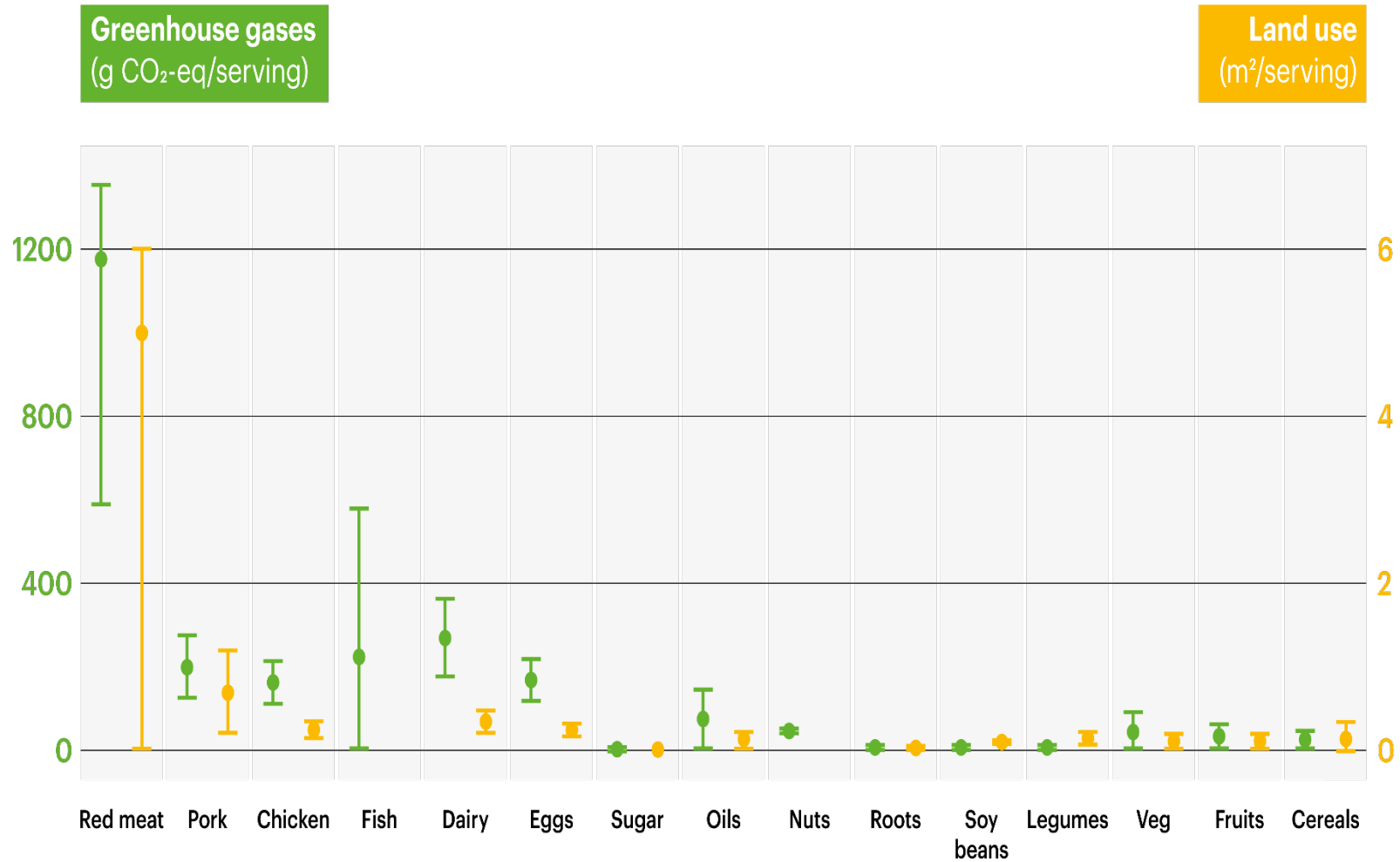
	Percentage	Number
Comparative Risk Model*	19%	11 100 000 (using Global Burden of Disease number of total deaths; 158 countries)
Global Burden of Disease Model†	22·4%	10 886 000 (195 countries)
Empirical Disease Risk‡	23·6%	11 600 000 (190 countries)

Turning up the heat

Temperatures in 2020 tied 2016's record levels. They were about 1°C above a 1951–80 average, or 1.25°C hotter than preindustrial levels.



Environmental Effects per Serving of Food Produced





14.099

Mai Pham, *STAR GINGER | LEMON GRASS KITCHEN*

West Africa



Sara Baer-Sinnott, Oldways



Feeding 10 billion people a healthy diet within safe planetary boundaries is possible and will improve the health and well being of billions of people. This could allow us to pass onto our children a viable planet.

