יהיו מזונותיך תרופותיך

הרצאה שניה: חומרים מועילים חומרים מזיקים

אורית אופיר, דיאטנית קלינית, דוקטורנטית
לתזונה באוניברסיטה העברית

Why is a whole food plant based diet better?

The Protein Package

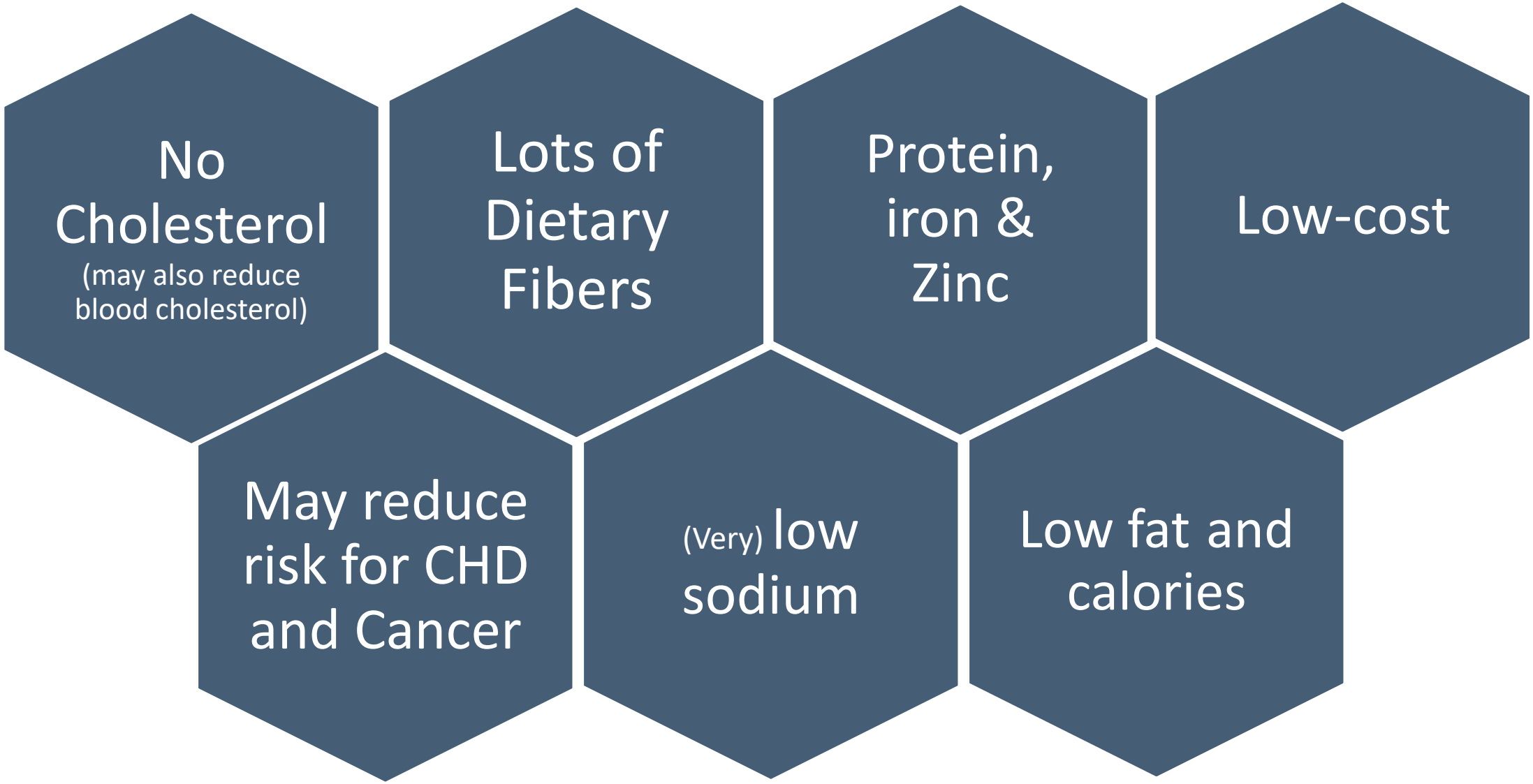
It's all about the protein "package"

When we eat foods for protein, we also eat everything that comes alongside it: the different fats, fiber, sodium, and more. It's this protein "package" that's likely to make a difference for health.

The table below shows a sample of food "packages" sorted by protein content, alongside a range of components that come with it.

Legumes – super food for everyone

Legumes' benefits



Rebello et al. (2014). A review of the nutritional value of legumes and their effects on obesity and its related co-morbidities. *Obesity Reviews*,

כאן את יכולה לשים את אחת הטבלאות היפות שלך
שמשווה בין קטניות לבין חלבון עוף שנחשב לכאורה לבריא
בינתיים שמתי קצת שטויות שלי בסטייל הזה

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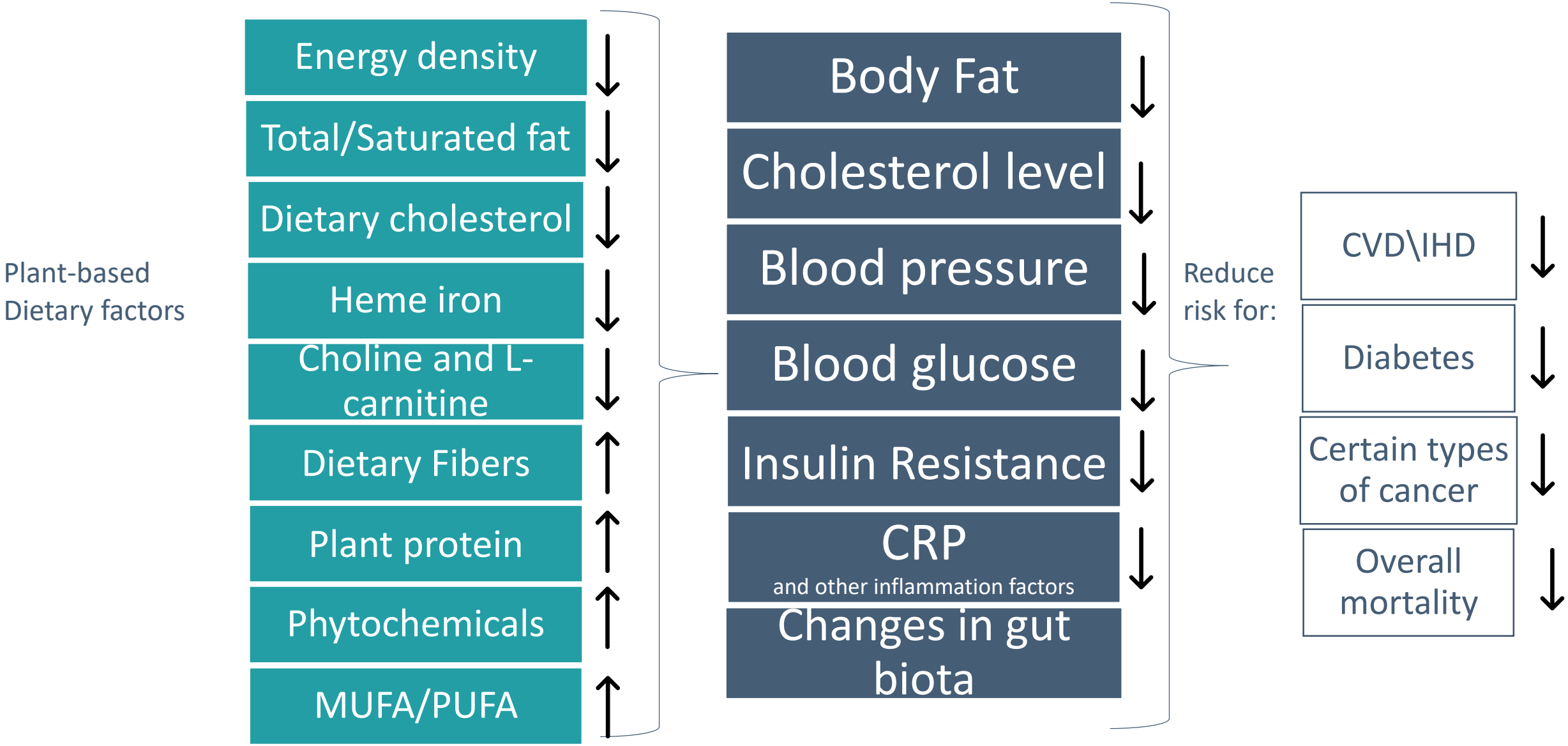
אתר הקטניות של ישראל!

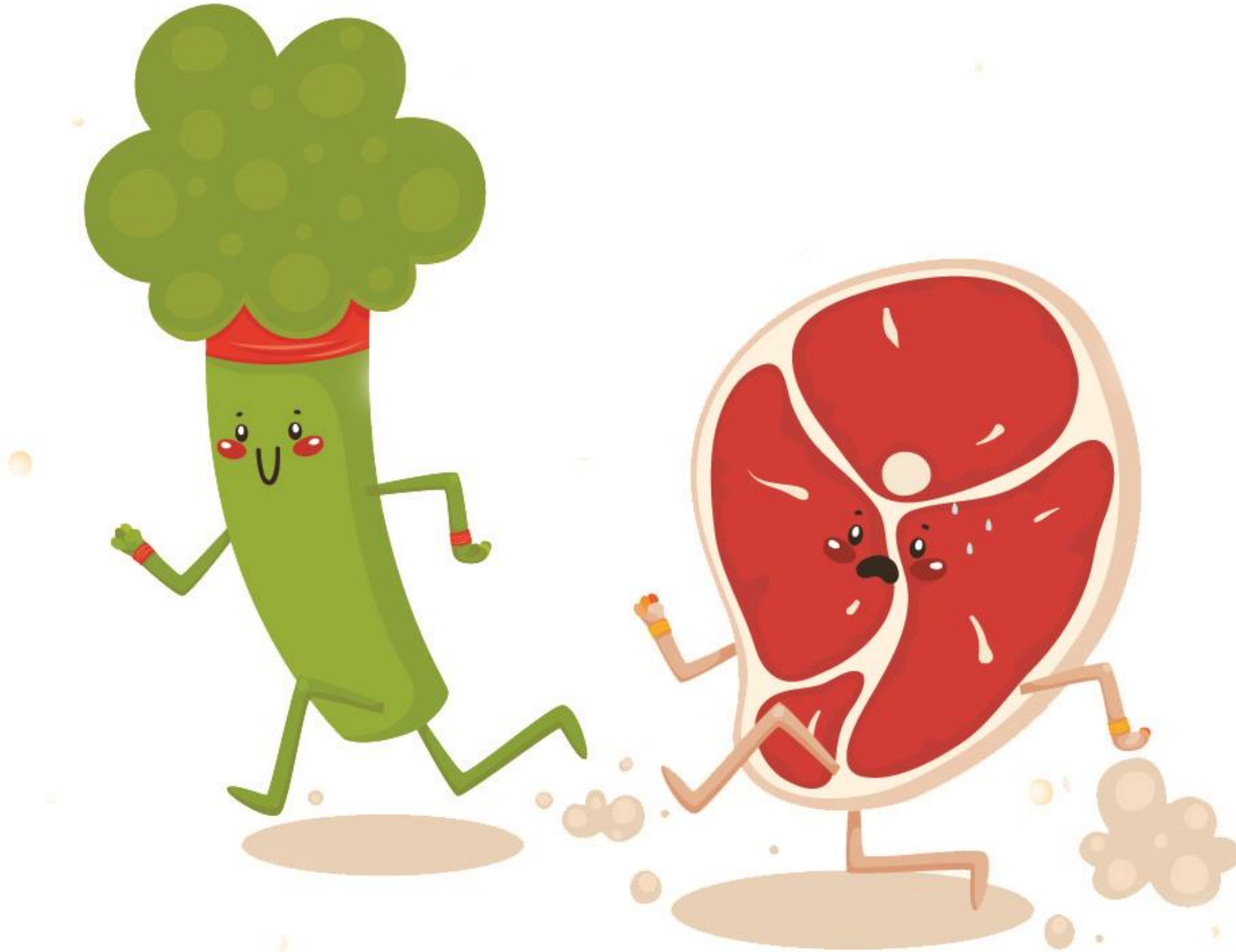
Overall pattern by which Plant-based diets reduce risk for certain diseases



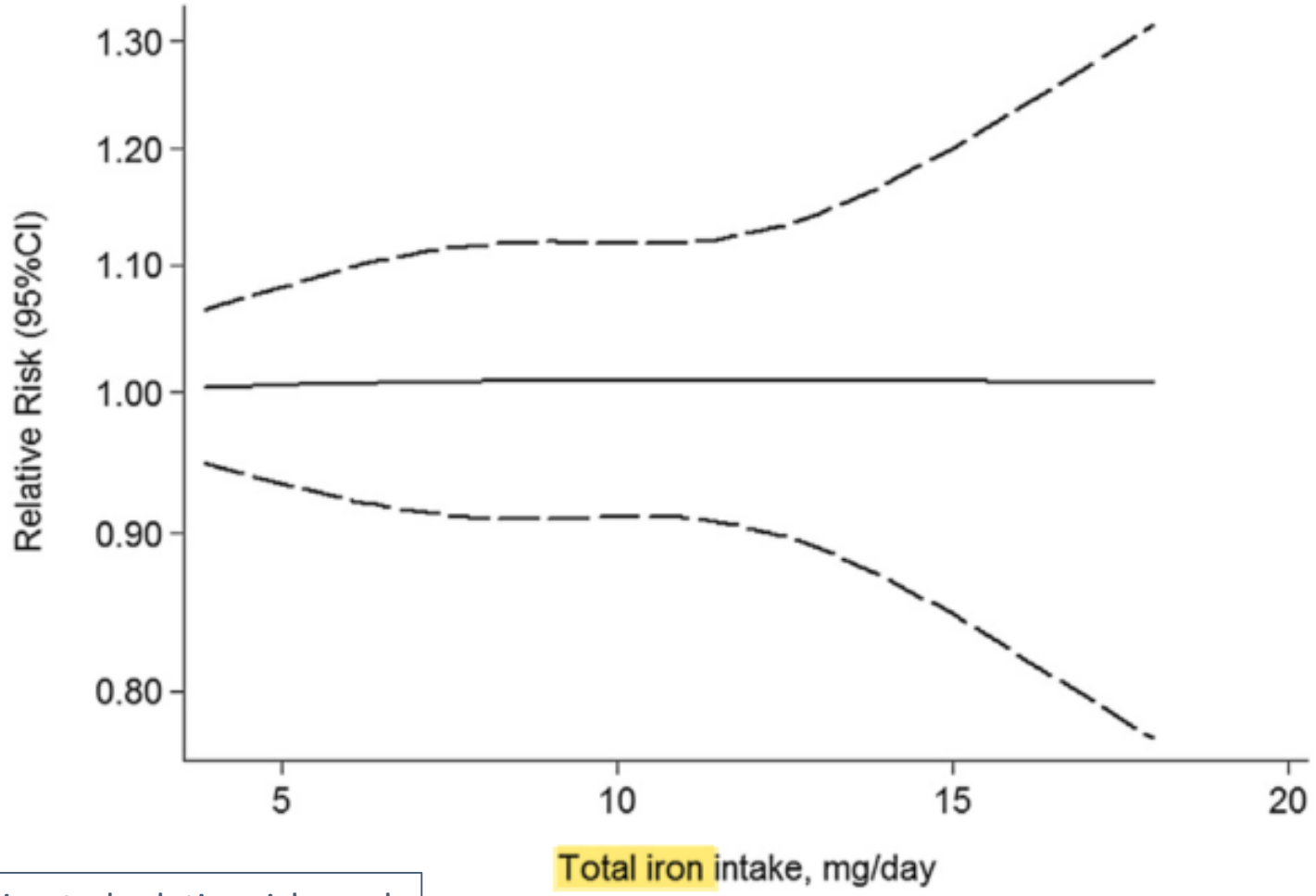
Desmond MA et al. (2018) *Nutr. Rev.*; Hever J (2016) Perm. J

Harmful Nutrients that a Healthy Plant Based Diet Eliminates

Heme Iron vs Non-Heme Iron



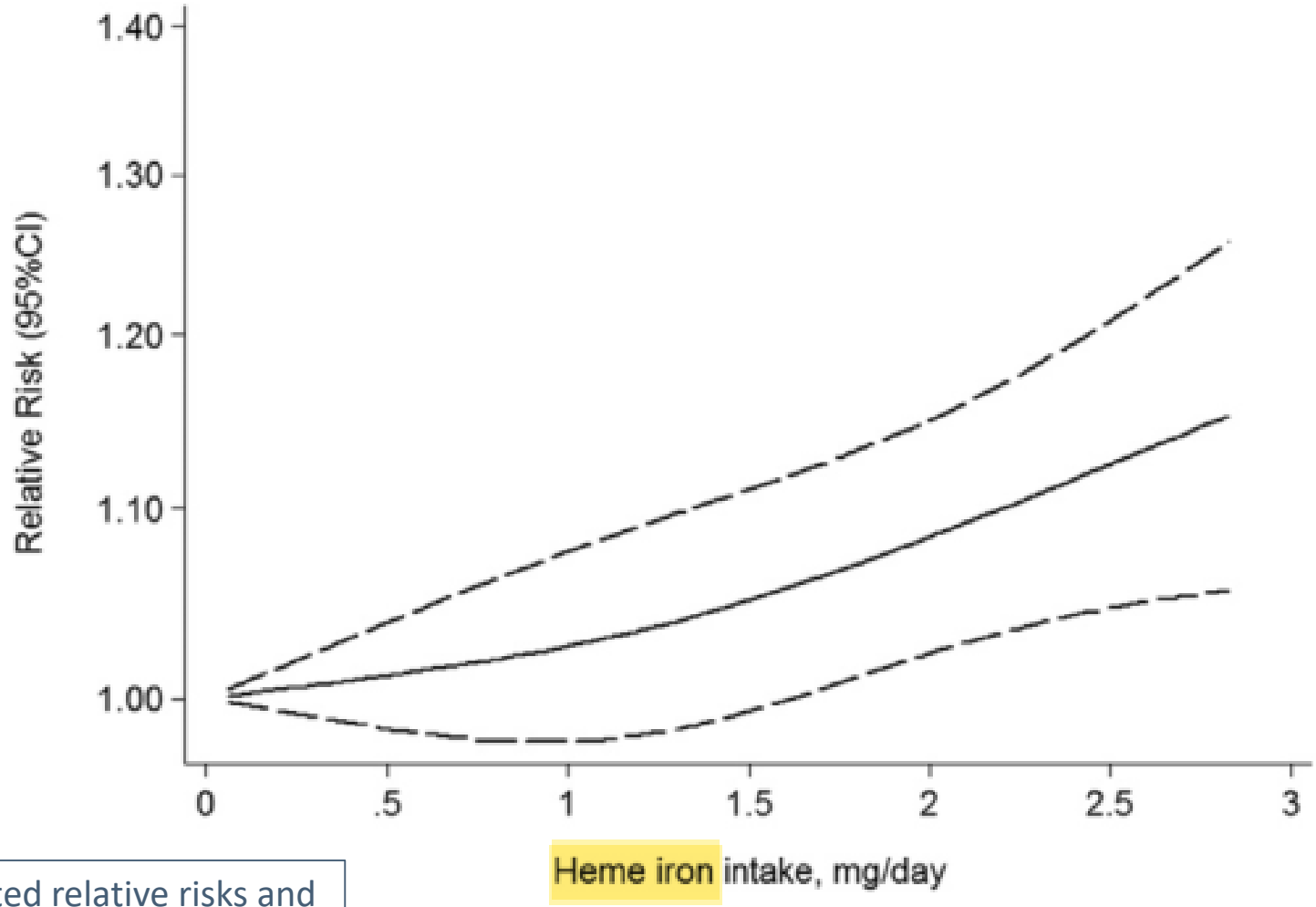
Total Iron and the Risk of CVD
Dose-Response Analysis



The solid line signifies the estimated relative risks and the dashed lines signify the 95% confidence intervals

Fang X et al. (2014) Dietary intake of heme iron and risk of cardiovascular disease: A dose-response meta-analysis of prospective cohort studies. *Nutr. Metab. Cardiovasc. Dis.*

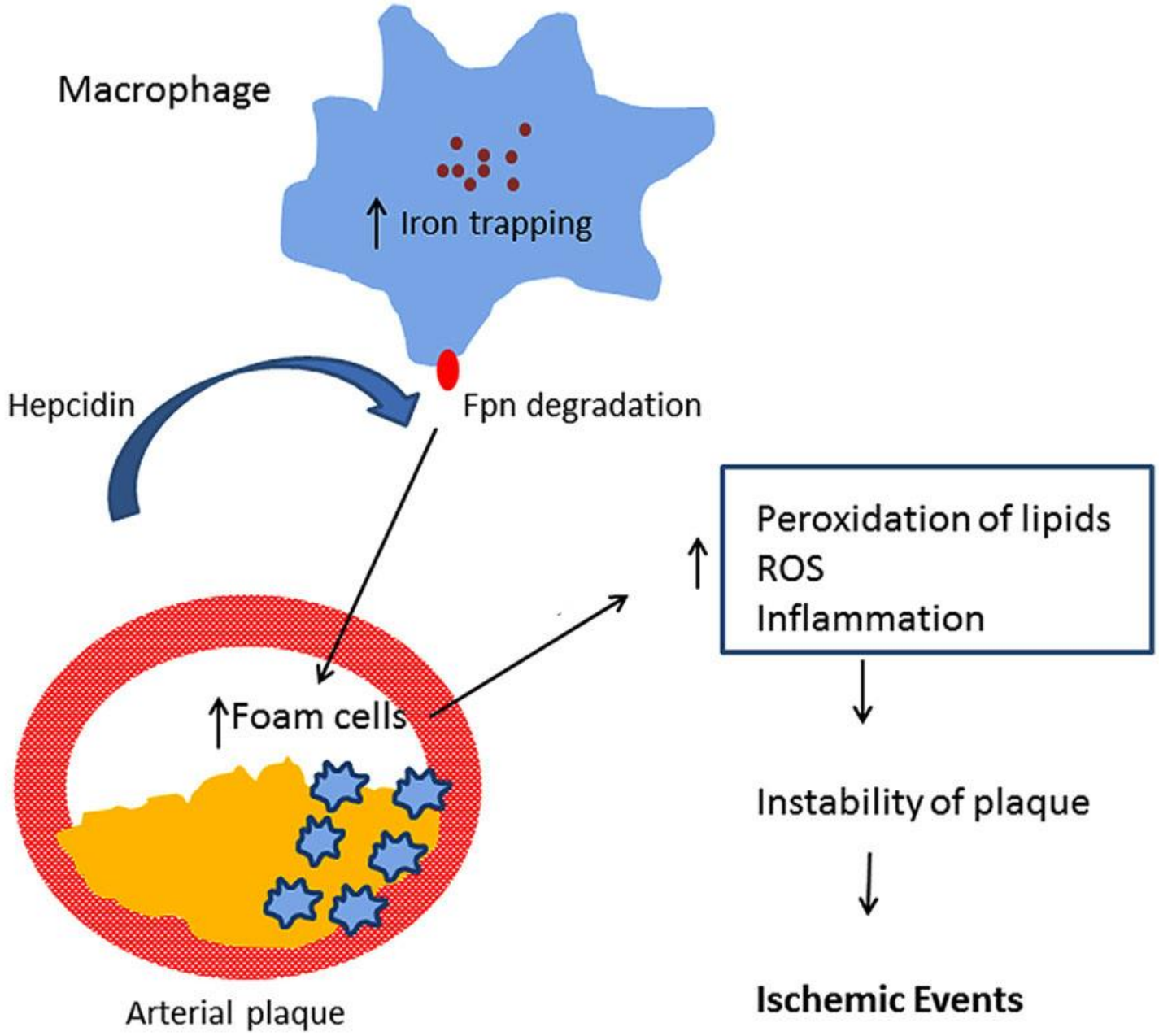
Dietary Heme Iron and the Risk of CVD
Dose-Response Analysis



The solid line signifies the estimated relative risks and the dashed lines signify the 95% confidence intervals

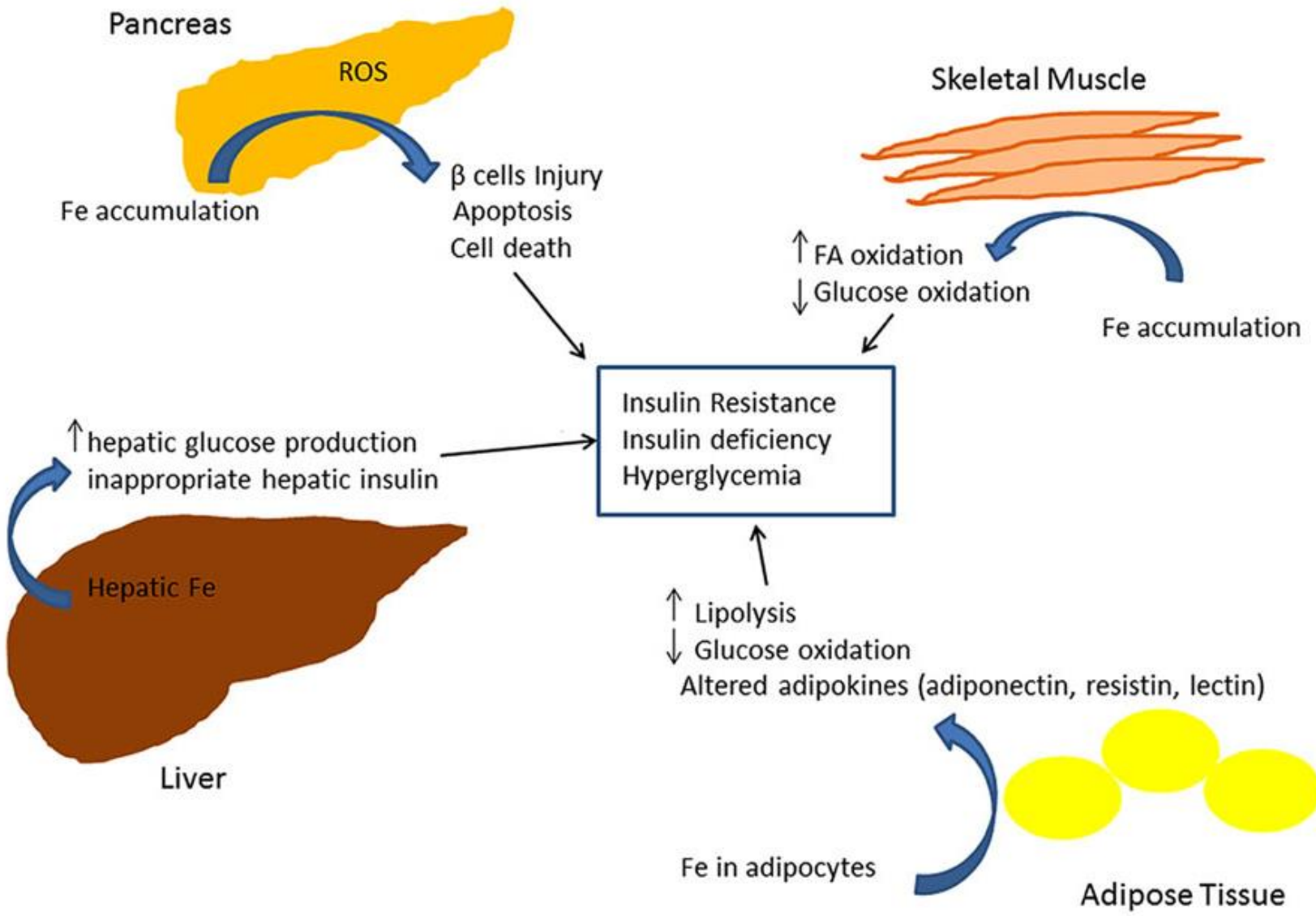
Fang X et al. (2014) Dietary intake of heme iron and risk of cardiovascular disease: A dose-response meta-analysis of prospective cohort studies. *Nutr. Metab. Cardiovasc. Dis.*

Iron Retention in Macrophages Promotes Arterial Plaque Destabilization

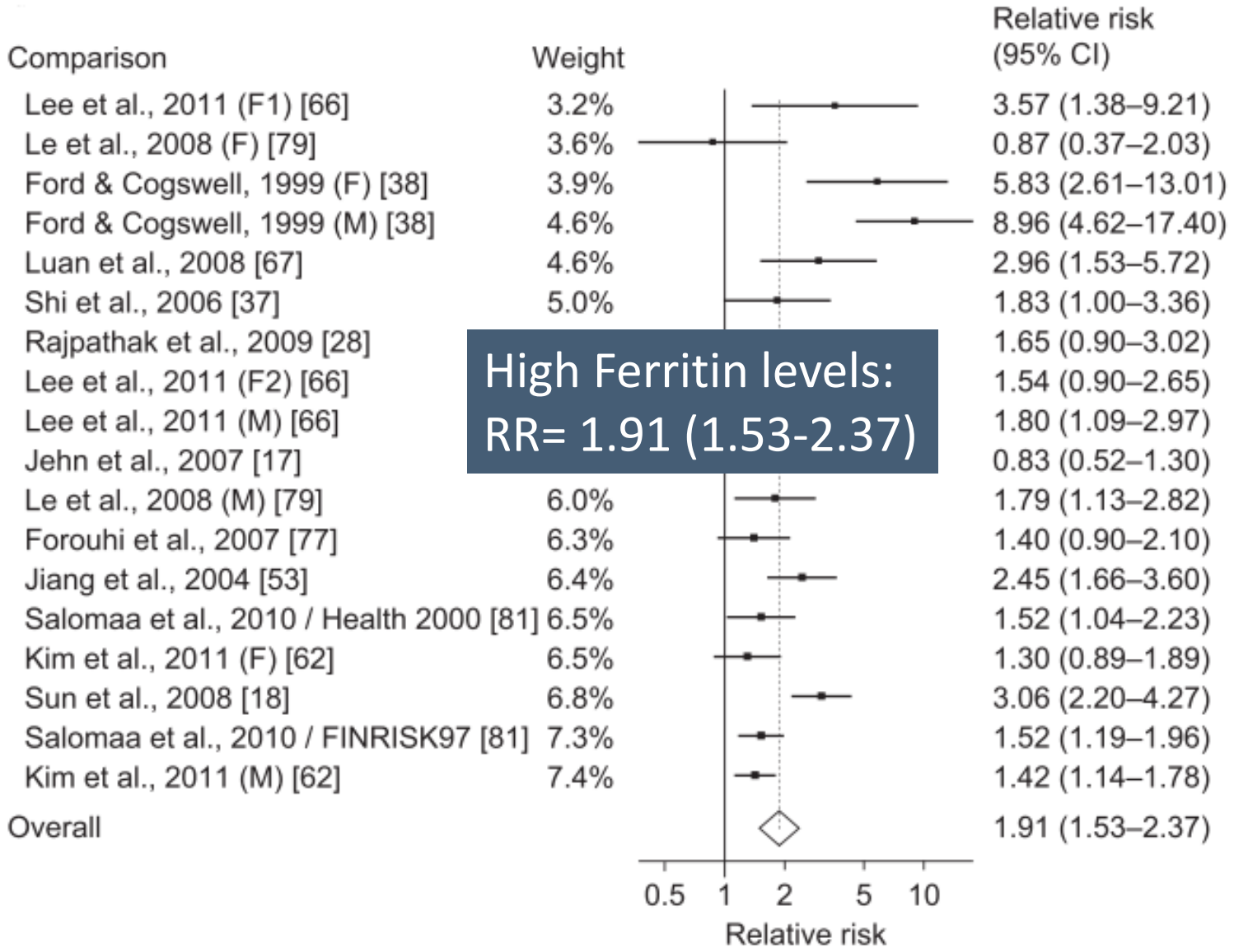


Basuli D, Stevens RG, Torti FM, et al. (2014) Epidemiological associations between iron and cardiovascular disease and diabetes. *Front. Pharmacol.*

Multiple mechanisms through which iron can lead to insulin resistance and insufficiency



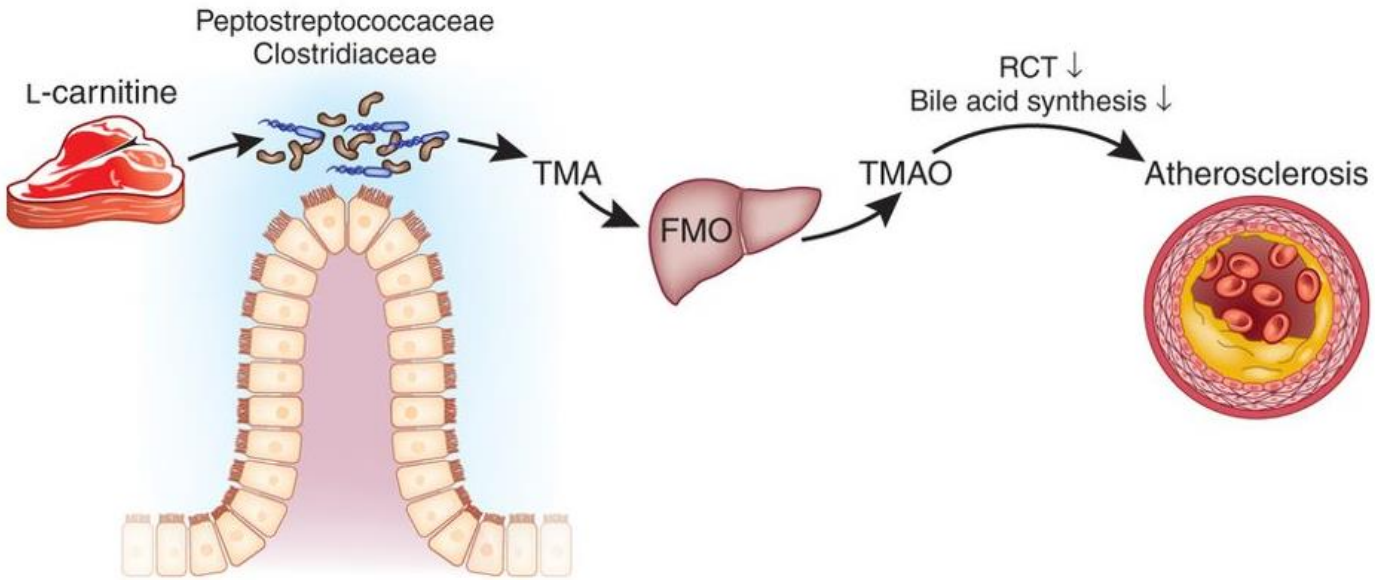
Ferritin Levels and Risk for Diabetes - Highest vs. Lowest Quartile



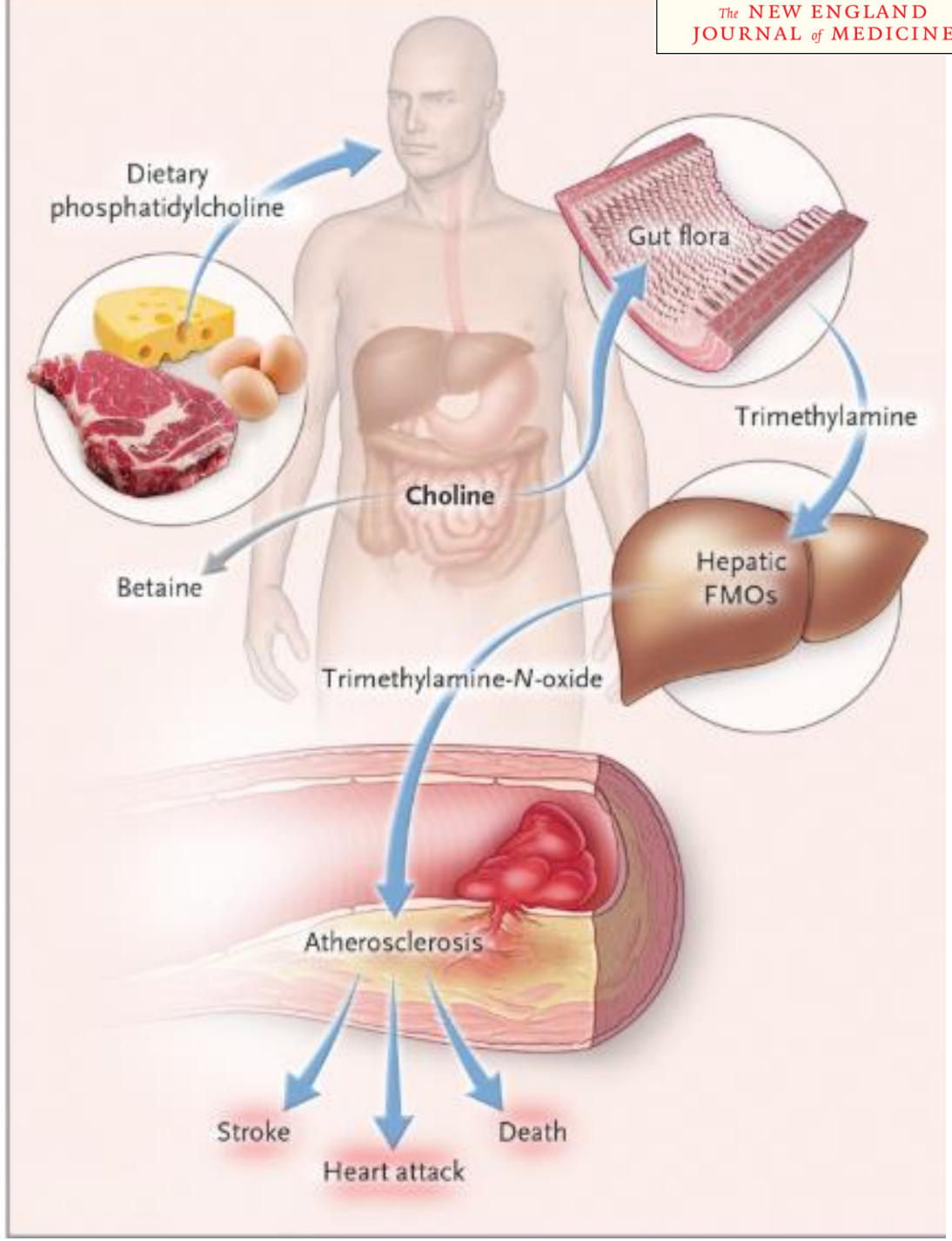
Orban E et al. (2014) Association of iron indices and type 2 diabetes: a meta-analysis of observational studies. *Diabetes. Metab. Res. Rev.*

Gut biota

Pathways Linking Dietary choline and L-Carnitine, Intestinal Microbiota and cardiovascular Events

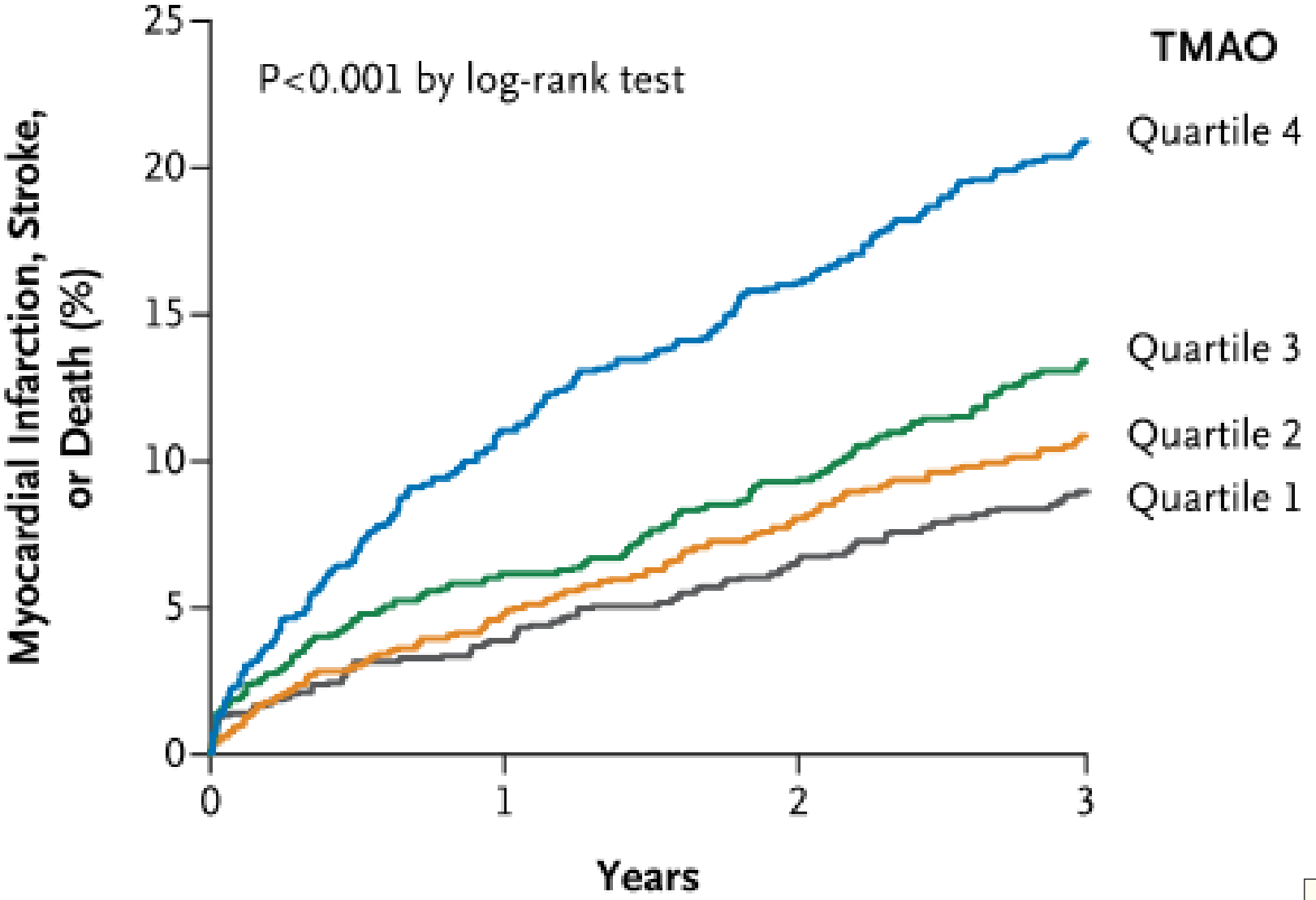


nature medicine



Tang WHW et al. (2013); Bäckhed et al. (2013)

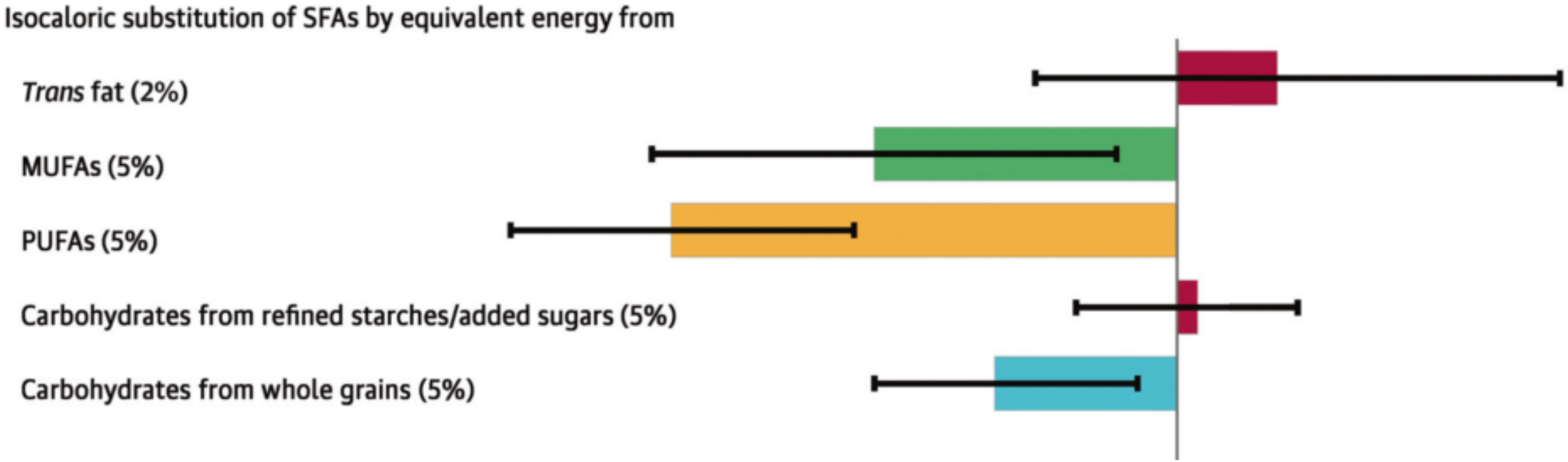
Kaplan–Meier Estimates of Major Adverse Cardiovascular Events, According to the Quartile of TMAO Level



Tang WHW et al. (2013). *N. Engl. J. Med.*

Saturated Fat and Coronary Heart Disease

CENTRAL ILLUSTRATION **Fat, Carbohydrates, and Heart Disease: Estimated Percentage of Changes in the Risk of Coronary Heart Disease Associated With Isocaloric Substitutions of 1 Dietary Component for Another**



Changes in risk are derived from hazard ratios and represented as solid bars; bars represent 95%CI .The multivariable model was adjusted for total energy intake, the energy contribution from protein, cholesterol intake, alcohol intake, smoking ,BMI ,physical activity, use of vitamins and aspirin, family history of myocardial infarction and diabetes, and presence of baseline hypercholesterolemia and hypertension. MUFA = monounsaturated fatty acid; PUFA =polyunsaturated fatty acid; SFA =saturated fatty acid

Li Y, et al. (2015) Saturated Fats Compared with Unsaturated Fats and Sources of Carbohydrates in Relation to Risk of Coronary Heart Disease A Prospective Cohort Study. *J. Am. Coll. Cardiol*

Dietary Cholesterol

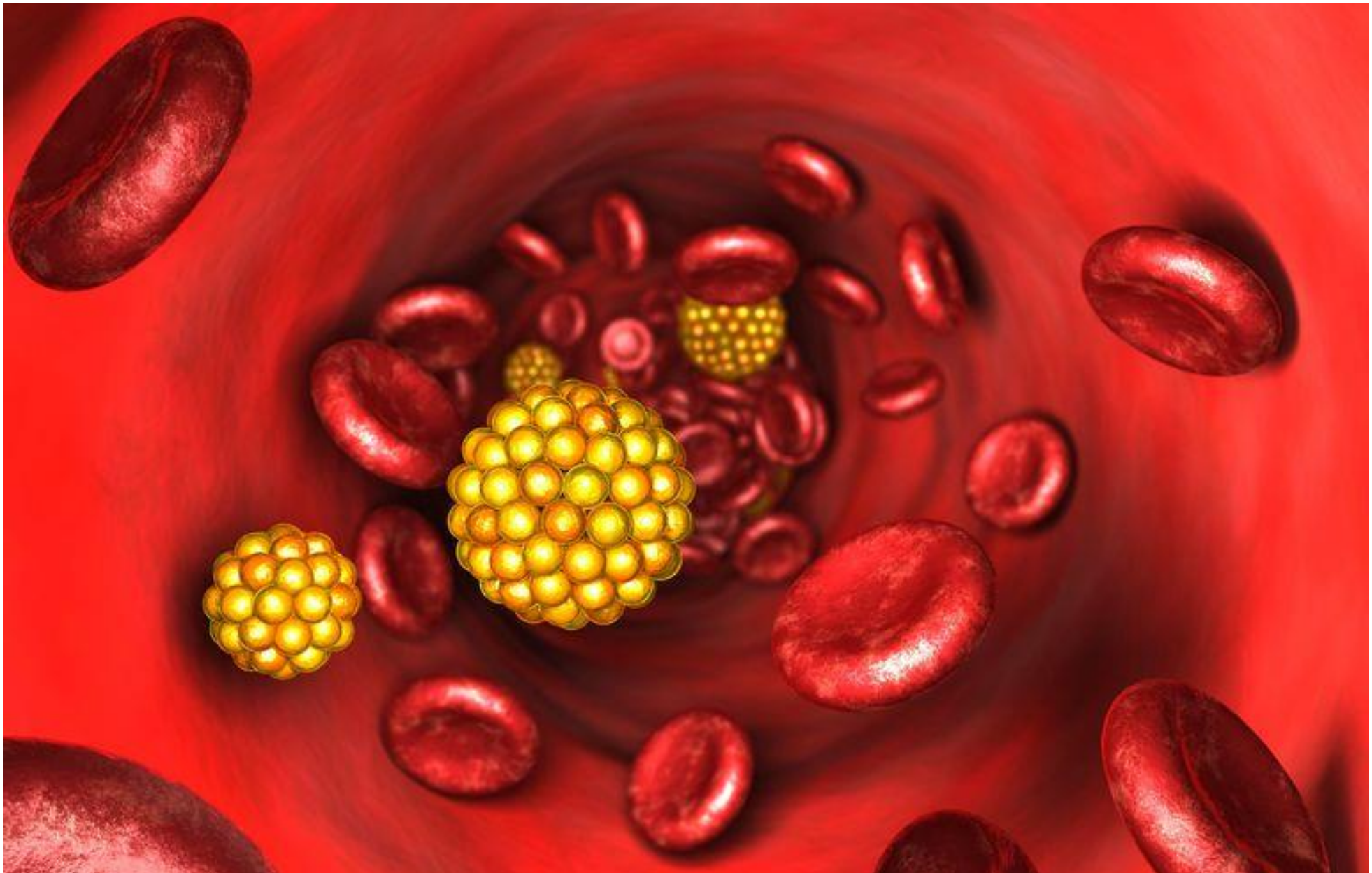
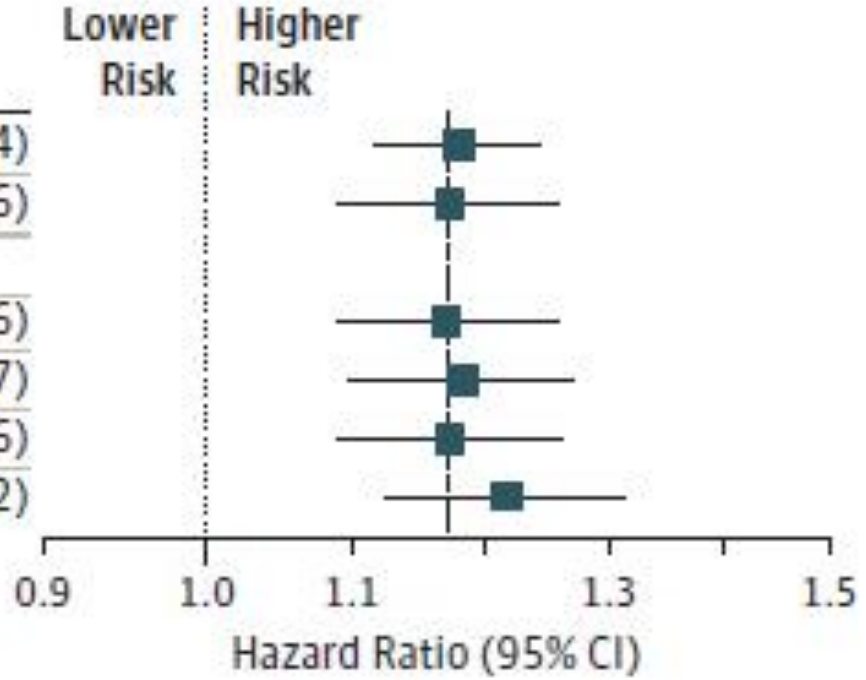


Figure 2. Associations Between Each Additional 300 mg of Dietary Cholesterol Consumed per Day and Incident CVD and All-Cause Mortality

A Dietary cholesterol consumed per day and incident CVD

	Absolute Risk Difference, % (95% CI)[a]	Hazard Ratio (95% CI)[b]
Model 1[c]	3.25 (1.95 to 4.54)	1.18 (1.12-1.24)
Model 2[c]	3.24 (1.39 to 5.08)	1.17 (1.09-1.26)
Model 2 plus dietary patterns[c]		
aHEI-2010 score[e]	3.21 (1.28 to 5.14)	1.17 (1.09-1.26)
DASH diet score[e]	3.44 (1.76 to 5.11)	1.18 (1.10-1.27)
aMED diet score[e]	3.23 (1.26 to 5.21)	1.17 (1.09-1.26)
9 Food groups[f]	4.11 (2.40 to 5.83)	1.22 (1.13-1.32)



Adjusted for age, sex, race/ethnicity, education energy, smoking status, smoking pack- years, physical activity, alcohol intake, use of hormone therapy

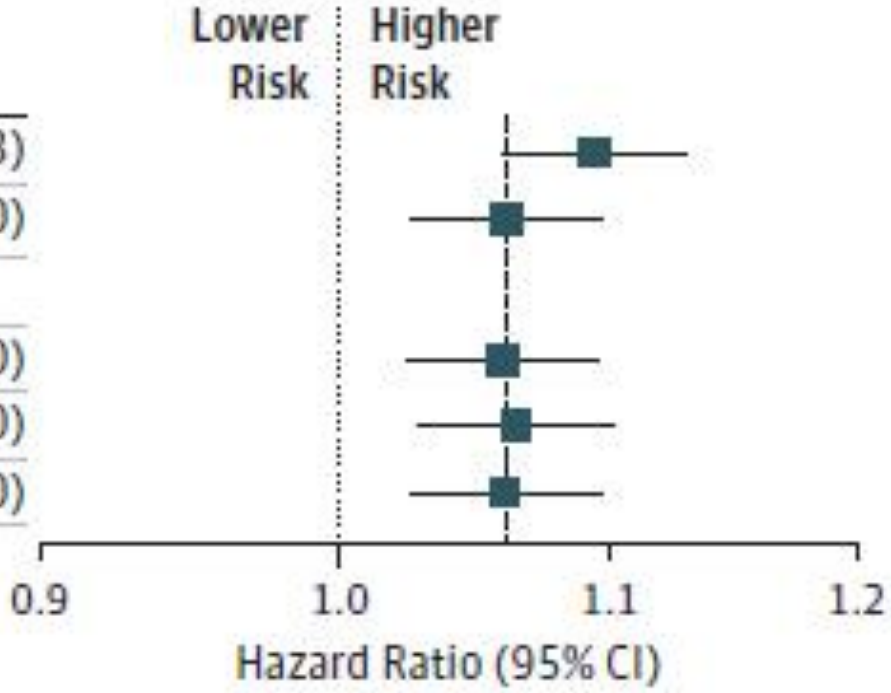
Zhong VW, Van Horn L, Cornelis MC, et al. (2019) Associations of Dietary Cholesterol or Egg Consumption with Incident Cardiovascular Disease and Mortality.

JAMA

Figure 4. Associations Between Each Additional Half an Egg Consumed per Day and Incident CVD and All-Cause Mortality

A Additional half egg consumed per day and incident CVD

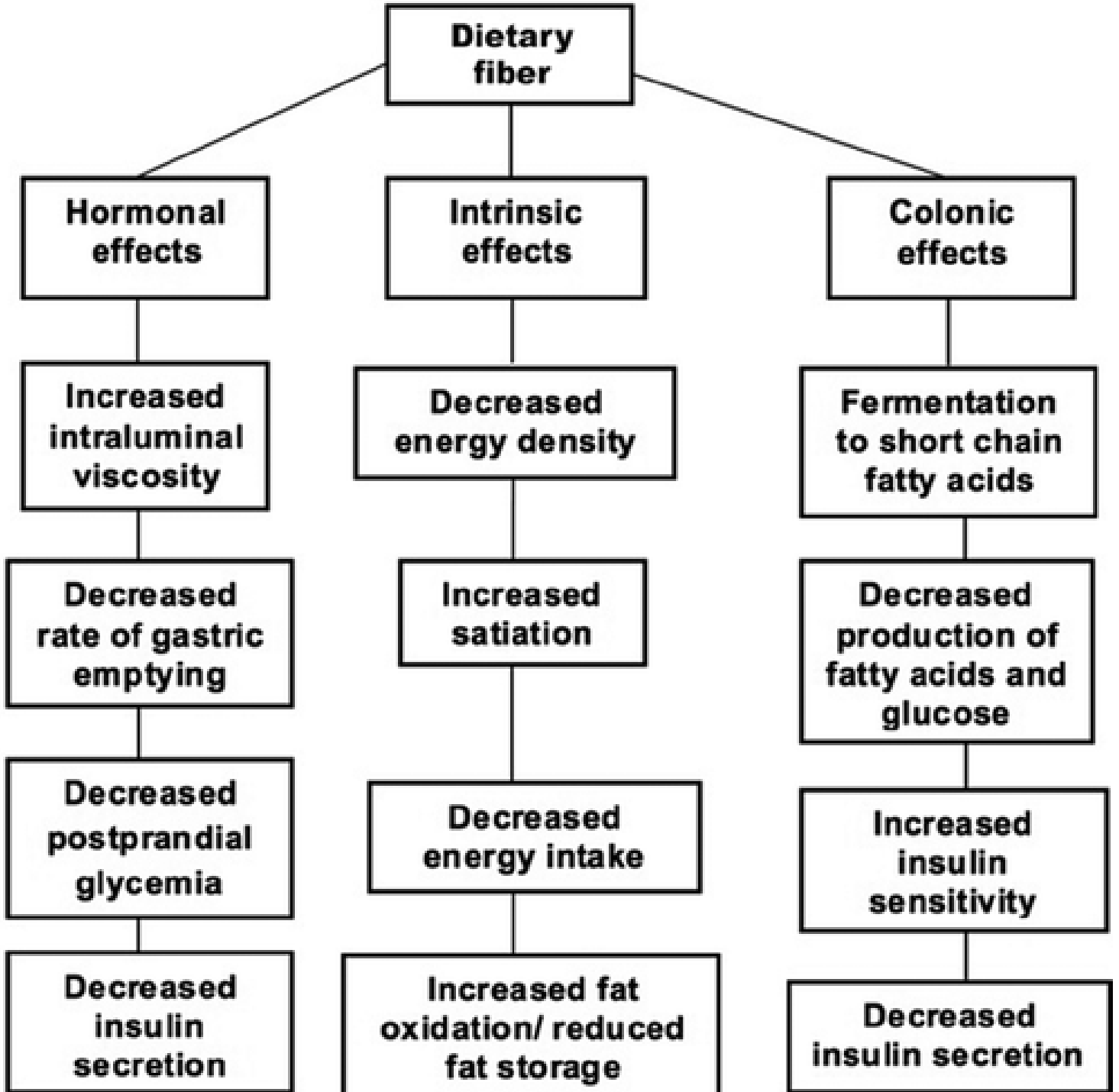
	Absolute Risk Difference, % (95% CI)[a]	Hazard Ratio (95% CI)[b]
Model 1[c]	1.68 (0.94 to 2.42)	1.09 (1.06-1.13)
Model 2[c]	1.11 (0.32 to 1.89)	1.06 (1.03-1.10)
Model 2 plus dietary patterns[c]		
aHEI-2010 score[d]	1.09 (0.15 to 2.02)	1.06 (1.02-1.10)
DASH diet score[d]	1.20 (0.26 to 2.13)	1.06 (1.03-1.10)
aMED diet score[d]	1.10 (0.20 to 2.00)	1.06 (1.02-1.10)



Adjusted for age, sex, race/ethnicity, education energy, smoking status, smoking pack- years, physical activity, alcohol intake, use of hormone therapy

Nutrients a Healthy Plant Based Diet Includes in Abundance

Dietary Fibers Various Effect



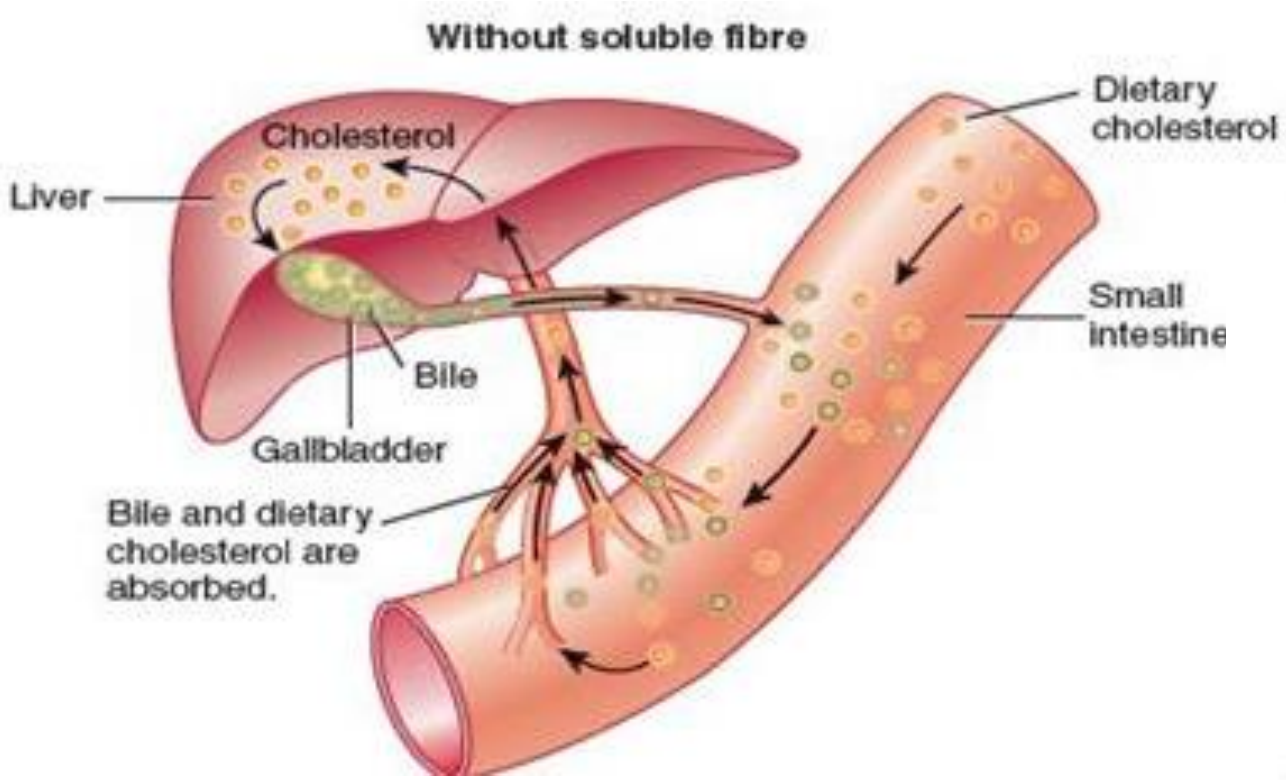
Maphosa Y & Jideani VA (2016) Dietary fiber extraction for human nutrition—A review. Food Rev. Int.

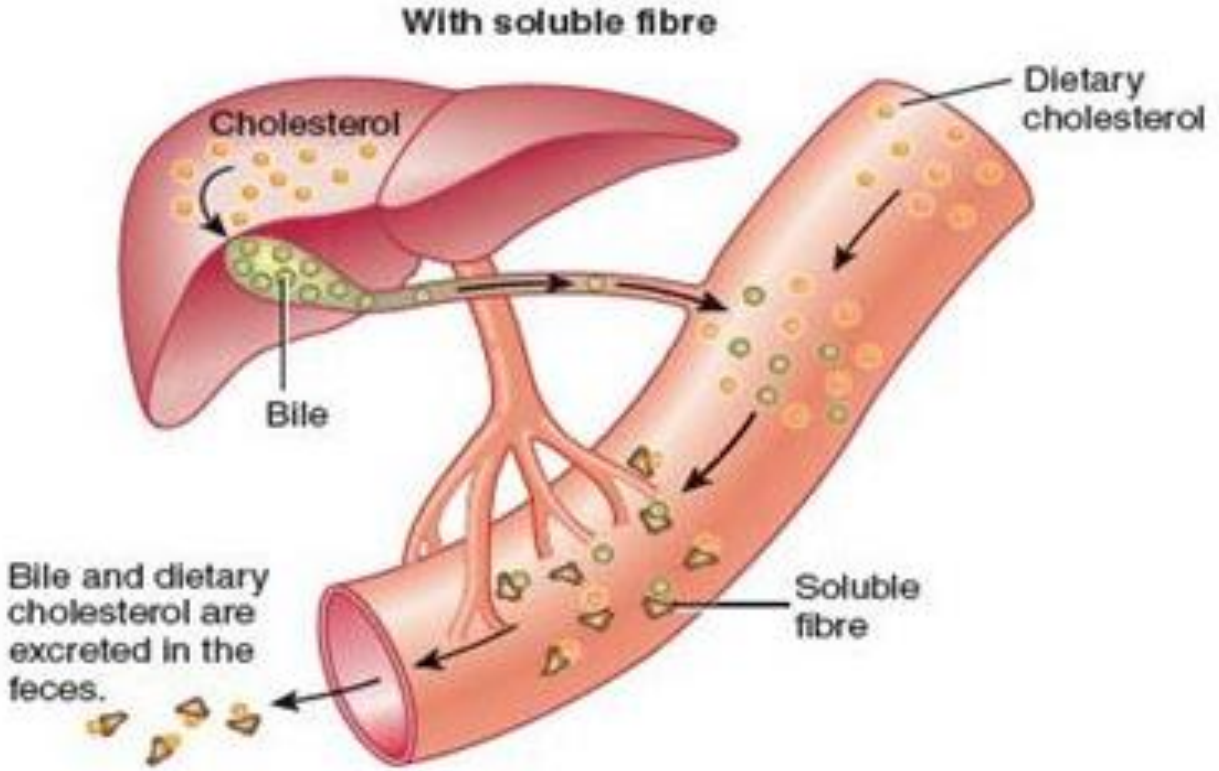
Dietary Fibers Deficiency in Israel

צריכה בהתאם להמלצות Intake in accordance with the recommendations				המלצה Recommendation	רכיב התזונה Nutrient
עוקבה 2009-2011 Age 35-74 N=136 גברים		מב"ת ראשון 1999-2001 Age 25-64 N=136 גברים		גברים Males	
%	n	%	n		
16.2	22	6.6	9	Age 19-50: 38 Age >50: 30	סיבים תזונתיים Dietary Fiber (gr/day)) - **AI**
עוקבה 2009-2011 Age 35-74 N=169 נשים		מב"ת ראשון 1999-2001 Age 25-64 N=169 נשים		נשים Females	רכיב התזונה Nutrient
%	n	%	n		
29.6	50	17.8	30	Age 19-50: 25 Age >50: 21	סיבים תזונתיים Dietary Fiber (gr/day)) - **AI**

משרד הבריאות (2014) סקר מב"ת עוקבה 2009-2011. פרסום 358.

Soluble Fibers and the Enterohepatic cycling





Rideout, T. C. Et al. (2008) Guar gum and similar soluble fibers in the regulation of cholesterol metabolism: Current understandings and future research priorities. Vascular Health and Risk Management

Total antioxidant content of plant-based foods vs. Animal based foods

Table 1 Statistical descriptives of the Antioxidant Food Table and individual categories

	Antioxidant content				
	n	mean	median	min	max
Plant based foods	1,943	1,157	88	0	289,711
Animal based foods	21 1	18	10	0	100

in mmol/100 g

Carlsen MH, et al. (2010) The total antioxidant content of more than 3100 foods, beverages, spices, herbs and supplements used worldwide. *Nutr. J.* **9**, 3.

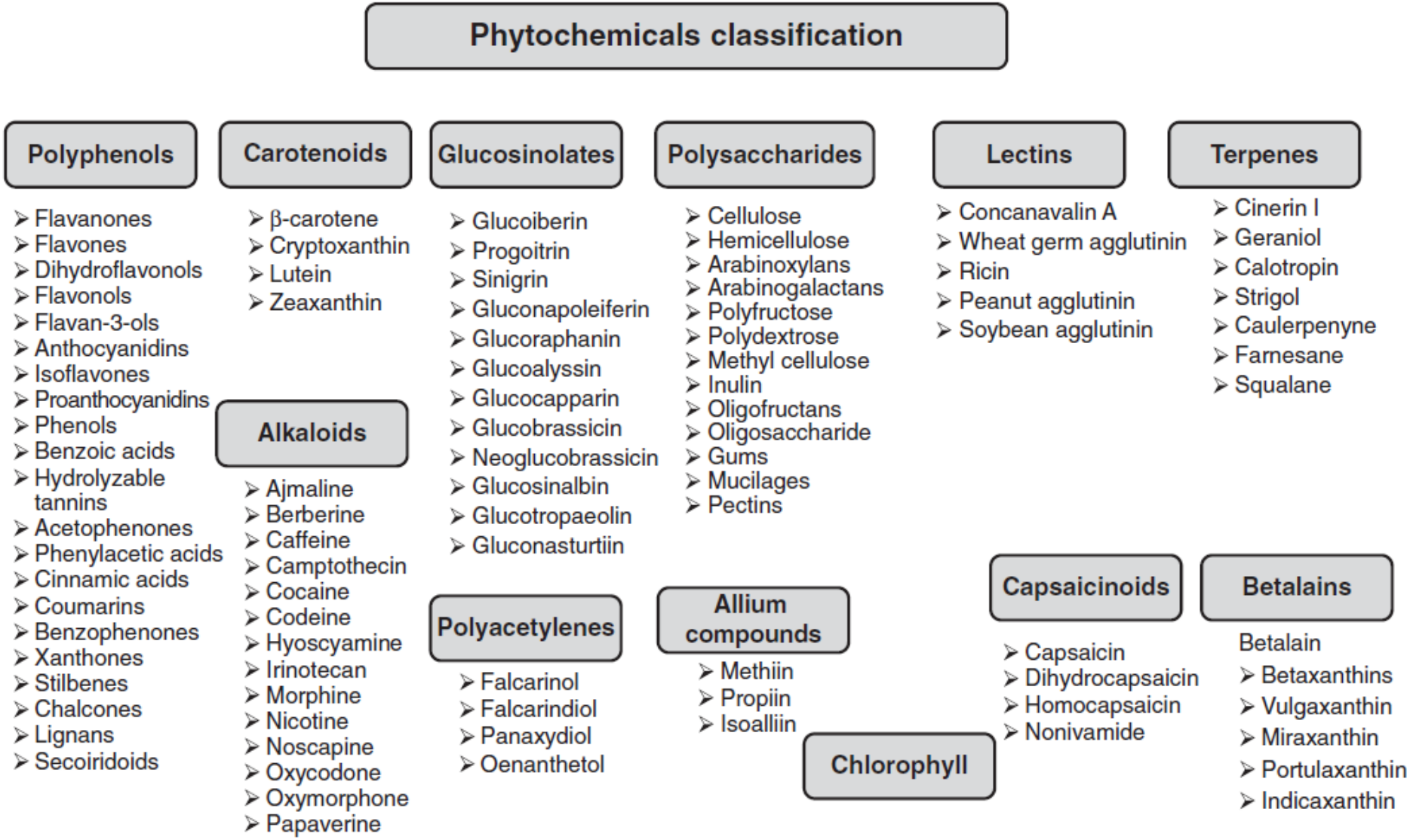


Figure 2.1 Classification of phytochemicals.

Tiwari, B. K et al. (Eds.). (2013). *Handbook of Plant Food Phytochemicals*. Oxford: John Wiley & Sons Ltd.

ORIGINAL RESEARCH

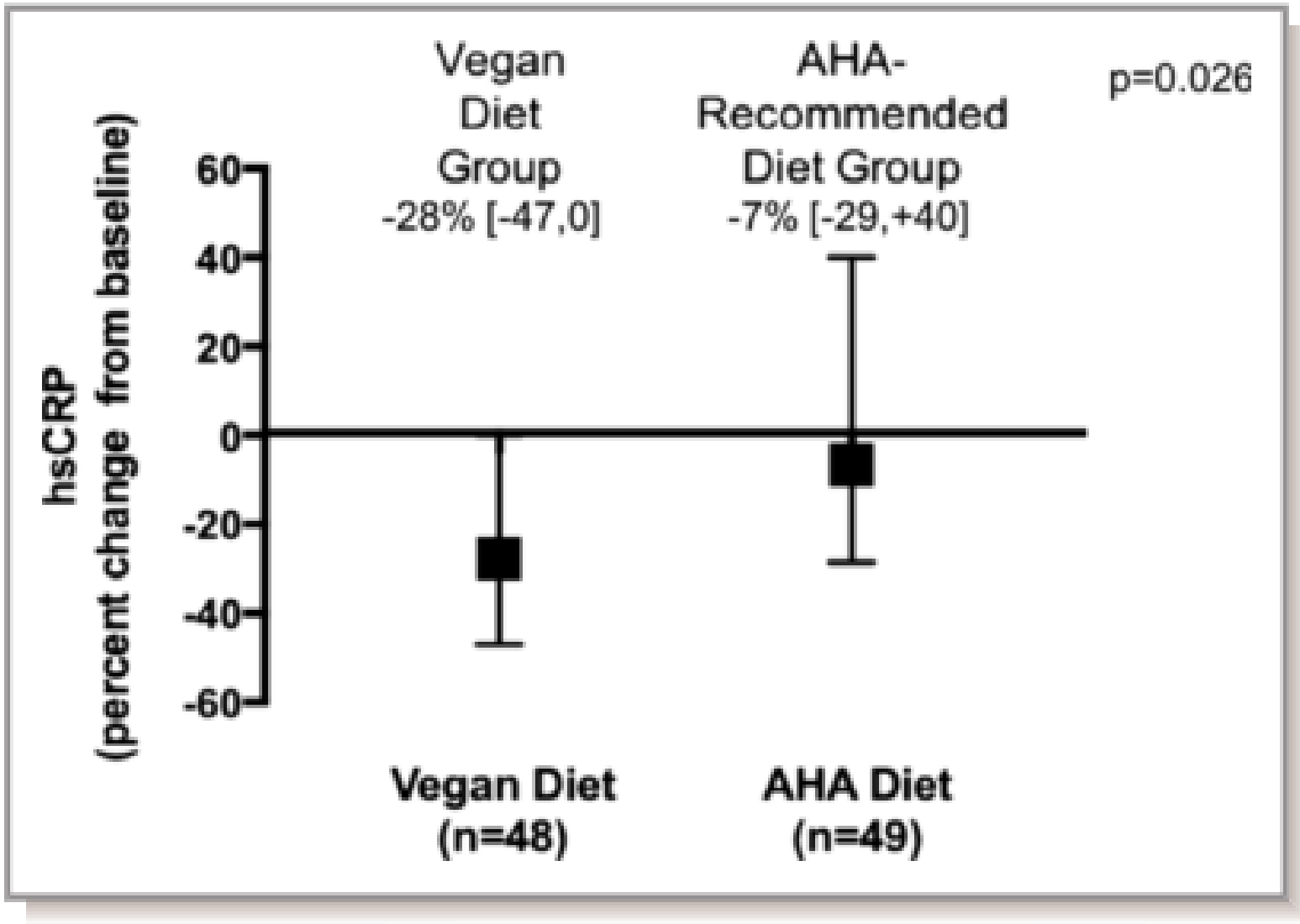
Anti-Inflammatory Effects of a Vegan Diet Versus the American Heart Association–Recommended Diet in Coronary Artery Disease Trial

Binita Shah, MD, MS; Jonathan D. Newman, MD, MPH; Kathleen Woolf, PhD, RD; Lisa Ganguzza, MS, RD; Yu Guo, MA; Nicole Allen, BS; Judy Zhong, PhD; Edward A. Fisher, MD, PhD; James Slater, MD

***Background*—**Dietary interventions may play a role in secondary cardiovascular prevention. hsCRP (High-sensitivity C-reactive protein) is a marker of risk for major adverse cardiovascular outcomes in coronary artery disease.

***Methods and Results*—**The open-label, blinded end-point, EVADE CAD (Effects of a Vegan Versus the American Heart Association-Recommended Diet in Coronary Artery Disease) trial randomized participants (n=100) with coronary artery disease to 8 weeks of a vegan or American Heart Association–recommended diet with provision of groceries, tools to measure dietary intake, and dietary counseling. The primary end point was high-sensitivity C-reactive protein. A linear regression model compared end points after 8 weeks of a vegan versus American Heart Association diet and adjusted for baseline concentration of the end point. Significance levels for the primary and secondary end points were set at 0.05 and 0.0015, respectively. A vegan diet resulted in a significant 32% lower high-sensitivity C-reactive protein (β, 0.68, 95% confidence interval [0.49–0.94]; *P*=0.02) when compared with the

Percent change in hsCRP C-reactive protein



Shah B, et al. (2018) Anti-Inflammatory Effects of a Vegan Diet Versus the American Heart Association–Recommended Diet in Coronary Artery Disease Trial. *J. Am. Heart Assoc.*

What does a Plant Based Diet Look Like?