



*Beer and Health*

**7<sup>th</sup> European Beer and Health Symposium**

Brussels, Tuesday 30 September 2014

# **The Mediterranean Diet: adherence rates in Sicily**

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**7<sup>th</sup> European Beer and Health Symposium**

**Brussels, 30<sup>th</sup> September 2014**

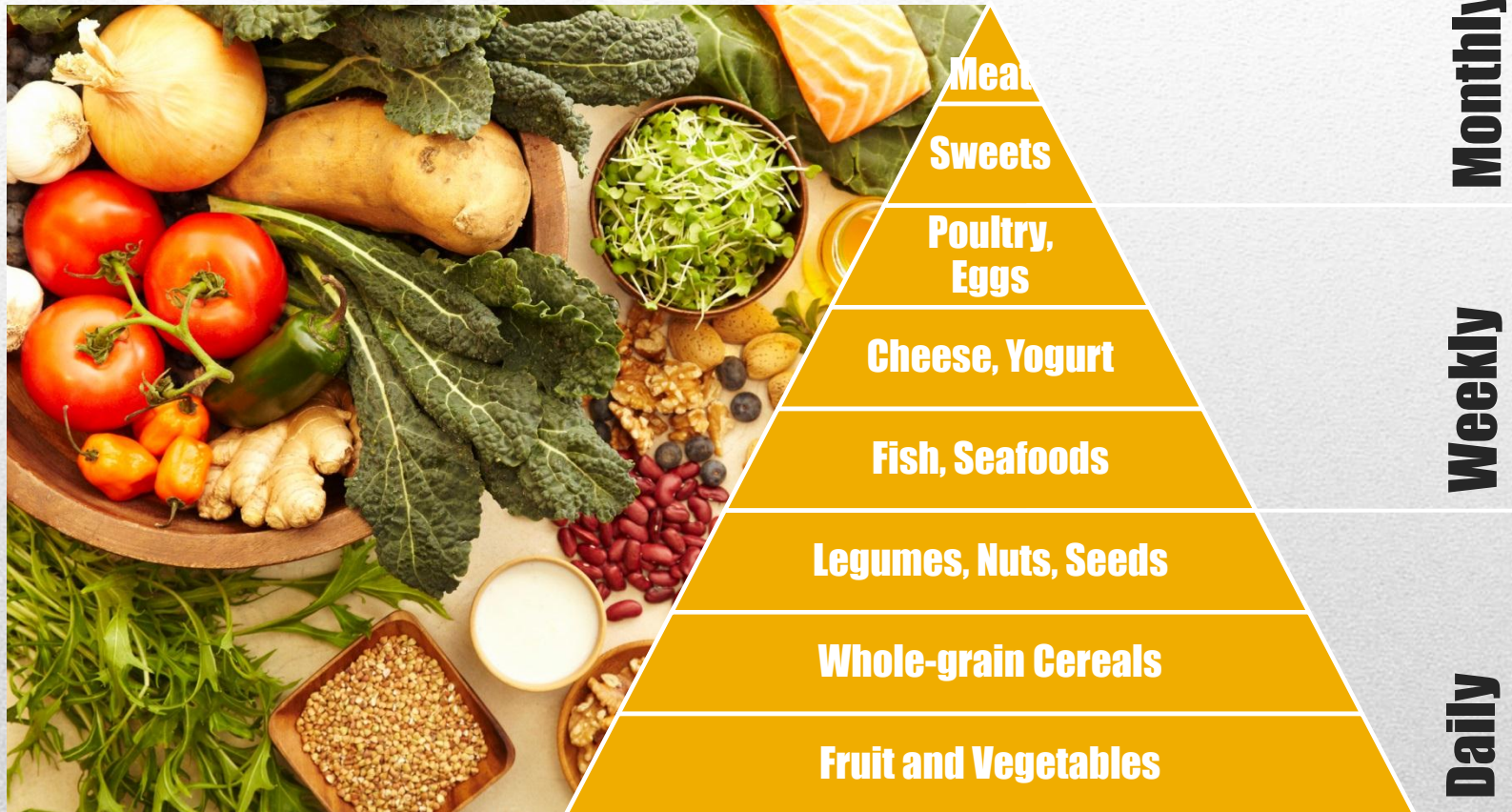
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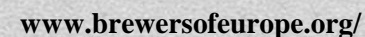
# The Mediterranean Diet Pyramid





## Alcohol consumption

## Beer consumption in Europe





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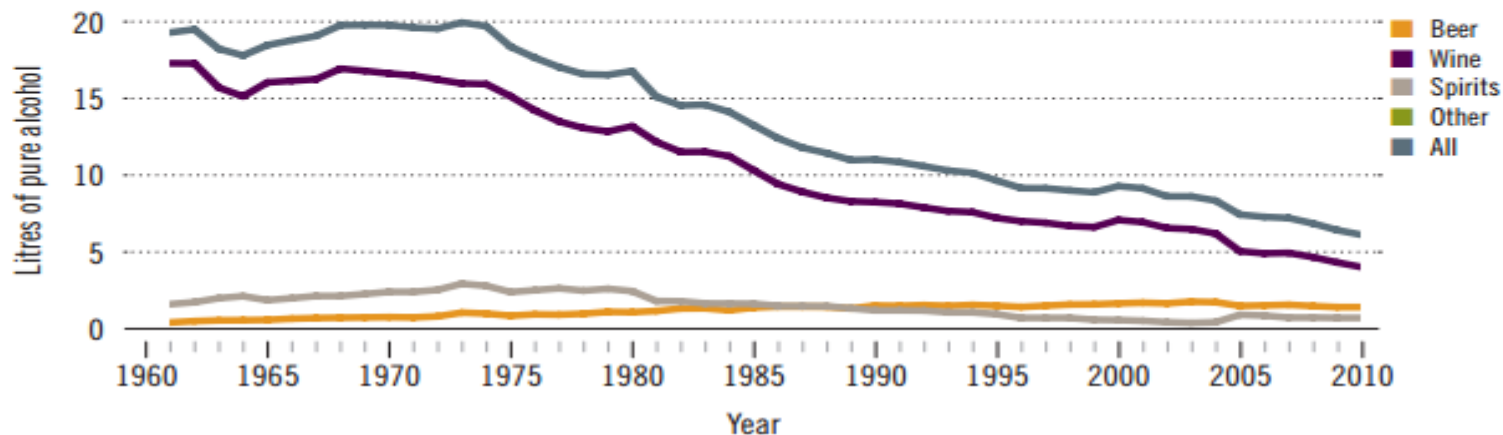
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## BACKGROUND

### Alcohol consumption in Italy

#### Recorded alcohol per capita (15+) consumption, 1961–2010

Data refer to litres of pure alcohol per capita (15+).



World Health Organization, 2014





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## BACKGROUND

### Alcohol consumption in Italy

	14-17		18-24		25-44		45-64		65 e più		Totale	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
<b>MASCHI</b>												
Nell'anno	50,8	40,6	84,1	77,4	88,0	85,0	88,9	85,5	84,3	79,9	85,3	81,4
Tutti i giorni	7,0	4,0	25,0	14,4	45,7	32,6	63,2	49,9	65,9	56,9	50,6	40,2
Occasionalmente	43,8	36,7	59,1	63,0	42,3	52,4	25,6	35,7	18,5	22,9	34,7	41,3
Fuori pasto	17,2	22,8	46,4	49,8	43,5	49,9	38,5	39,0	26,1	24,1	37,7	39,9
<b>FEMMINE</b>												
Nell'anno	39,1	25,0	60,0	56,3	64,4	59,9	64,4	57,7	51,1	44,3	59,7	53,5
Tutti i giorni	1,9	1,1	7,2	3,8	15,3	8,9	27,6	18,4	26,9	20,9	20,3	14,2
Occasionalmente	37,1	23,9	52,8	52,6	49,1	51,0	36,9	39,3	24,2	23,4	39,4	39,3
Fuori pasto	13,7	14,7	25,3	34,3	16,2	23,5	11,8	13,7	5,5	6,0	13,1	16,5
<b>MASCHI E FEMMINE</b>												
Nell'anno	45,1	32,9	72,2	67,2	76,2	72,5	76,4	71,3	64,9	59,4	72,5	66,9
Tutti i giorni	4,6	2,6	16,2	9,3	30,5	20,8	45,0	33,8	43,1	36,3	34,8	26,7
Occasionalmente	40,6	30,3	56,0	57,9	45,7	51,7	31,4	37,5	21,8	23,2	37,1	41,3
Fuori pasto	15,5	18,8	36,0	42,3	29,9	36,7	24,9	26,1	14,1	13,7	24,9	27,7

Istat, L'uso e l'abuso di alcol in Italia. Anno 2011, Roma Aprile 2012



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## BACKGROUND

### Alcohol consumption in Italy

Tipo di bevanda alcolica	Consumo di bevande alcoliche					
	Maschi		Femmine		Maschi e femmine	
	Nell'anno	di cui: tutti i giorni	Nell'anno	di cui: tutti i giorni	Nell'anno	di cui: tutti i giorni
Vino	67,2	34,9	40,3	13,0	53,3	23,6
Birra	61,8	8,0	31,5	1,2	46,2	4,5
Aperitivi, amari, superalcolici	55,1	1,2	27,1	0,2	40,6	0,7
<b>Totale</b>	<b>78,8</b>	<b>38,8</b>	<b>52,1</b>	<b>13,8</b>	<b>65,0</b>	<b>25,8</b>





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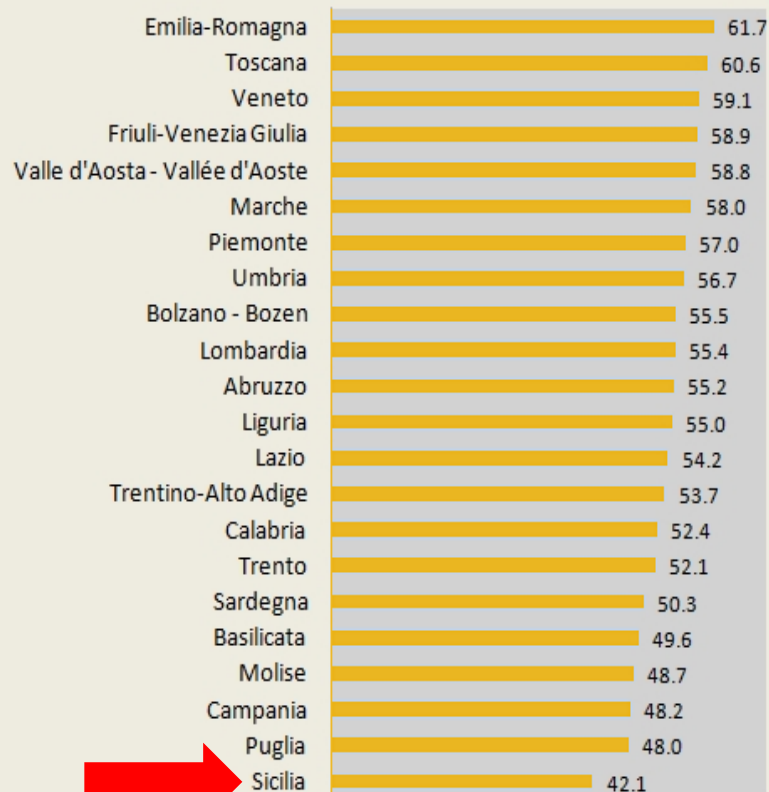
## BACKGROUND

### Alcohol consumption in Italy by region



 % significativamente superiore al pool  
 % non significativamente diversa dal pool  
 % significativamente inferiore al pool

### Wine consumption in Italy by region (%)



Rapporto nazionale Passi 2011: consumo di alcol



## AIM OF THE STUDY

- **To evaluate the level of adherence to the Mediterranean diet**
  - **To evaluate potential health benefits associated with high adherence**
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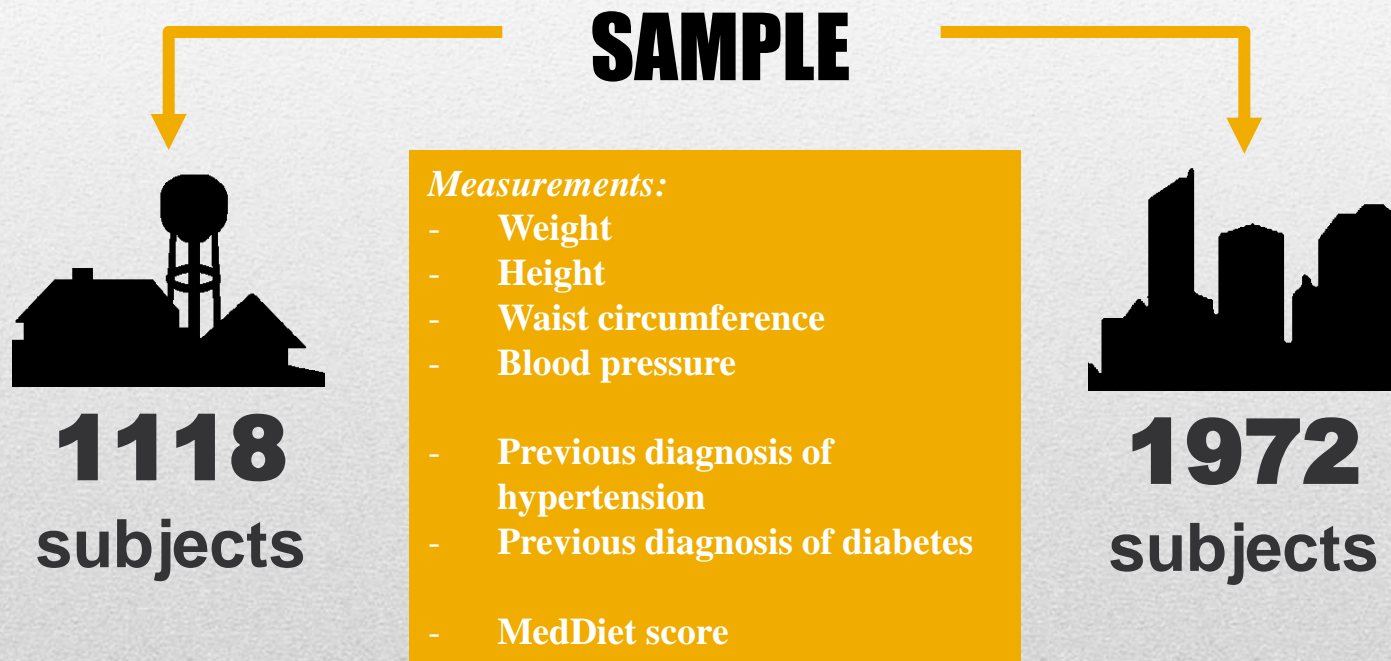


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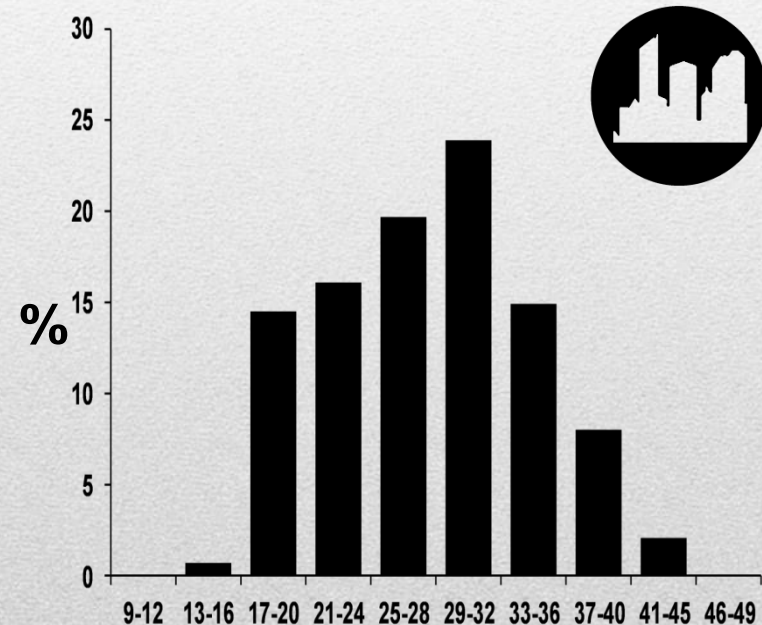
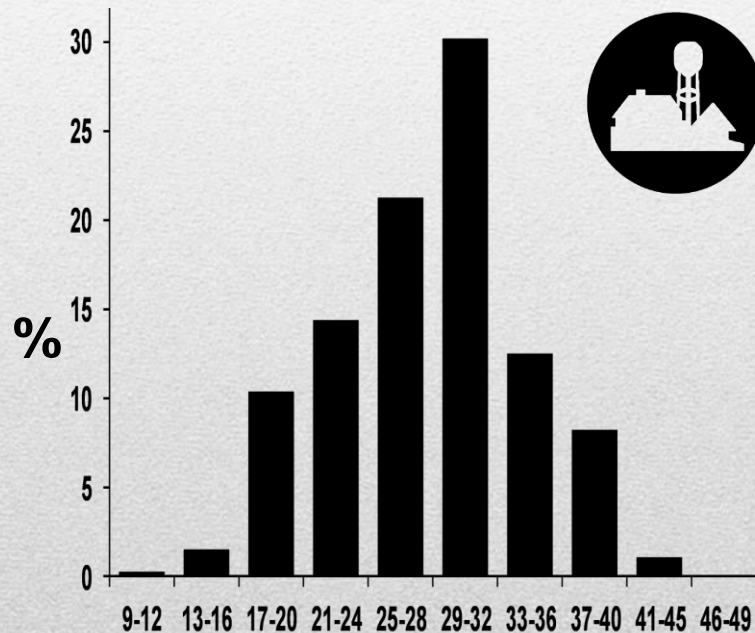
## METHODS





## RESULTS

### MEDDIET SCORES DISTRIBUTION







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## RESULTS

### Daily alcohol consumption

13.2%



**OR (95% CI)**  
**2.06 (1.45-2.94)**

8.2%



**1.13 (0.78-1.62)**

5.8%



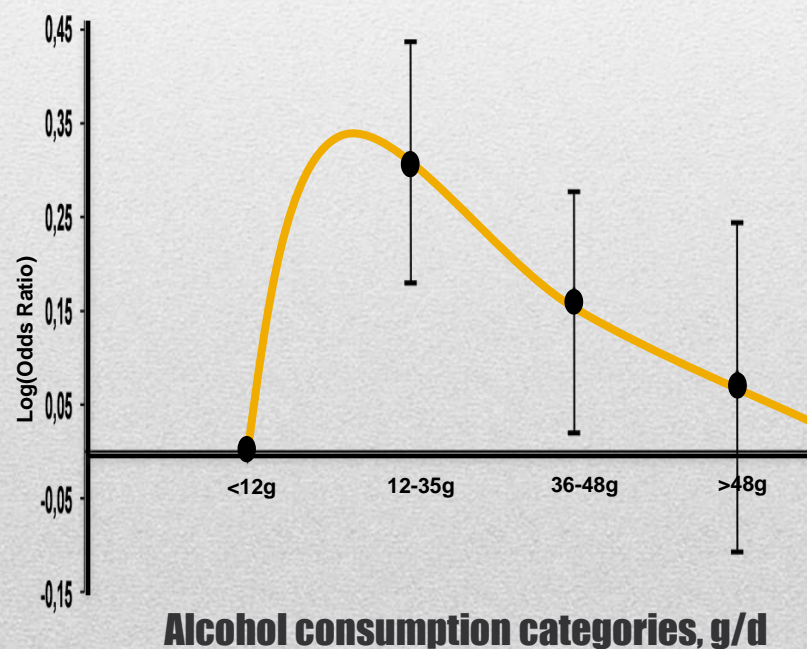
**1.68 (1.04-2.72)**

4.5%



**1.58 (0.93-2.71)**

### Daily alcohol consumption associated with high adherence to Mediterranean diet





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## RESULTS

### HYPERTENSION



27.7%

### OBESITY



13.9%

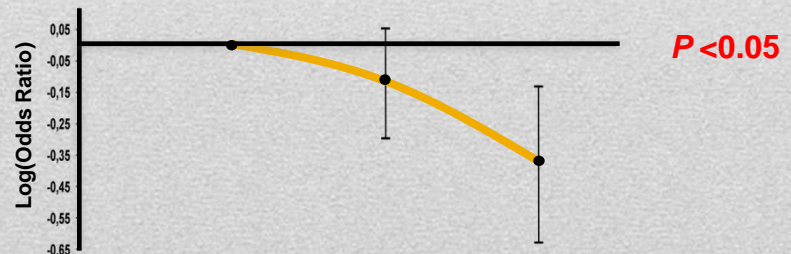
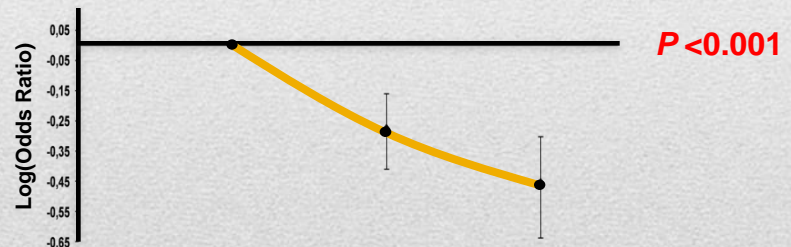
### DIABETES



5.7%

### MedDiet Score

LOW MEDIUM HIGH



Grosso G et al. Protective role of the Mediterranean diet on several cardiovascular risk factors: Evidence from Sicily, southern Italy. *Nutrition Metabolism & Cardiovascular Diseases* (2013)



## RESULTS

# What about alcohol?

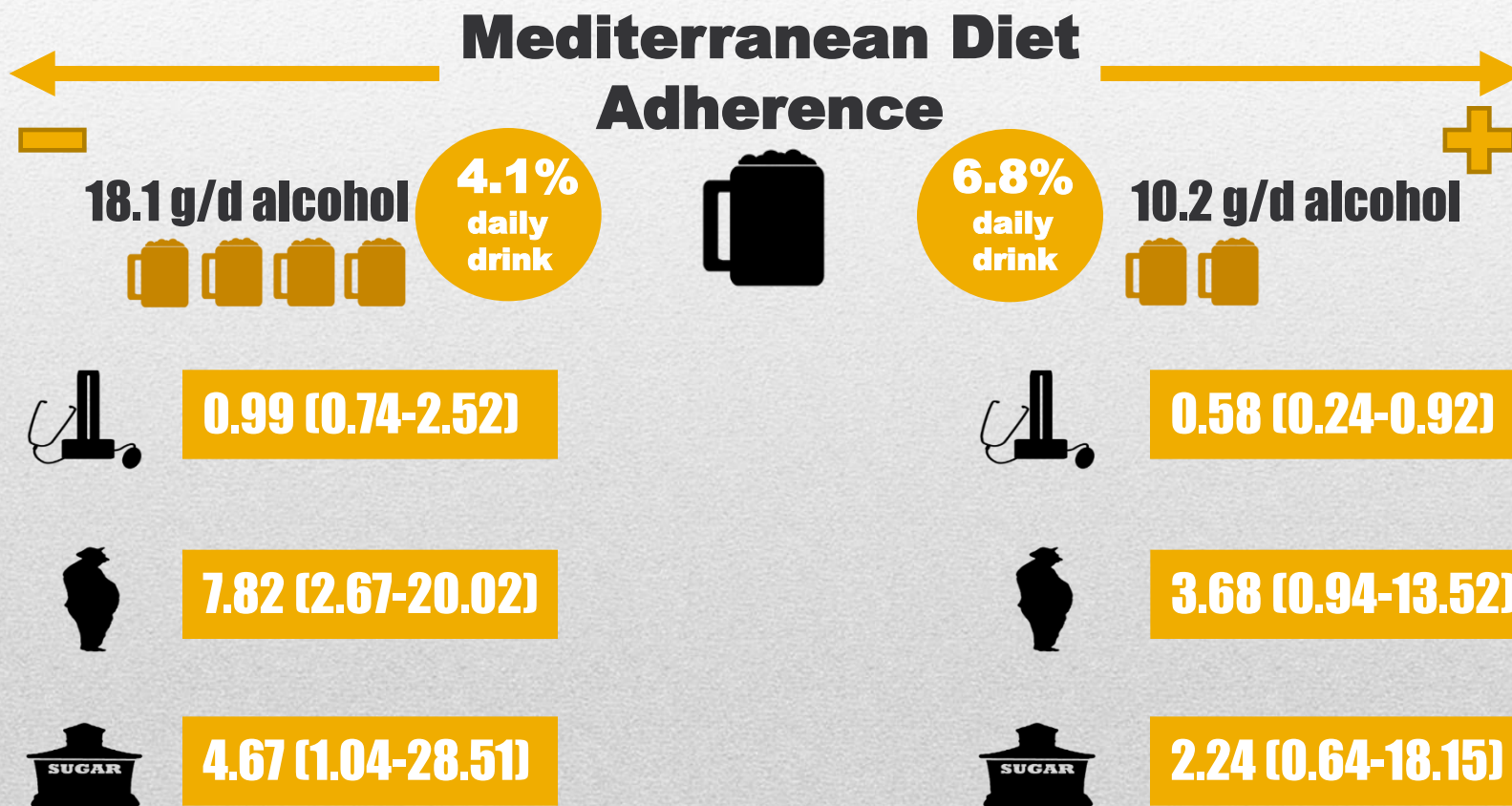
### Independent association of alcohol consumption characteristics with CVD risk factors\*

	HYPERTENSION OR (95% CI)	OBESITY OR (95% CI)	DIABETES OR (95% CI)
ALCOHOL QUANTITY (G/DAY)			
<12	1	1	1
12-35	1.91 (0.84-4.36)	0.88 (0.64-1.20)	0.30 (0.05-1.75)
36-48	1.43 (0.64-3.16)	0.77 (0.52-1.13)	0.25 (0.04-1.37)
>48	1.94 (0.95-3.95)	1.45 (0.98-2.13)	0.30 (0.05-1.62)
TYPE OF ALCOHOL			
NONE	1	1	1
RED WINE	<b>0.42 (0.18-0.98)</b>	<b>6.64 (2.22-19.92)</b>	2.15 (0.36-12.98)
WHITE WINE	0.63 (0.29-1.37)	<b>7.12 (2.44-20.77)</b>	4.02 (0.74-21.70)
BEER	0.71 (0.32-1.57)	<b>6.11 (1.99-18.74)</b>	4.82 (0.84-27.54)
SPIRITS	0.76 (0.34-1.70)	<b>5.83 (1.92-17.66)</b>	3.88 (0.69-21.90)

\*adjusted for age, gender, educational level, physical activity level, smoking status, MedDiet Score, alcohol quantity, type of alcohol.

Unpublished data

## RESULTS







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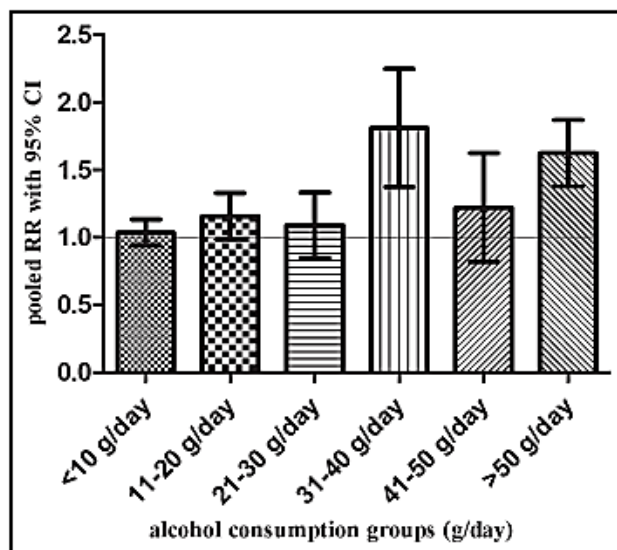
## EXPLANATION 1: CONFOUNDING FACTORS



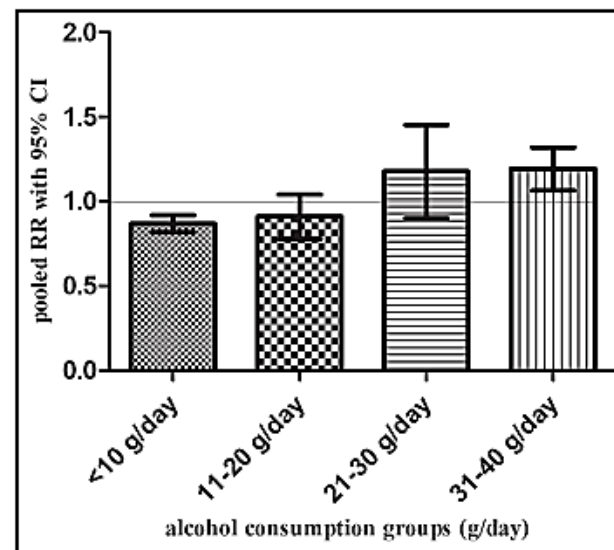


## EXPLANATION 2: ALCOHOL CONTENT

### Alcohol Consumption and the Risk of Hypertension in Men and Women



**FIGURE 3.** Relationship between average daily alcohol consumption and the risk of hypertension in men. RR indicates relative risk; CI, confidence interval.



**FIGURE 4.** Relationship between average daily alcohol consumption and the risk of hypertension in women. RR indicates relative risk; CI, confidence interval.





# EXPLANATION 2: ALCOHOL CONTENT

## Alcohol Consumption and the Risk of CHD and stroke

Table 2| Stratified analyses of pooled relative risks (95% CI) for cardiovascular and stroke outcomes (number of pooled studies in parentheses after each effect estimate)

	Cardiovascular disease mortality (n=21 studies, 1 184 956 subjects)	Coronary heart disease		Stroke	
		Incident (n=29 studies, 549 504 subjects)	Mortality (n=31 studies, 1 925 106 subjects)	Incident (n=17 studies, 458 811 subjects)	Mortality (n=10 studies, 723 571 subjects)
Alcohol intake (g/day) v none:					
<2.5	0.71 (0.57 to 0.89) (7)	0.96 (0.86 to 1.06) (6)	0.92 (0.80 to 1.06) (6)	0.81 (0.74 to 0.89) (3)	1.00 (0.75 to 1.34) (3)
2.5–14.9	0.77 (0.71 to 0.83) (15)	0.75 (0.65 to 0.88) (9)	0.79 (0.73 to 0.86) (18)	0.80 (0.74 to 0.87) (3)	0.86 (0.75 to 0.99) (6)
15–29.9	0.75 (0.70 to 0.80) (13)	0.66 (0.59 to 0.75) (15)	0.79 (0.71 to 0.88) (15)	0.92 (0.82 to 1.04) (5)	1.15 (0.86 to 1.54) (6)
30–60	0.85 (0.73 to 0.98) (10)	0.67 (0.56 to 0.79) (9)	0.77 (0.72 to 0.83) (12)	1.15 (0.98 to 1.35) (4)	1.10 (0.85 to 1.45) (5)
≥60	0.99 (0.84 to 1.17) (6)	0.76 (0.52 to 1.09) (9)	0.75 (0.63 to 0.89) (9)	1.62 (1.32 to 1.98) (4)	1.44 (0.99 to 2.10) (3)

\*Adjustment for confounding factors was dichotomised as weak (<median value) or strong (≥median value). Cut points: ≥5 for coronary heart disease and stroke mortality, ≥6 for cardiovascular disease mortality and incident coronary heart disease, ≥7 for incident stroke.

†Total follow-up time was dichotomised as short (<median value) or long (≥median value). Cut points: ≥9 for incident coronary heart disease, ≥10 for cardiovascular disease mortality, ≥12 for coronary heart disease mortality and incident stroke, ≥14 for stroke mortality.



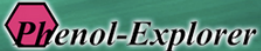
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## EXPLANATION 3: POLYPHENOLS CONTENT

[Home](#) [Food Composition](#) [Food Processing](#) [Metabolism](#) [Classifications](#) [Deposit](#) [Downloads](#) [About](#)  [Q](#)

 Database on polyphenol content in foods Version 3.5

Showing all polyphenols found in *Beer [Regular]* [Food Composition](#)

[Chromatography](#) [Chromatography after hydrolysis](#) [Folin assay](#)

Display Options [v](#)

Polyphenol Class	Total Content	Number of References
Alcoholic beverages - Beers - <a href="#">Beer [Regular]</a>		
Flavonoids	0.75	1
Phenolic acids	2.56	6
Other polyphenols	0.63	3

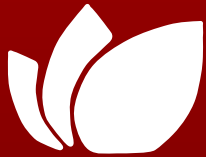




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**MEAL**  
STUDY

# Mediterranean

healthy

Eating, Aging and Lifestyle

## What's next...?

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[https://www.researchgate.net/profile/Giuseppe\\_Grosso/](https://www.researchgate.net/profile/Giuseppe_Grosso/)