EFFECTS OF MODERATE BEER CONSUMPTION ON HEALTH AND DISEASE:

A REPORT FROM A CONSENSUS DOCUMENT

GIOVANNI de GAETANO, MD, PhD

with Simona Costanzo, Augusto Di Castelnuovo, Marialaura Bonaccio, Chiara Cerletti, Licia Iacoviello and Maria Benedetta Donati

Department of Epidemiology and Prevention

IRCCS IST. NEUROLOGICO MEDITERRANEO «NEUROMED», POZZILLI, Italy

NEUROMED I.R.C.C.S. ISTITUTO NEUROLOGICO MEDITERRANEO

Beer and Health

THE 8TH EUROPEAN

BEER AND HEALTH SYMPOSIUM

DECLARATION OF CONFLICT OF INTEREST

IN RELATION TO THE PRESENT MEETING
I HAVE NO CONFLICT OF INTEREST,

EXCEPT THAT I LIKE TO DRINK IN MODERATION
WINE REGULARLY
BEER FREQUENTLY
DURING MAIN MEALS
SPIRITS SELDOM


Binge Drinking
A Serious, Under-Recognized Problem among Women and Girls
1 in 8
1 in 5
6


Alcohol and your health
Many people drink at harmful levels.
cancer of the mouth and throat
stroke
breast cancer
heart disease
liver disease +cancer


BENEFITS OF DRINKING BEER
HEART
NUTRITION
KIDNEYS
BONES


ALCOHOL


Do I Need Alcohol For My Heart Health?


FEBRUARY IS HEART HEALTH MONTH
ARE YOU DRINKING TOO MUCH?
A Series On Heart Health & Alcohol with Absolute Advocacy


Higher risk
Lower risk
Total mortality risk
Alcohol consumption


Alcohol & Health


Are You a Moderate Drinker?
Minimize the health risks alcohol can cause.
Follow the USDA guidelines for moderate drinking:
WOMEN
Up to 1 drink per day
MEN
Up to 2 drinks per day

HOW SOLID IS TODAY THE SCIENTIFIC EVIDENCE THAT DRINKING BEER, WINE OR SPIRIT (ALCOHOL) IS BENEFICIAL AGAINST CARDIOVASCULAR RISK AND ALL-CAUSE MORTALITY ?


NAPOLI - SALERNO
NAPOLI - SALERNO
NAPOLI
SALERNO

THE REASONS FOR A CONSENSUS DOCUMENT
OPEN QUESTIONS

1. **Multiple sometimes contrasting effects** of alcoholic beverages consumption on human health.

2. While the **harms** associated with **high intake of alcohol** are well known, the effects of moderate doses are more complex to define.

3. Possible **different effects of diverse alcoholic beverages** (wine, beer, spirits), in relation to their heterogeneous content of alcohol and non-alcoholic components.

Circulation

American Heart Association®

Wine, Beer, and Spirits

Are They Really Horses of a Different Color?

Eric B. Rimm, ScD; Meir J. Stampfer, MD, DrPH

Circulation 2002

THE REASONS FOR A CONSENSUS DOCUMENT
OPEN QUESTIONS

4. The consumption of alcohol in moderation is associated with a reduced risk of cardiovascular and metabolic diseases, as well as a reduction in total mortality.

5. Does a moderate consumption of beer share effects comparable to total alcohol?

A CONSENSUS DOCUMENT

For all these reasons, it seemed appropriate to conduct a large evidence-based review on the effects of the consumption of moderate amounts of beer on human health and disease.

In several cases, the specific effects of beer consumption could not be separated from that of wine or other alcoholic beverages: in that case the effects of alcohol were reported and discussed.

A CONSENSUS DOCUMENT

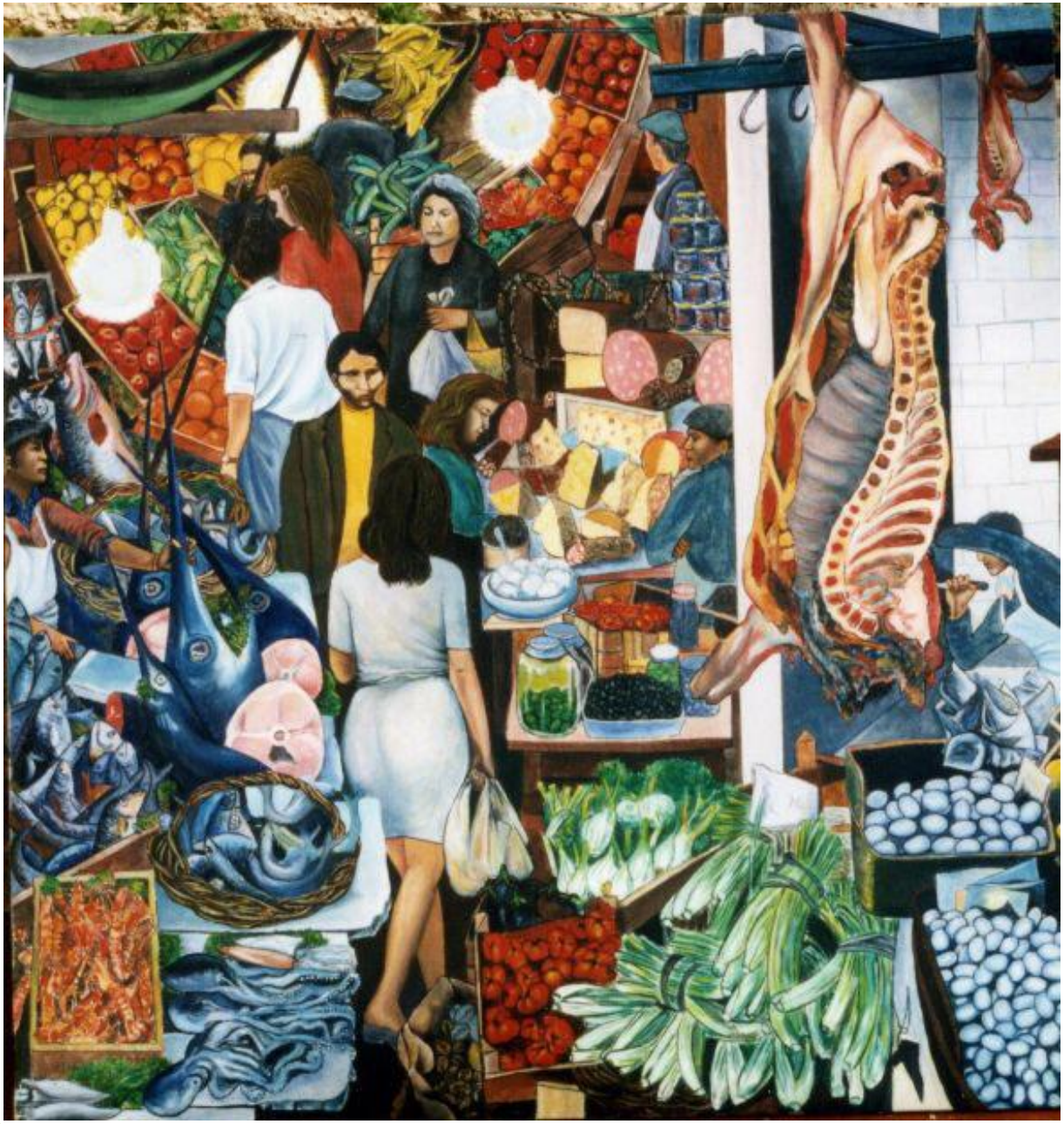
An international panel of experts accepted to review the literature and evaluate whether a full consensus document could be prepared.

Panelists contributed to this consensus on their own responsibility, not reflecting the opinion nor following the guidelines of any scientific society or association.

To start, each panelist prepared a first draft manuscript on a specific aspect of the review's topic.

All manuscripts were then exchanged and discussed among all panelists by mail/telephone and finally submitted to two external (at that time) anonymous reviewers (one in Europe and the other one in USA).

On the basis of the reviewers' comments, a pre-final text was prepared.

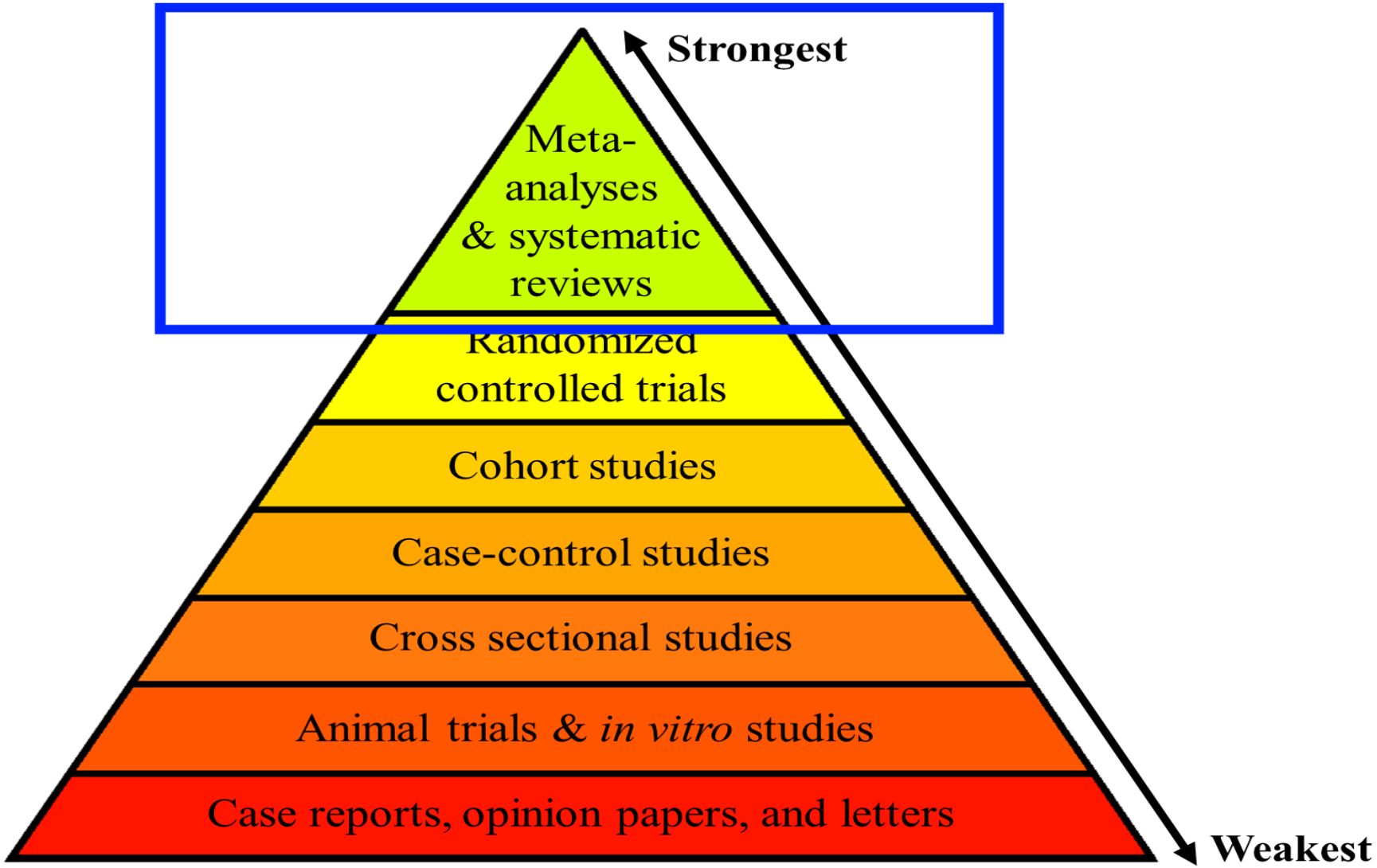


Renato Guttuso

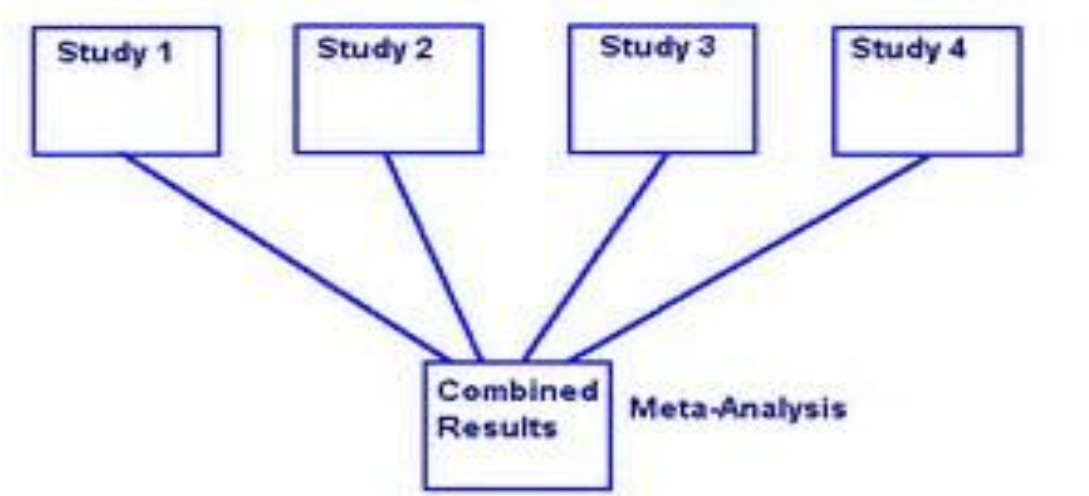
La Vucciria, 1974.
Olio su tela, 300x300.

Universita' degli Studi
Palermo

Hierarchy of Scientific Evidence



thelogicofscience.com


Study 1
Study 2
Study 3
Study 4
Combined Results
Meta-Analysis

A one-day meeting of the International Panel

Held in Rome, October 2015,
during which the full text was read,
commented and, when agreed upon
by the Panel, modified.

The consensus document was finalized
few days later and submitted again
to both external reviewers.

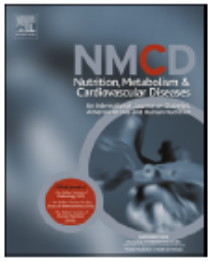
The Panel unanimously approved the very final version and decided to submit it for publication to Nutrition, Metabolism and Cardiovascular Diseases, a peer reviewed international journal specialized in nutrition and chronic diseases.

Nutrition, Metabolism & Cardiovascular Diseases (2016) **26**, 443–467

Available online at www.sciencedirect.com

Nutrition, Metabolism & Cardiovascular Diseases

journal homepage: www.elsevier.com/locate/nmcd



REVIEW

Effects of moderate beer consumption on health and disease: A consensus document

G. de Gaetano [a,*,1], S. Costanzo [a,1], A. Di Castelnuovo [a,1], L. Badimon [b], D. Bejko [c], A. Alkerwi [c], G. Chiva-Blanch [b], R. Estruch [d], C. La Vecchia [e], S. Panico [f], G. Pounis [a], F. Sofi [g,h], S. Stranges [c], M. Trevisan [i], F. Ursini [j], C. Cerletti [a], M.B. Donati [a], L. Iacoviello [a]

[a] *Department of Epidemiology and Prevention, IRCCS Istituto Neurologico Mediterraneo Neuromed, 86077 Pozzilli, Italy*
[b] *Cardiovascular Research Center (CSIC-ICCC), Biomedical Research Institute Sant Pau (IIB-Sant Pau), Hospital de Sant Pau, Barcelona, Spain*
[c] *Department of Population Health, Luxembourg Institute of Health, Strassen, Luxembourg*
[d] *Department of Internal Medicine, Hospital Clinic, University of Barcelona, Spain*
[e] *Department of Clinical Sciences and Community Health, University of Milan, Italy*
[f] *Dipartimento di Medicina Clinica e Chirurgia, Federico II University, Naples, Italy*
[g] *Department of Experimental and Clinical Medicine, University of Florence, Florence, Italy*
[h] *Don Carlo Gnocchi Foundation, ONLUS IRCCS, Florence, Italy*
[i] *City College, New York, NY, USA*
[j] *Dipartimento di Medicina Molecolare, Università di Padova, Italy*

Received 16 December 2015; received in revised form 26 February 2016; accepted 14 March 2016
Available online 31 March 2016

Google 'Nutrition, Metabolism & Cardiovascular Disease' - birra

Tutti | Notizie | Immagini | Shopping | Video | Altro | Strumenti di ricerca

Circa 22 risultati (0,30 secondi)

Una birra al giorno leva il cardiologo di torno (più o meno)
International Business Times Italia - 11 mag 2016
"Chi beve **birra** campa 100 anni", diceva una vecchia pubblicità. ... consenso pubblicato su **Nutrition**, **Metabolism** and **Cardiovascular Diseases**.

Una **birra** al giorno toglie il medico di torno
Associazione Altrimondi - 13 mag 2016

La **birra** fa bene, lo studio del Neuromed finisce sul Times di Londra
L'Eco dell'Alto Molise e Alto Vastese - 11 mag 2016

Una birretta al giorno fa bene al cuore
Ok Salute e Benessere - 11 mag 2016

Approfondisci (Altri 8 articoli)

Cuore 'a tutta birra', una pinta al giorno protegge dalle malattie ...
Adnkronos - 11 mag 2016
Buone notizie per gli amanti del luppolo: una pinta di **birra** al giorno può ... pubblicato in '**Nutrition**, **Metabolism & Cardiovascular Disease**' ...

Una birra al giorno toglie il cardiologo di torno.
Milano Sanita - 17 mag 2016
Può sembrare uno scherzo ma per il **Nutrition**, **Metabolism & Cardiovascular Diseases** non lo è. Sulla rivista è stato pubblicato un articolo che ...

Birra: fa bene alla salute? Sorprendenti risposte svelate da una ...
Informare per resistere - 12 mag 2016
Se la **birra** fa parte della dieta dell'uomo da 7mila anni, è probabile che ... scientifica **Nutrition**, **Metabolism** and **Cardiovascular Diseases** da un ...

Una pinta al giorno leva il cardiologo di torno
MondoBenessereBlog (Blog) - 12 mag 2016
una pinta di **birra** al giorno può contribuire alla salute del cuore. ... in uno studio pubblicato in '**Nutrition**, **Metabolism & Cardiovascular Disease**' ...

Ricerca, bere birra con moderazione fa bene alla salute
L'Eco dell'Alto Molise e Alto Vastese - 29 apr 2016
Oggi sembra essere giunto anche il momento della **birra**. Sulla rivista scientifica **Nutrition**, **Metabolism** and **Cardiovascular Diseases** è stato ...

La birra fa bene al cuore e al cervello
Italiasalute.it - 04 mag 2016
La **birra** svela inaspettate proprietà protettive nei confronti di cuore e cervello. ... Sulla rivista scientifica **Nutrition**, **Metabolism** and **Cardiovascular Diseases** è ...

Beer and Health

INDEPENDENT News Voices Culture Lifestyle Tech Sport US election Daily Ed

Lifestyle › Health & Families › Health News

Pint of beer a day could protect you from heart attacks, scientists say

Researchers found drinking around 1.4 pints of beer a day could reduce the risk of heart diseases by around 25 per cent

Samuel Osborne | @SamuelOsborne93 | Wednesday 11 May 2016 | 27 comments

Most women could drink a small can of beer a day and most men two, without any difference to their chances of getting most cancers, dementia or other common diseases, researchers concluded *Johannes Simon/Getty Images*

A beer (or two) a day could protect from heart attacks, scientists suggest.

Italian researchers found drinking around 1.4 pints of beer a day could reduce the risk of heart diseases by around 25 per cent.

A metareview of 150 studies conducted by the Mediterranean Neurological Institute, Pozzilli, suggested up to two small 330ml cans of beer a day is unlikely to damage a person's health. *Times* reports.

THE TIMES

A beer each day could protect the heart

Oliver Moody Science Correspondent

"Doth it not show vilely in me," frets Prince Hal in Shakespeare's *Henry IV Part 2*, "to desire small beer?"

He can rest easy. Italian scientists have found that a few small beers are fine to desire if you want to curb your risk of cardiovascular disease.

Dame Sally Davies, the chief medical officer, issued new guidelines in January that made Britain one of the most cautious countries in the world, recommending that men and women keep their consumption to 14 units a week.

However, a comprehensive review taking in more than 150 studies has concluded that drinking up to two 330ml cans (1.4 pints) of beer a day — equivalent to 21 units a week — is not only unlikely to damage your health, but will reduce your risk of heart and circulation diseases by about a quarter. Epidemiologists led by the Mediterranean Neurological Institute in Pozzilli concluded that both the alcohol and some of the other chemicals in beer had a range of beneficial effects.

In their report published in the journal *Nutrition, Metabolism & Cardiovascular Diseases*, they said that most women could drink a small can of beer a day, and most men two, without any obvious changes to their odds of getting dementia, most cancers, or other common diseases.

Mail Online

A beer a day keeps a heart attack at bay: Even one can reduces risk of disease by a quarter

- Drinking 1.4 pints a day or two 330ml cans reduces risk of heart problems
- Did not increase risk of dementia or cancers, review of 150 studies found
- Alcohol and other chemicals in the drink protects heart and blood vessels
- But researchers warned binge drinking is known to harm our health

By MADLEN DAVIES FOR MAILONLINE

PUBLISHED: 09:11 GMT, 11 May 2016 | **UPDATED:** 19:42 GMT, 11 May 2016

...Health

...RALIAN LOG IN SUBSCRIBE plus

NEWS

NEWS OPINION BUSINESS REVIEW NATIONAL AFFAIRS SPORT LIFE TECH ARTS TR

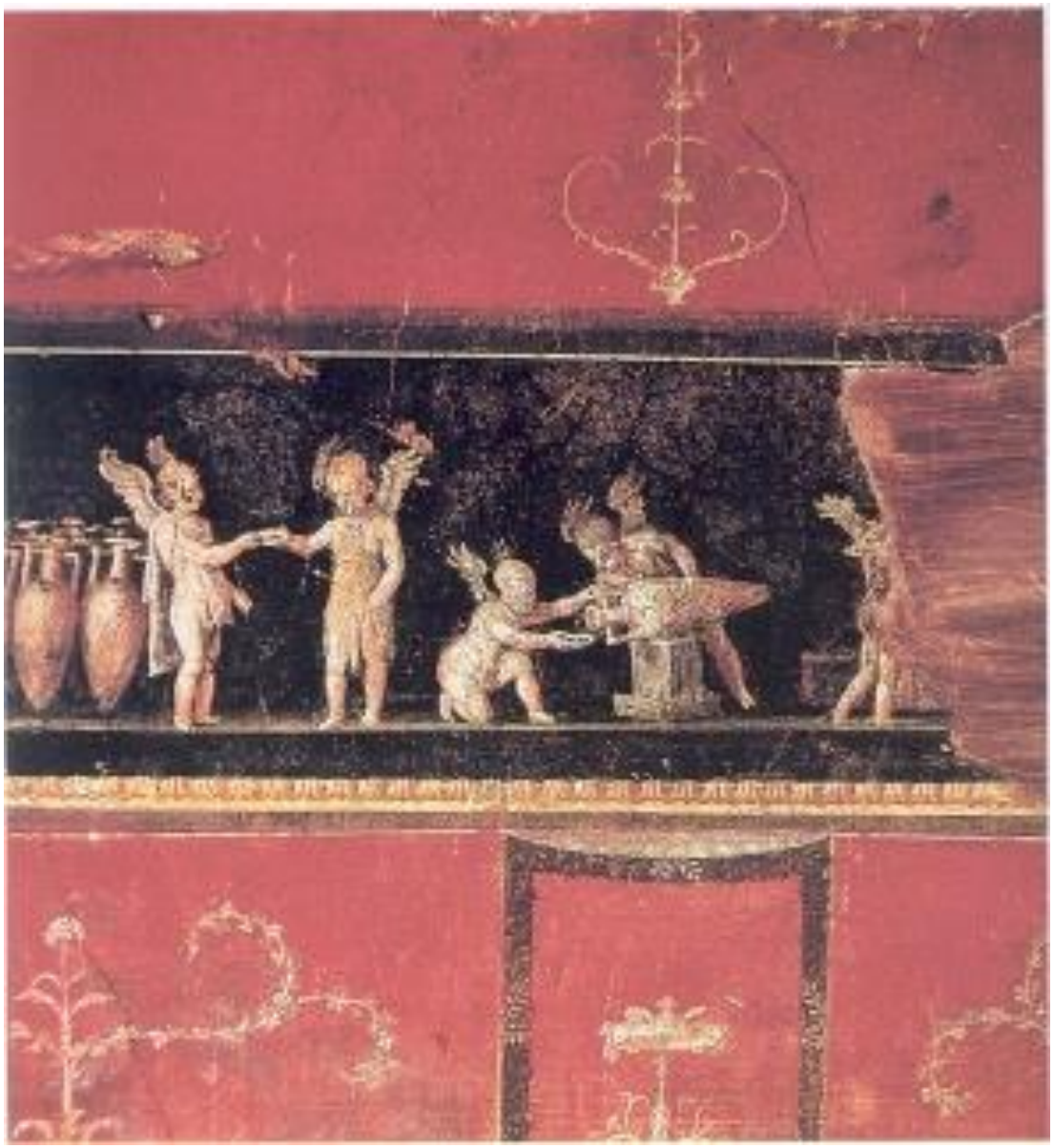
Beer drinking helps curb heart disease, say scientists

OLIVER MOODY
THE TIMES | MAY 12, 2016 12:00AM

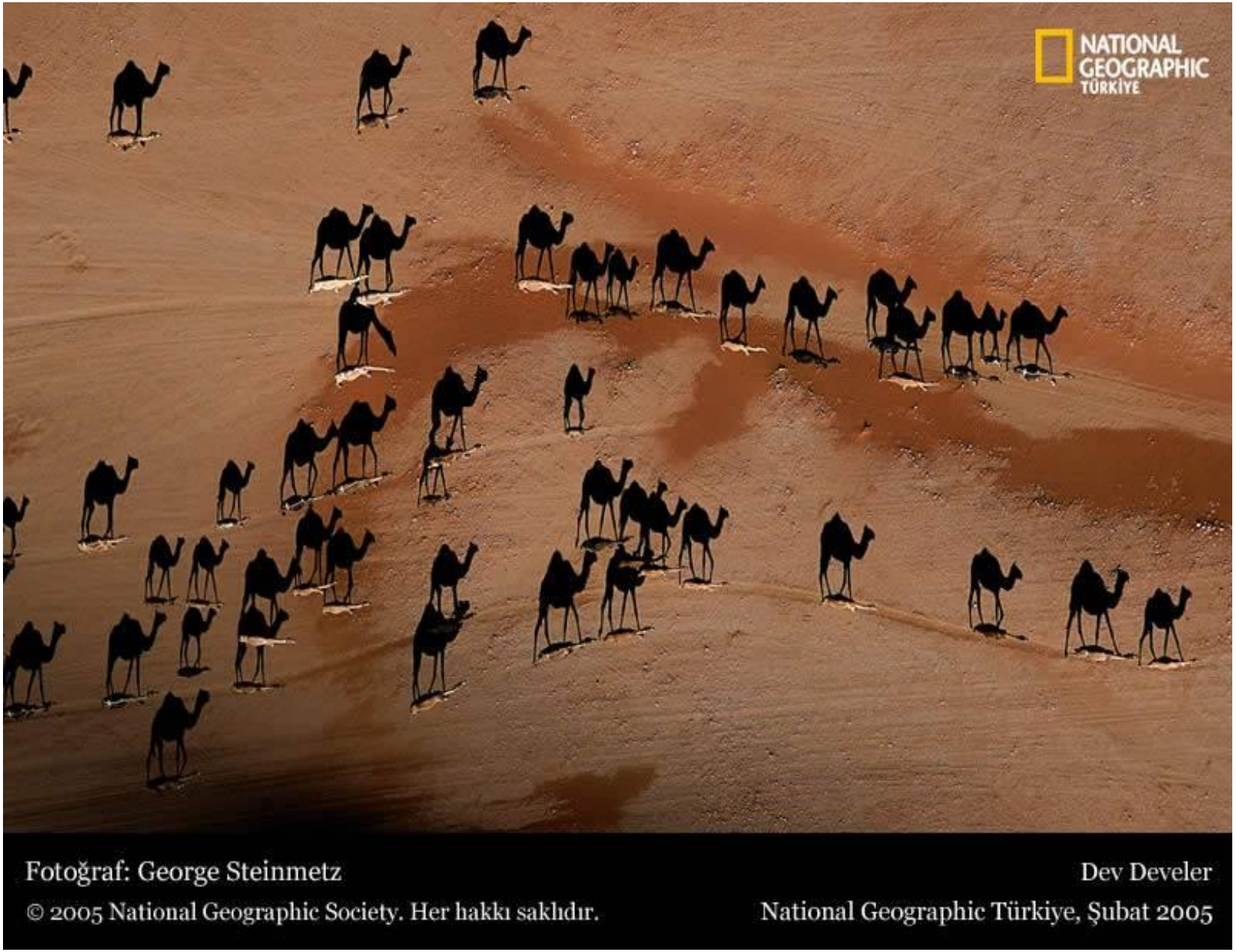
16 SAVE

Drinking up to two small cans of beer a day is likely to reduce your risk of heart and circulation, an Italian study says.

Finally some good news for the drinkers of the world: a few small beers a day can reduce the risk of cardiovascular disease, according to Italian scientists.



ARE THE BENEFICIAL EFFECTS OF ALCOHOLIC BEVERAGES REALLY DUE TO THESE BEVERAGES OR TO OTHER FACTORS OR CIRCUMSTANCES?



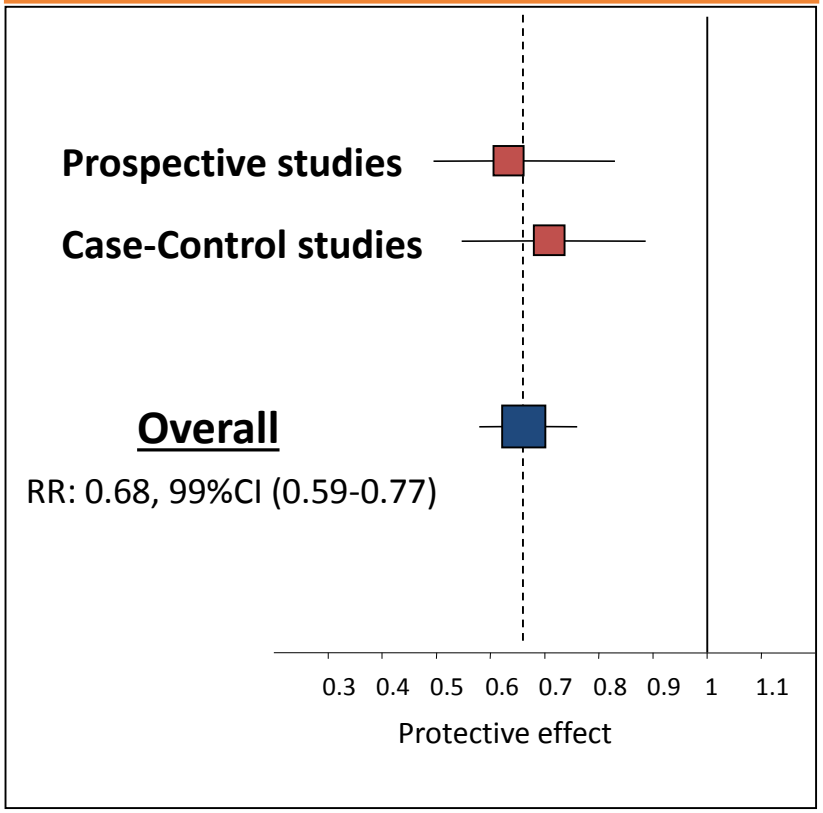
Fotoğraf: George Steinmetz

Dev Develer

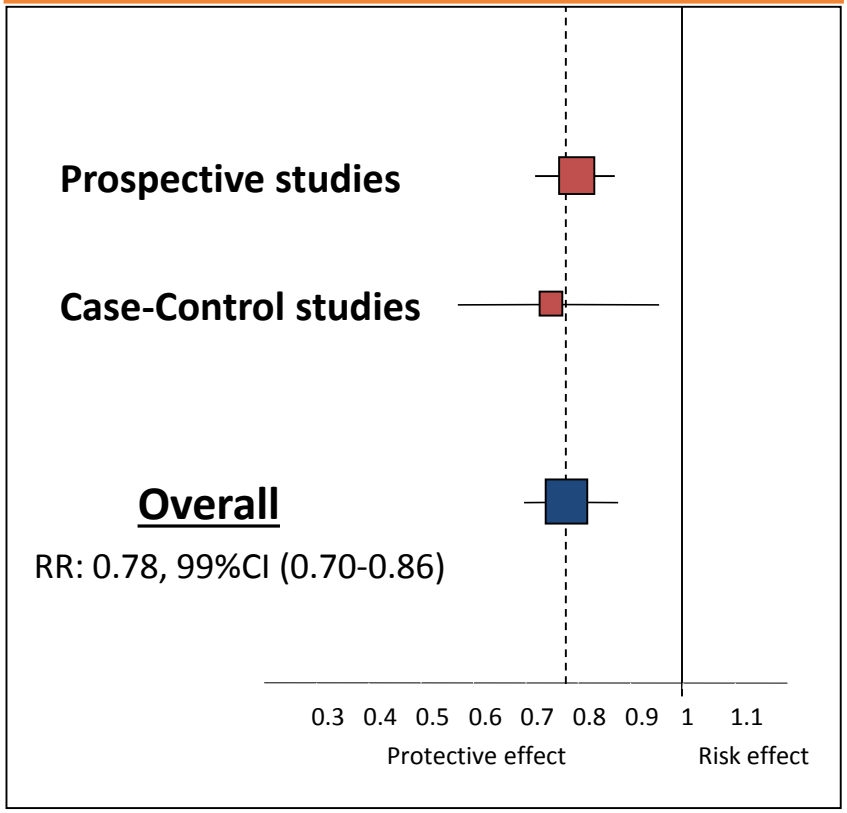
National Geographic Türkiye, Şubat 2005

BEER OR WINE AND VASCULAR RISK

wine intake vs. **no wine** intake
13 studies reporting data for wine
209,418 subjects



beer intake vs. **no beer** intake
15 studies reporting data for beer
208,036 subjects



Beer and Health

Di Castelnuovo et al, Circulation 2002

CONFOUNDING FACTORS

A PROBLEM OF ANY EPIDEMIOLOGICAL STUDY

e.g., SOCIO-ECONOMIC FACTORS, SMOKING, UNDER-REPORTING

Subgroup analysis

SUBGROUP	WINE N	WINE RR	WINE 99%CI	BEER N	BEER RR	BEER 99%CI
Adjustment for different types of alcoholic beverages						
Not Adjusted	3	0.53	0.39-0.73	4	0.79	0.62-1.01
Adjusted	10	0.75	0.61-0.93	11	0.77	0.65-0.92
Adjustment for indicators of social class level						
Not Adjusted	3	0.78	0.56-1.08	3	0.68	0.41-1.14
Adjusted	10	0.64	0.52-0.79	12	0.78	0.68-0.91

Di Castelnuovo et al, Circulation 2002

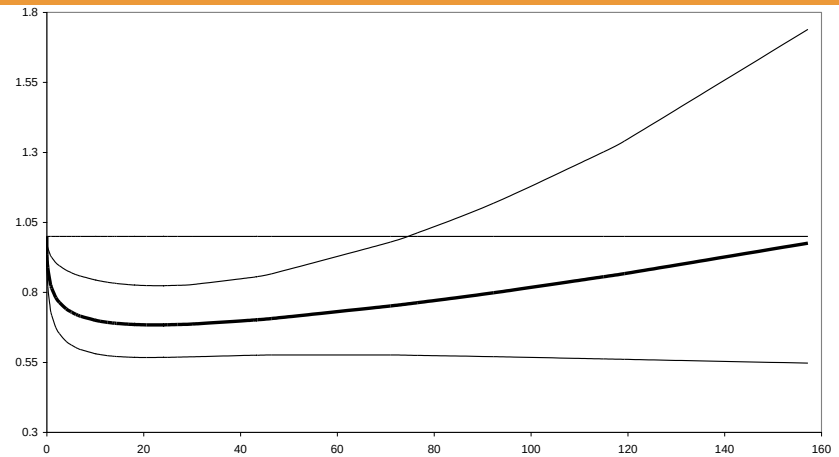
THE DEFINITION OF REFERENCE GROUP
Subgroup analysis

	WINE			BEER		
SUBGROUP	**N**	**RR**	**99%CI**	**N**	**RR**	**99%CI**
No light or occasional drinkers in the reference group	**10**	**0.73**	**0.59-0.91**	**11**	**0.80**	**0.66-0.97**
No ex-drinkers in the reference group	**5**	**0.61**	**0.47-0.79**	**5**	**0.77**	**0.63-0.94**
With the same reference group both for wine and beer	**9**	**0.62**	**0.50-0.77**	**9**	**0.72**	**0.59-0.88**

Di Castelnuovo et al, Circulation 2002

HOW MUCH WINE OR BEER SHOULD WE DRINK TO GET CARDIOVASCULAR BENEFITS?

Wine consumption and ...

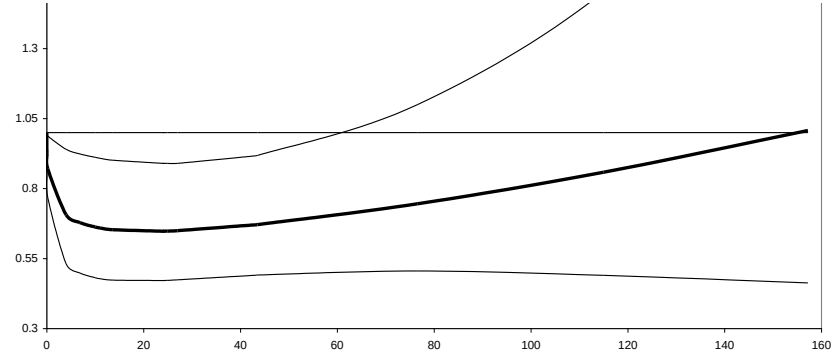


Fatal and not fatal CV events:

14 Studies

9 prospective studies involving 247,141 subjects

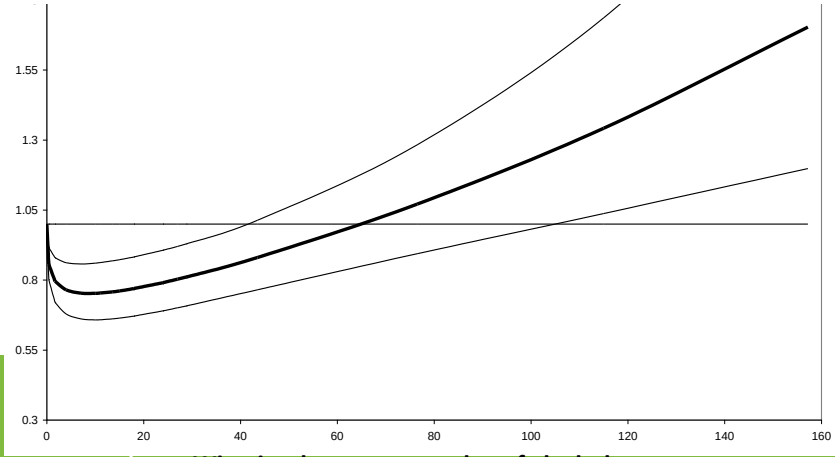
5 case-control studies 2,621 case *vs* 5,086 controls



CV mortality:

5 Studies

5 prospective studies involving 71,699 subjects



Total mortality:

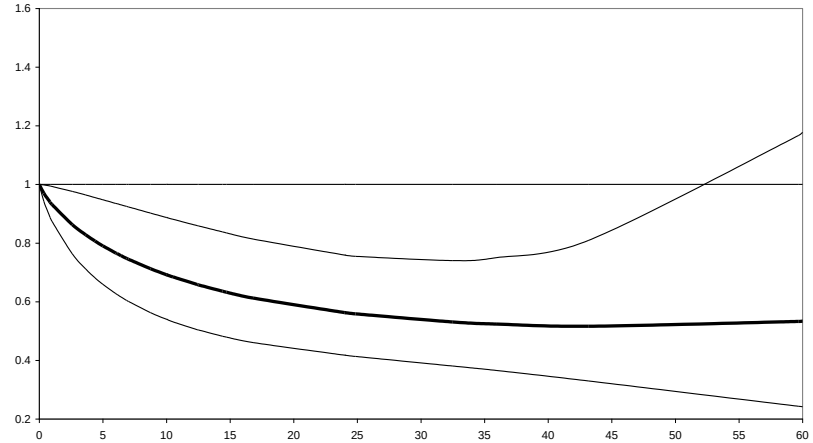
5 Studies

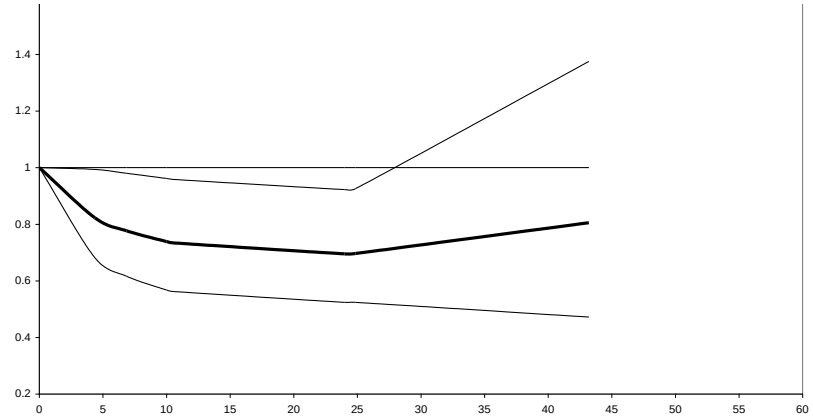
5 prospective studies involving 56.696 subjects

Wine intake, grams per day of alcohol

Costanzo et al, Eur J Epidemiol 2011

Beer consumption and...





Beer intake, grams per day of alcohol

Fatal and not fatal CV events:

12 Studies

- **7 prospective studies involving 209,063 subjects**
- **5 case-control studies 2,525 case *vs* 4,401 controls**

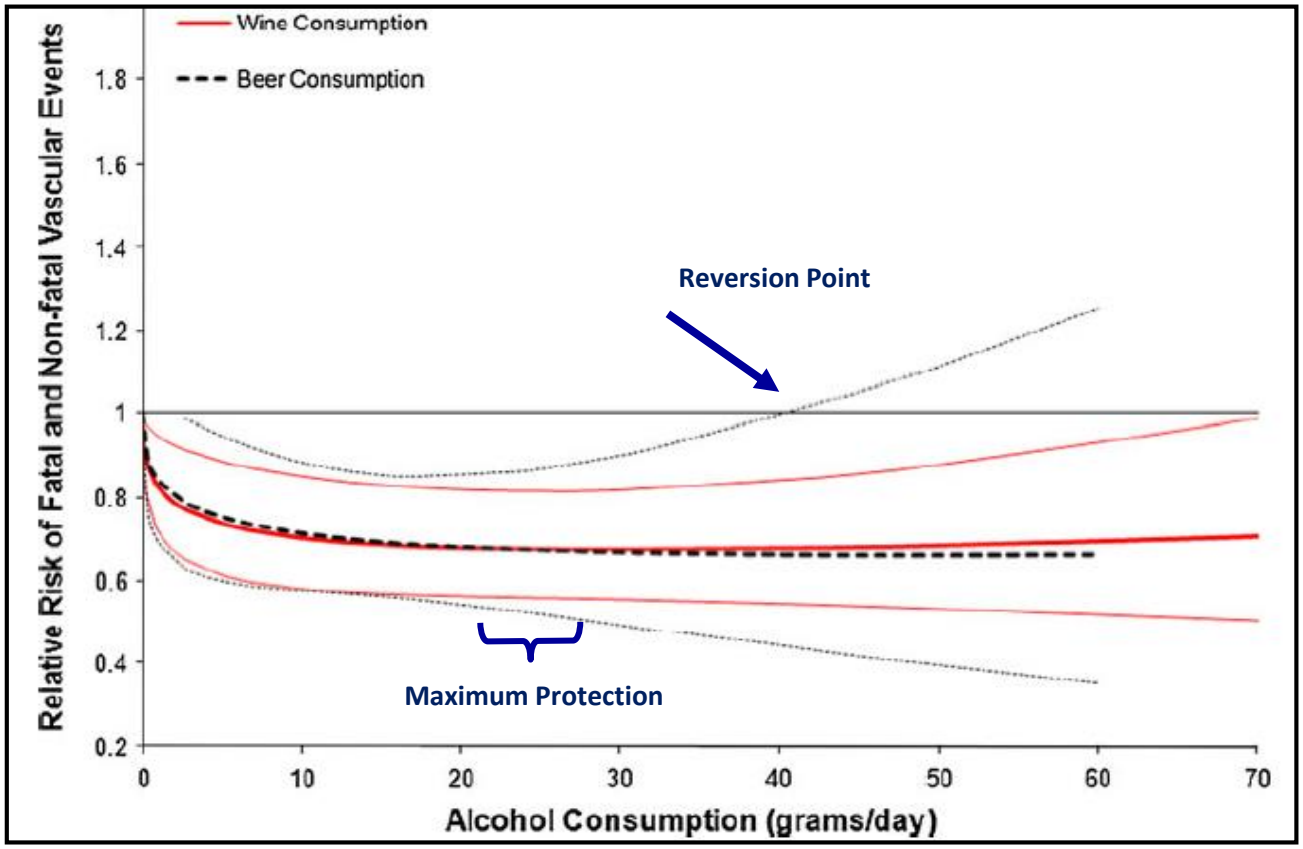
CV Mortality:

3 Studies

- **3 prospective studies involving 33,601 subjects**

Costanzo et al, Eur J Epidemiol 2011

BEER AND WINE CONSUMPTION IN RELATION TO VASCULAR RISK



Twelve studies *(8 prospective studies: 224,219 individuals (4,823 events);4 case-control studies: 1,762 cases/3,099 controls)* reported separate data both on **wine and beer consumption** in relationship with **vascular risk**.
The two curves were closely overlapping, especially at light-moderate alcohol consumption and the **maximal protection by either beverage was 33% at 25 g/day**.

Costanzo et al, Eur J Epidemiol 2011

Association between clinically recorded alcohol consumption and initial presentation of 12 cardiovascular diseases: population based cohort study using linked health records

Steven Bell,[1,2] Marina Daskalopoulou,[3] Eleni Rapsomaniki,[4] Julie George,[4] Annie Britton,[2] Martin Bobak,[2] Juan P Casas,[4] Caroline E Dale,[4] Spiros Denaxas,[4] Anoop D Shah,[4] Harry Hemingway[4]

March 23, 2017 ***BMJ*** **2017;356:j909**

the**bmj** | *BMJ* 2017;356:j909 | doi: 10.1136/bmj.j909

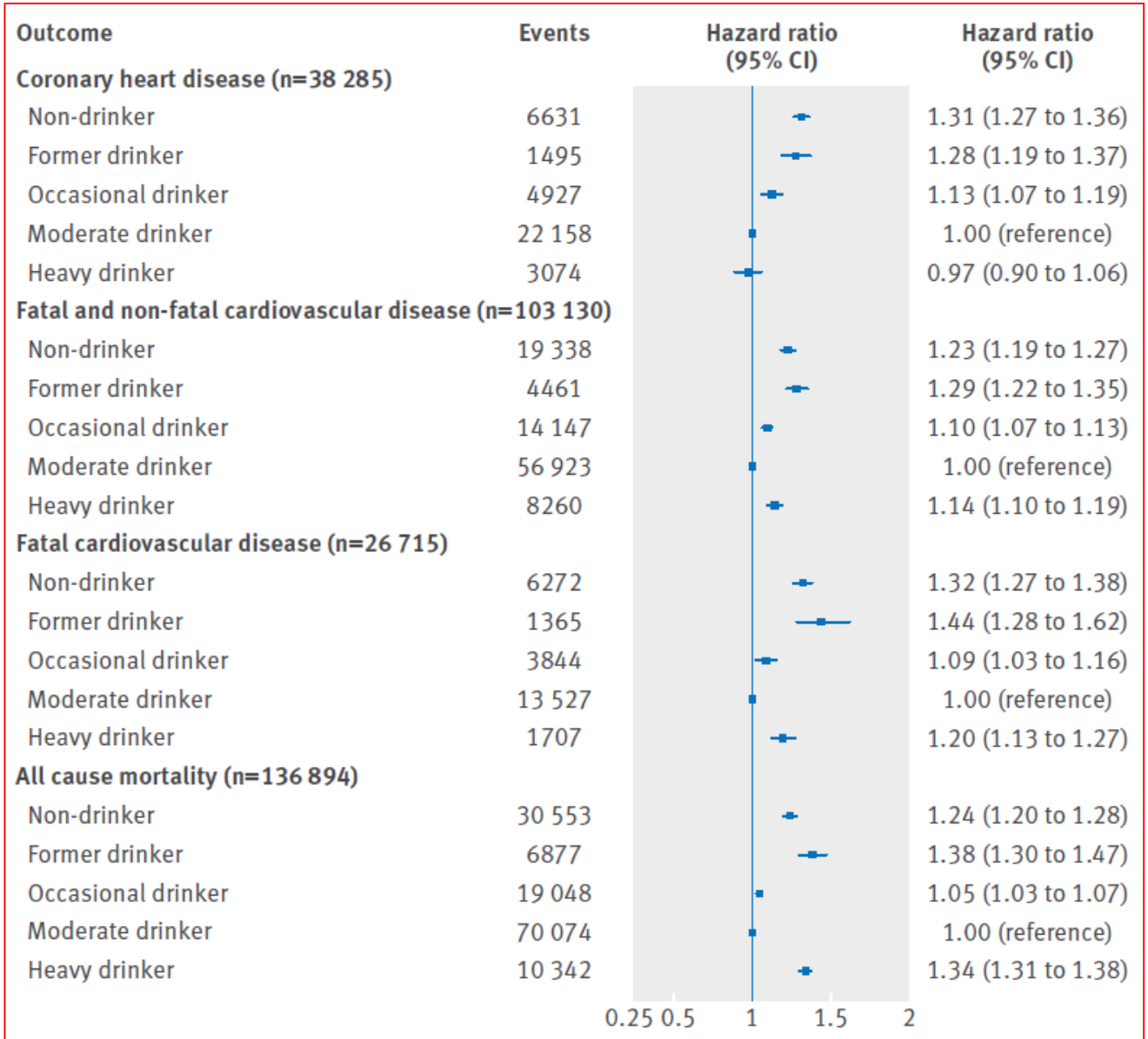


Fig 2 | Multivariable adjusted hazard ratios for aggregated cardiovascular endpoints for clinically recorded non-drinkers and former, occasional, and heavy drinkers compared with moderate drinkers in cohort of 1.93 million adults adjusted for age (and age^2), sex, socioeconomic deprivation, and smoking status

Cardiac	Events	Hazard ratio (95% CI)
Myocardial infarction (n=16 239)		
Non-drinker	2670	1.32 (1.24 to 1.41)
Former drinker	645	1.31 (1.18 to 1.46)
Occasional drinker	2054	1.14 (1.05 to 1.23)
Moderate drinker	9581	1.00 (reference)
Heavy drinker	1289	0.88 (0.79 to 1.00)
Unheralded coronary heart disease death (n=5515)		
Non-drinker	1211	1.56 (1.38 to 1.76)
Former drinker	245	1.40 (1.06 to 1.83)
Occasional drinker	720	1.13 (0.99 to 1.29)
Moderate drinker	2879	1.00 (reference)
Heavy drinker	461	1.21 (1.08 to 1.35)
Heart failure (n=14 359)		
Non-drinker	3247	1.24 (1.11 to 1.38)
Former drinker	743	1.40 (1.22 to 1.60)
Occasional drinker	2306	1.19 (1.11 to 1.27)
Moderate drinker	7182	1.00 (reference)
Heavy drinker	822	1.22 (1.08 to 1.37)
Unstable angina (n=5636)		
Non-drinker	999	1.33 (1.21 to 1.45)
Former drinker	206	1.23 (0.97 to 1.55)
Occasional drinker	708	1.05 (0.94 to 1.18)
Moderate drinker	3286	1.00 (reference)
Heavy drinker	437	0.95 (0.83 to 1.08)
Stable angina (n=13 221)		
Non-drinker	2142	1.15 (1.09 to 1.21)
Former drinker	479	1.10 (0.96 to 1.26)
Occasional drinker	1781	1.07 (0.97 to 1.19)
Moderate drinker	7850	1.00 (reference)
Heavy drinker	969	0.93 (0.86 to 1.00)
Cardiac arrest/sudden cardiac death (n=3375)		
Non-drinker	458	1.11 (0.96 to 1.28)
Former drinker	127	1.37 (1.12 to 1.67)
Occasional drinker	394	1.03 (0.82 to 1.30)
Moderate drinker	1996	1.00 (reference)
Heavy drinker	400	1.50 (1.26 to 1.77)

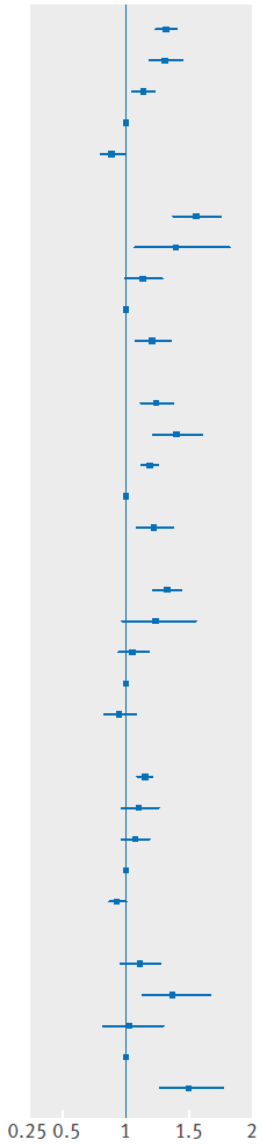


Fig 3 | Multivariable adjusted hazard ratios for cardiac cardiovascular diseases for clinically recorded non-drinkers and former, occasional, and heavy drinkers compared with moderate drinkers in cohort of 1.93 million adults adjusted for age (and age^2), sex, socioeconomic deprivation, and smoking status

Other cardiovascular	Events	Hazard ratio (95% CI)
Ischaemic stroke (n=6053)		
Non-drinker	1156	1.12 (1.01 to 1.24)
Former drinker	253	1.16 (1.00 to 1.35)
Occasional drinker	769	0.93 (0.83 to 1.05)
Moderate drinker	3368	1.00 (reference)
Heavy drinker	507	1.33 (1.09 to 1.63)
Subarachnoid haemorrhage (n=1278)		
Non-drinker	198	1.12 (0.91 to 1.39)
Former drinker	37	0.84 (0.57 to 1.24)
Occasional drinker	167	1.01 (0.76 to 1.35)
Moderate drinker	752	1.00 (reference)
Heavy drinker	124	1.16 (0.74 to 1.84)
Intracerebral haemorrhage (n=2388)		
Non-drinker	406	1.03 (0.85 to 1.25)
Former drinker	75	0.92 (0.64 to 1.33)
Occasional drinker	350	1.11 (0.93 to 1.33)
Moderate drinker	1343	1.00 (reference)
Heavy drinker	214	1.37 (1.16 to 1.62)
Transient ischaemic attack (n=11 714)		
Non-drinker	2091	1.03 (0.95 to 1.12)
Former drinker	497	1.16 (0.99 to 1.37)
Occasional drinker	1667	1.03 (0.96 to 1.10)
Moderate drinker	6636	1.00 (reference)
Heavy drinker	824	1.11 (1.02 to 1.21)
Peripheral arterial disease (n=11 519)		
Non-drinker	1940	1.22 (1.13 to 1.32)
Former drinker	529	1.32 (1.12 to 1.57)
Occasional drinker	1537	1.11 (1.01 to 1.22)
Moderate drinker	6225	1.00 (reference)
Heavy drinker	1287	1.35 (1.23 to 1.48)
Abdominal aortic aneurysm (n=3135)		
Non-drinker	554	1.32 (1.17 to 1.49)
Former drinker	129	1.23 (0.99 to 1.52)
Occasional drinker	362	0.97 (0.80 to 1.17)
Moderate drinker	1848	1.00 (reference)
Heavy drinker	241	0.94 (0.68 to 1.29)

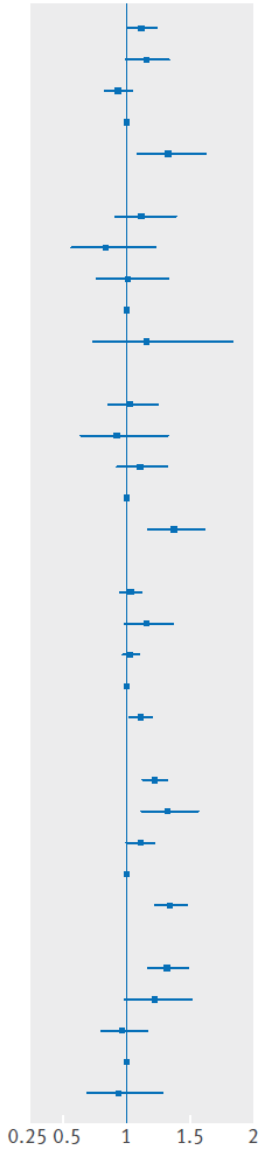


Fig 4 | Multivariable adjusted hazard ratios for non-cardiac cardiovascular diseases for clinically recorded non-drinkers and former, occasional, and heavy drinkers compared with moderate drinkers in cohort of 1.93 million adults adjusted for age (and age^2), sex, socioeconomic deprivation, and smoking status

Does drinking pattern modify the effect of alcohol on the risk of coronary heart disease? Evidence from a meta-analysis

V Bagnardi,[1,2] W Zatonski,[3] L Scotti,[1,4] C La Vecchia,[4,5] G Corrao[1]

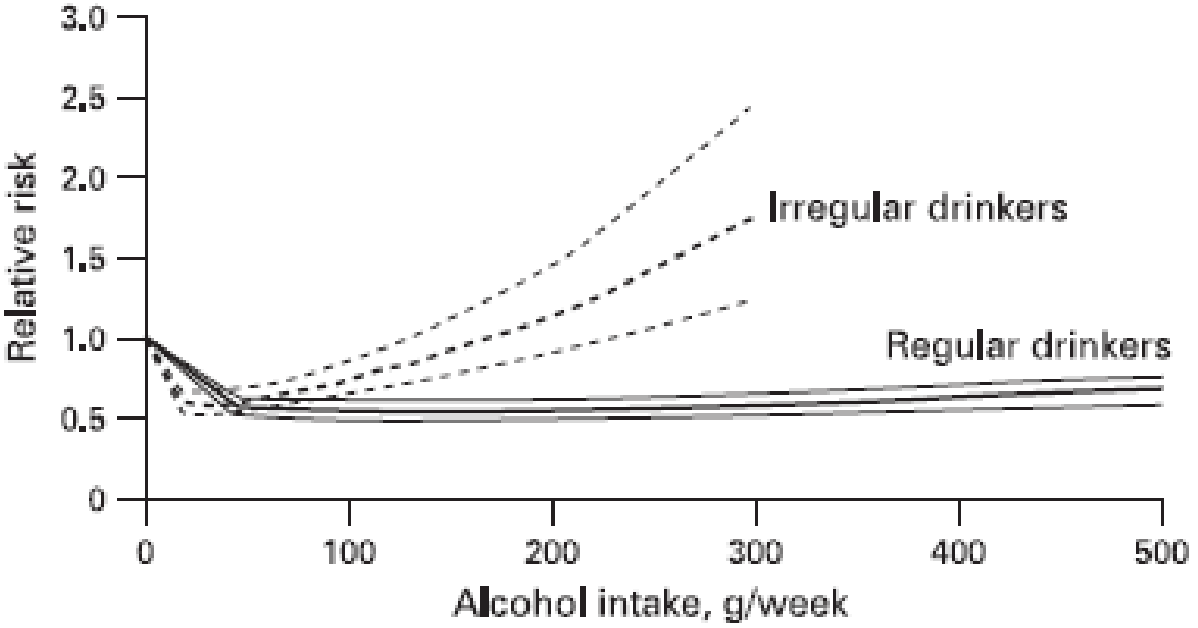


Figure 2 Meta-regression of dose–response relation between weekly alcohol intake and relative risk (and the corresponding 95% confidence bands) of coronary heart disease in regular and irregular drinkers.

Bagnardi et al, J Epidemiol Community Health 2008

ARE BENEFITS ON CARDIOVASCULAR RISK

OF MODERATE ALCOHOL CONSUMPTION

COUNTERACTED BY HARMS ON CEREBRO-VASCULAR OR OTHER DISEASES?

BEER CONSUMPTION AND STROKE

The relationship between alcohol consumption and stroke is complex, in part reflecting the heterogeneity of this vascular disease.

There is a J-shaped relationship between alcohol consumption and ischemic stroke, with lower risk for moderate alcohol consumers.

So far, existing data on beer are not conclusive, although some results indicate a positive role of drinking beer in moderation (1 drink/day) against ischemic stroke

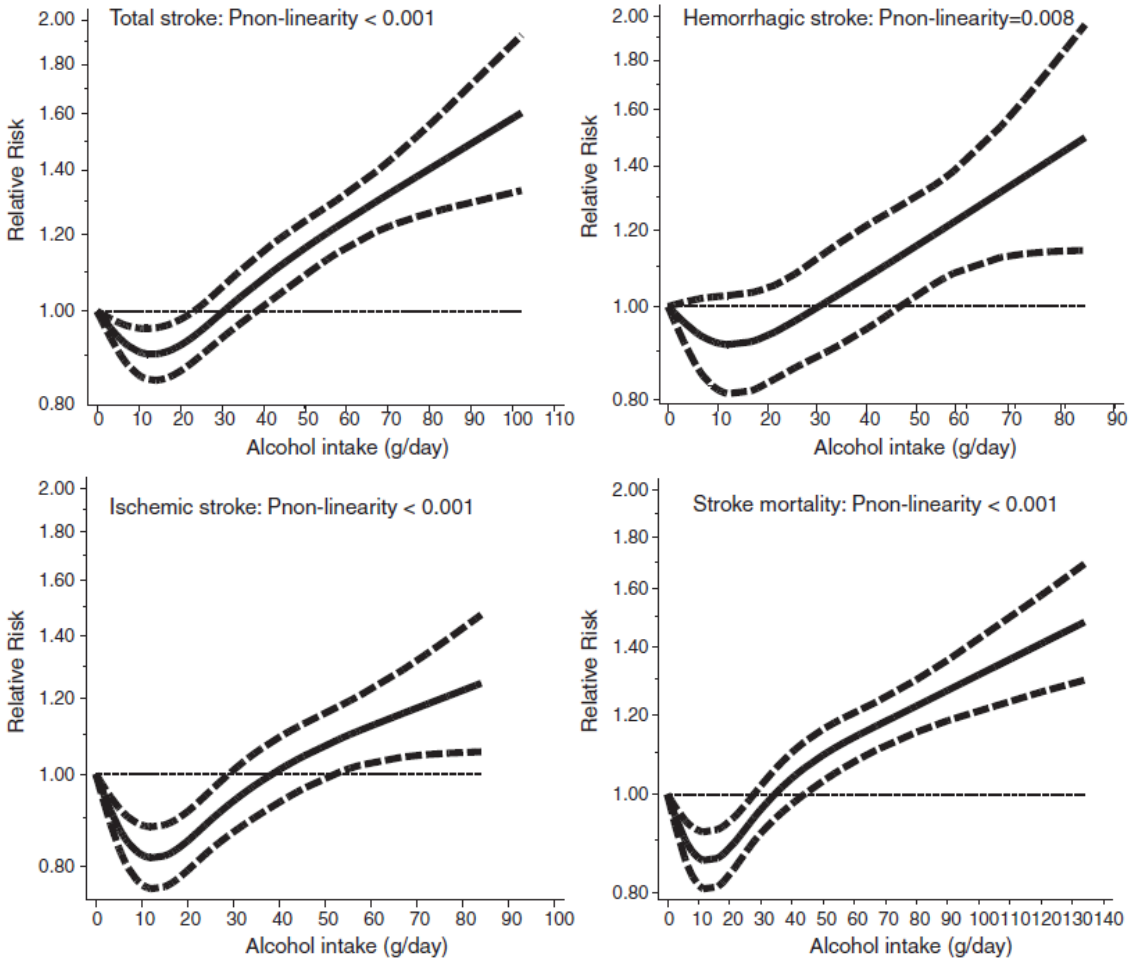


Fig. 5. Dose–response relations between alcohol intake and relative risks of total stroke, hemorrhagic stroke, ischemic stroke, and stroke mortality.

Beer and Health

C. Zhang et al. International Journal of Cardiology 2014

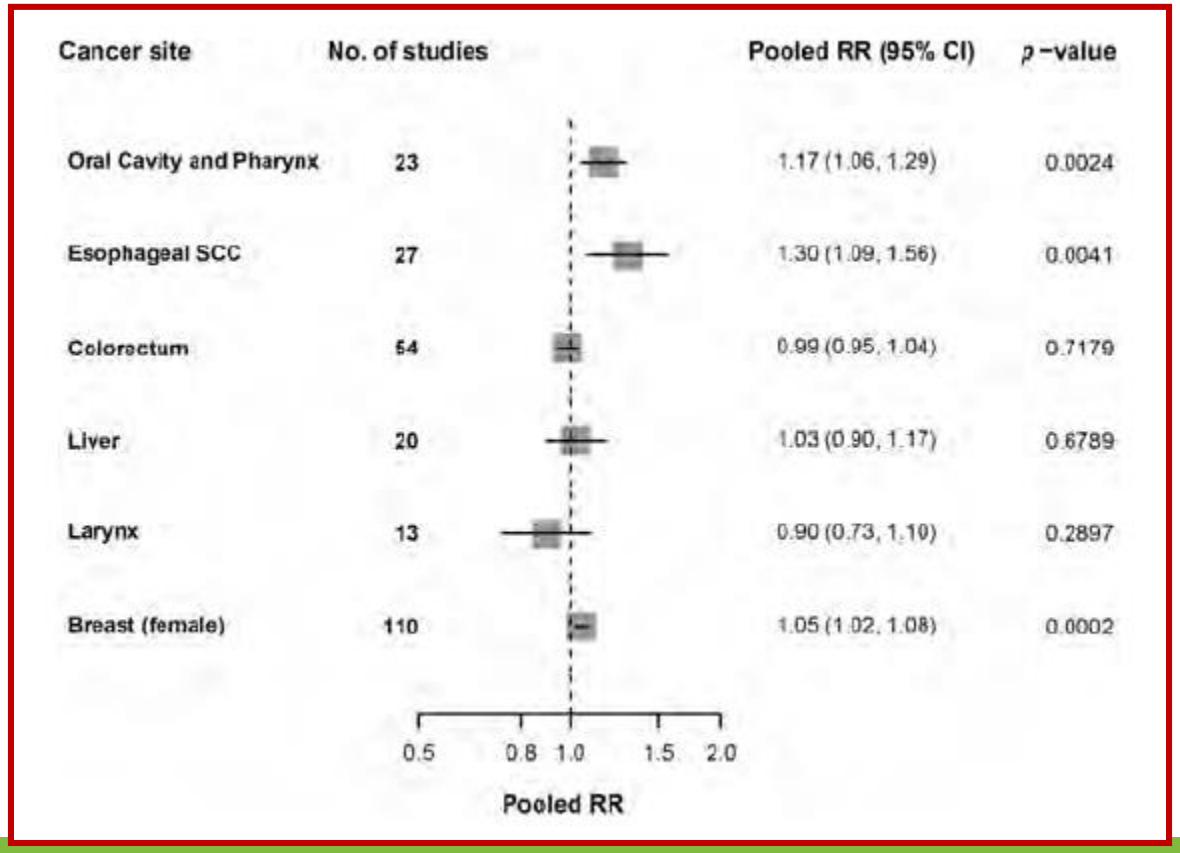
BEER CONSUMPTION AND CANCER RISK

There is no evidence that heavy beer drinking is more (or less) harmful on cancer risk than other types of alcoholic beverages.

Moderate alcoholic drinking
-1 drink/day in women, 2 drinks/day in men-
is associated in some studies with *a modest excess risk* of *oral and pharyngeal, esophageal and breast cancers*.

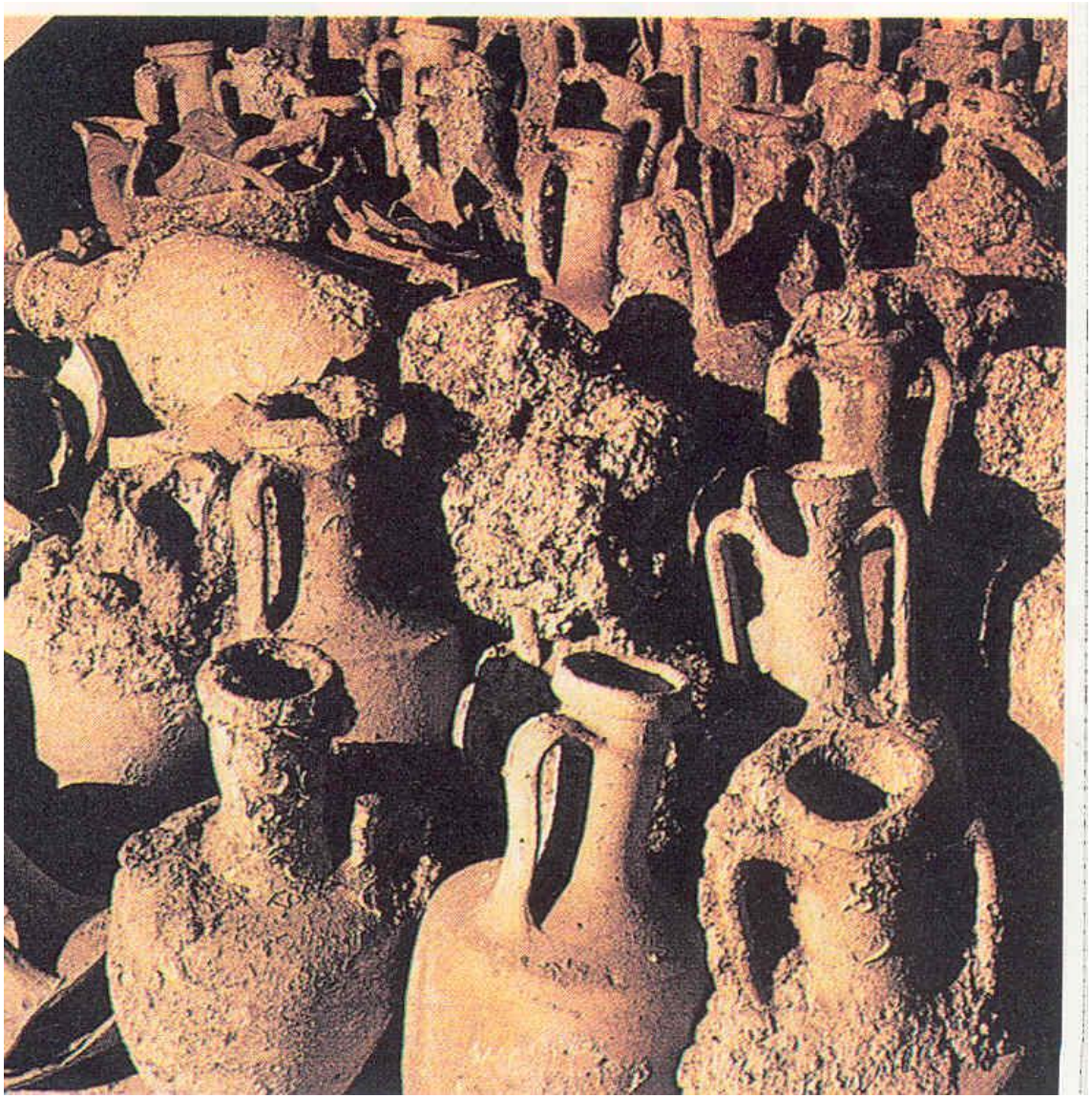
Light alcohol drinking and cancer: a meta-analysis

V. Bagnardi[1,2*], M. Rota[3], E. Botteri[2,4], I. Tramacere[5], F. Islami[6,7], V. Fedirko[8], L. Scotti[1], M. Jenab[8], F. Turati[4,5], E. Pasquali[2], C. Pelucchi[5], R. Bellocco[1,9], E. Negri[5], G. Corrao[1], J. Rehm[10,11], P. Boffetta[6,12] & C. La Vecchia[4,5,12]



Beer and Health

Annals Oncology, 2013

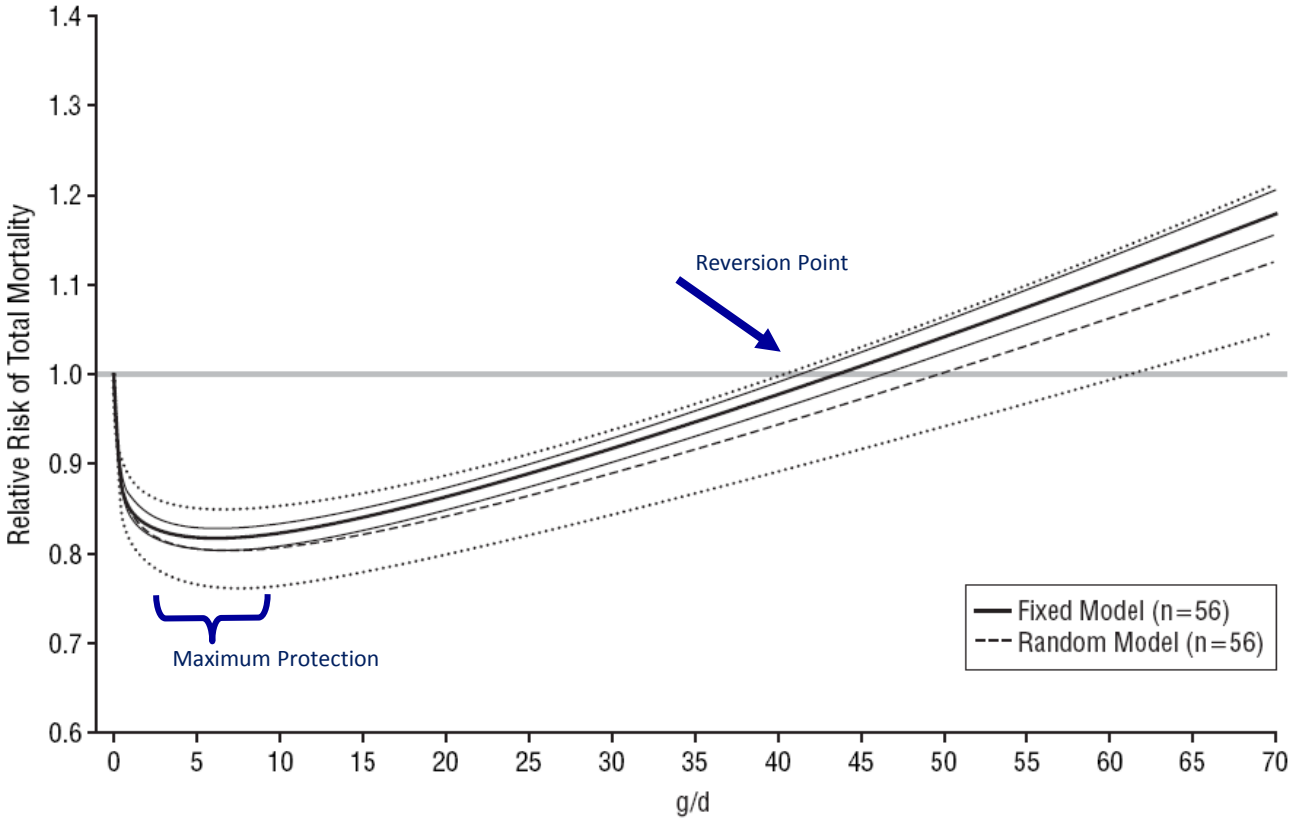


WHAT IS THE EFFECT

OF MODERATE ALCOHOL CONSUMPTION

ON TOTAL MORTALITY?

ALCOHOL CONSUMPTION AND MORTALITY FOR ANY CAUSE

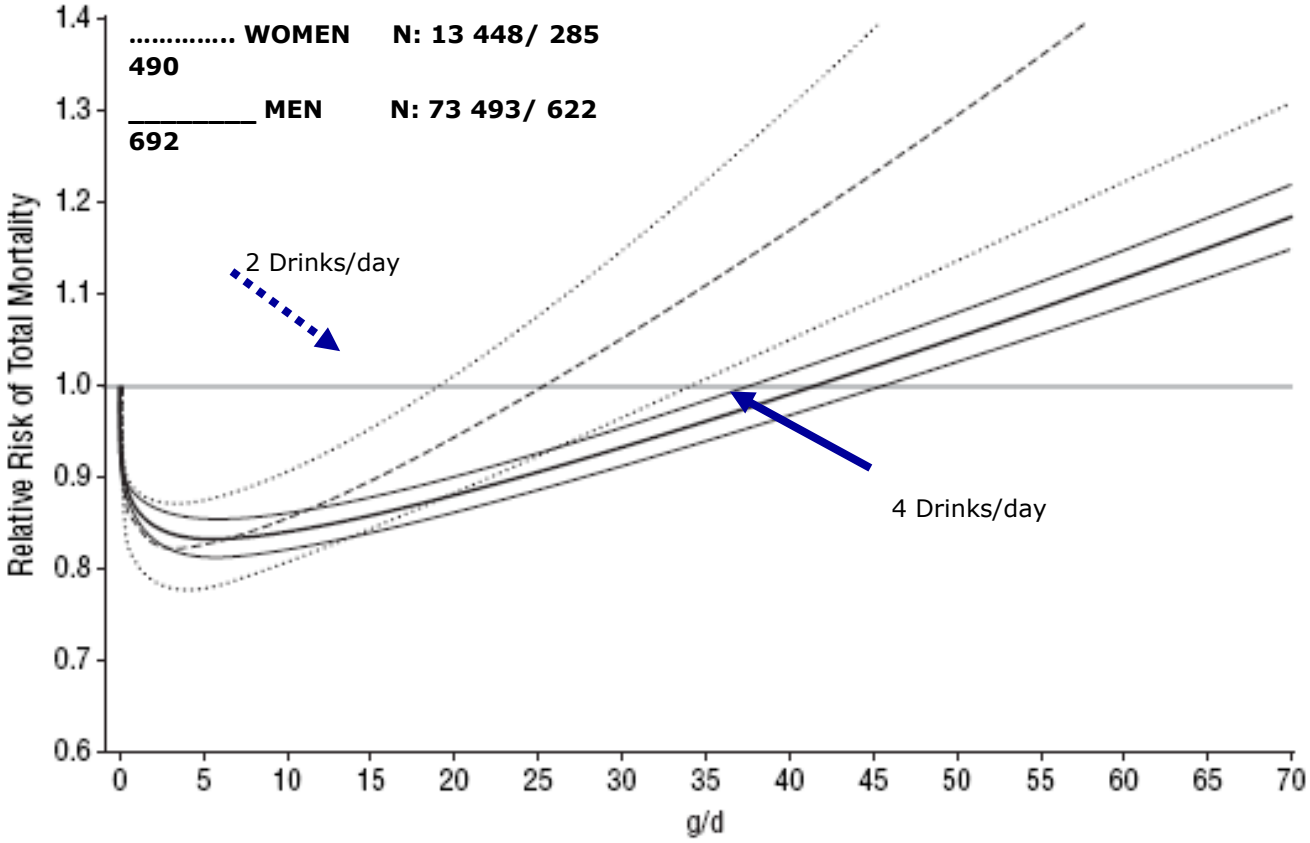


Thirty-four studies provided 56 independent dose-response curves for a total of **1,015,835 subjects** and **94,533 deaths from any cause**.

The association with a lower mortality was apparent up to 42 g/d and the lowest mortality was seen at 6 g/d, (RR, 0.81 [95% CI, 0.80-0.83]).

Di Castelnuovo et al, Arch Intern Med 2006

ALCOHOL CONSUMPTION AND MORTALITY FOR ANY CAUSE - IN MEN AND WOMEN



The protection was apparent up to **4 drinks per day in men** but only up to **2 drinks per day in women**. **Maximum risk reduction similar in men** (17%) and **women** (18%) at **light alcohol intake** (6 gr/d).

Beer and Health

Di Castelnuovo et al, Arch Intern Med 2006

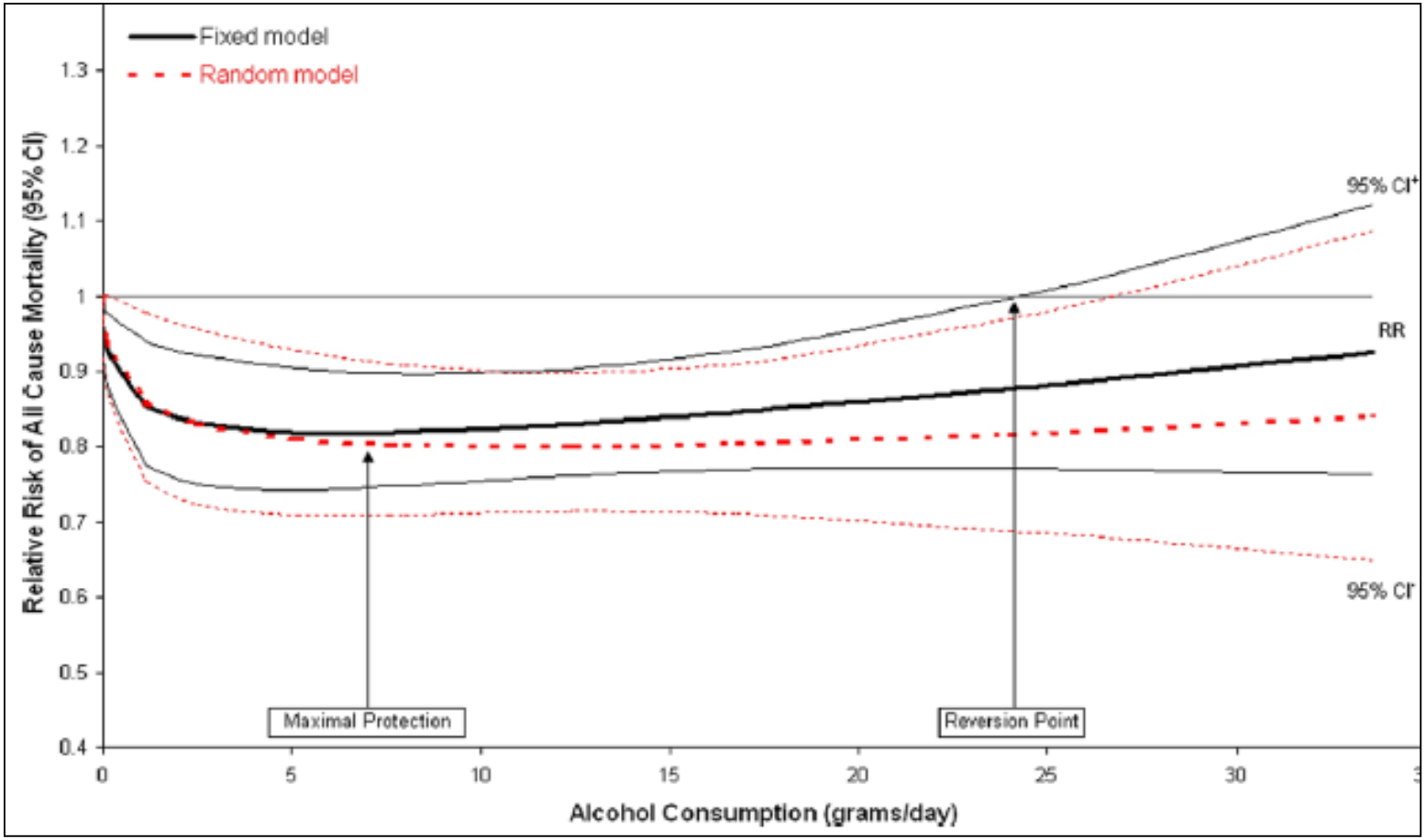
IS ALCOHOL CONSUMPTION

EFFECTIVE

IN THE SECONDARY PREVENTION

OF CARDIOVASCULAR DISEASE?

ALCOHOL CONSUMPTION AND MORTALITY FOR ANY CAUSE IN PATIENTS WITH CARDIOVASCULAR DISEASE

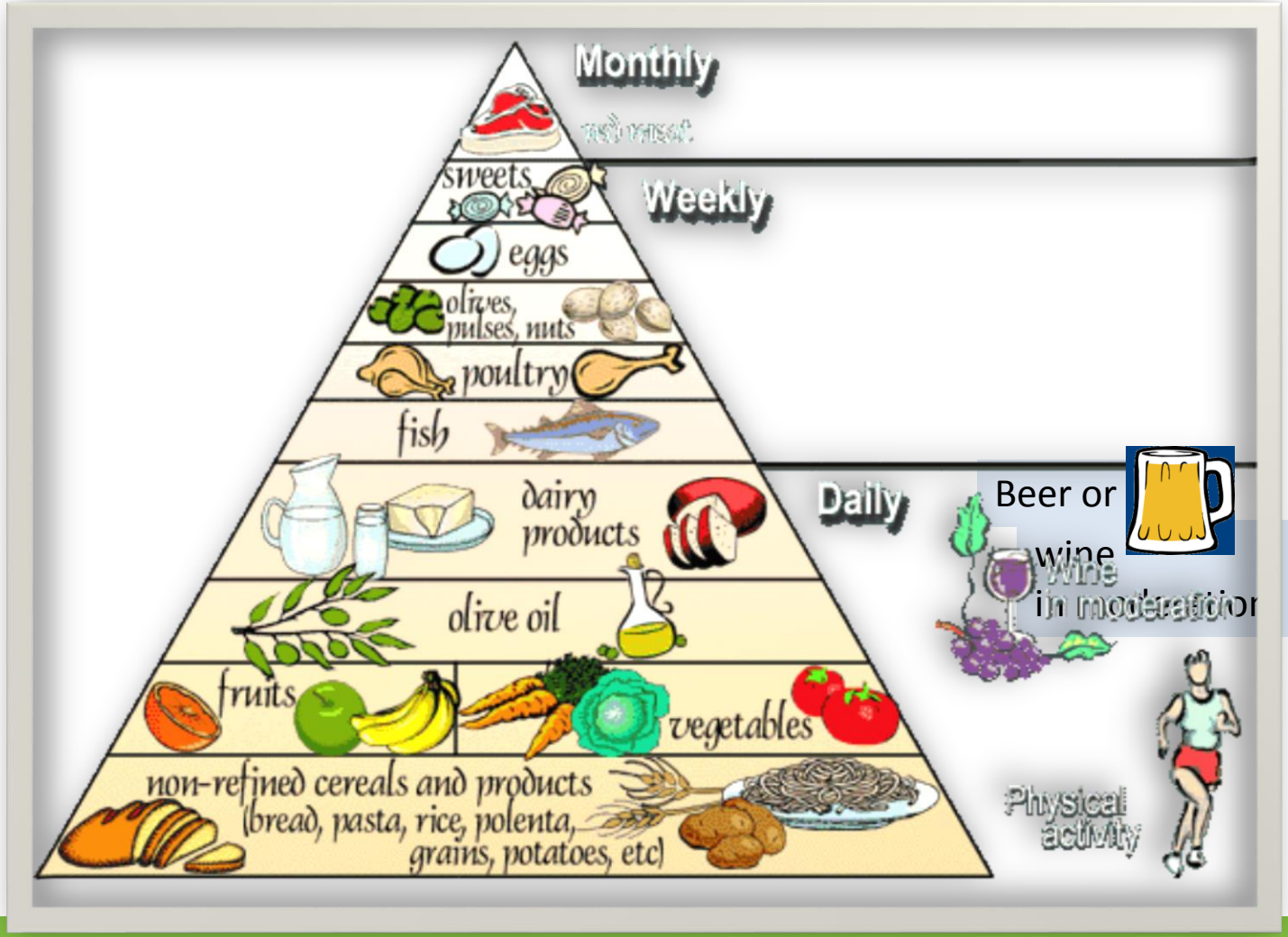


Pooled analysis of **six studies**, comprising 12,553 patients with previous CVD confirmed an overall **J-shaped curve**: **the maximal protection was 20% in a range of 5 to 10 g/day.**

Beer and Health

Costanzo et al, J Am Coll Cardiol 2010

PYRAMID OF THE MEDITERRANEAN DIET




Moli-SANI

The Moli-sani Project

EPIDEMIOLOGICAL STUDY

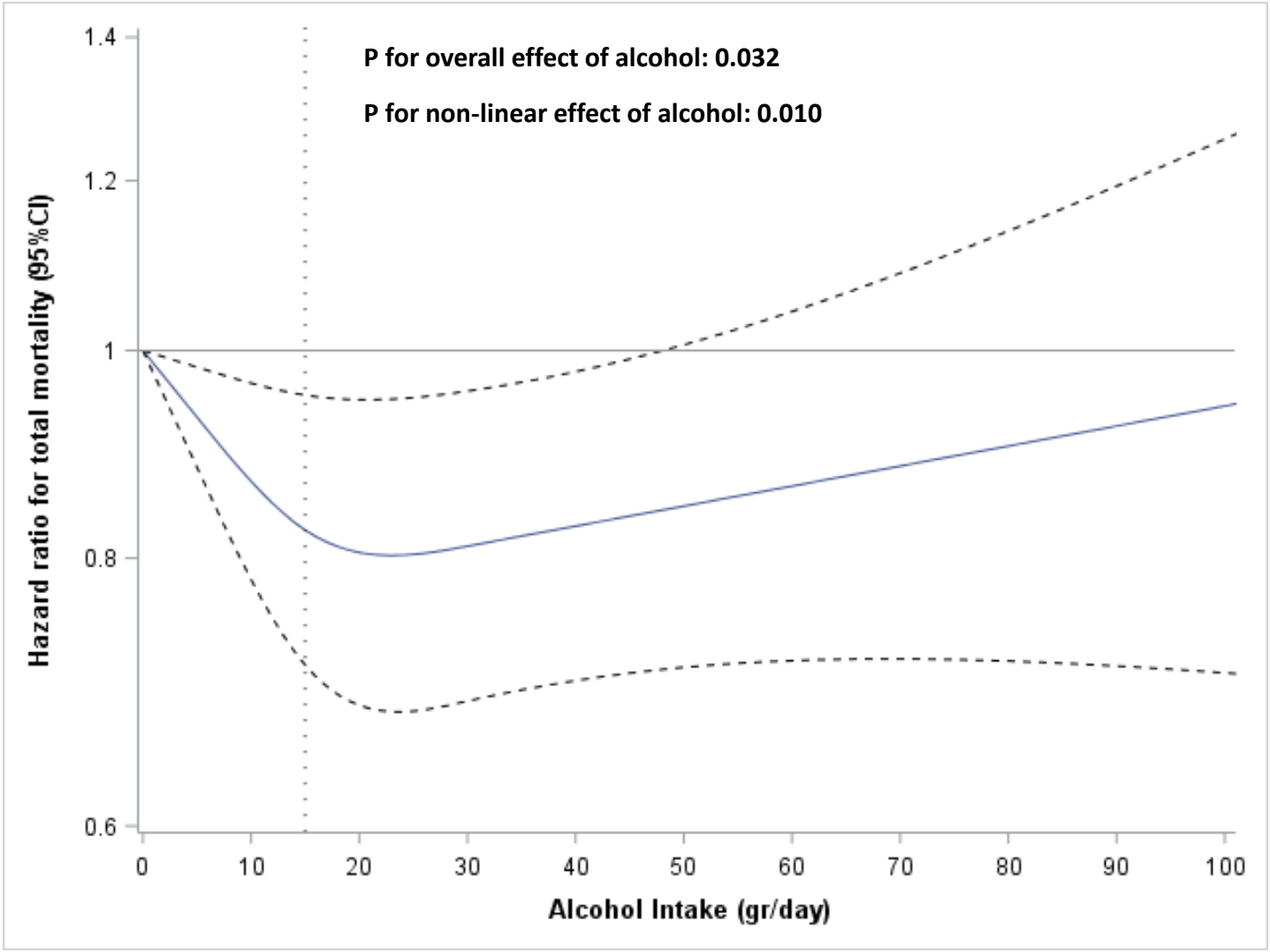
- ✓ *24,325 people living in Molise*
- ✓ *Aged 35 years or more*
- ✓ *Recruitment phase: 2005-2010*
- ✓ *First follow-up:*

  4.5 years
- ✓ *EPIC Questionnaire*
- ✓ *MED score*

Moli-sani clinical end-points

- ✓ **Cardio-cerebrovascular disease**
- ✓ **Tumors**
- ✓ **Common intermediate phenotypes:**
  - *Metabolic syndrome*
  - *Obesity*
  - *Hypertension*
  - *Dyslipidemia*
  - *Diabetes*

Alcohol intake and risk of all-cause mortality in the Moli-sani cohort



Adjusted for age, sex, smoking, education, income, physical activity, body mass index, total cholesterol, total calories intake, adhesion to Mediterranean diet (deprived of alcohol), previous history of cardiovascular disease, hypertension or diabetes.

RISK OF DEATH ASSOCIATED WITH 2- POINT INCREASE IN THE MEDITERRANEAN DIET SCORE IN THE GENERAL POPULATION OF THE MOLI-SANI STUDY

	Risk of death (95%CI)	P value	Reduction in the effect (%)
Mediterranean diet score (2-point increase)	0.631 (0.497-0.801)	0.0002	-
Moderate alcohol consumption	**0.688 (0.546-0.867)**	**0.0015**	**-15.4**
Dairy products (low intake)	0.681 (0.543-0.855)	0.0009	-13.7
Cereals	0.673 (0.541-0.837)	0.0004	-11.4
Fruits and nuts	0.652 (0.524-0.812)	0.0001	-5.8
Monounsaturated /saturated ratio	0.650 (0.510-0.831)	0.0006	-5.2
Meat and meat products (low intake)	0.649 (0.518-0.814)	0.0002	-5.0
Fish	0.648 (0.510-0.823)	0.0004	-4.7
Vegetables	0.646 (0.510-0.819)	0.0003	-4.0

Bonaccio et al, Eur J Preventive Cardiol 2015

Mediterranean diet and risk of death in the elderly (≥65y)
The contribution of moderate alcohol intake

N of subjects = 5,180; N of deaths = 771; Follow-up = 7.5 y (median)

	Whole sample	
	Risk of death HR (95%CI)	Reduction in the total effect (%)
2-point increase in MDS	0.865 (0.787-0.949)	-
Minus MUFA/SFA ratio	0.898 (0.815-0.989)	-25.9
Minus Fish	0.891 (0.813-0.976)	-21.2
Minus Alcohol	**0.889 (0.813-0.972)**	**-19.3**
Minus Cereals	0.879 (0.807-0.959)	-12.7
Minus Dairy products (low intake)	0.877 (0.801-0.959)	-10.7
Minus Meat and meat products (low intake)	0.868 (0.795-0.948)	-4.7
Minus Fruits and nuts	0.867 (0.794-0.947)	-3.4
Minus Vegetables	0.862 (0.786-0.946)	-0.1
Minus Legumes	0.845 (0.770-0.926)	12.5

Beer and Health

Hazard ratio (95%CI) for the models adjusted for age, sex, education, household income, leisure-time physical activity, history of cancer, CVD.

Mediterranean diet and risk of death in subjects with diabetes
The contribution of moderate alcohol intake

	Risk of death (95%CI)	P value	Reduction in the total effect (%)
Mediterranean diet score (2-point increase)	0.632 (0.494-0.803)	0.0003	-
After alternate removal of each food item			
Moderate alcohol consumption	**0.686 (0.541-0.871)**	**0.0020**	**-14.7**
Dairy products (low intake)	0.681 (0.539-0.862)	0.0014	-13.4
Cereals	0.677 (0.540-0.847)	0.0007	-12.2
Monounsaturated /saturated ratio	0.653 (0.507-0.841)	0.0010	-5.8
Vegetables	0.653 (0.512-0.834)	0.0006	-5.8
Fruits and nuts	0.651 (0.519-0.817)	0.0002	-5.2
Fish	0.650 (0.508-0.833)	0.0006	-5.0
Meat and meat products (low intake)	0.645 (0.510-0.814)	0.0002	-3.4
Legumes	0.600 (0.469–0.767)	<.0001	+8.7

Hazard ratios from the model controlled for age, sex, education, total energy intake, total physical activity, smoking, years from diagnosis of diabetes, blood glucose and hypercholesterolemia.

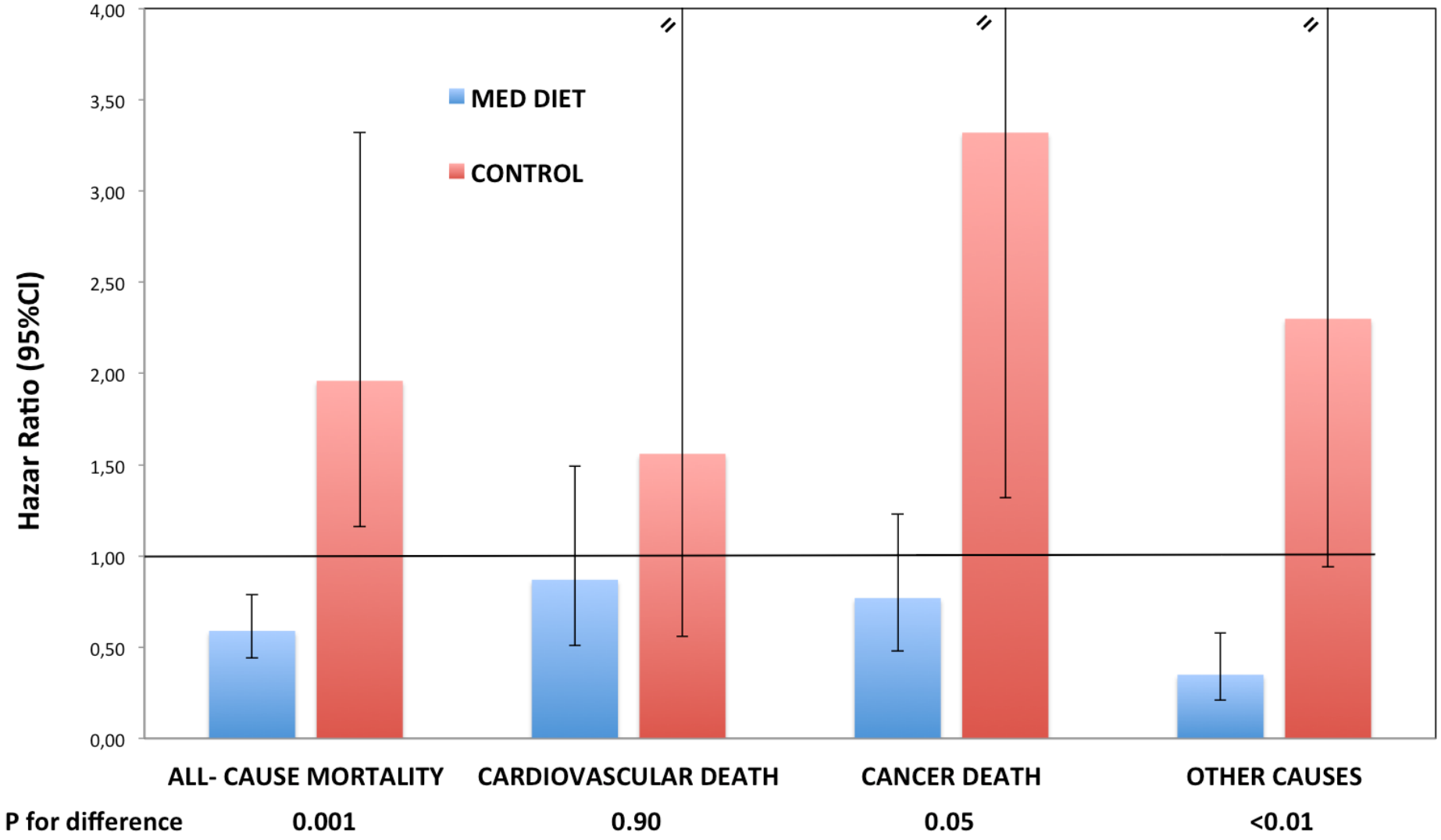
Bonaccio et al, Eur J Prev Cardiol 2015

HEAVY ALCOHOL INTAKE (> 15-70 G/DAY) AND MORTALITY RISK IN THE PREDIMED TRIAL

	MED DIET	CONTROL	*P for interaction*
ALL- CAUSE MORTALITY	**0.59** (0.44-0.79)	**1.96** (1.16-3.32)	0.001
CARDIOVASCULAR	**0.87** (0.51-1.49)	**1.56** (0.56-4.31)	0.90
CANCER	**0.77** (0.48-1.23)	**3.32** (1.32-8.34)	0.05
OTHER CAUSES	**0.35** (0.21-0.58)	**2.30** (0.94-5.64)	<0.01

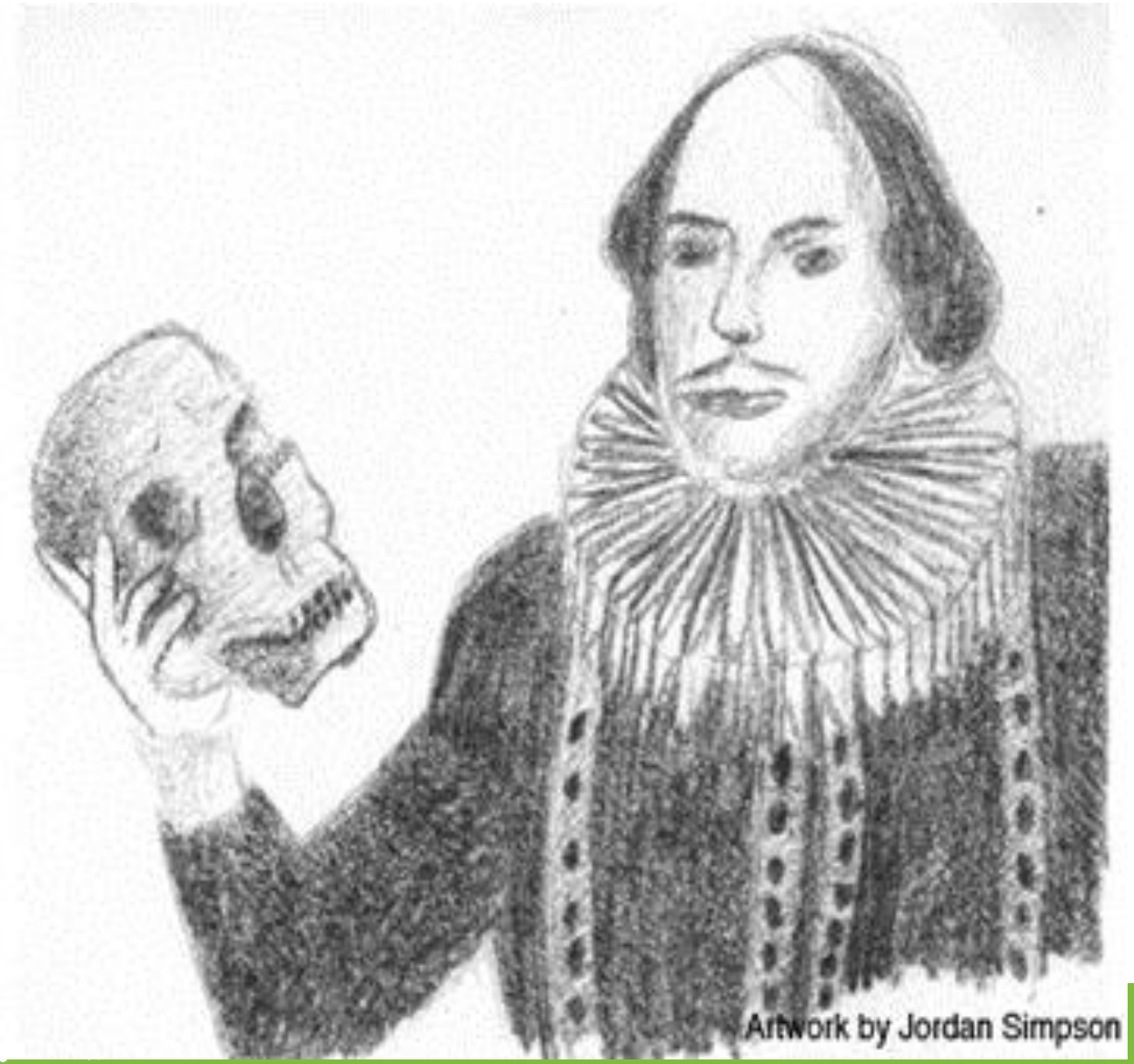
R. Estruch, personal communication (2017)

HEAVY ALCOHOL INTAKE (> 15-70 G/DAY) AND MORTALITY RISK IN THE PREDIMED TRIAL



R. Estruch, personal communication (2017)

THE NOVEL HAMLET
TO DRINK OR NOT TO DRINK ?



Beer and

AN INTERNATIONAL CONSENSUS DOCUMENT

FIVE SUMMARY HIGHLIGHTS

1. Regular and moderate beer consumption protects against cardiovascular risk and total mortality, both in healthy adults and in cardiovascular patients.

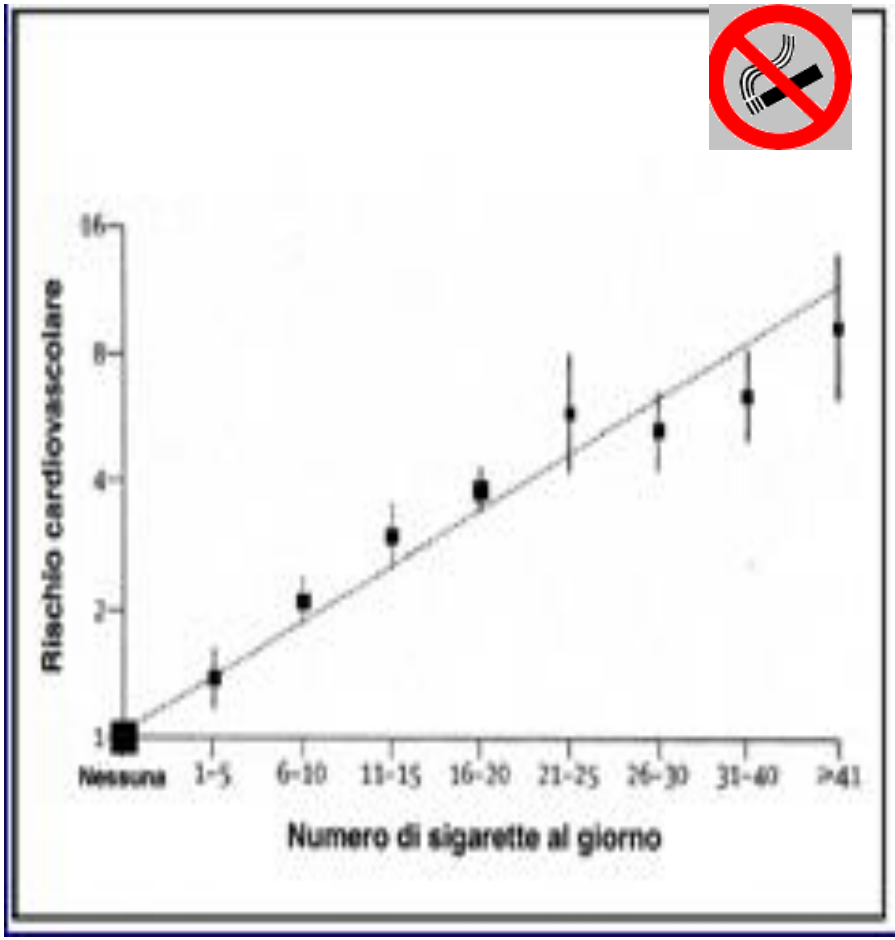
2. The dose –effect relationship between beer consumption and vascular risk is characterized by a J-shaped curve.

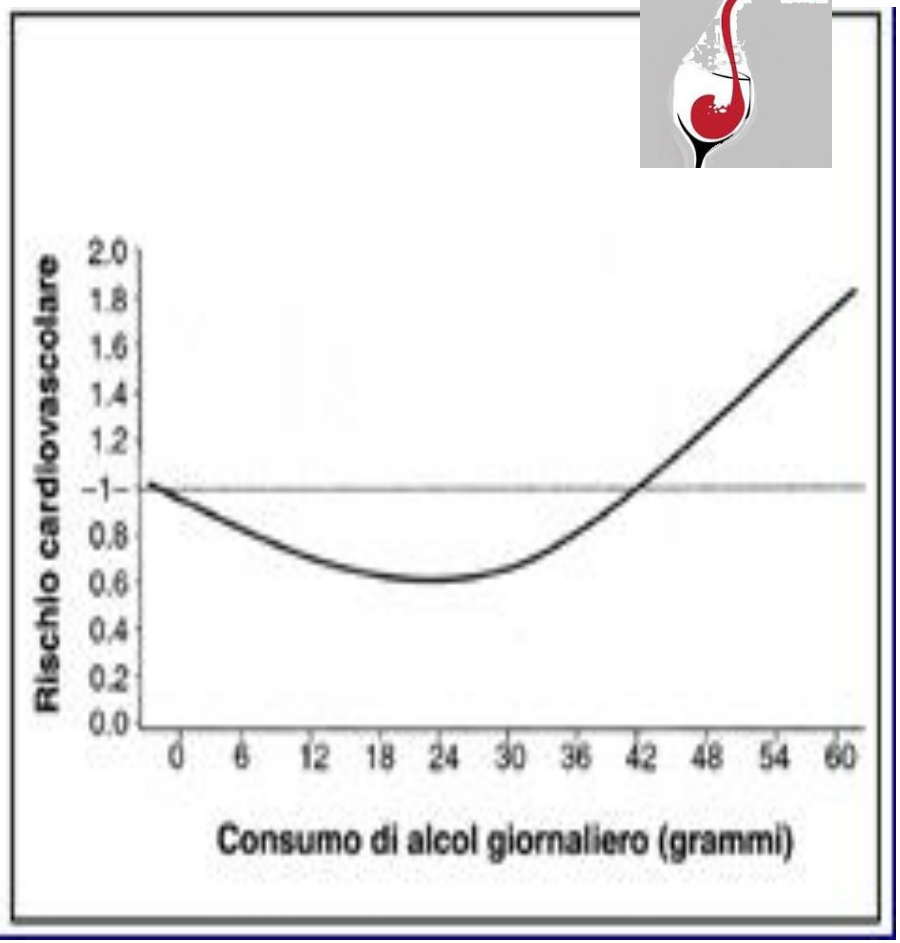
3. For moderate levels of alcohol consumption, the relative risks of cancer are small and are similar for beer, wine and spirits.

4. Adherence to Mediterranean Diet may counteract/reduce the (cancer) risk associated to alcohol intake

5. Excessive alcohol use is detrimental to several human organs and function and is a major public health and social problem.


NEED CASH
FOR ALCOHOL
RESEARCH





Yusuf et al, Lancet 2004

Di Castelnuovo et al, Circulation 2002