

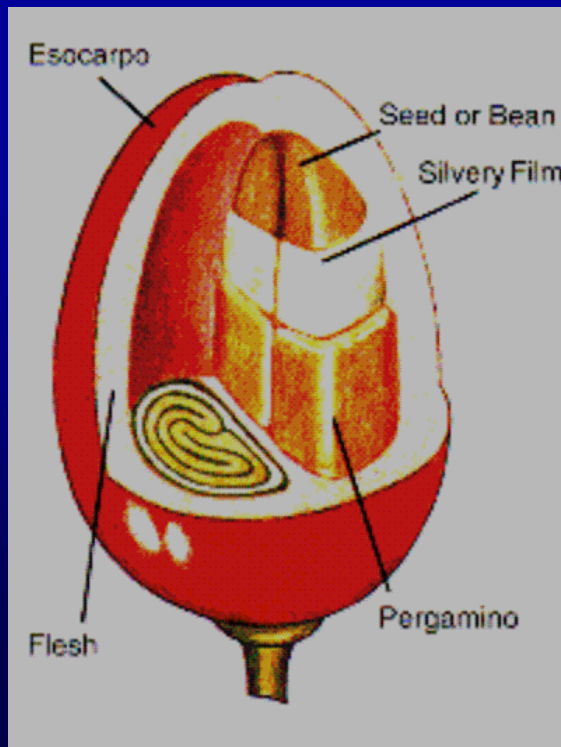
*Exploring the Health Benefits of
Coffee, Tea & Wine*

Aims

- Is moderate drinking truly beneficial to preventing chronic disease?
 - Coffee
 - Tea
 - Alcohol
- What are the biological effects?



Coffee plant



Contribution of coffee to dietary intake

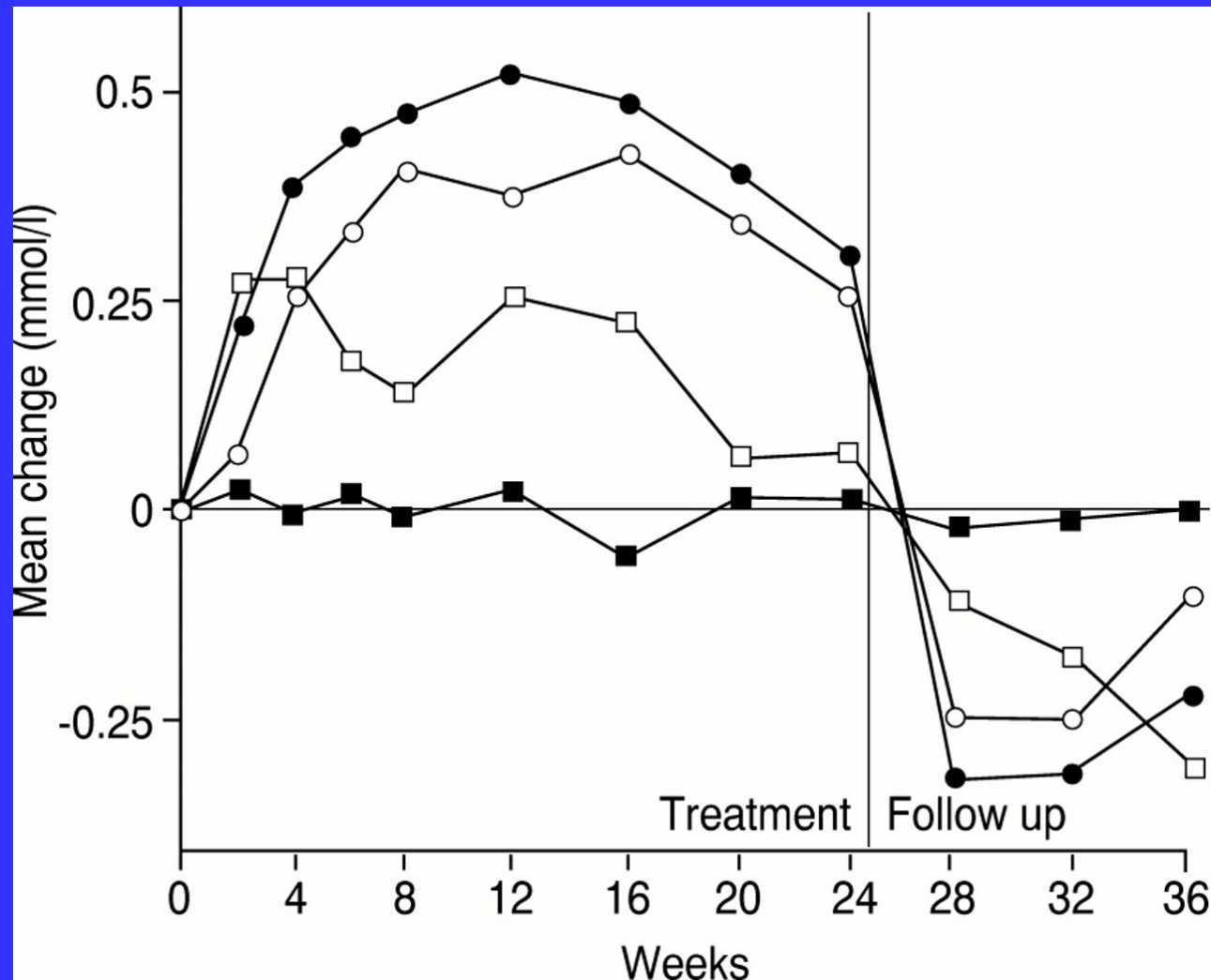
- Chlorogenic acid and quinides (primary source)
- Other antioxidants
- Caffeine (primary source)
- Lignans
- Magnesium
- Potassium
- Manganese
- Trigonelline and niacin
- Chromium
- Fiber
- Diterpenes Kahweol and Cafestol

Kahweol and cafestol in different types of coffee

(Urgert R et al. J Agric Food Chem 1995;43:2167-72)

Coffee type	Cafestol (mg/100 mL)	Kahweol (mg/ 100 mL)
Scandinavian boiled	0.5-8	0.7-10
French Press	0.3-6.7	0.1-7.1
Turkish/ Greek	1.5-3.7	1.7-5.3
Espresso	0.1-1.9	0.1-2.6
Paper-filtered	0-0.1	0-0.1

Changes in serum total cholesterol, LDL-cholesterol, triglycerides, and HDL-cholesterol in 22 subjects drinking 0.9 L coffee daily for 24 weeks (Urgert R, et al. BMJ 1996)



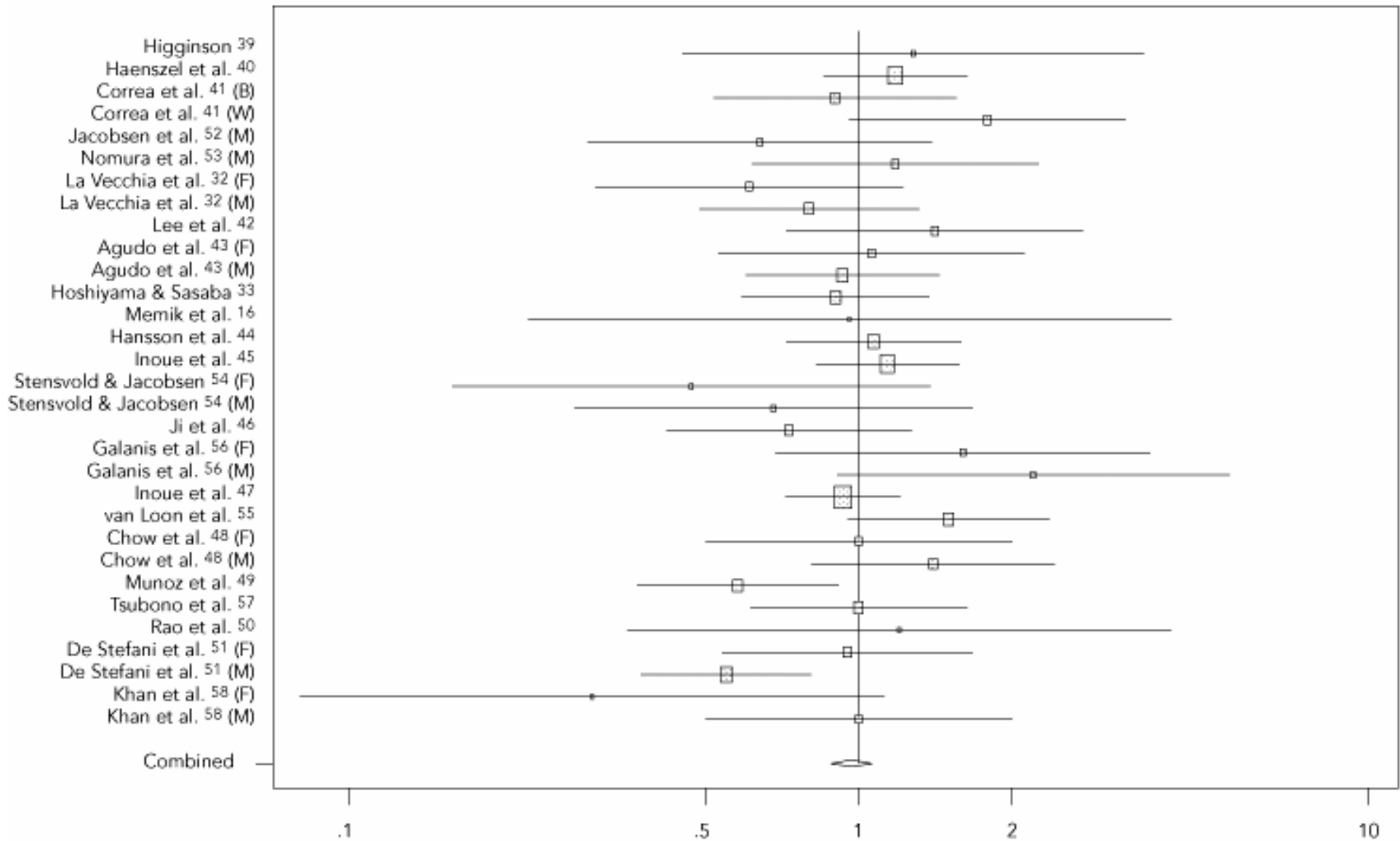
Caffeinated coffee and CHD risk

	<1/mo	2-3/day	>= 6/day	P trend
MEN				
Relative risk	1 (ref.)	0.97 (0.86-1.11)	0.72 (0.49-1.07)	0.41
WOMEN				
Relative risk	1 (ref.)	0.84 (0.40-0.97)	0.87 (0.68-1.11)	0.08

Adjusted for age, smoking, body mass index, physical activity, alcohol intake, parental history of myocardial infarction, use of aspirin, use of vitamin supplements, hypertension, hypercholesterolemia, diabetes mellitus at baseline, menopausal status, hormone therapy

Coffee and cancer risk

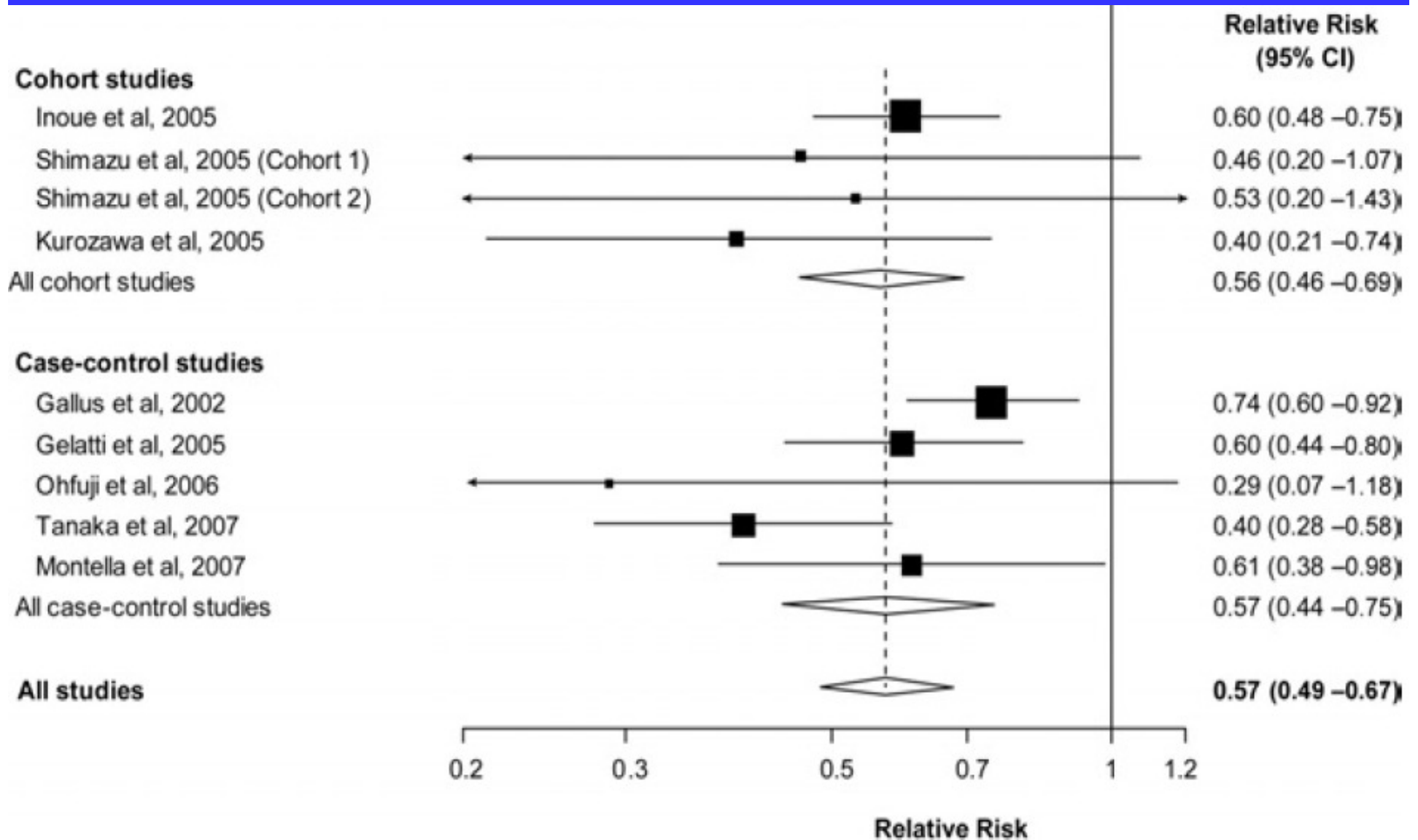
Coffee and gastric cancer (Botelho F et al 2006)



* Heterogeneity test ($p = 0.08$).

M = Male; F = Female; B = Black; W = White.

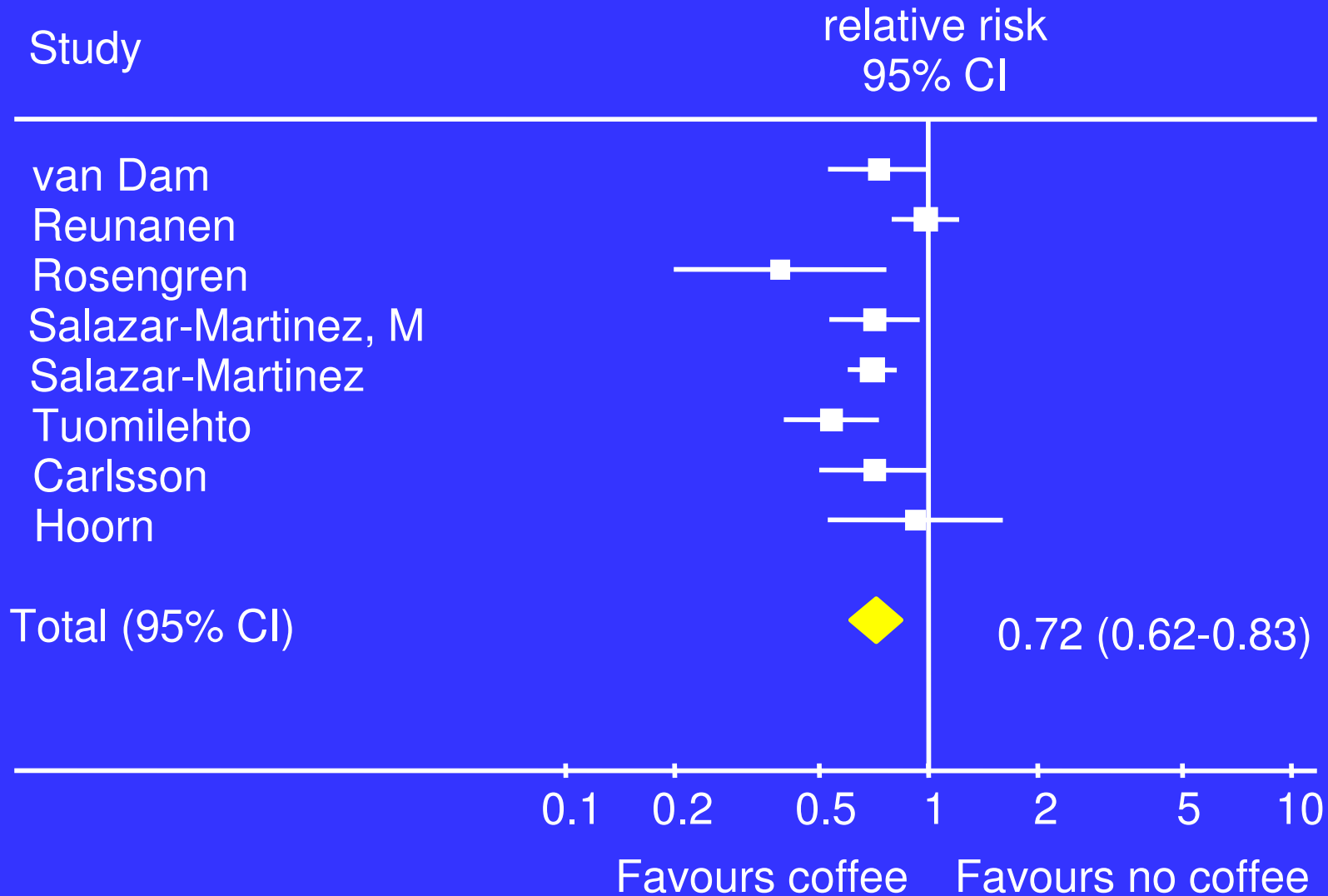
Meta-analysis coffee and liver cancer (Larsson & Wolk 2007) relative risk per 2 cup/d increment



Studies of habitual coffee consumption and risk of type 2 diabetes

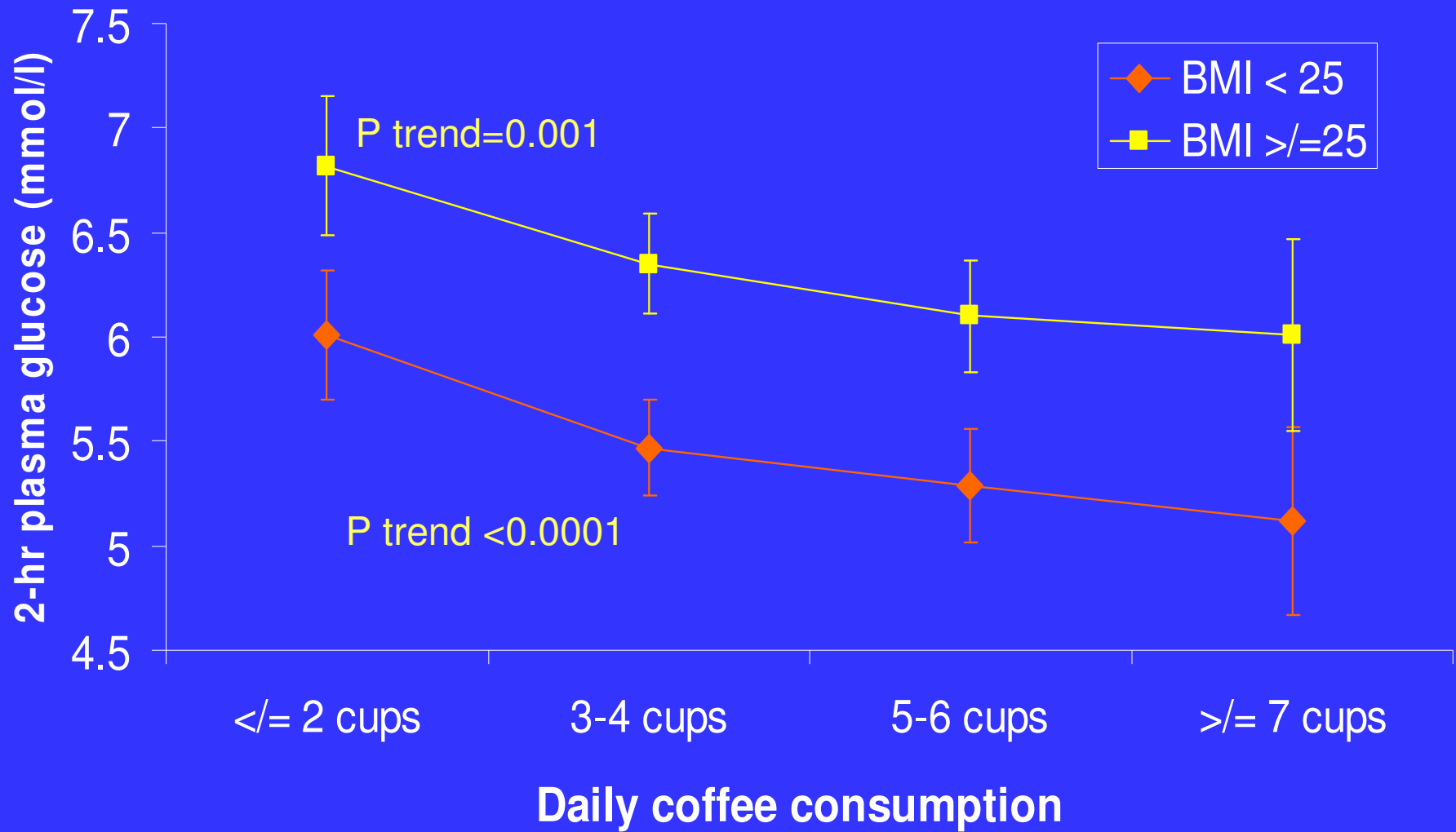
Coffee and risk of type 2 diabetes

2nd highest (4-6 cup/d) vs. lowest ($\leq 0-2$ cups/d) coffee consumption



Coffee and adjusted 2-hr glucose: the Hoorn Study

(van Dam et al. Diabetologia 2004)



Conclusions

- Although coffee was associated with CVD and cancer risk in earlier studies, this has not been confirmed in larger prospective studies
- Coffee consumption is associated with a lower risk of liver cancer and type 2 diabetes. Coffee components other than caffeine appear to contribute to the inverse association with type 2 diabetes.

Conclusions

- There is some concern about health effects of high intakes of caffeine during pregnancy on the fetus
- For most adults, coffee does not appear to increase risk of major chronic diseases and quitting smoking, engaging in physical activity, and a healthy diet should be prioritized instead for the prevention of chronic diseases

GREEN TEA & CARDIOVASCULAR DISEASE



Special acknowledgement to
David J. Maron, Vanderbilt University

Tea Facts

- Tea is the second most consumed beverage in the world
- 3 billion kilograms of tea are produced each year worldwide

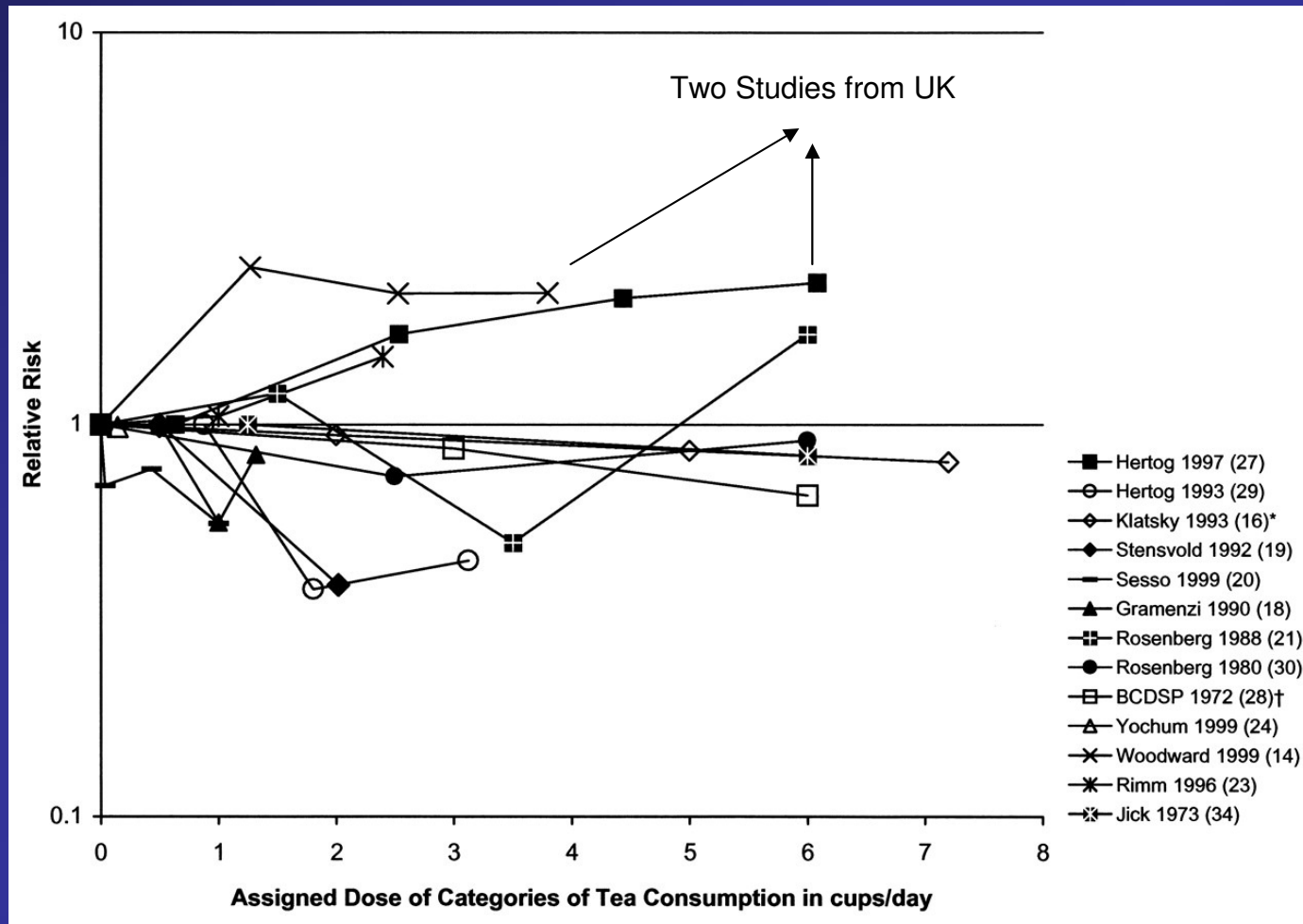
Tea Types

	Green	Oolong	Black
Source			
Process	<i>Non-Fermented</i> Steamed then dried	<i>Partially Fermented</i> Cut & dried	<i>Fermented</i> Cut & dried
Flavonoid Content	-epicatechin -epicatechin gallate -epigallocatechin -epigallocatechin gallate	Intermediate	-theaflavin -theaflavin-3-gallate -theaflavin-3'-gallate -theaflavin-3,3'-digallate -thearubigin
Caffeine Content	Less	Intermediate	More
% of Tea Consumed	21%	2%	77%

Tea Facts

- Studies in the US usually do not have enough tea drinkers with 2+ cups/day

Risk of Heart Disease Related to Tea: Meta-Analysis of Observational Studies



Green Tea Consumption and Mortality Due to Cardiovascular Disease, Cancer, and All Causes in Japan

The Ohsaki Study

Design, Setting, and Participants:

- The Ohsaki National Health Insurance Cohort Study
- Population-based, prospective cohort study initiated in 1994
- 40,530 Japanese adults aged 40 to 79 years
- No history of stroke, CHD, or cancer at baseline
- Followed for up to 11 years for all-cause mortality, up to 7 years for cause-specific mortality

JAMA 2006;296:1255-1265

Green Tea Consumption and Mortality Due to Cardiovascular Disease, Cancer, and All Causes in Japan

The Ohsaki Study

- **Conclusions:**

- Green tea is associated with reduced mortality from all causes and CVD (ischemic stroke), but not from cancer
- Oolong tea and black tea are not associated with reduced mortality

Randomized Controlled Trials of Tea & CVD Endpoints



FDA Denial of Health Claim

- Conclusion: *“there is no credible scientific evidence to support qualified health claims about consumption of green tea or green tea extract and a reduction of a number of risk factors associated with CVD.”*

Dietary Guidelines for Americans



Alcoholic Beverages

Dietary Guidelines for Americans

- Those who choose to drink alcoholic beverages should do so sensibly and in moderation—

defined as:

consumption of up to one drink per day for women and up to two drinks per day for men.

What's Moderate Drinking?

Women:

Men:

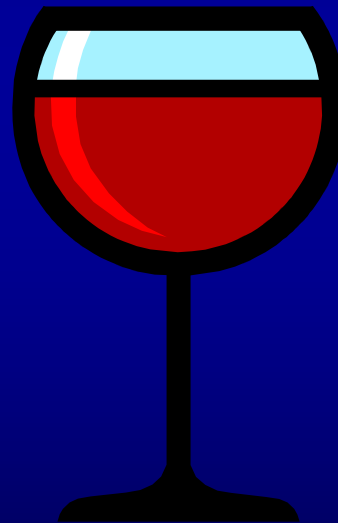
No more than 1 drink a day

No more than 2 drinks a day

Count as a drink...



12 ounces
of regular beer

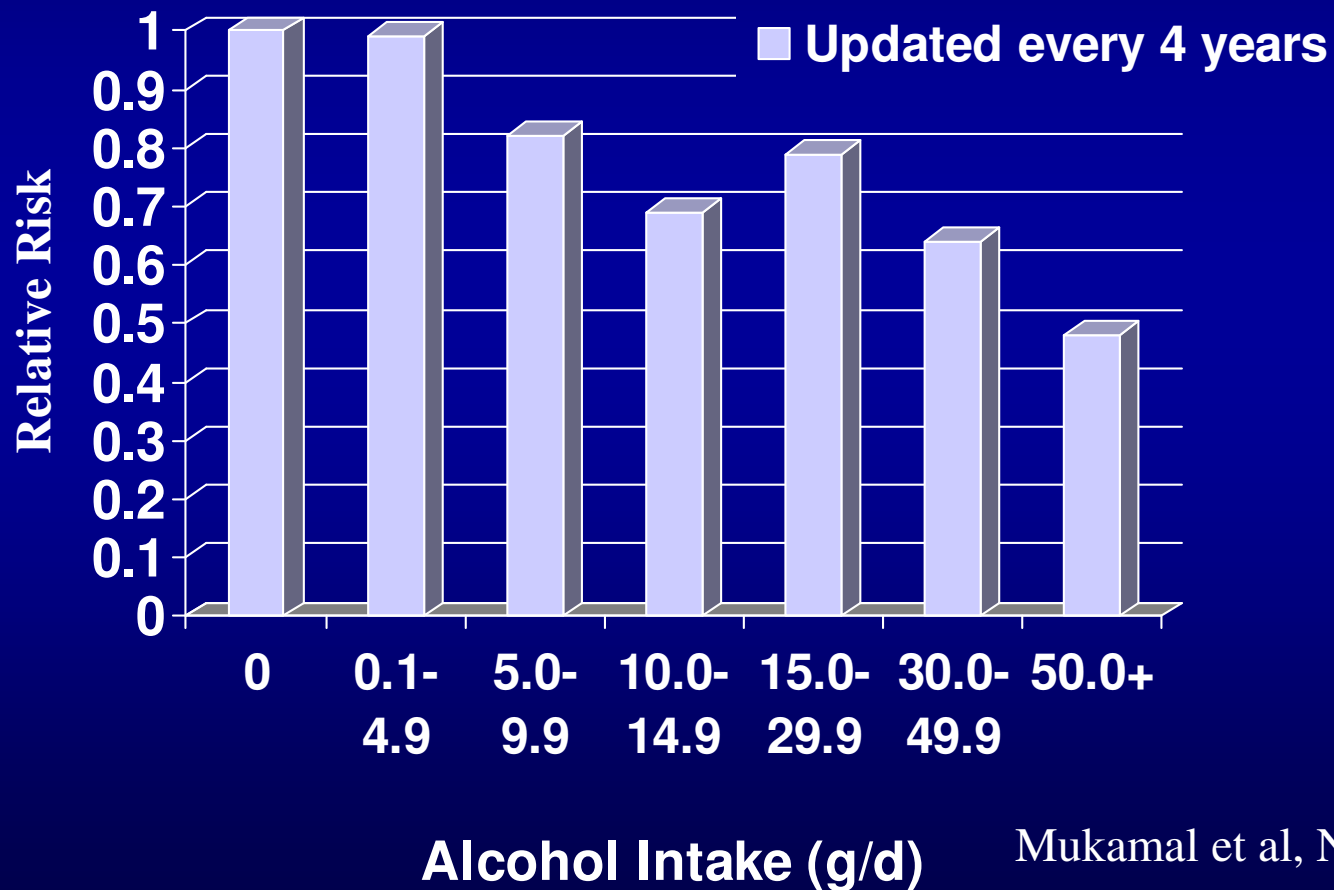


5 ounces
of wine

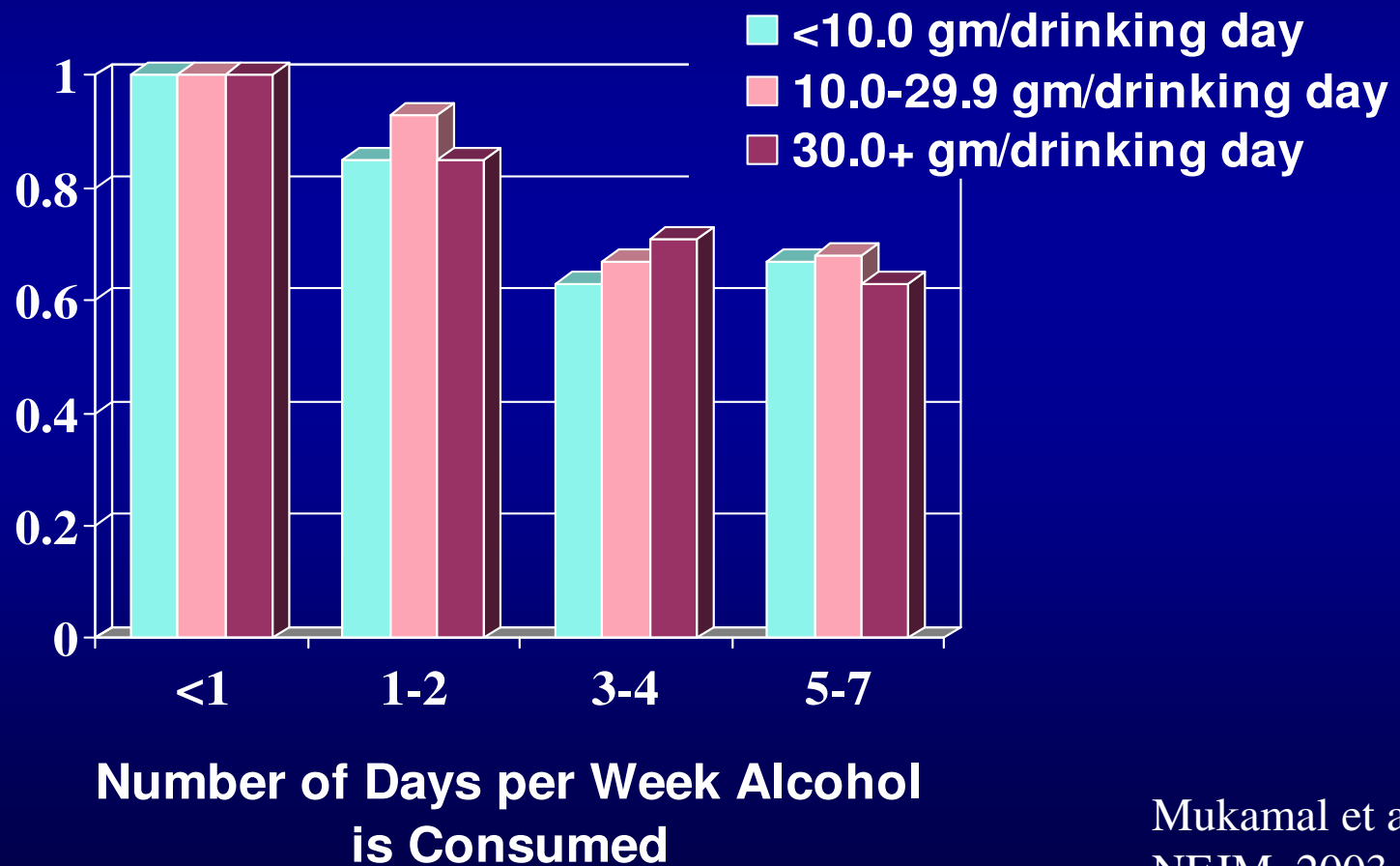


1.5 ounces
of 80-proof
distilled spirits

Alcohol Consumption and Risk of Heart Disease in the Health Professionals Follow-up Study



Pattern of Use and Risk of Myocardial Infarction



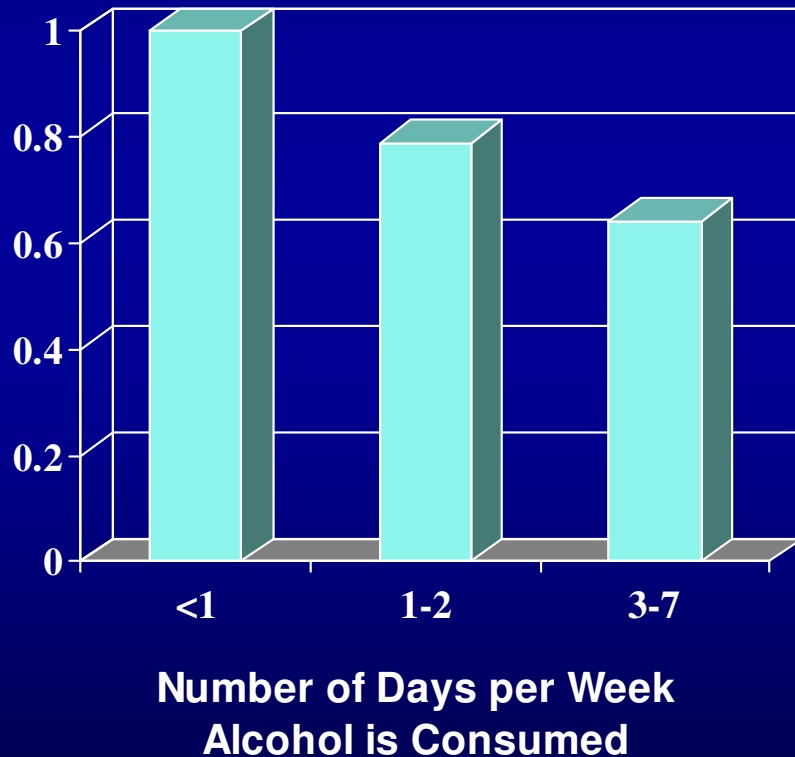
Mukamal et al,
NEJM, 2003

Alcohol and Coronary Heart Disease Prospective Studies (Current n > 70 studies Worldwide)

1. Framingham Heart Study
2. Honolulu Heart Study
3. Western Electric Study
4. Belfast, Northern Ireland
5. London Civil Servants
6. Kaiser-Permanente
7. Yugoslavia Heart Study
8. Busselton, Australia
9. Puerto Rico Heart Study
10. North Kerelia Project
11. Zutphen Study
12. Massachusetts Elderly
13. Albany Study
14. Lipid Research Clinic
15. Thailand Heart Study
16. Nurses' Health Study
17. American Cancer Society
18. British Regional Health Study
19. Health Professionals Follow-up Study
20. MRFIT
21. NHANES
22. Finnish Insurance Institute
23. Trinidad
24. Italian Rural Cohorts
25. Alameda County
26. Carephilly Heart Study
27. Copenhagen City Heart Study
28. Rancho Bernardo
29. Normative Aging Study
30. Physicians Health Study
31. Male British Doctors
32. MONICA – Augsburg Cohort Study
33. ECTIM Study –
France and Ireland
34. Shanghai Cohort Study

**Even Among the Healthiest
Populations Alcohol is Beneficial**

Pattern of Use and Risk of Myocardial Infarction among the Healthiest Men*



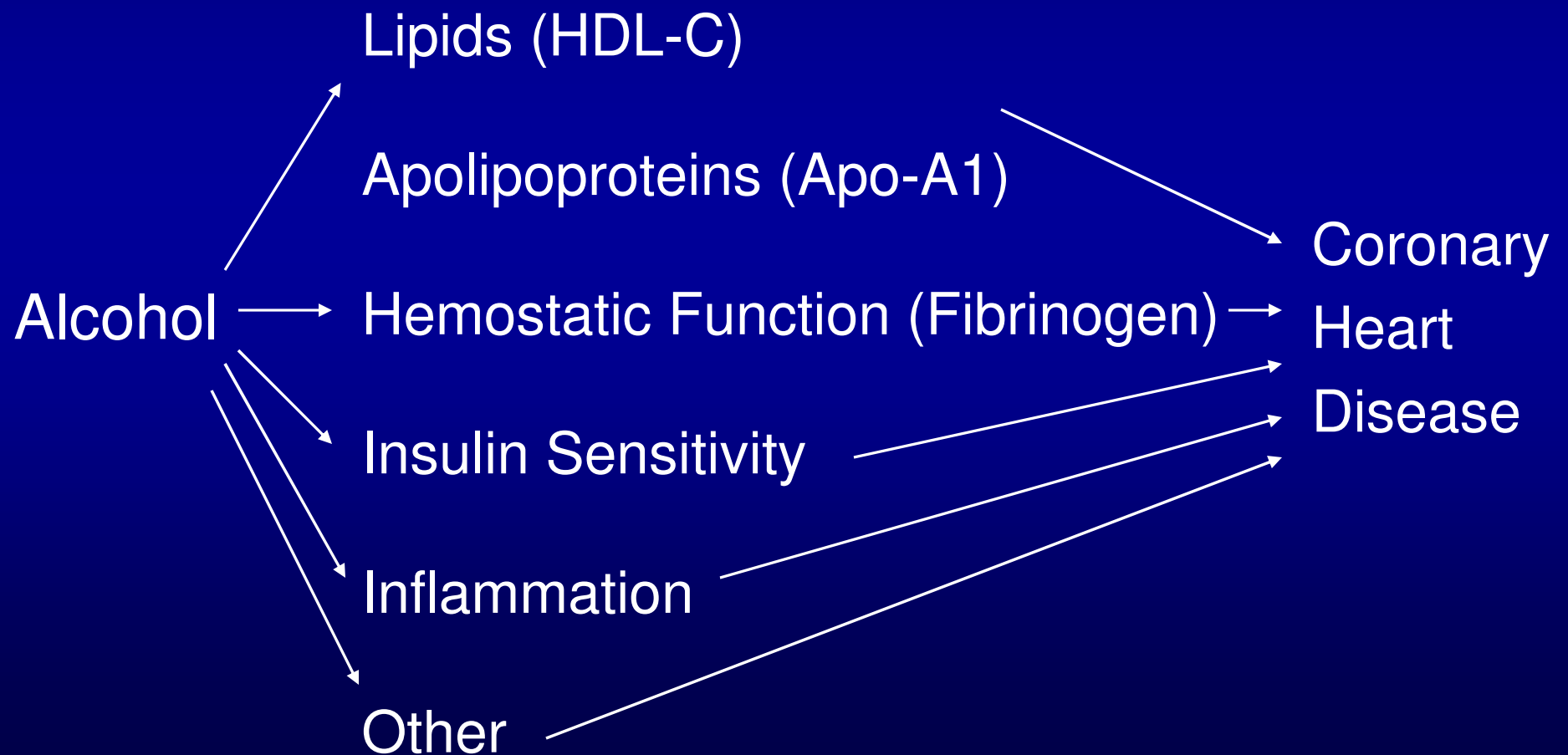
- Not Overweight
- Non-smoker
- Healthy Diet
- Regular exercise

n=3,195 men
198 cases

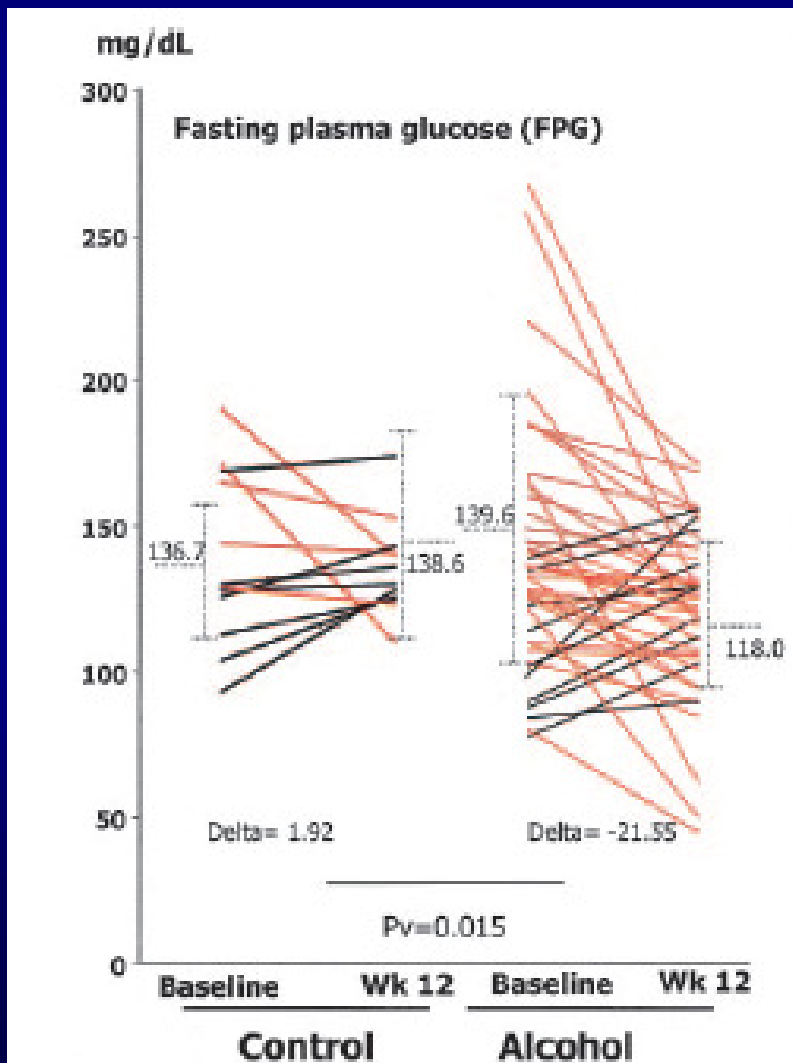
Why is drinking in moderation
beneficial?

Alcohol and Coronary Heart Disease

Underlying Biological Mechanisms



Alcohol and glycemic control among diabetics randomized to 1 drink/day



Shai et al Diabetes Care 2007

Why not tell everyone to drink?

Binge Drinking

“During the past 30 days, on how many *days* did you have 5 or more drinks on the same occasion? By occasion, we mean at the same time or within a couple of hours of each other.”

National Survey on Drug Use and Health Binge Drinking

N=87,145

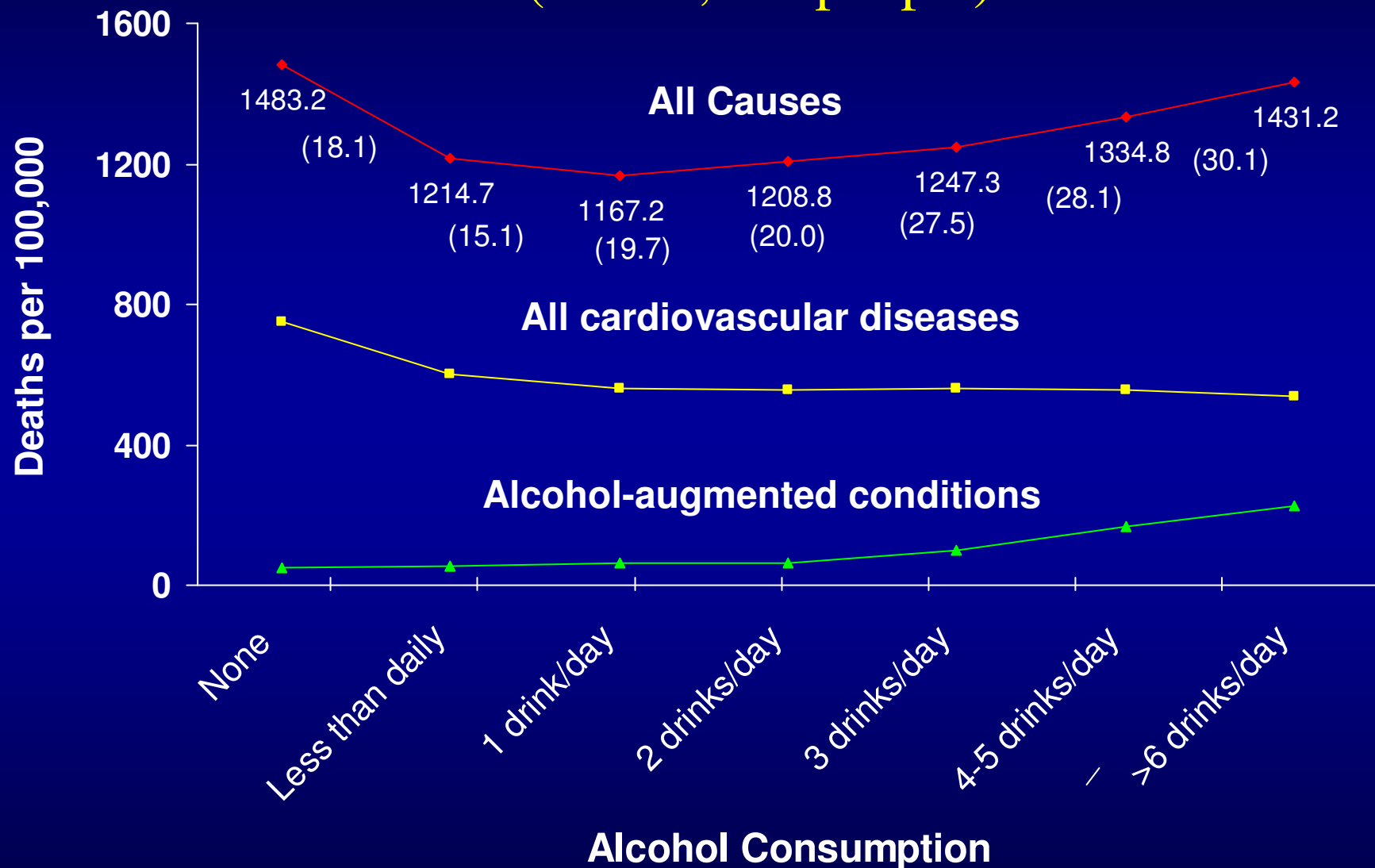
18-34 years	34%
35+ years	16%

Miller J, et al Am J Prev Med 2004

American Cancer Society Study

Men

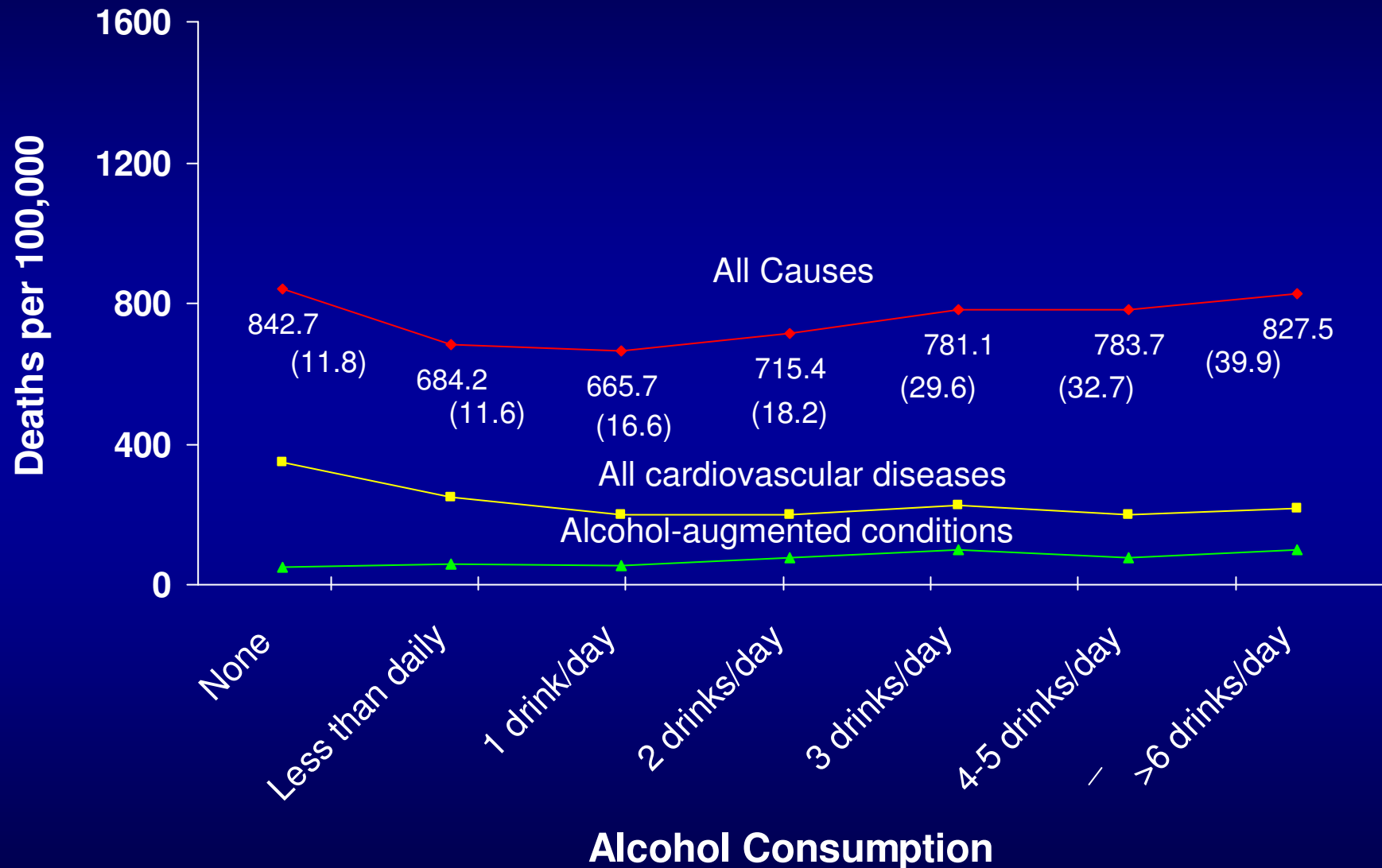
(n=500,000 people)



Thun et al, NEJM, 1997

American Cancer Society Study

Women



Thun et al, NEJM, 1997

Take Home Messages

- A drink is a drink is a drink (ethanol)
- Alcohol lowers risk of heart disease (beer, wine or spirits are all beneficial)
- Avoid binge drinking (5+/occasion)
- The benefits are stronger for those who drink small amounts frequently

Take Home Messages

Those who drink moderately live longer!