

Alcohol –

*part of Western
civilization for
millenia
social lubricant*



Wine

**Question of Prof. Rosivall :
are there health benefits ?**

Adverse health effects of alcohol ?

- **polyneuritis**
- **cirrhosis / hepatitis**
- **encephalopathy**
- **cardiomyopathy**
- **malnutrition / vitamin B1 deficiency**
- **...**

***When I read about the
evils of drinking,
I decided
to give up reading***

Mark Twain (1835-1910)

Risks and benefits of alcohol

490,000 individuals

prospective 9 year follow-up study

Alcohol use ⇔

higher risk :

- *cirrhosis, dilated cardiomyopathy, cardiac arrhythmia, fetal alcohol syndrome, hypertension, stroke*
- *cancer (breast, mouth, esophagus, pharynx, larynx, liver)*
Allen, J.Natl.Cancer Inst.(2009)101:296
- *injury (e.g. traffic accidents)*

lower risk :

- less **cardiovascular death** (*lower by 30-40%*)
- less **progression of renal disease**,
- less diabetes,
- less osteoporosis,
- less cognitive impairment

Thun, New Engl J Med (1997) 337:1705

Medical use of alcohol

Hippokrates of Kos (439-377 BC)

Wine

Tranquilizer

Analgesic

Diuretic

Antidiarrhoic

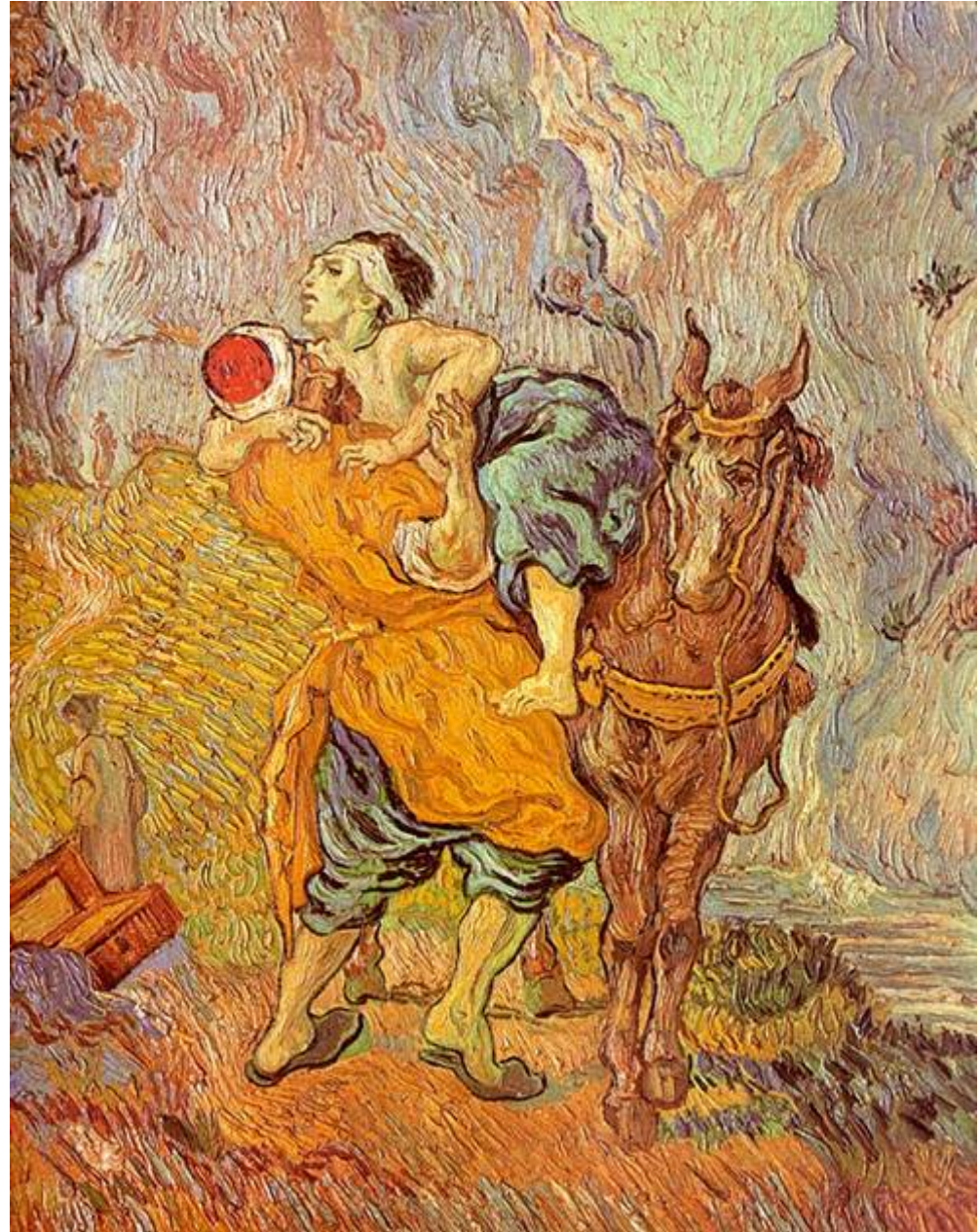
Treatment of wounds

New Testament

(Luke 10; 30-37) The Good Samaritan

A certain man went down from Jerusalem to Jericho and fell among thieves which stripped him of his raiment and wounded him, and departed, leaving him half dead... a Samaritan... went to him, and bound up his wounds, pouring in oil and wine...

Luke; 10: 30-37



V. van Gogh



Gaius Julius Caesar
(100-44 before Christ)

Medical use of alcohol

Julius Caesar (100-44 BC)

Troops – *1.5 l of wine with meals to prevent gastrointestinal infections*
won battles not only by strategic skill, but also by healthier defecation

Claudius Galenus, Pergamon (130-200 AC)

red wine → GI disease
adstringent (tannin rich) wine
→ internal bleeding

Medical use of wine

Paracelsus

(Philippus Aurelius Theophrastus
Bombastus von Hohenhain; 1493-1541)

"Weingeist" (spiritus)

active ingredient of wine (= alcohol)

derived: spirits, Spiritus, Sprit

other ingredients - inert contaminants

effects of wine: **dosis facit venenum**

("the dose decides whether it is a poison or not")

”French paradox”

- in all countries tight correlation between consumption of animal fat and coronary mortality, except
- in France and Switzerland:
coronary mortality low in relation to consumption of animal fat

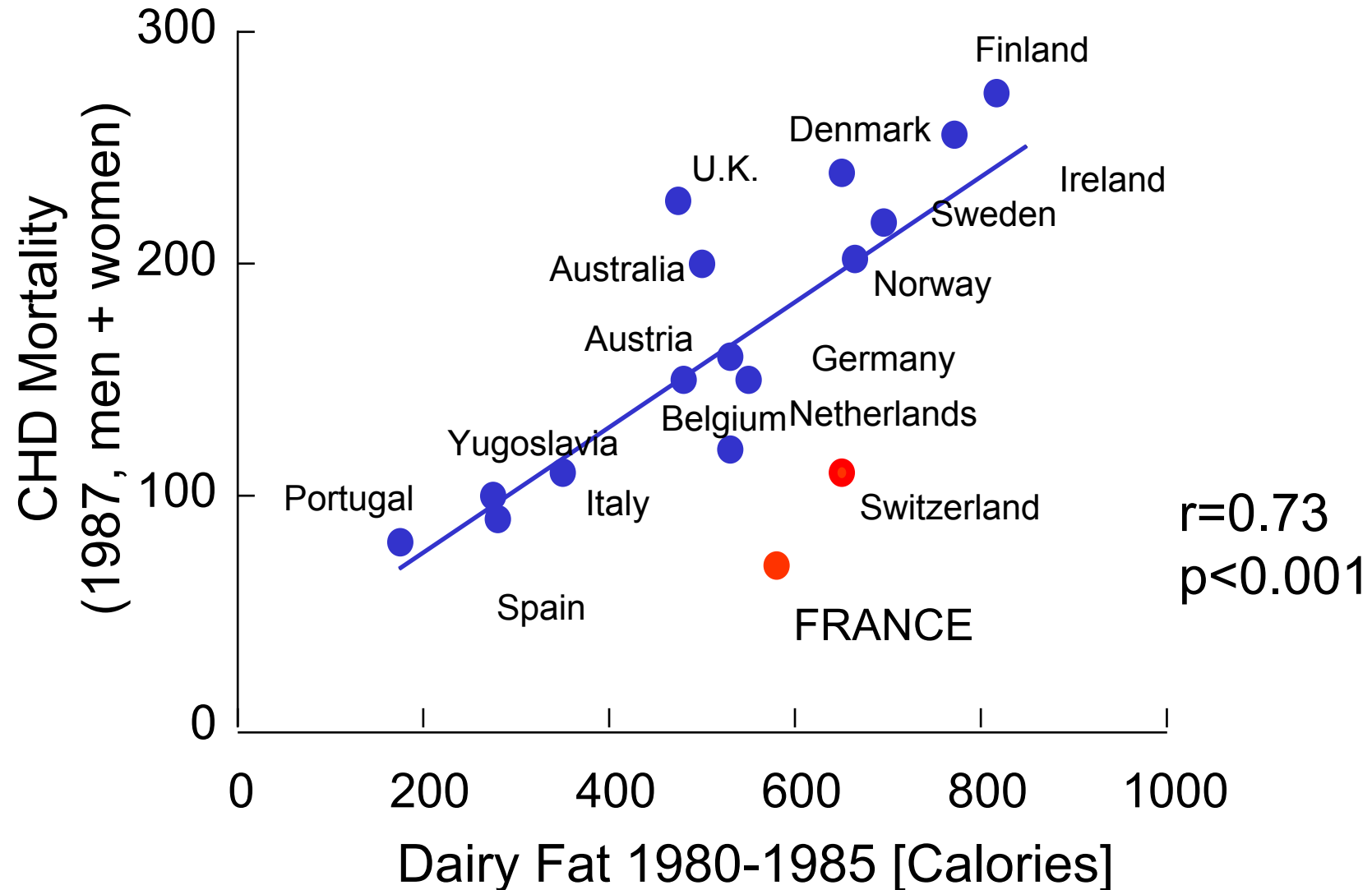
Renaud S, Lancet (1992) 339: 1523

De Lorgeril, Circulation (2002) 106: 1465

Hypothesis

Wine antagonises adverse effects of animal fat

French Paradox of coronary heart disease



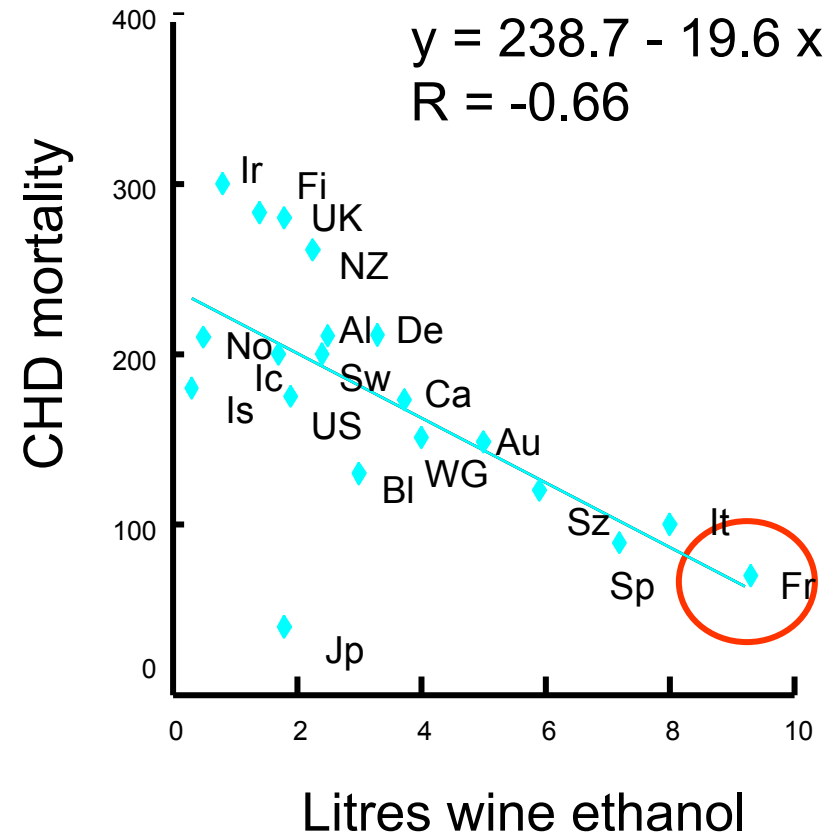
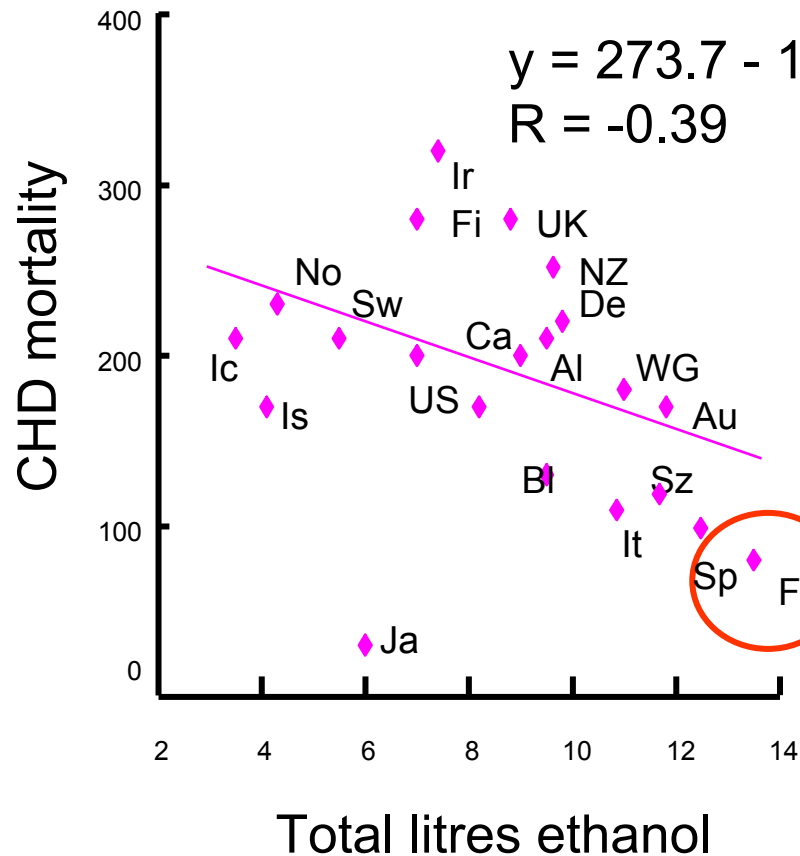
$r=0.73$
 $p<0.001$

Renaud, Lancet (1992) 339: 1523

Alcohol and cardiovascular mortality

**→ 60 retrospective and prospective
epidemiological studies**

Ethanol and wine ethanol consumption - relation to coronary heart disease mortality



Criqui and Ringel, *Lancet* (1994) 344: 1719

Health professional follow up study

50,000 men

**→ 5-30 g alcohol per day
reduction of CV mortality by ~ 25%**

Rinn et al.

Wine, beer and spirits.

Are they really horses of a different colour?

Circulation (2002) 105: 2806

**Alcohol consumption and cardiovascular death in
hypertensive men –
*Physicians' health study***

14,125 / 88,882 hypertensives

relative risk

alcohol consumption

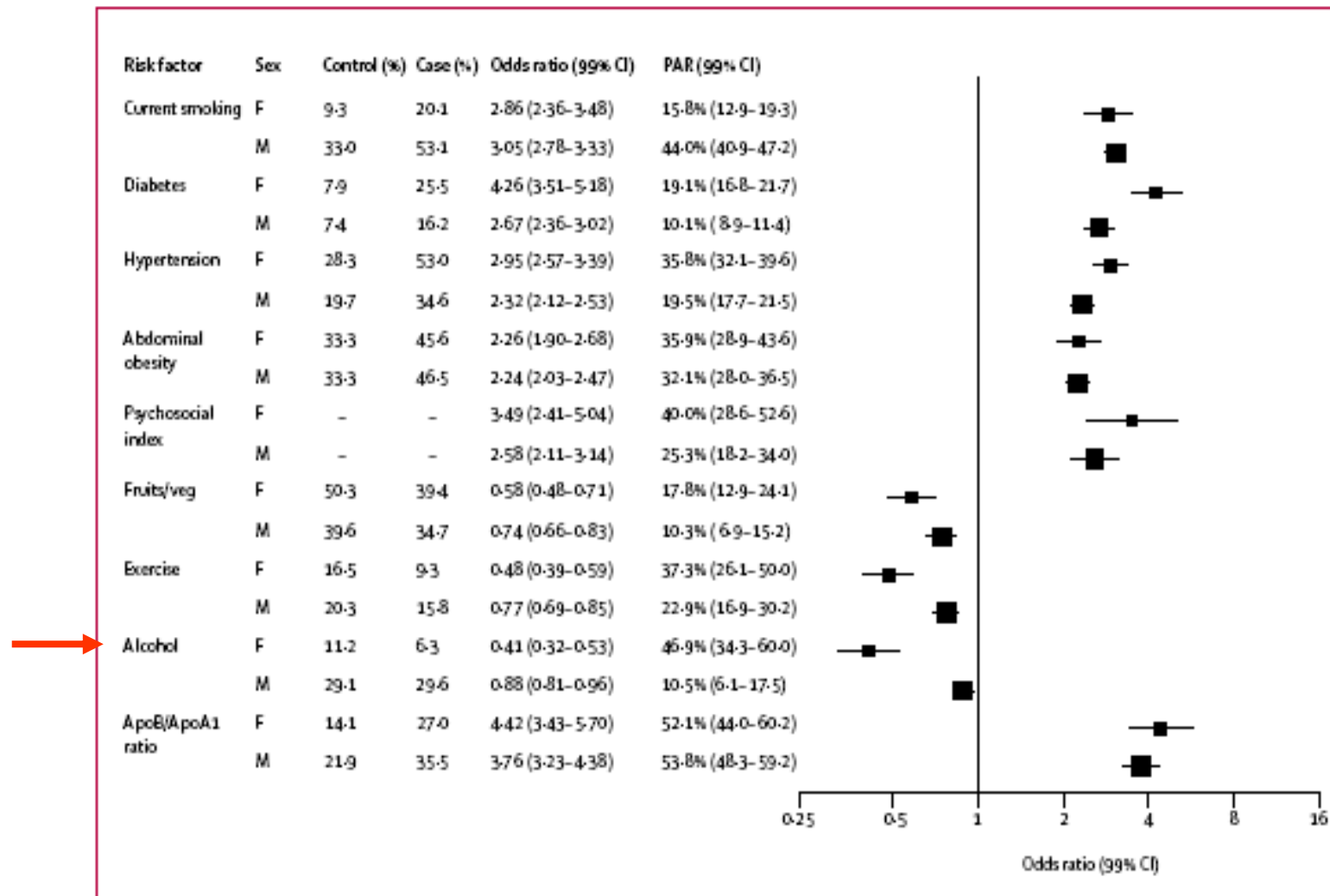
never monthly weekly daily

CV mortality **1.0** **0.82** **0.64** **0.56**

Overall mortality **1.0** **0.86** **0.72** **0.73**

Malinski, Arch. Int. Med (2004) 164:623

Alcohol and myocardial infarction – *worldwide analysis*



Yusuf, Lancet (2004) 364:937

Why U-shaped relationship?

Study 34014 young men in France 1978-1993

High alcohol intake :

cirrhosis

colorectal, gastroesophageal carcinoma

traffic accidents

but,

alcohol consumption > 50 g/day also

increased CV risk

Renaud, Am J Clin Nutr (1992) 55: 1012

How often and how much ?

**An alcoholic can be defined as a man
who drinks more than his own doctor**

A.L.Barach

Alcohol Consumption and Risk of Major Coronary Event

Drinks per day	Days per week					
	Don't drink	Rarely <1	1or2	3or4	5or6	Daily
Don't drink	1.00					
1 or 2 Units	1.01	0.99	0.93	0.75	0.36	1.20
3 or 4	0.65	0.44	0.91	0.6	0.46	0.87
5 to 8	0.80	1.13	1.00	0.46	0.50	0.83
>9		0.99	2.62	1.93	2.22	2.40
Former drinker	1.06					

Case Control Study

11511 acute myocardial infarctions

6077 controls

McElduff; BMJ 1997; 314: 1159

Copenhagen Heart Study

U-shaped relation between units of alcohol/day (30 g) and stroke :

- *2 units 40% reduction*
- *> 5 units increased risk*

Truelsen, Stroke (1998) 29: 2467

Regimen Sanitatis Salernitani

Arnoldo de Villanueva

1235-1311



*“... during meals drink wine happily
little but often...”*

*“...avoid harming the body: never
drink between meals...”*

*Ursini,
Ann.NY Acad Sci (2002) 957:200*

School of Salerno

Benefits other than cardiovascular ?

Risks and benefits of alcohol

490,000 individuals
prospective 9 year follow-up study

Alcohol use ⇔

higher risk :

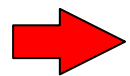
cirrhosis

cancer (*breast, mouth, esophagus, pharynx,
larynx, liver*)

injury

lower risk :

cardiovascular death lower by 30-40%, but also less



diabetes,

osteoporosis,

progression of renal disease,

cognitive impairment

Thun, New Engl J Med (1997) 337:1705

Alcohol and the risk to develop type 2 diabetes

Nurses health study
84,941 nurses, follow-up 1980-19963,
300 new cases of type 2 diabetes

daily alcohol consumption (g)	number of cases with type 2 diabetes	relative risk
0	1715	1.0
0.1 - 5.0	1034	0.78 (0.72-0.84)
5.1 - 10.0	189	0.56 (0.48-0.65)
>10	358	0.59 (0.52-0.66)

Hu, New Engl.J.Med. (2001) 345: 790

**Moderate alcohol consumption –
lower risk of diabetes
(Hoorn study)**

- in 1989 alcohol intake by questionnaire in 2393 subjects
 - - non-drinkers vs
 - - up to 10g/day vs
 - - 10-30 g/day vs
 - - > 30g/day
- lowest **mortality** → up to 10 g/day
- lowest risk to **develop diabetes** → up to 10 g/day
(8.0% vs 12.9% for nondrinkers)

de Veegt, Diabetes Res Clin Pract (2002) 57: 53

alcohol (1-2 drinks/day)

⇒ **lower risk of osteoporosis**

higher alcohol consumption

⇒ **more osteoporosis**

Bainbridge, Osteoporosis Int. (2004) 15: 439

Moderate alcohol consumption – **less cognitive impairment**

- Nurses Health Study
Stampfer, New Engl J Med (2005) 352:245
- Gruppo Italiano di Pharmacovigilanza nell'Anziano (GIFA)
Carosella, Pharmacol.Res.(1999) 40: 287
- Hale Project (mediterranean diet and life style changes in the elderly)
Knoops, JAMA (2004) 292:1433

Moderate alcohol consumption – less dementia and Alzheimer's disease

(Metaanalysis of 23 studies)

- **dementia** risk ratio **0.63** (95%CI 0.53-0.75)
- **Alzheimer** risk ratio **0.57** (95%CI 0.44-0.74)
but no significant effect:
- **vascular dementia** risk ratio **0.82** (95%CI 0.50-1.32)

Peters, Age Ageing (2008) 37: 505



*J.W.von Goethe
1749 - 1832*

**Wein wirkt stärkend auf den
Geisteszustand den er vorfindet –
er macht die Dummen dümmer
und die Klugen klüger**

*(wine reinforces the state of mind
which is present –
it makes the stupid one even more stupid
but the intelligent one also more intelligent)*

Hypothesis

kidney rich in polyunsaturated fatty acids
vulnerable to damage by **reactive oxygen species** (ROS)

⇒ benefit from moderate consumption of red **wine**
via **increased antioxidant defense**

polyphenols → *ROS scavengers and metal chelators*

ethanol → *increased activity of antioxidant enzymes*

Rodrigo, Free Rad Biol Med (2002) 33:409

IDNT study – alcohol consumption and risk of **progression** of **diabetic** nephropathy

	renal endpoint (n=462)	no renal endpoint (n=1253)
alcohol consumption: yes	23 %	28 %
p (univariate analysis)		0.02

Lewis New Engl J Med (2001) 345:851

Alcohol and progression of nondiabetic renal disease

negative epidemiological data

- **presence of chronic kidney disease
alcohol no increased risk (except moonshine)**

Vupputuri, Ann Epidem.(2003) 13:712

- **alcohol not related to chronic kidney
disease in 9082 US adults (NHANES II)**

Stengel, Epidemiology (2003) 14:479

Alcohol and **progression** of renal disease – **suggestive data**

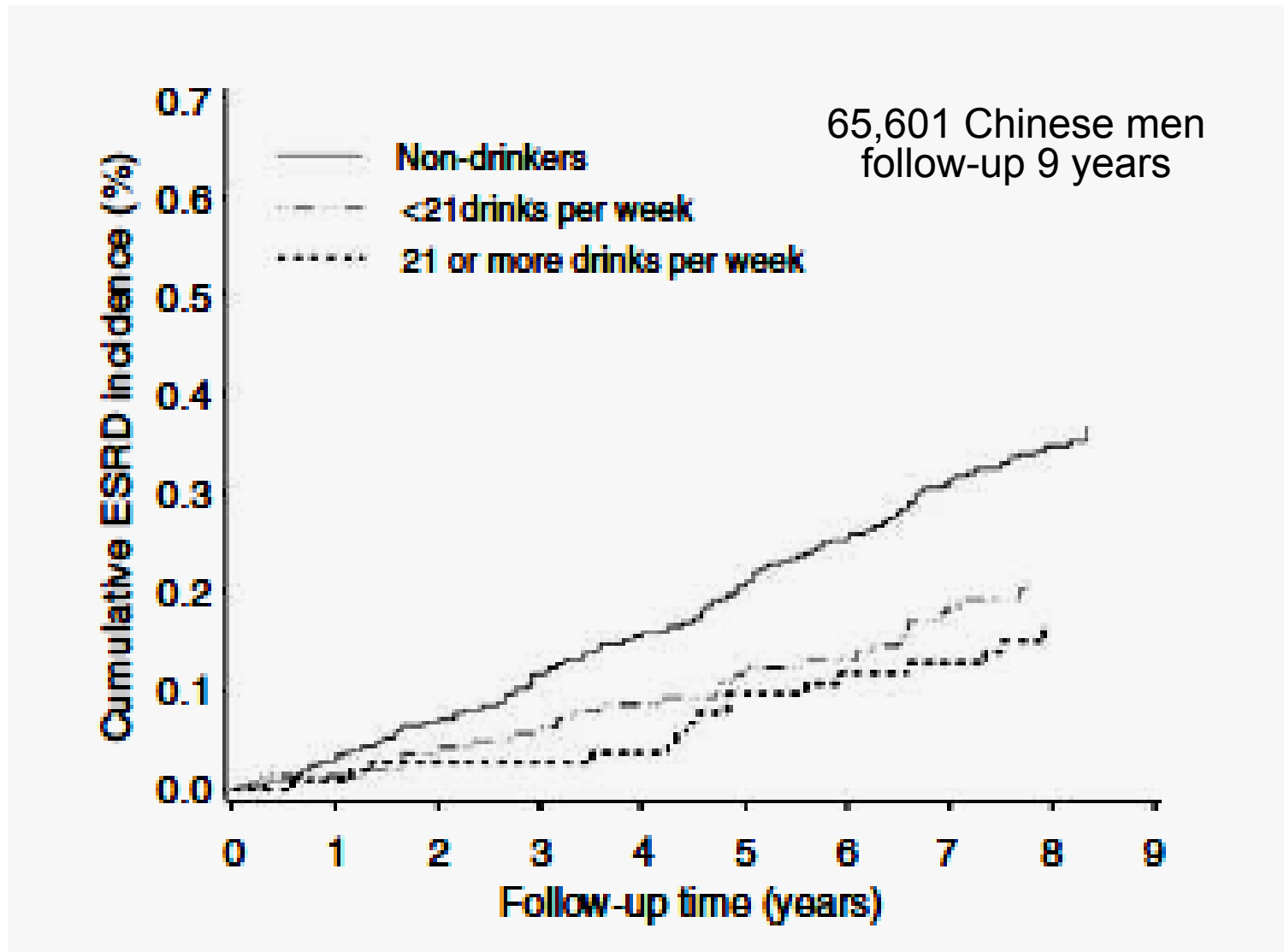
**decline of renal function and alcohol
prospective 11 year study in 1658 nurses**

	<i>odds ratio > 25 % decrease GFR</i>	
	<i>normotensive</i>	<i>hypertensive</i>
<i>0 - 4.9 g/day</i>	<i>0.98</i>	<i>0.98</i>
<i>5 -14</i>	<i>0.83</i>	<i>0.62</i>
<i>15 -60</i>	<i>0.81</i>	<i>0.53</i>

 **chronic kidney disease –
potential benefit from alcohol**

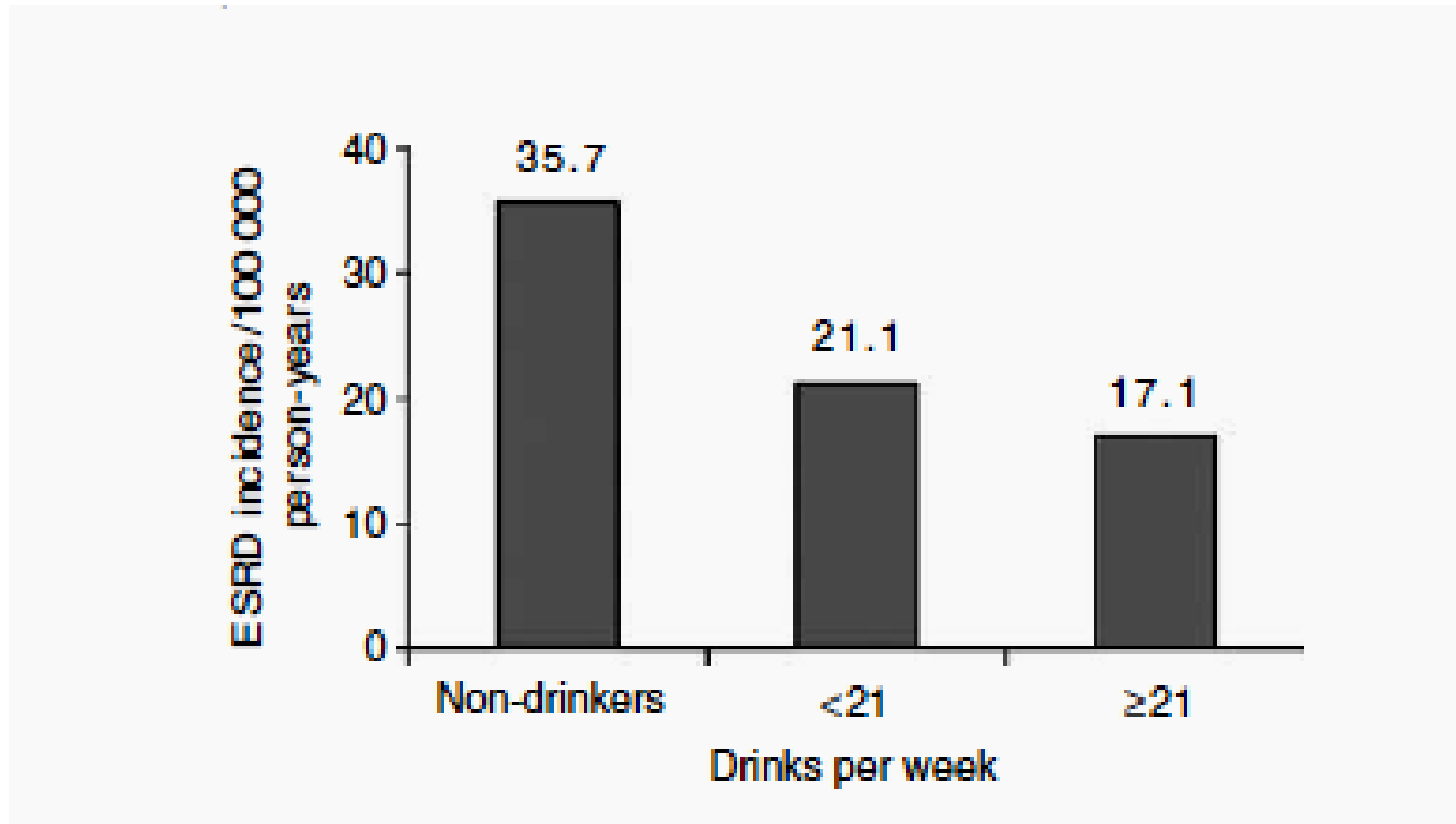
Knight, Nephrol.Dial.Transplant. (2003) 18:1549

Alcohol and endstage renal disease – definite data



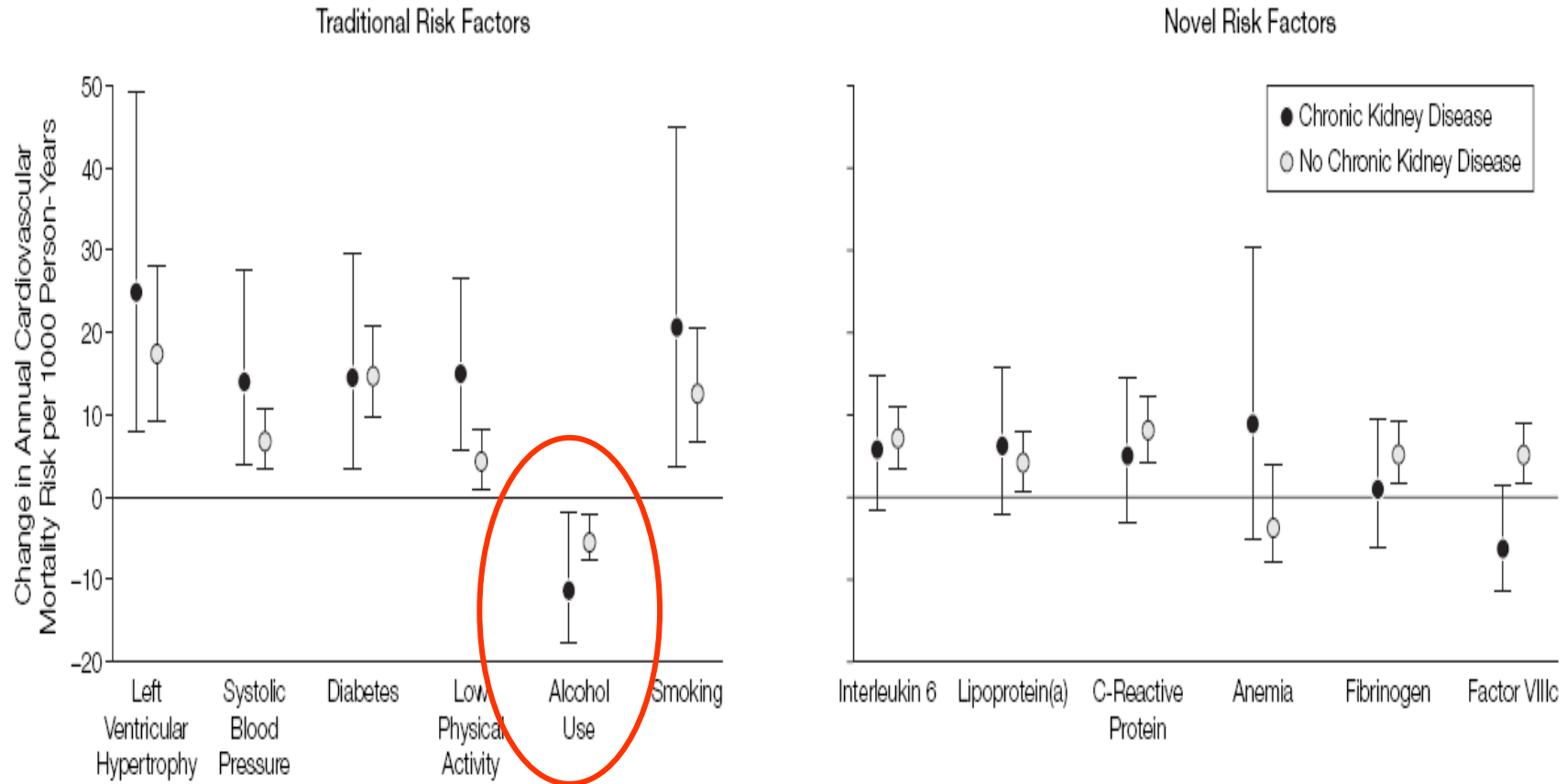
Reynolds, Kid.Internat.(2008) 73:870

Incidence of all-cause endstage renal disease (per 100,000 person years standardized by age)



Reynolds, Kid.Internat.(2008) 73:870

Chronic Kidney Disease – not only progression, but also CV risk



Shlipak, JAMA (2005) 293:1737

Drinking alcohol – albuminuria vs eGFR

6259 adults < 65 years, 5 year follow-up

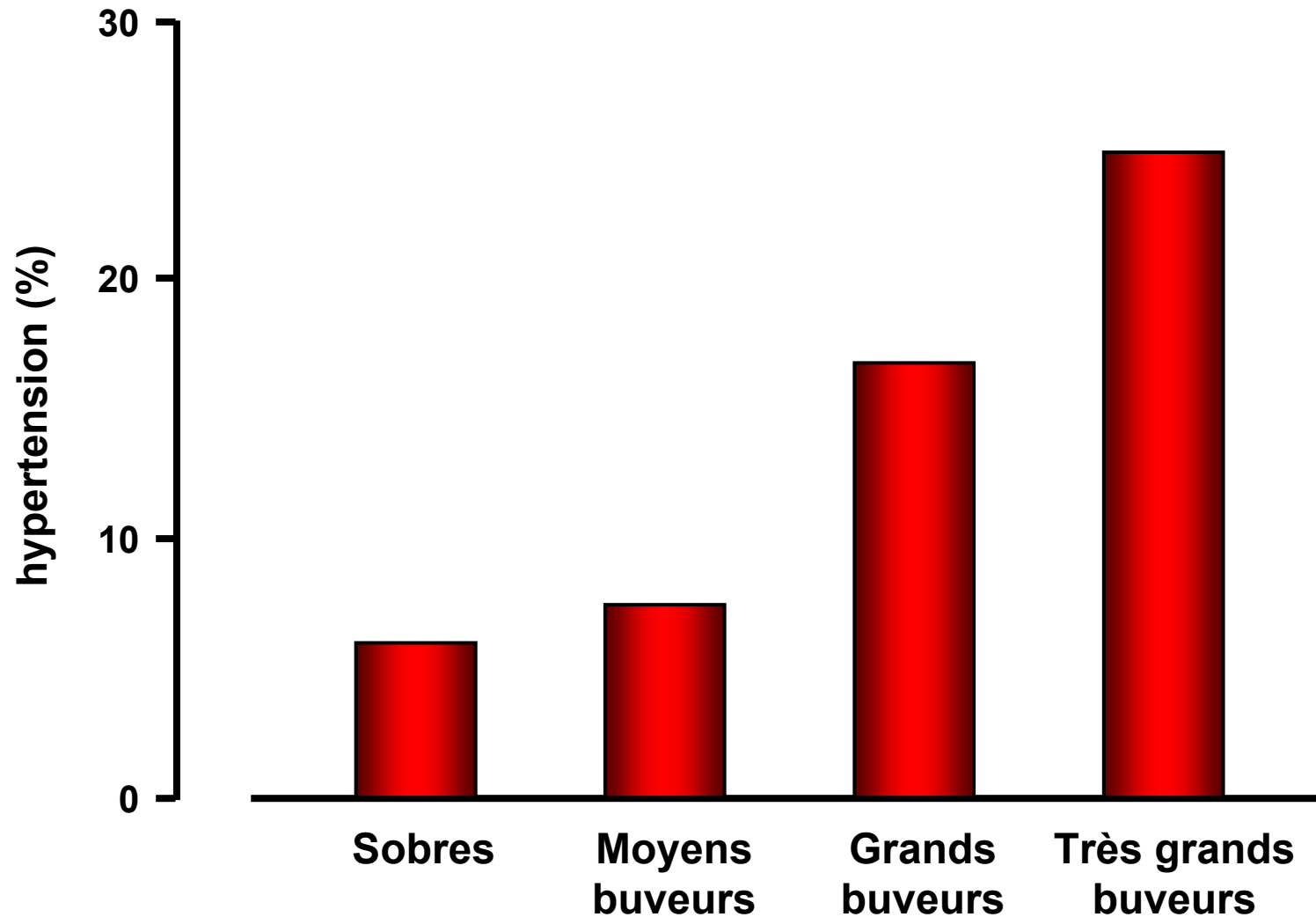
**males moderate/heavy vs light drinking
new onset**

albuminuria OR 1.87 (CI 0.99-3.52)

eGFR<60 ml/min OR 0.34 (CI 0.22-0.59)

White, Nephrol.Dial.Transplant.(2009) 24:2464

Alcohol increases blood pressure in Paris Gendarmes



cardiovascular and renal benefit despite higher blood pressure !

Are all alcoholic drinks created equal?

Alcohol vs wine:

Inverse correlation alcohol consumption and
coronary mortality ($r = - 0.39$)

better correlation wine consumption and
coronary mortality ($r = 0.66$)

Criqui and Ringel

Does diet or alcohol explain the French paradox

Lancet (1994) 344: 1719

⇒ alcohol coronary protection
constituents of **wine additional coronary protection**

alcohol – coronary protection

wine – additional coronary protection

metaanalysis

200,000 subjects

beer consumption risk reduction - 20%

wine consumption risk reduction - 32%

Di Castelnuovo

Circulation (2002) 105: 2836

confirmed :

Klatsky

Am.J.Epidemiol (2003) 158: 585

Are all alcoholic beverages created equal?

beer similar benefit with respect to coronary events?

Copenhagen Heart Study
prospective 12 year study,
6000 males, 7000 females

inverse correlation between alcohol consumption
and total mortality

→ only for consumption of **wine**, **not beer** and spirits

Gronbaek, Brit Med J (1995) 310: 1165

Gronbaek, Ann Int Med (2000) 19: 411



outrage in Bavaria – beer the liquid bread of Bavarians

Beer drinking and total mortality

Copenhagen Heart Study:

decreased relative risk only for wine,
but even slightly **increased** for **beer** and spirits

Gronbaek, Brit Med J (1995) 310: 1165

Monica study – Augsburg (**Bavaria**):

U-shaped relation between alcohol (**including beer**)
consumption and total mortality in a
beer drinking population

Keil, Epidemiology (1997) 8: 150

Antiinflammatory effect of moderate consumption of either wine or beer

- **MONICA study (Augsburg, Glasgow, Lille)**
- **self reported moderate (<40g/day) intake of alcohol compared to nondrinking or heavy drinking**



lower CRP

fibrinogen

plasma viscosity

white blood cell count

Imhof, Eur.Heart J (2004) 25:2092

“Drinking half a glass of wine increases longevity by 5 years“

ZUTPHEN study
1373 men born 1900-1920
examined until 2000

long term light **alcohol** consumption (< 20g/day)

cerebrovascular mortality	hazard ratio 0.43 (CI 0.26-0.70)
cardiovascular mortality	hazard ratio 0.70 (CI 0.55-0.89)
all-cause mortality	hazard ratio 0.75 (CI 0.63-0.91)

long term **wine** consumption < half a glass per day

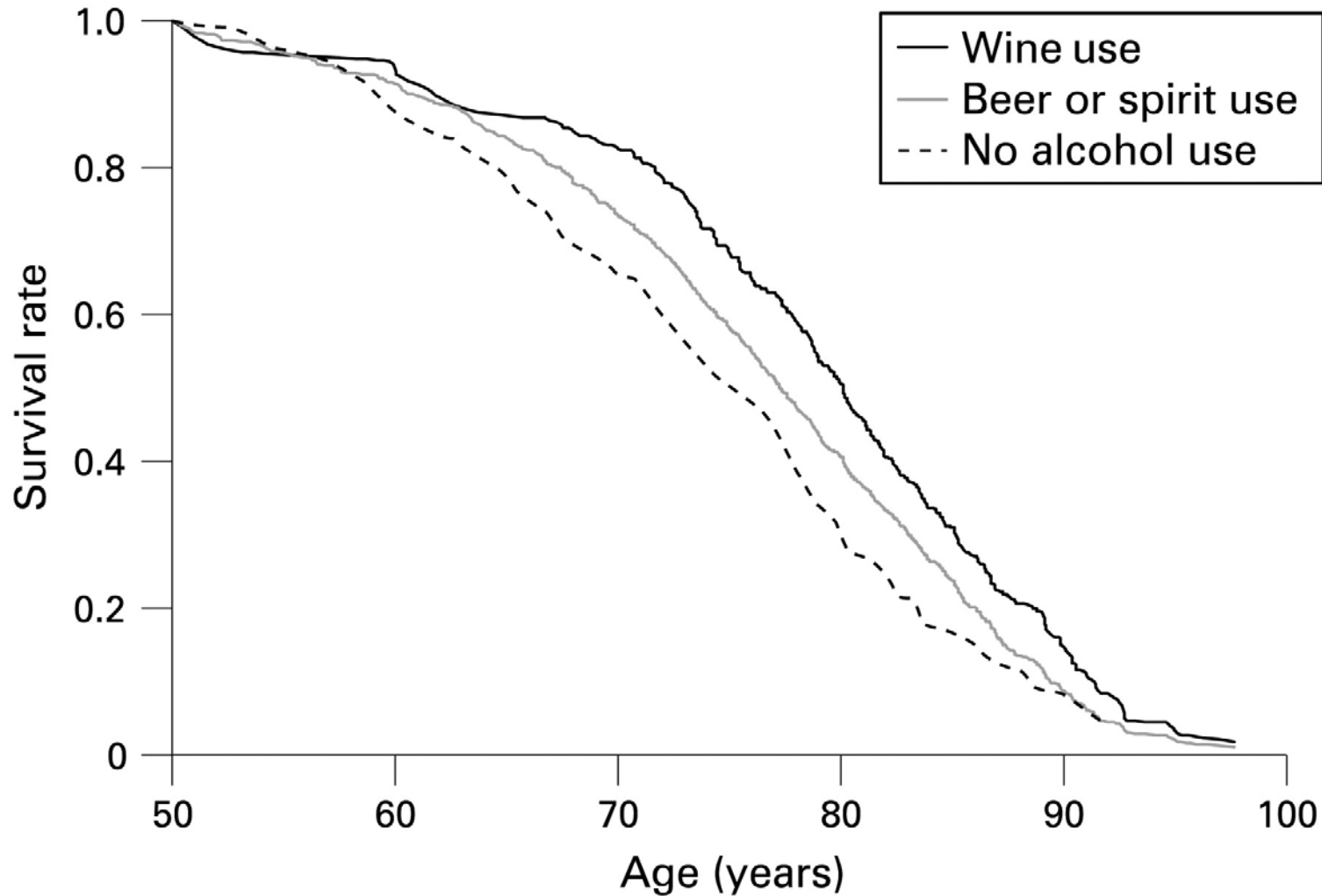
coronary heart disease	hazard ratio 0.61 (CI 0.41-0.89)
total cardiovascular mortality	hazard ratio 0.53 (CI 0.53-0.86)
all-cause mortality	hazard ratio 0.73 (CI 0.62-0.87)

effect of wine independent of **total alcohol** intake !!
less than half a glass of wine / day → **life expectancy 5 years** longer

Streppel,, J Epidemiol Community Health (2009;)63:534

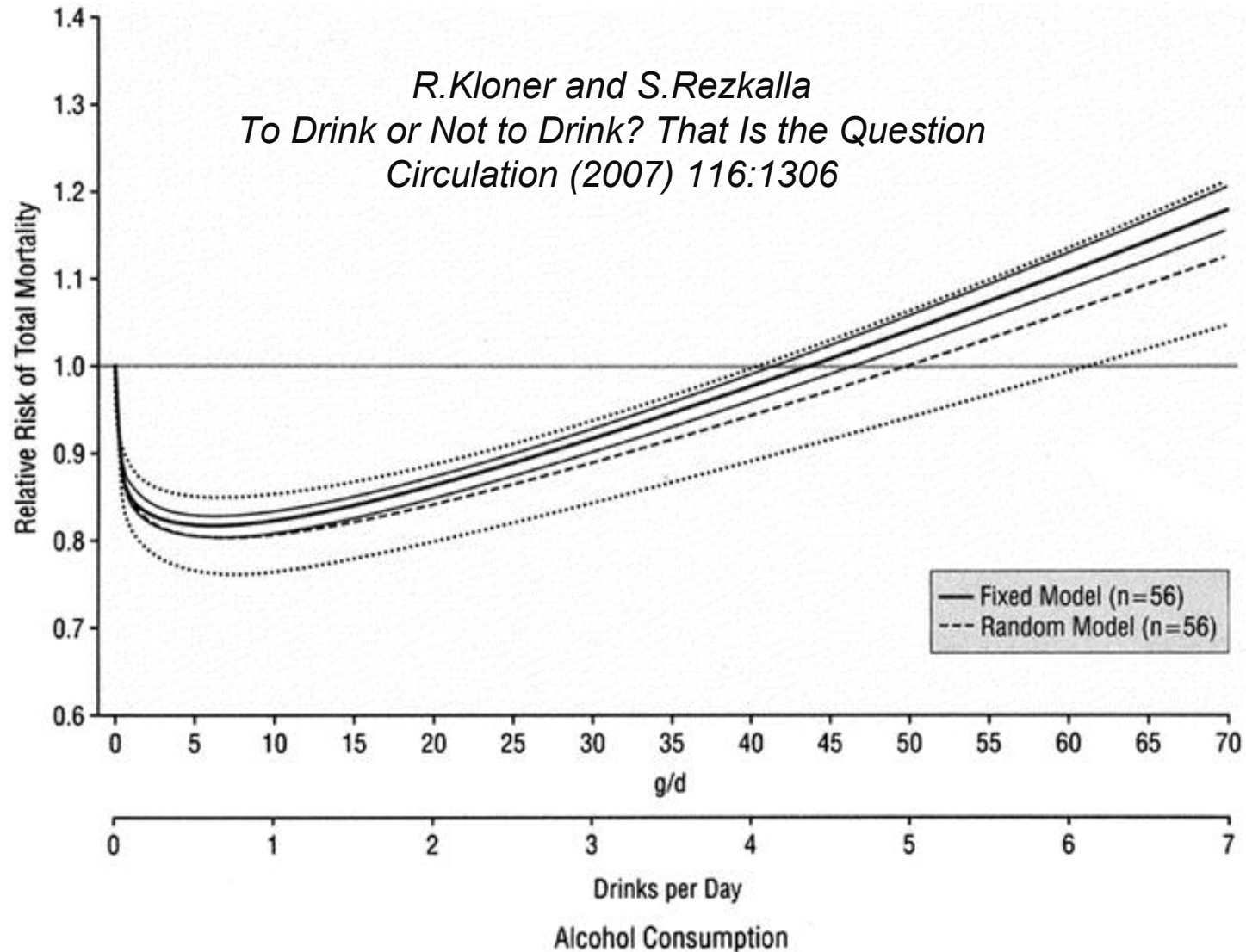
“Drinking half a glass of wine increases longevity by 5 years”

ZUTPHEN study; 1373 men born 1900-1920



Streppel,, *J Epidemiol Community Health* (2009;)*63*:534

Dose response relationship
alcohol consumption vs all cause mortality ♂
U-shaped – unlike cigarette smoking or lipid abnormalities



Women and alcohol

Higher blood alcohol levels

Higher risk of mammary carcinoma

Impact on CV risk dependent on age (menopausal state)

→ prospective study of 45,709 nurses

alcohol:

- increased CV risk in young women with low baseline CV risk, even at low alcohol intake
- decreased CV risk only at age ≥ 50 years

Fuchs , N Engl J Med (1995) 332: 1245

but,

even **young** (30 y) women at **high CV risk** (e.g. type 2 diabetes)
26% risk reduction with alcohol (0.1-4.9 g/day)

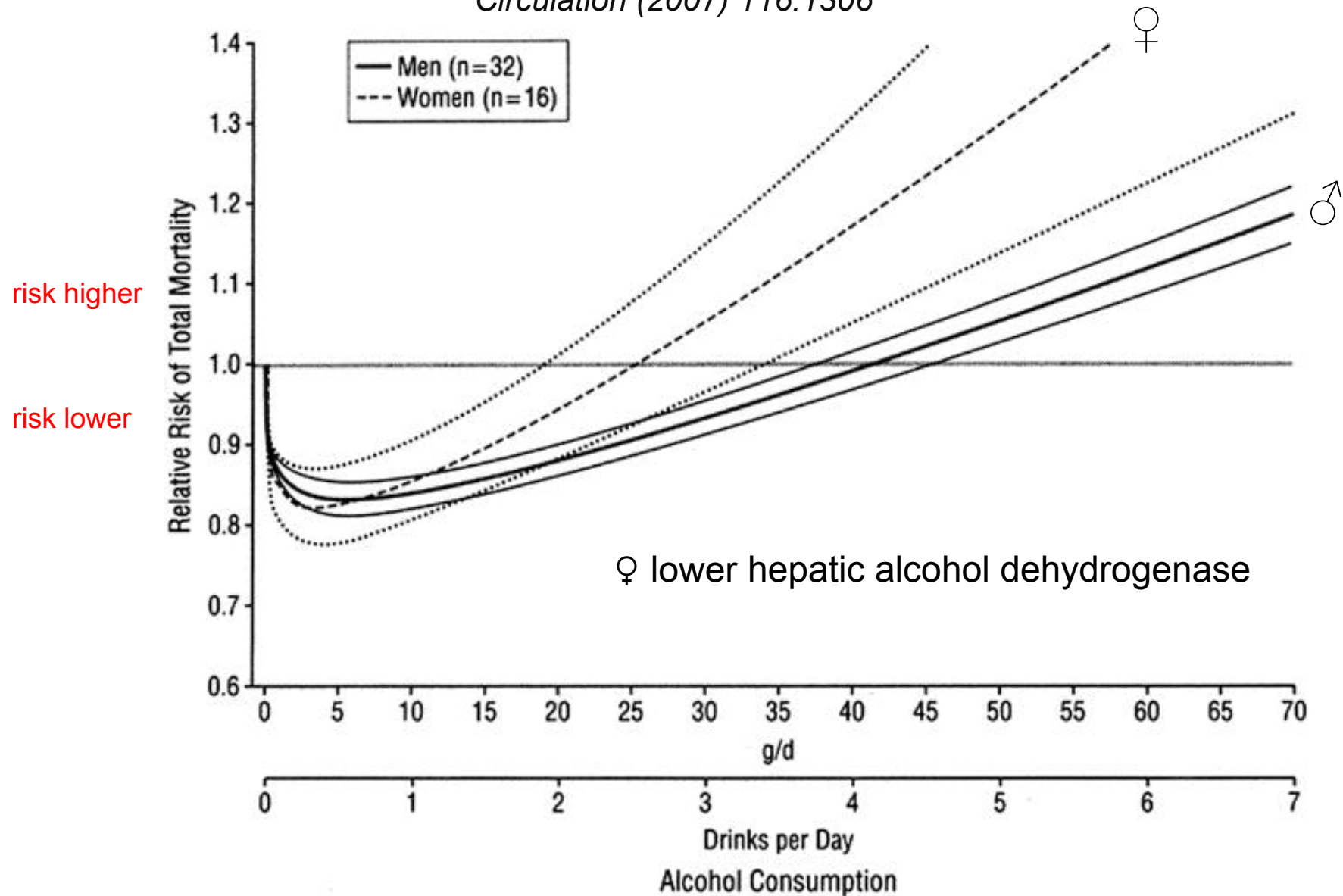
Salomon, Circulation (2000) 102: 494

Different CV benefit from alcohol in men and women

R.Kloner and S.Rezkalla

To Drink or Not to Drink? That Is the Question

Circulation (2007) 116:1306



Extra benefit in high risk populations ?

Risk reduction – dependent on baseline risk

→ pronounced in **smokers**, less in non-smokers

	RR	
	0 g alcohol	22-32 g alcohol/day
smoker	2.8	1.9
non-smoker	1	0.7

*Renaud
Am J Clin Nutr (1992) 55: 1012*

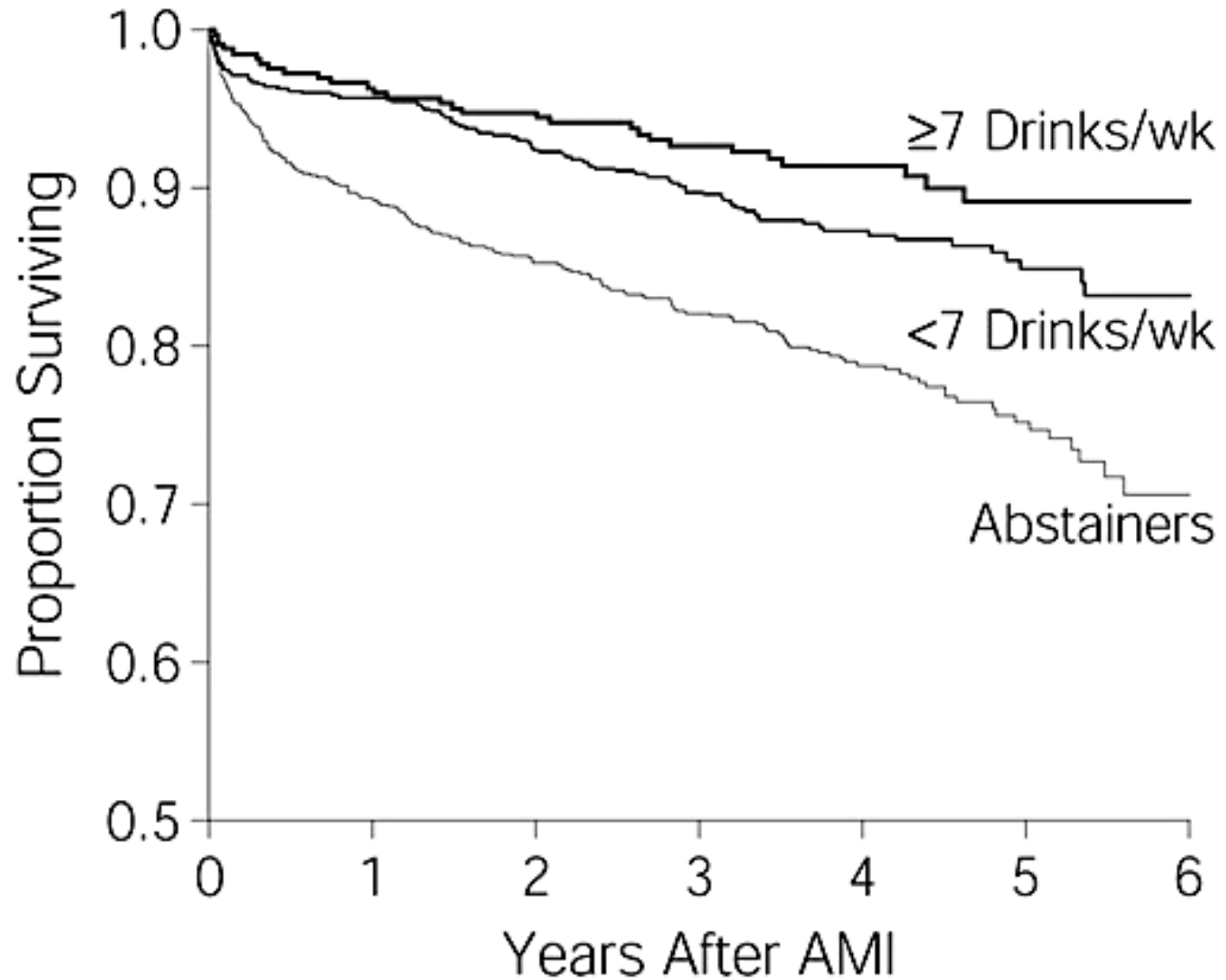
History of **myocardial infarction** and alcohol

**In 2 studies improved survival and less coronary complications with moderate alcohol intake
(no significant difference wine, beer, spirits)**

De Lorgeril, Circulation (2002) 106: 1465

Mukamal, JAMA (2001) 285: 1965

Alcohol consumption following myocardial infarction



Mukamal, JAMA (2001) 285: 1965

Alcohol consumption reduces **restenosis** rate after coronary angioplasty + stent – *the Heidelberg experience*

225 consecutive pat. PTCA + stent

> 50 g alcohol / week \Rightarrow lower :

rate of loss of lumen

1.1 ± 0.79 vs 1.45 ± 0.82 mm , $p < 0.002$

restenosis within stented segment

33.7 % vs 42.5 % , $p < 0.002$

repeat angioplasty

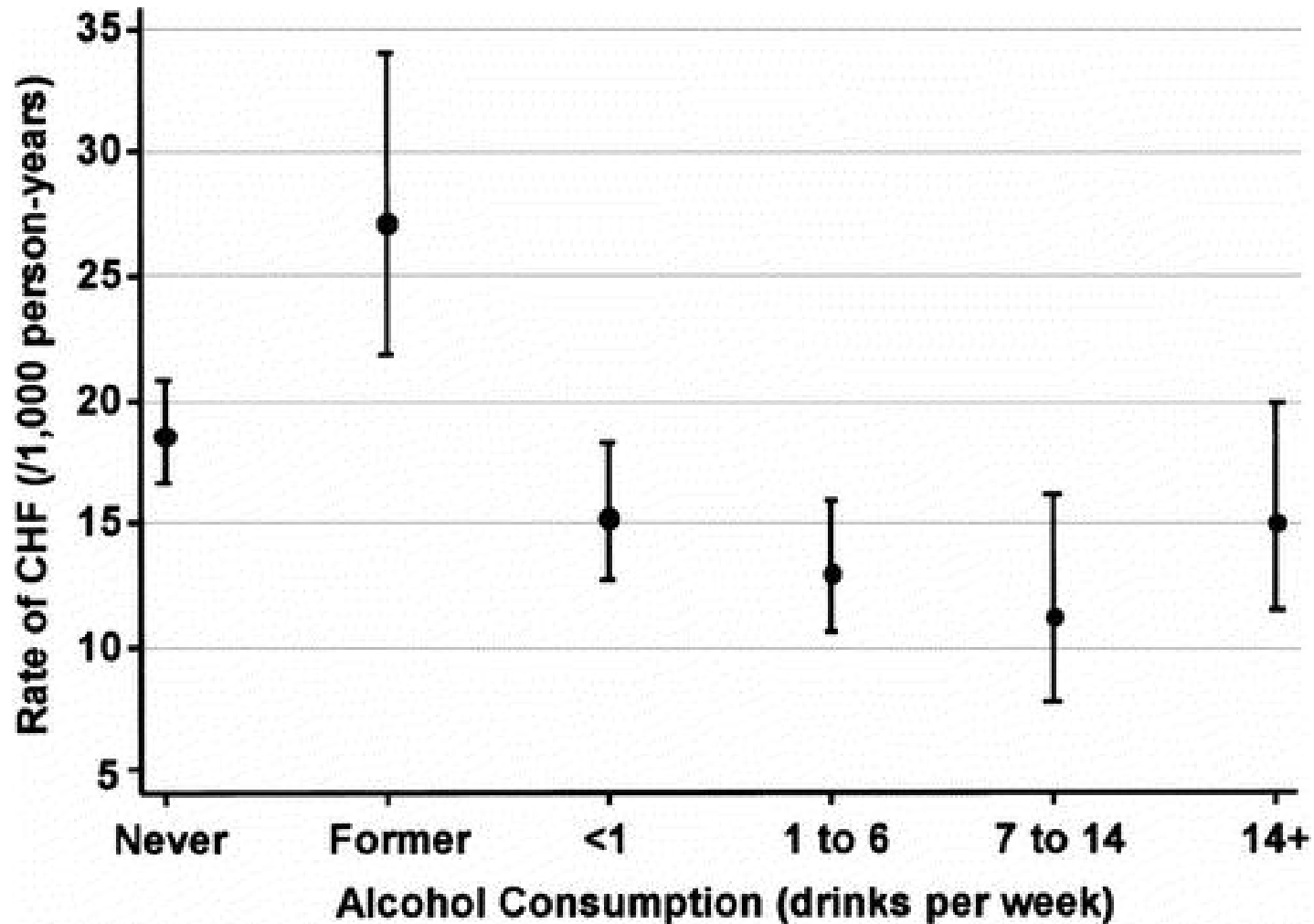
23.3 % vs 42.5 %

 independent predictor

Niroomand, Heart (2004) 90:1189

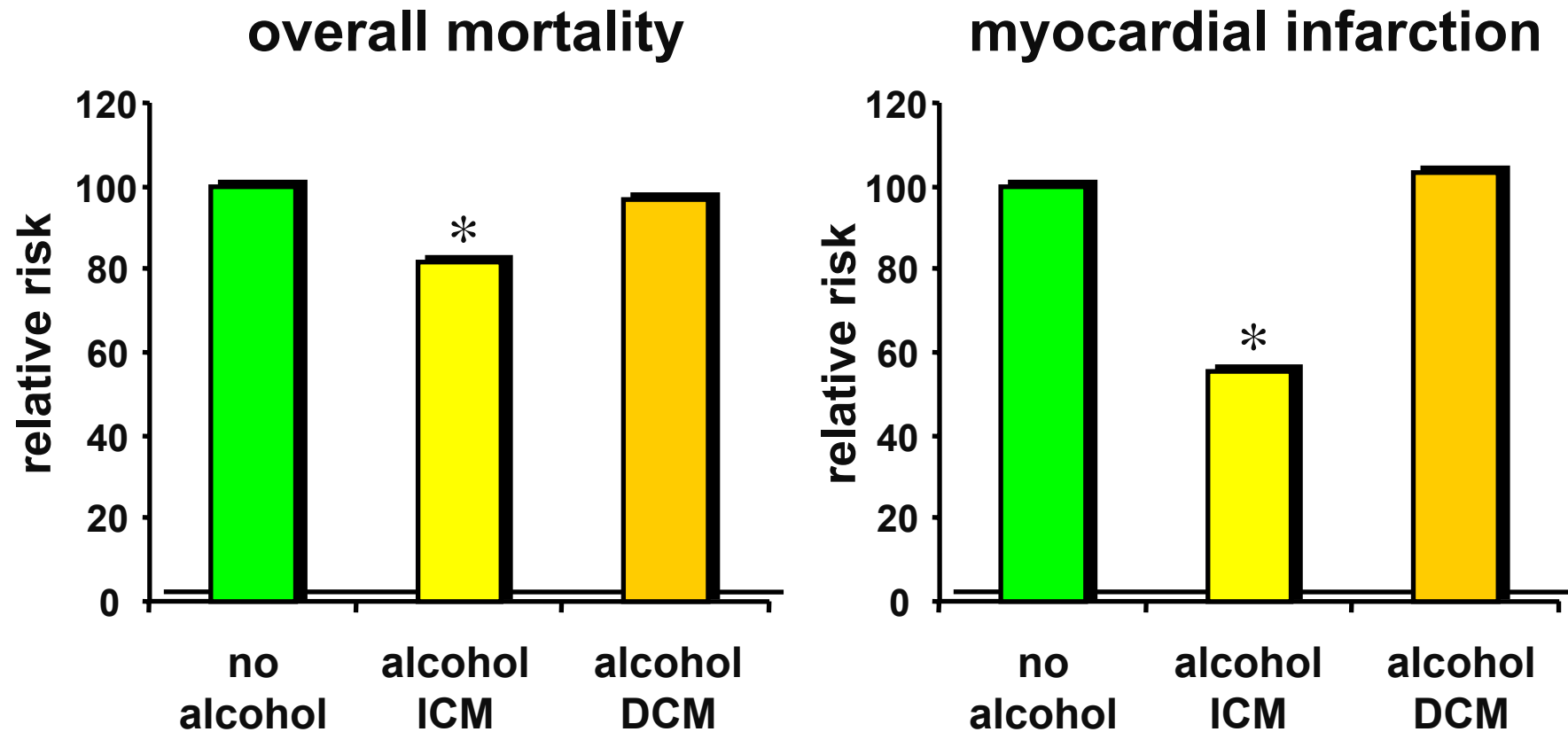
Rate of **incident heart failure** by alcohol consumption

(*Cardiovascular Health Study*)



Bryson, J. Am. Coll. Cardiol. (2006) 48:305

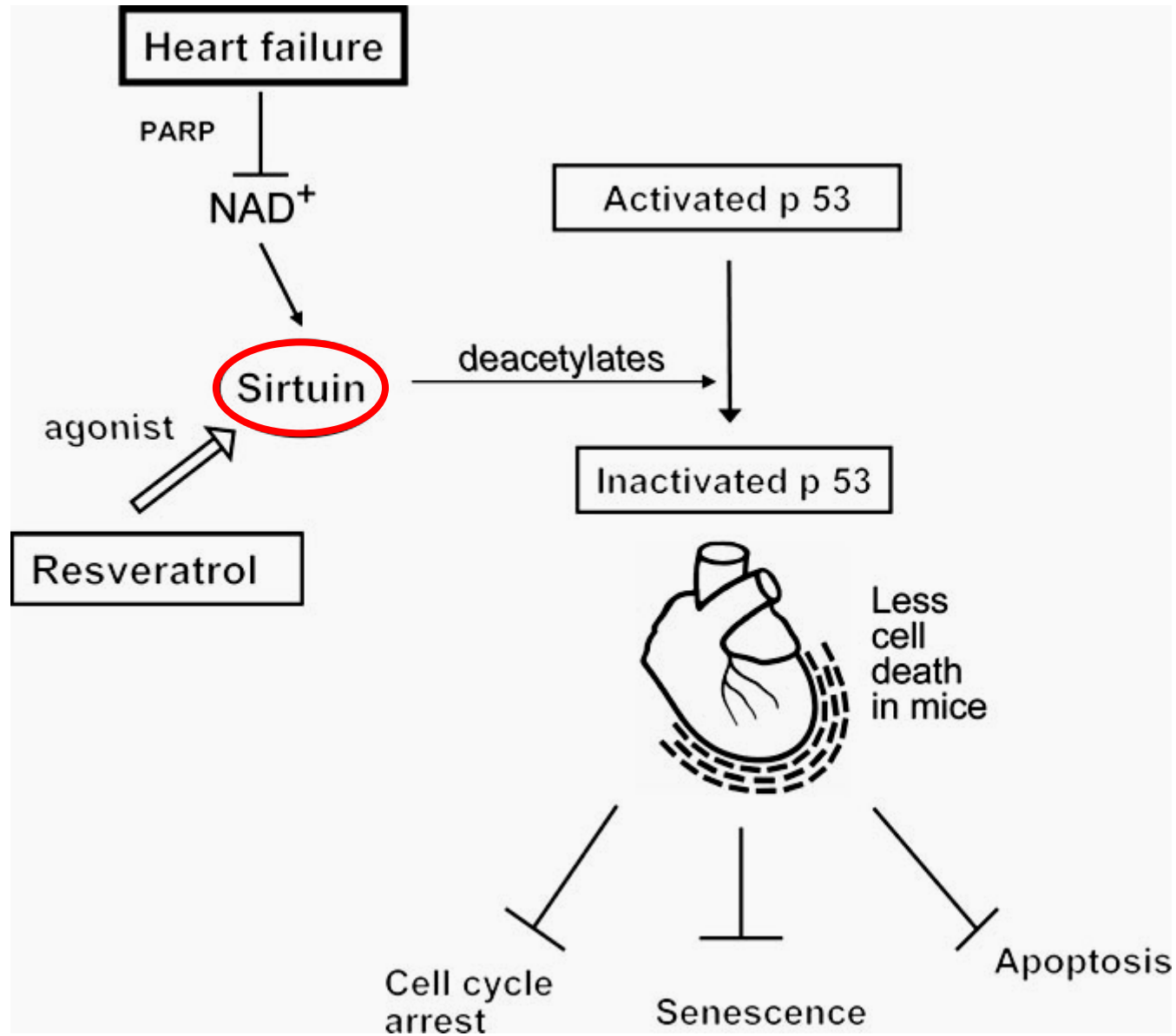
Moderate **alcohol** consumption and mortality in **heart failure (EF < 35 %)**



SOLVD study , ~1 drink/d,

Cooper, *J.Am.Coll.Cardiol.* (2000) 35:1753

Mechanisms of cardioprotection by alcohol in heart failure



Opie, *European Heart J.*(2007) 28:1683

Effects of alcohol potentially improving CV risk

- *low HDL cholesterol*
- *hemostasis through reduced platelet function and fibrinogen levels*
- *insulin resistance ↓*

- **new aspects :**

direct protective effect on the ischemic myocardium

Guiraud, Journal Molecular Cardiology (2004), 36:561

- **increased ω 3 fatty acids**

De Lorgeril, American Heart Journal (2008) 155:175

- **ω 3 fatty acids highly effective in secondary prevention**

GISSI, Lancet (1999) 354:457

Further mechanisms of cardioprotective actions of alcohol / wine

- **lowering of oxygen radicals (ROS)**
- **further effects on serum lipid profile**
- **antithrombotic action**
- **endothelial-dependent vasodilation/NO**
- **antiproliferative effect**
(antagonising ANG II, PDGF,...)

- **moderate consumption of any type of alcohol → lower all cause mortality**
- **wine → more CV protection than beer**
- **red wine → more CV protection than white wine**

Opie, Eur.Heart J.(2007) 28:1683

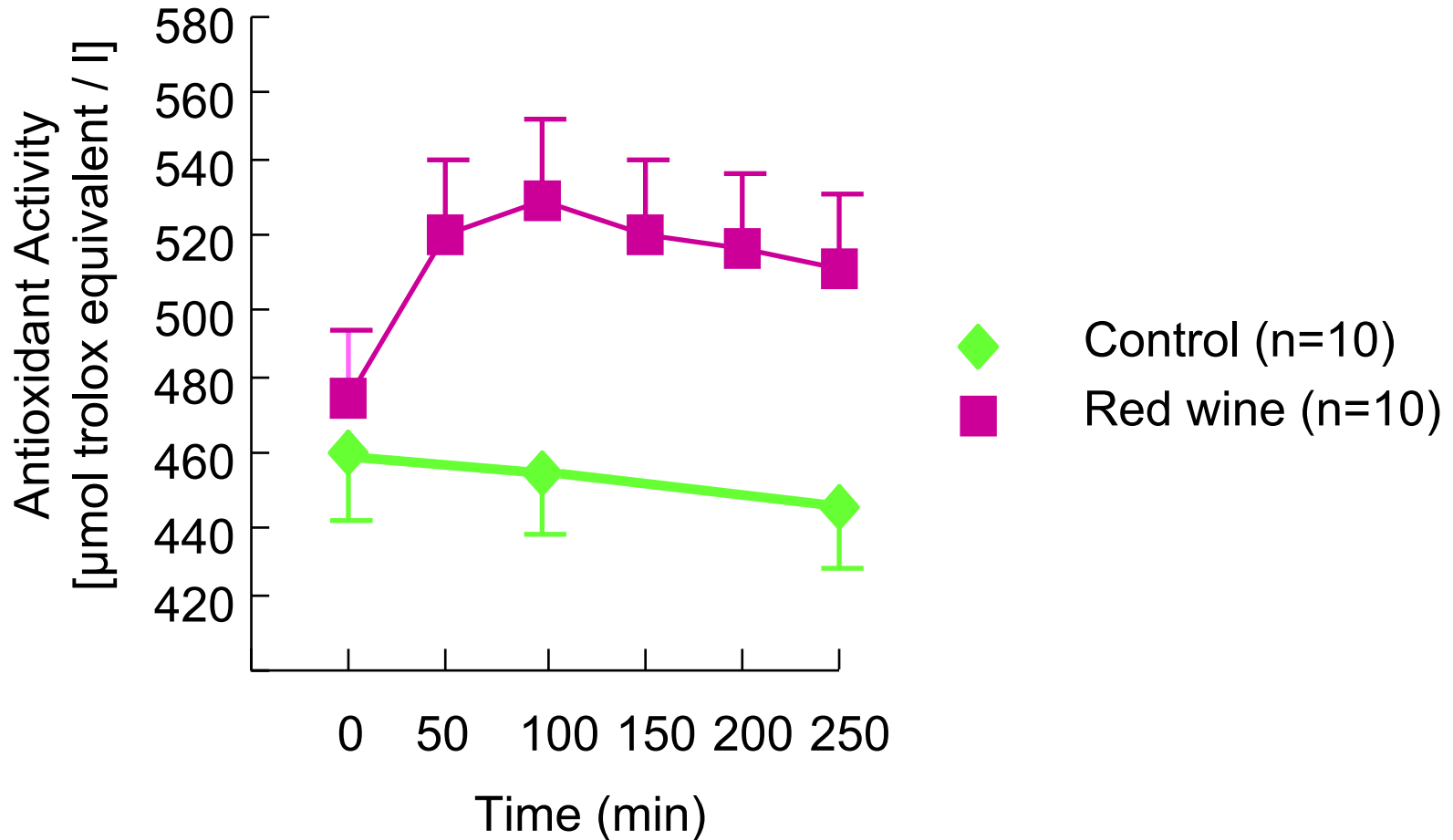
The polyphenol Resveratrol (*in red wine*)

Cardioprotection

- **decreased arterial damage**
 - *ANGII* ↓
 - *platelet aggregation* ↓
 - *NO* ↑
- **anti-ischemic effect**
 - *prosurvival pathways*
 - *antisenescence factor sirtuin (p53)*
 - *insulin sensitivity* ↑
 - *LDL oxydation* ↓
 - *HDL* ↑
 - *antiinflammatory effects*
 - ...

Opie, Eur. Heart J.(2007) 28:1683

Impact of **Red Wine** on **Serum Antioxidant Activity** in Healthy Volunteers



Standard meal alone or with 5.7 ml Bordeaux / kg

Maxwell, Lancet (1994) 344: 193

Inhibition of **platelet aggregation** and **eicosanoid synthesis**

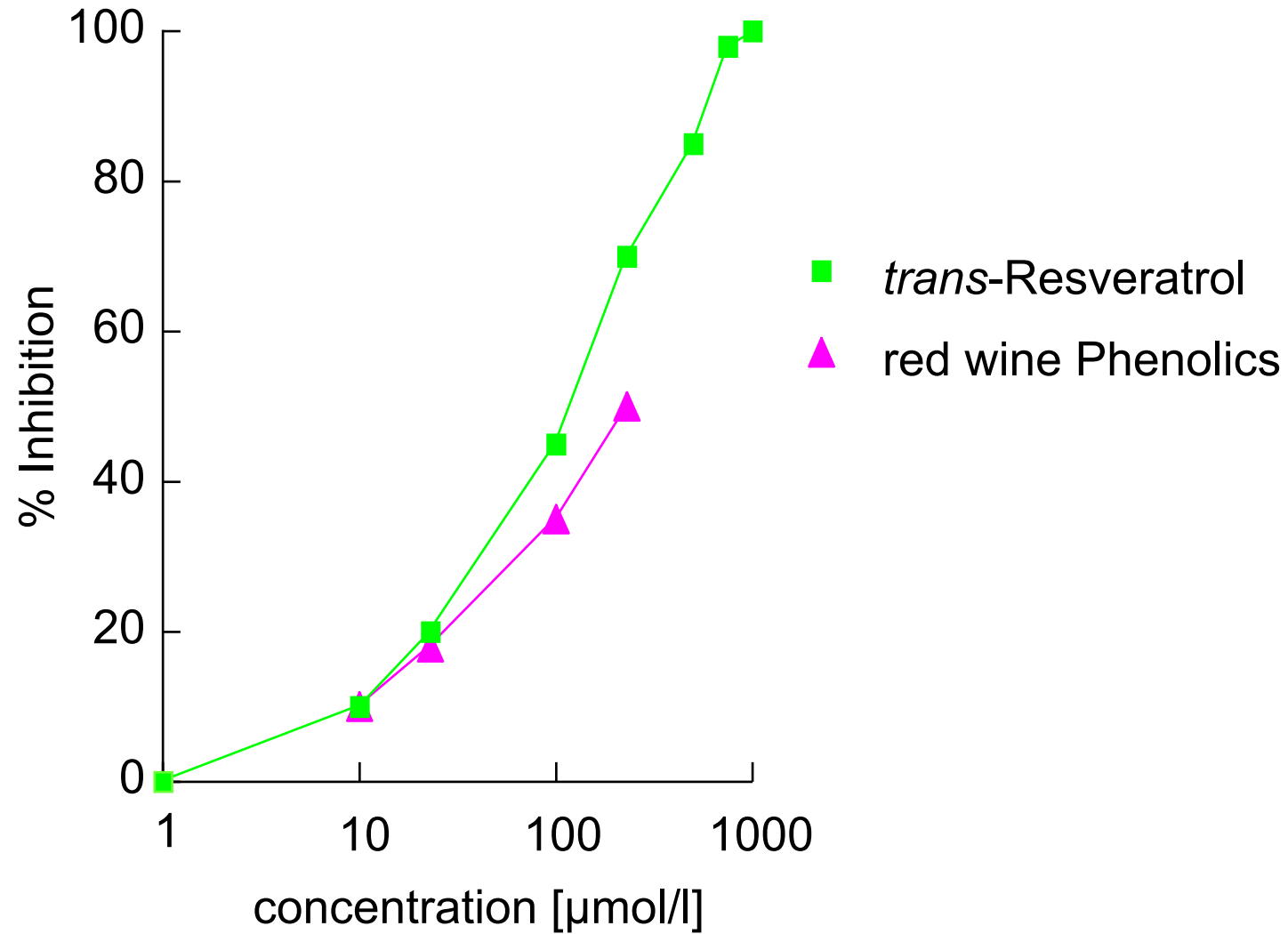
In vitro: **phenoles** in red wine
(trans-reveratrol, quercetin)

Pae-Asiak, Clin Chim Acta (1995) 235: 207

In vivo: fresh grape juice,
but not orange or grape fruit juice

Keevil, J Nutr (2000) 130: 53

Inhibition of ADP-induced platelet aggregation **in vitro**



Pace-Asciak, Clin Chem Acta (1996)246:183

Effects of wine on endothelial cells

red wine phenols (resveratrol) increase expression of and activity of endothelial NO synthase

- **nitric oxide generation ↑**
- **shear stress induced vasodilatation ↑**
- **adhesion of mononuclear cells/platelets**

Leikert, Circulation (2002) 106: 1614

Antiproliferative effect of red wine

**ANG II- and PDGF-induced proliferation of
vascular smooth muscle cells inhibited
by red, but not white, wines
as well as by quercetin and tannin**

Flesch, Dtsch Med Wschr (1998) 123: 1490

**Inhibits ligand activated tyrosine phosphorylation
of β -PDGF receptor and postreceptor signalling**

Rosenkranz, FASEB J (2003) 16: 1958

Effects of wine on endothelial cells

Red wine, but not wodka,
increases coronary flow reserve

Shimada, Lancet (1999) 354: 1002

Small amounts of alcohol increase postischemic forearm
blood flow in CHD patients specifically
(nitrate as control negative)

Teragawa , Atherosclerosis (2002) 165: 145

Effects of wine on endothelial cells

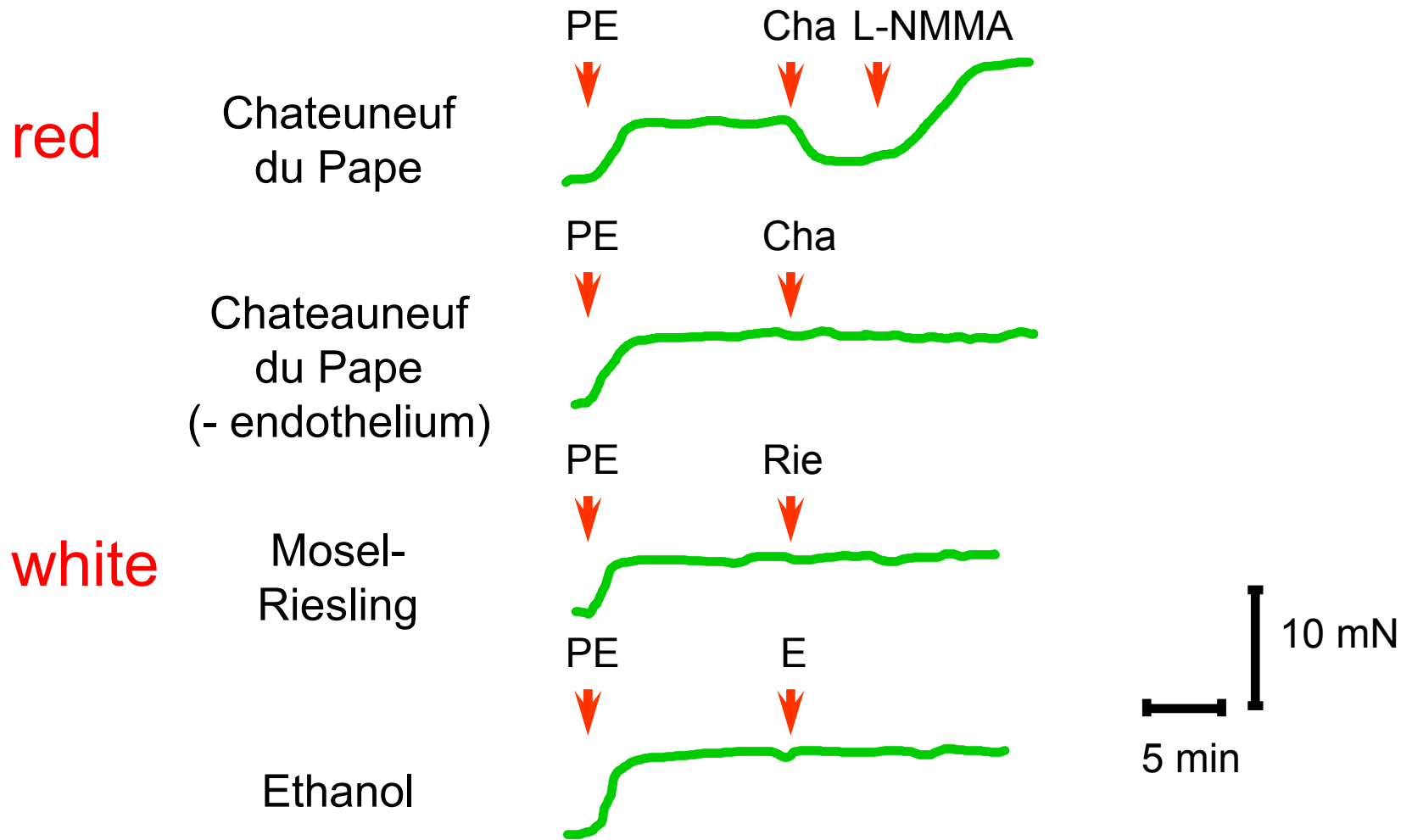
In isolated human coronary arteries

red wine (Châteauneuf du Pape),
but not white wine (Mosel Riesling) or ethanol

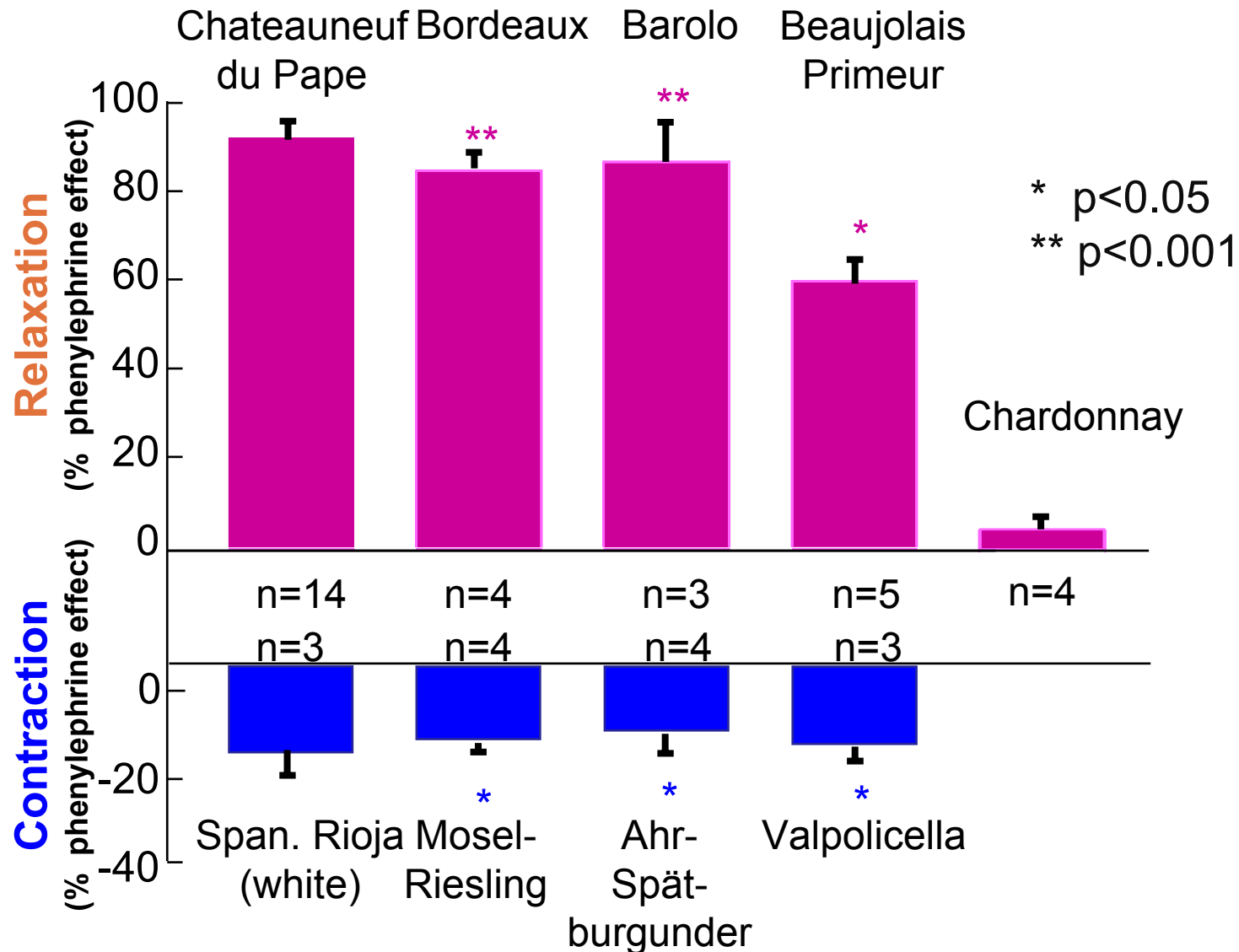
→ endothelial cell dependent vasodilatation,
effect **NO-dependent** (inhibited by L-NMMA)

Flesch, Am J Physiol (1998) 275: H1183

Human Coronary Artery Effects of Red and White Wine



Vascular Effects of Red and White Wine



Flesch, Am J Physiol (1998) 275: H1183

**French red wine more cardioprotection
than German red wine**

Wallerath, J. Am. Coll. Cardiol. (2003) 41:471



**„Rotwein ist für alte Knaben
eine von den besten Gaben.“**

***“For elderly gentlemen
red wine is one of the best gifts possible”***

*Wilhelm Busch
(1832-1908)*



Moderate drinking :
social lubricant,
major characteristic of European lifestyle (*“joie de vivre”*)



Toasts pointing to benefits of alcohol

german

Prosit !

zum Wohl !

english

cheers !

estonian

terviseks !

finnish

terveydeksi !

greek

για μας !

polish

na zdrowie !

*to your / our
wellbeing*

french

santé !

italian

salute !

spanish

salud !

*to your / our
health*

hungarian

egésszégére

**No one should talk longer in public
than he is prepared to make love in private**

*Francois La Rochefoucauld,
Prince de Marcillac
1613-1680*



enjoy the
wine
tasting





Are all red wines created equal?

Barrique matured wines in oak vats vs
wines matured in steel tanks

→ only heavy **barrique matured** red wines effective,
contain higher concentrations of phenolic substances
in vitro effect reproduced by Tannin and Quercetin

Rosenkranz, FASEB J (2002) 16: 1958

Virgin Mary with the wine drinking Christ child



Joos van Cleve
1491-1541

Quantitative Analysis of Polyphenolics in Red Wine vs. White Wine

	Red Wine <i>(Chateauneuf-du-Pape)</i>	White Wine <i>(Riesling Kabinett)</i>	
cis-Piceid	5,1	0,0	
<i>trans</i> -Resveratrol	1,6	0,0	
Quercetin	0,0	0,0	
Catechin	37,3	5,2	
Epicatechin	12,0	1,6	
Procyanidin B2	9,7	0,0	
Gallic Acid	44,9	0,9	
Caferic Acid	24,8	37,9	
Coffee Acid	7,0	16,7	
p-Coumaric Acid	23,5	6,8	
Total Polyphenolics	2113	350	[mg/l]

Alcohol consumption and risk of type 2 diabetes among older women

(Dutch Prospect-EPIC study)

- **16,330 women age 49-70 years**
- **follow-up 6.2 years**

<i>g alcohol / week</i>	<i>hazard ratio</i>
<i>abstainer</i>	<i>1.0</i>
<i>5- 30g/week</i>	<i>0.86 (0.66-1.12)</i>
<i>30- 70g/week</i>	<i>0.66 (0.48-0.91)</i>
<i>70-140g/week</i>	<i>0.91 (0.67-1.24)</i>
<i>140-210g/week</i>	<i>0.64 (0.44-0.93)</i>
<i>> 240g/week</i>	<i>0.69 (0.47-1.02)</i>

no influence of beverage type

Beulens, Diabetes Care(2005) 28:2933

Moderate alcohol consumption – lower levels of inflammatory markers, e.g. CRP and IL-6

CRP (mg/L)							
Crude ^a	2.28	2.38	2.12	1.94	2.92	0.33	0.06
Adjusted ^b	2.55	2.35	2.05	1.89	2.80	0.49	0.06
IL-6 (pg/mL)							
Crude ^a	2.83	3.47	2.35	2.04	3.30	0.80	0.01
Adjusted ^b	3.12	3.53	2.18	2.00 ^e	3.18	0.99	0.01

Pai, Atherosclerosis(2006)186:113

Involvement of endogenous digitalis-like factor in voluntary selection of alcohol by rats

- **Wistar rats, conditioned preference experiment**
- **Digoxin pretreatment (125 µg/kg i.p.)**
 - **no effect on time spent on acquisition of water (476±80 sec)**
 - **reduced time spent on acquisition of ethanol (385±112 sec)**
- # **two bottle test (water or ethanol) immunisation with marinobufagenin or ouabain : 60% increase in alcohol selection**

Bagrov, Life Sci.(1999) 64:219

Effect of white wine on oxidative stress markers

- *42 healthy volunteers*
- *375 ml white wine daily*

→ significant increase in activity of :

- paraoxonase
- glutathione peroxidase

→ reduced levels of :

- glutathione
- AOPP (advanced oxidation protein products)
- TBARS (thiobarbituric acid reactive substances)

→ decrease in activity of :

- superoxide dismutase(s)
- but also

→ increase of homocysteine

} antiatherogenic

} proatherogenic

Rajdl, Physiol.Res.(2006) e-pub

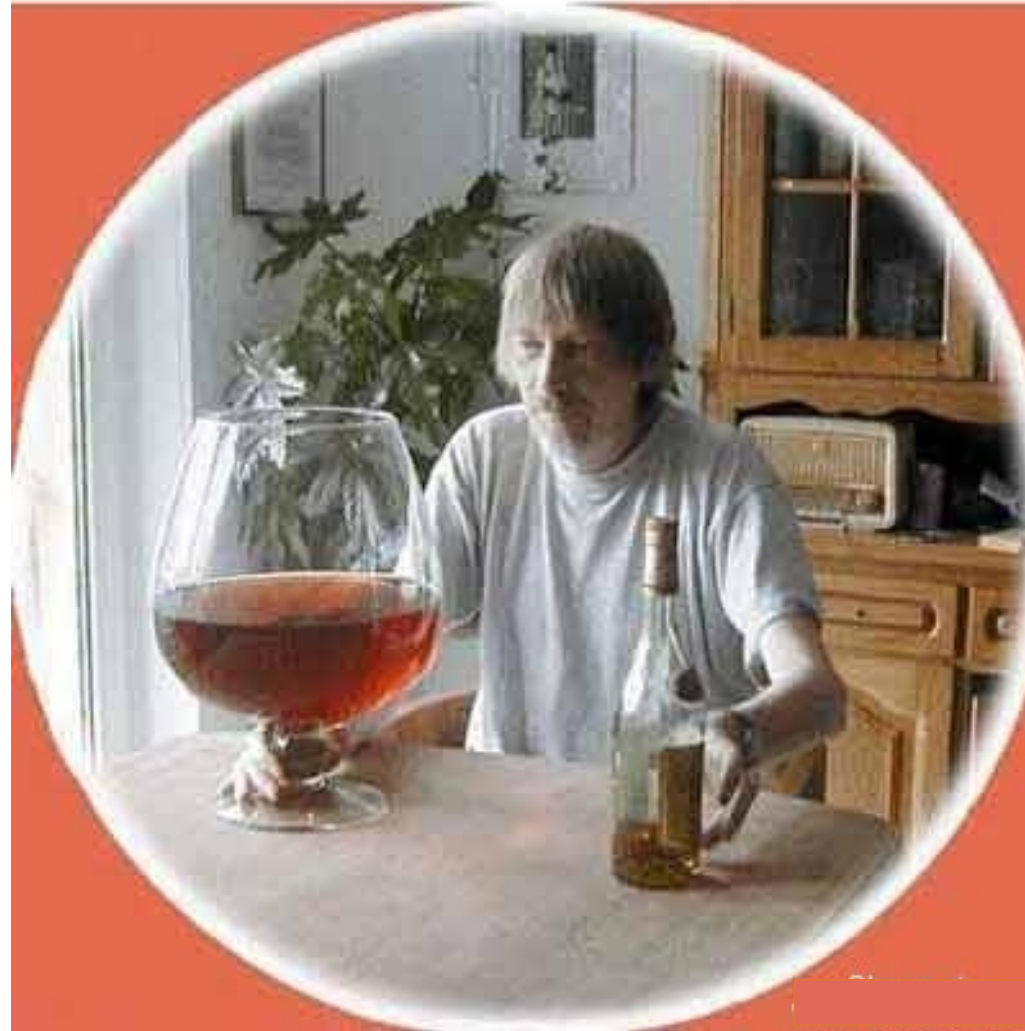
Alcohol consumption and risk of endstage renal disease

Alcohol consumption

Never*	1.0	
Seldom	0.7	0.4–1.2
Weekly	0.7	0.5–1.1
Daily	0.9	0.5–1.5

Stengel, Epidemiology (2003) 14:479

My Doctor said "Only 1 glass of alcohol a day". I can live with that.



Association between moderate drinking and reduced complications of coronary heart disease

Cause effect relationship

or

Confounding by “sick quitter bias”

(i.e. former drinkers who recently stopped drinking due to illness counted as that non drinkers)

- ▶ In the recent Swedish study of Jansky only long-term abstainers included in the reference group excluding confounding and supporting cause relationship

(Jansky, European Heart Journal 2008 (29:45))

Evidence based benefit for interventions in patients with coronary heart disease

- smoking abstinence
- regular physical exercise
- Mediterranean diet (of which wine drinking is one of the characteristics)
- recent negative findings with statins (MIRACL, IDAL), stroke (Sparcl)
- modest effect of betablockers (as confirmed in era of modern interventional cardiology)
- ICD

(De Lorgeril, European Heart Journal (2008) 29:4-6)

Main effects of alcohol on CV risk

- *low HDL cholesterol*
- *hemostasis through reduced platelet function and fibrinogen levels*
- *insulin resistance*

new:

- ✓ **direct protective effect on ischemic myocardium**

Guiraud, J.MoleculCardiol.(2004) 36:561

- ✓ **increases ω 3 polyunsaturated fatty acids**

De Lorgeril, American Heart J.(2008) 155:175

- ✓ **ω 3 polyunsaturated fatty acids highly effective in secondary prevention after MI**

Gissi, Lancet (1999) 354: 457

- *Alcohol drinking during pregnancy is criminal*
- *Drinking before driving is criminal*
- *Chronic heavy drinking results in liver cirrhosis or Wernicke-Kosakoff-Syndrom is deleterious*
- *Exceptional bench drinking can result in violence, unsafe sex and cardiac death*

but

Moderate drinking

(1 – 2 drinks/day for women and 4/day for men)

- ▶ **associated with better life expectancy in the general population and patients with established coronary heart disease**

Alcohol consumption and insulin resistance in survivors of first myocardial infarction (*SHEEP study*)

HOMA index
(*insulin resistance*)

4.18 ± 4.18

2.89 ± 4.19

3.61 ± 5.74

3.64 ± 3.93

2.72 ± 1.37

alcohol
consumption
(*Sweden!!*)

longer term abstainers

0 – 5 g alcohol /day

5 – 20 g alcohol /day

< 20 g alcohol /day

recent quitters

Overenthusiastic medical use of alcohol

18th century Dr. Brown (Scotland)

⇒ **popular** cure for 32 indications

within **4 hours**:

- 2-3 bottles of **red wine**
- half a bottle of **Champagne**
- a quart of **Cognac**

⇒ exceeding the drinking capacity of all but the Scots

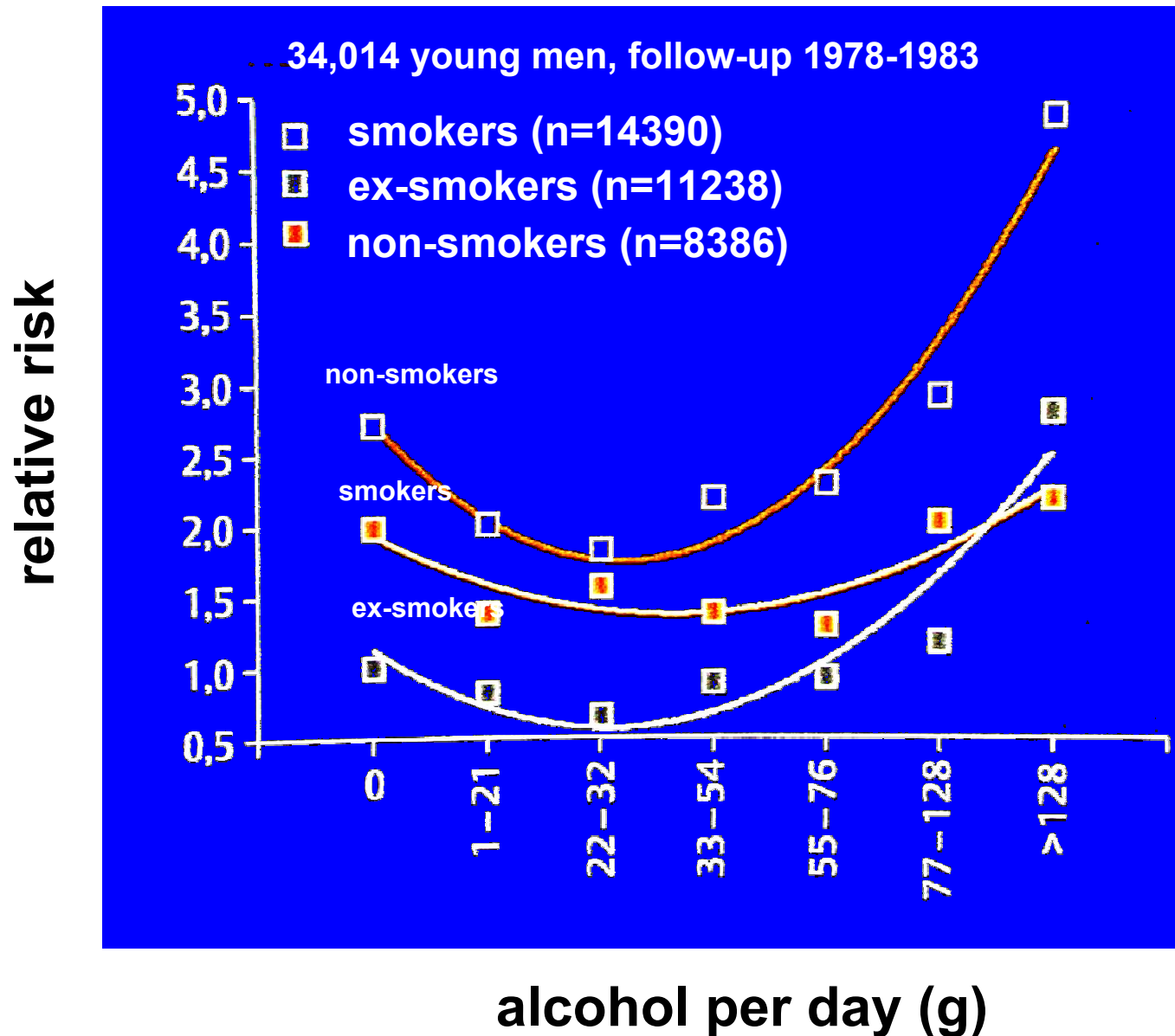
Cost-effectiveness of **BEER** versus **RED WINE**
for the prevention of symptomatic coronary artery disease



Fig. 1: The double-blind nature of the study was maintained throughout the trial. Dr. Innes is shown sitting.

Innes, CMAJ (1998) 159:1463

Relative risk of death in Eastern France ???



Alcohol and **progression** of renal disease

animal data

- moderate alcohol intake ⇒ no impact on acute or chronic thy1-glomerulonephritis

Peters, Am.J.Physiol (2003) 284:F1105

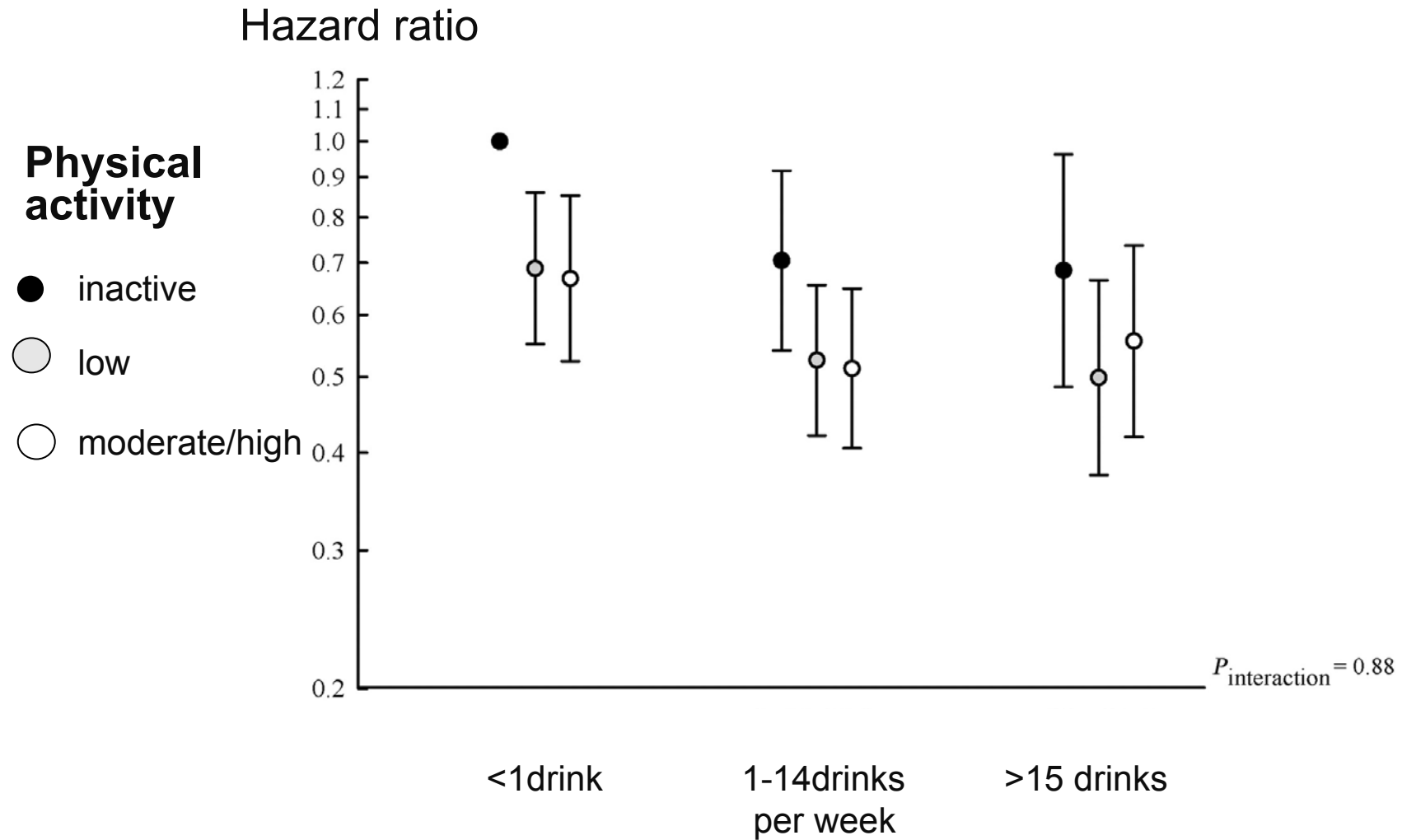
- adriamycin model
alcohol ⇒ less nephrotic syndrome

Tesar, Alcohol (1995) 30:47

- red wine and alcohol free red wine
⇒ less lipid peroxydation in kidney

Araya, Lipids (2003) 38:275

Positive interaction between **alcohol** consumption and leisure time **physical activity** – *hazard of fatal ischemic heart disease*



Østergaard, *Europ.Heart J.*(2008) 29:204