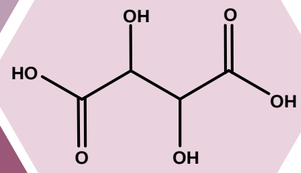
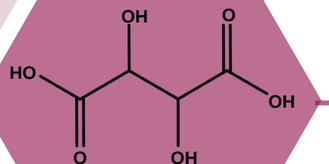


Components del vi i efecte sobre la salut?

R.M. Lamuela

3 de març de 2023



WINEinMODERATION

CHOOSE | SHARE | CARE

INSA | Institut de Recerca en Nutrició i Seguretat Alimentària

EXCELENCIA MARÍA DE MAEZTU

UNIVERSITAT DE BARCELONA

POLYPHENOL RESEARCH

Dra. M. Carmen de la Torre

Nutritional composition of wine

Energy
85 kcal/100 g
125 kcal/serving

Water (86%)

Alcohol (11%)

Carbohydrate (2.6%)

Protein (0.1%)

Minerals
174.6 mg/100g

Potassium
127 mg/100g

Phosphorus
23 mg/100g

Magnesium
12 mg/100g

Calcium
8 mg/100g

Sodium
4 mg/100g

Vitamins
0,3 mg/100g

Niacin
0.2 mg/100g

On the left side the major components are shown, on the right side micronutrients (minerals and vitamins) are plotted.

Source: National Nutrient Database for Standard Reference Release 27 of the USDA.

Minor components in wine

Glycerol (1%)

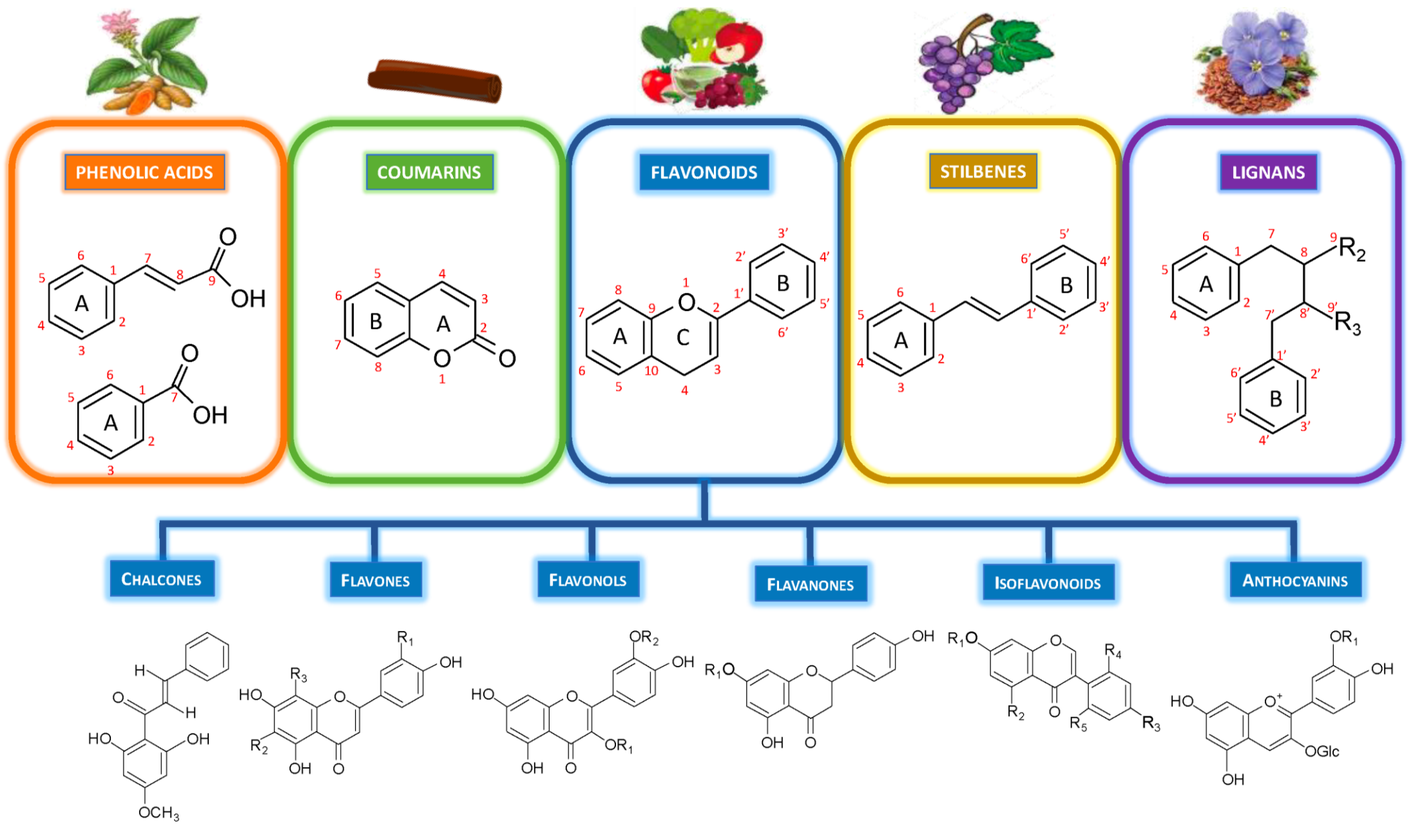
Organic acids (0.4%)
Mainly **tartaric acid**

Polyphenols (0.1%)

Other components (0,5%)
Amino acids, volatiles, acetaldehyde, higher alcohols, sorbitol, mannitol, sulfites.

Polyphenol classification

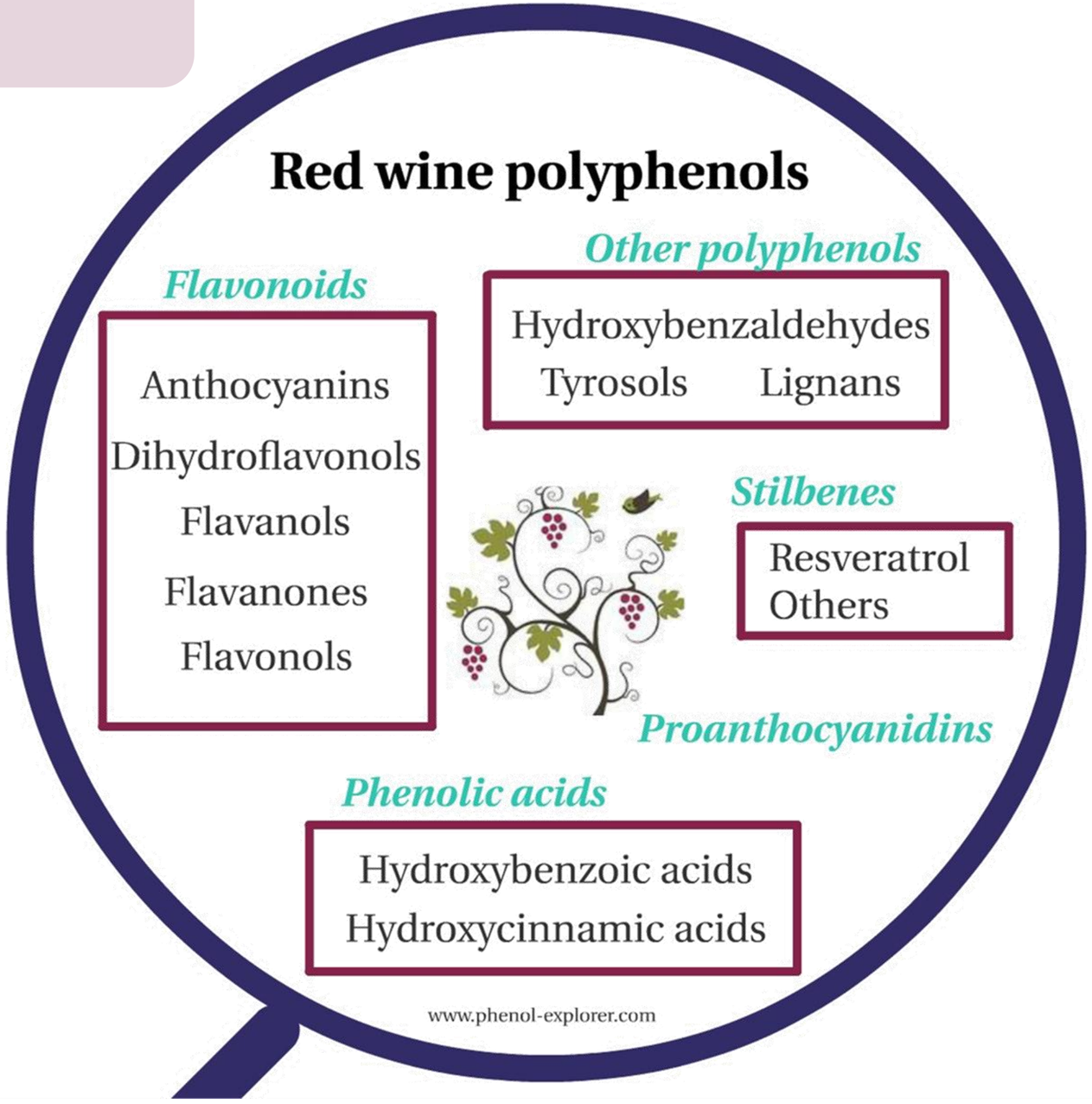
PLANT POLYPHENOLS



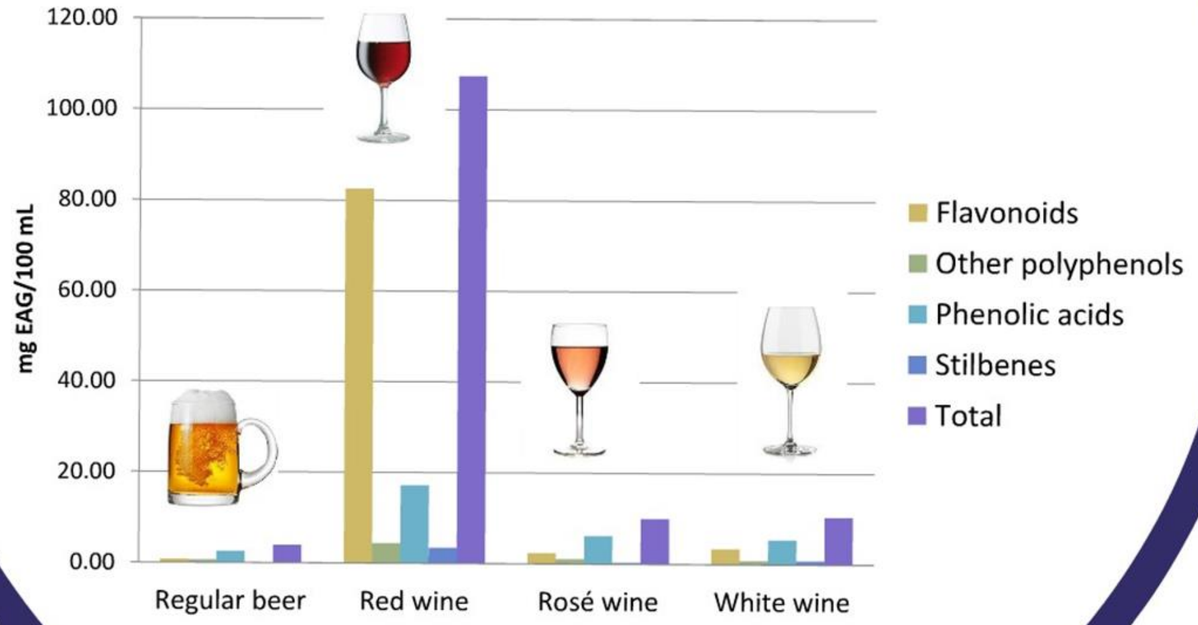
https://www.mdpi.com/712076

75 Polyphenols

Boto et al. 2013

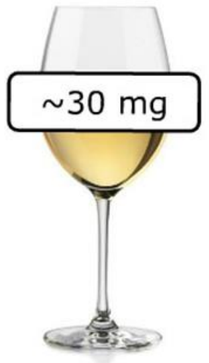


Phenolic content of beer and wines



Polyphenol intake from one drink

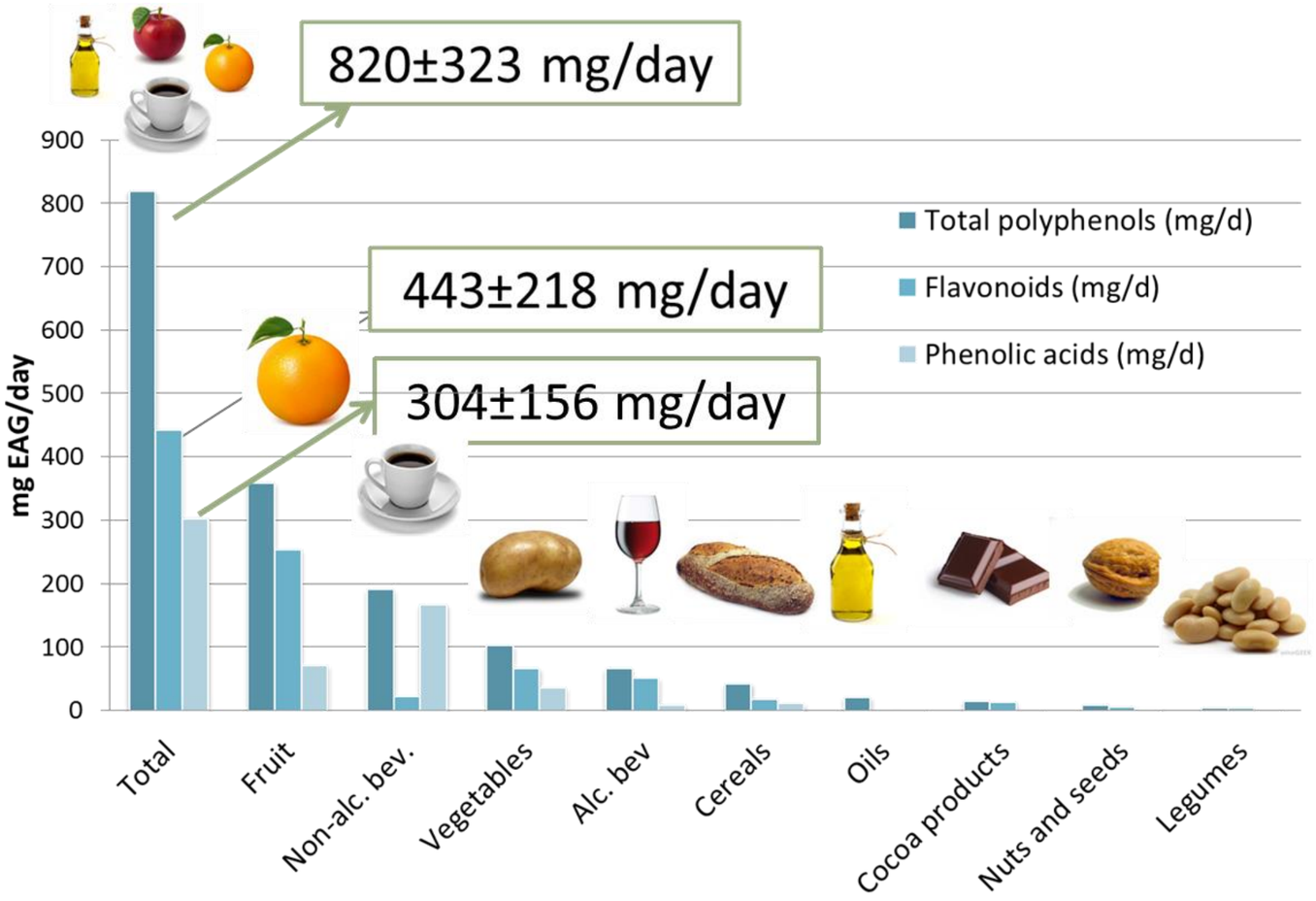
Standard drink (SD) → 10 g EtOH → 100 mL



Phenolic acids	4 mg
Flavonoids	5 mg
Stilbenes	1 mg

Flavonoids	80 mg
Proanthocyanidins	30 mg
Phenolic acids	17 mg
Stilbenes	3 mg

Sources of polyphenols



Total polyphenol intake:
820±323 mg/day

Flavonoids intake:
443±218 mg/day

Phenolic acids intake:

304±156 mg/day

Treserra-Rimbau Nutr Metab Cardiovasc Dis. 2013 Oct;23(10):953-9. doi: 10.1016/j.numecd.2012.10.008. Epub 2013 Jan 17.

Polyphenol Intake and Health Events

Intakes of polyphenols were adjusted for total energy intake (residual method) and cumulative averages were calculated for each participant.

longitudinal

FFQ 1	Polyphenol intake 1	
FFQ 2	Polyphenol intake 2	Cumulative average 2
FFQ 3	Polyphenol intake 3	Cumulative average 3
FFQ n	Polyphenol intake n	Cumulative average n

PREDIMED Prevención con Dieta Mediterránea

Treserra-Rimbau BMC Med. 2014 May 13;12:77. doi: 10.1186/1741-7015-12-77.

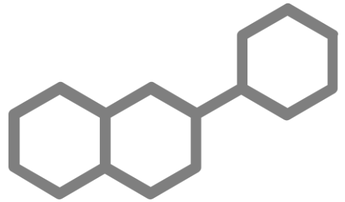
In Summary in the PREDIMED

CVD

- Total Polyphenols
- Lignans
- Flavanols
- Hydroxybenzoics
- Isoflavones

Mortality

- Total Polyphenols
- Lignans
- Stilbenes
- Isoflavones



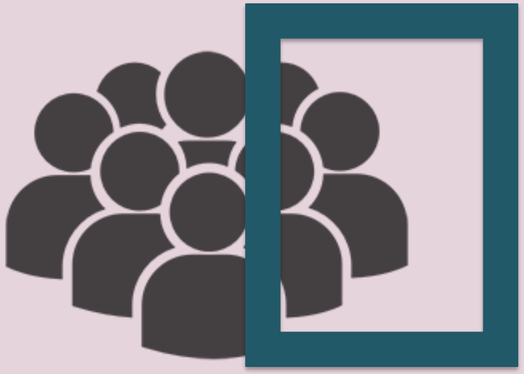
Polyphenols	Cardiovascular risk	All-cause mortality risk	Food sources (examples)
Total polyphenols	✓	✓	
Flavanols	✓		Cocoa, red wine, apples
Hydroxybenzoic acids	✓		Red wine Pomegranate, berries, olives,
Lignans	✓	✓	Virgin olive oil, whole-grain rye flour
Stilbenes		✓	Red wine, lingonberry
Isoflavones	✓	✓	Soy, beans

Polyphenols and Diabetes

Objective:

To study the association between polyphenol intake (total and by groups) and type 2 diabetes within the PREDIMED cohort.

Observational and longitudinal study within the PREDIMED



7447 participants

Free of diabetes at baseline

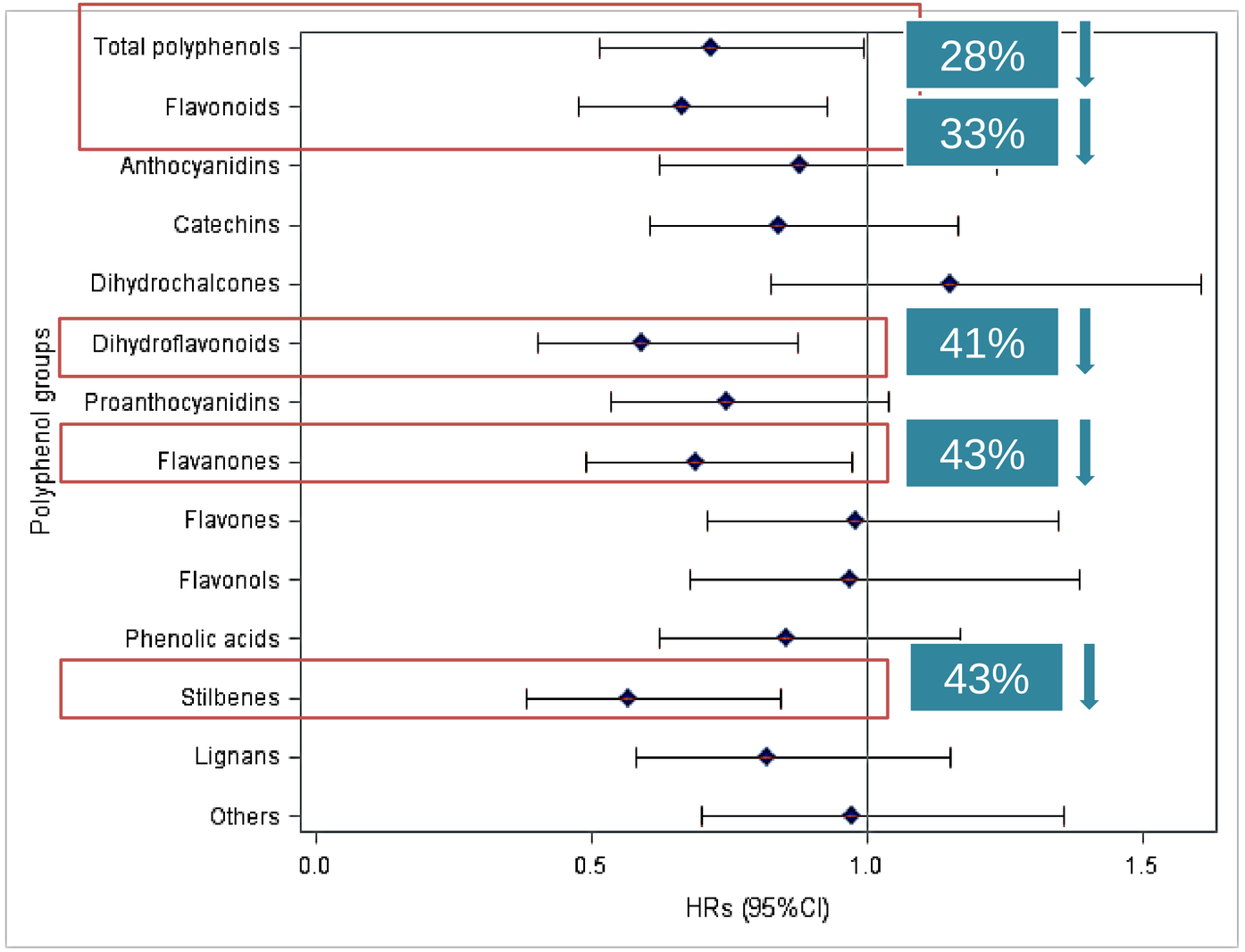
3430 participants

5.5±2.0 years of follow-up

314 new cases of diabetes

Treserra-Rimbau J Nutr. 2016 Mar 9. pii: jn223610.

Results Polyphenol Intake and Diabetes



HRs (95% CI) of type 2 diabetes incidence for the highest vs. the lowest tertiles of polyphenol intake (fully adjusted model).

PREDIMED
Prevención con Dieta Mediterránea

Treserra-Rimbau J Nutr. 2016 : jn223610.

Sources of polyphenols

Other polyphenol classes

Stilbenes

Red wine

Citrus

Flavanones

Dihydro-flavonols

Red wine

Tresserra-Rimbau, J. Nutr. 2016 *jn22361*

Antioxidants

Anti-microbial

Inmuno-modulators

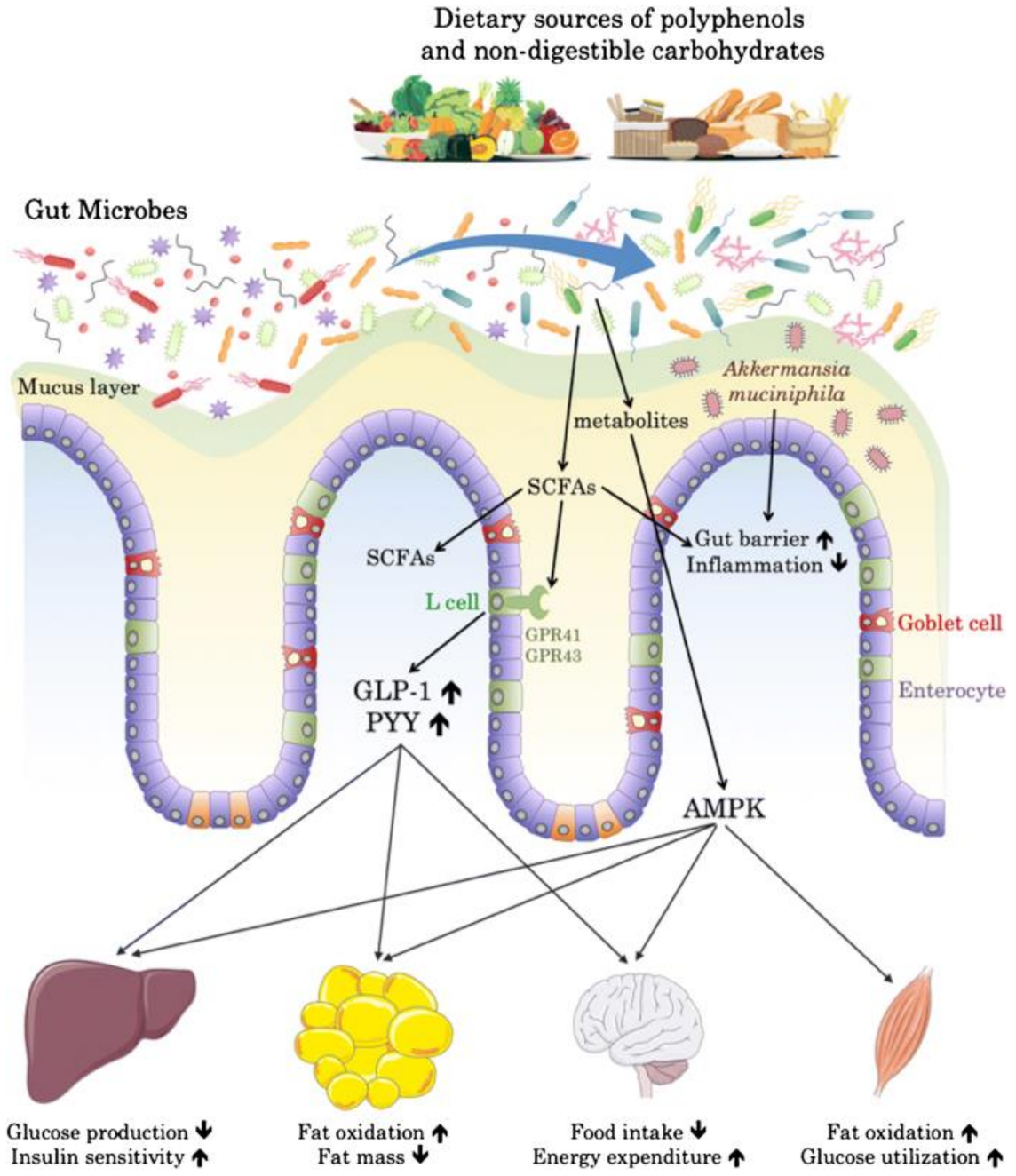
Phenolic Compounds

Regulators of energy metabolism

Hormone regulators

Anti-carcinogenic

Anti-Inflammatory


Dietary sources of polyphenols
and non-digestible carbohydrates
Gut Microbes
Mucus layer
Akkermansia
muciniphila
metabolites
SCFAs
SCFAs
Gut barrier ↑
Inflammation ↓
L cell
GPR41
GPR43
Goblet cell
Enterocyte
GLP-1 ↑
PYY ↑
AMPK
Glucose production ↓
Insulin sensitivity ↑
Fat oxidation ↑
Fat mass ↓
Food intake ↓
Energy expenditure ↑
Fat oxidation ↑
Glucose utilization ↑

Resveratrol Content In The Wine Doctor ResElixir

=

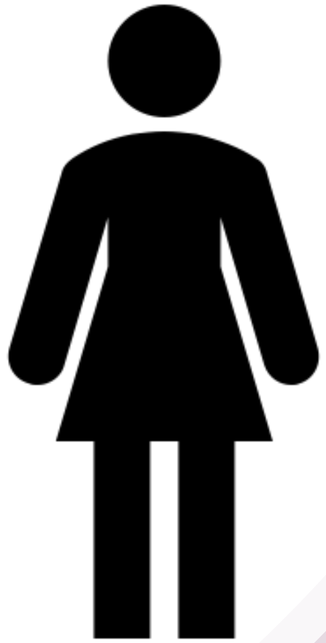
50ml of ResElixir

10 bottles of red wine

Maria is an active woman

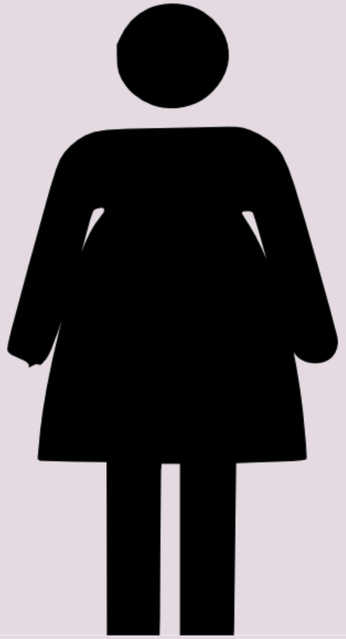
Works on marketing for a wine company and has two children. She has a **BMI of 24.** She follows a **healthy pattern** and practices **sports 3 times per week**

Should Maria drink wine?



She turns 54 years old

And then…



- She starts to **gain weight**
- She has gained **3-4 kg every year**, in the last two years
- She is **not sleeping well…**

Participants characteristics

Age
66.9 ± 0,4
Years

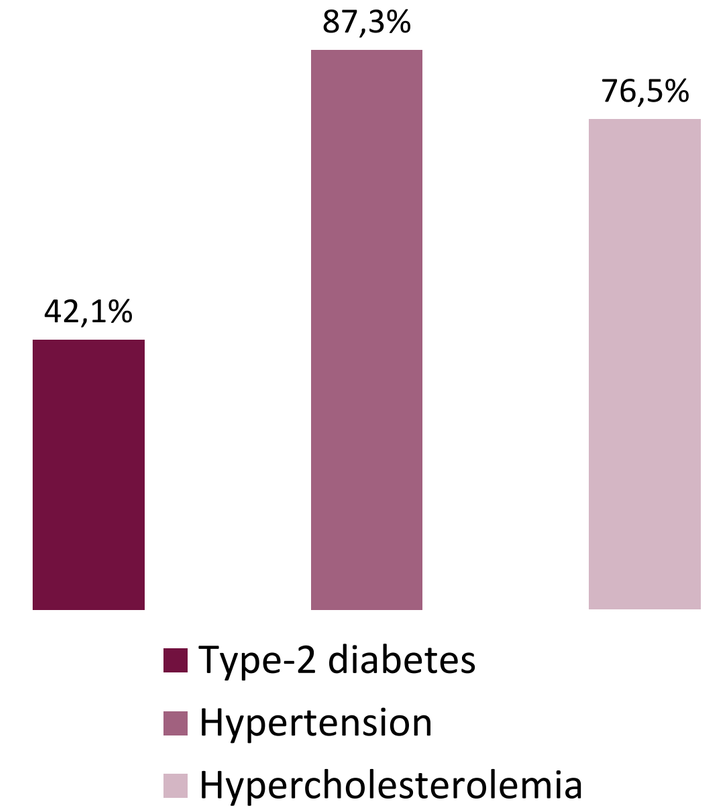
Physical activity
186.4 ± 10.9
min/week

BMI
30.2 ± 0,3
kg/m²

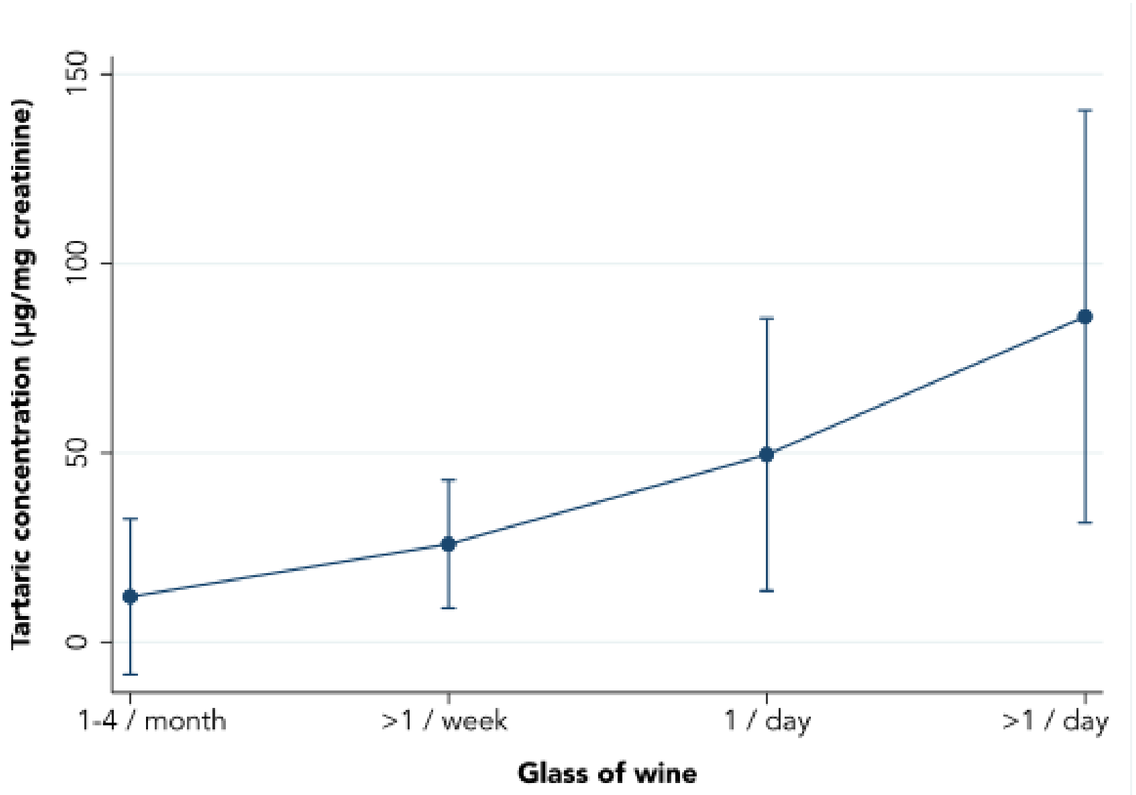
Energy intake
2165 ± 32.6
kcal/day

Waist circumference
97.3 ± 0.7
cm

40.4 % daily wine consumers



Tartaric as a biomarker of wine consumption in the free living population PREDIMED

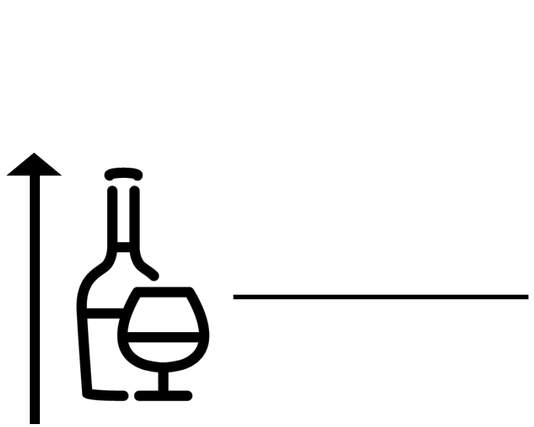


Glass of wine from FFQ

Body composition

	Tartaric Concentration (µg/mg creatinine)	
	β (95% IC)	***p-value***
Weight, kg	<0.01 (-0.01, 0.01)	0.859
Body mass index, kg/m^2	<-0.01 (-0.01, 0.01)	0.959
Waist circumference, cm	0.69 (-0.08, 1.45)	0.075
Waist to height ratio (WHtR)	0.39 (-0.12, 0.91)	0.121

Multivariable adjusted linear regression were performed using Stata 16.0 (StataCorp LP, Tx. USA). Results adjusted by: age, education level, smoking status, physical activity, colesterol-lowering agents, total energy intake and fruits and vegetables intake. Robust variance estimators were usedd to account for intra-cluster correlation.



Weight =

BMI =

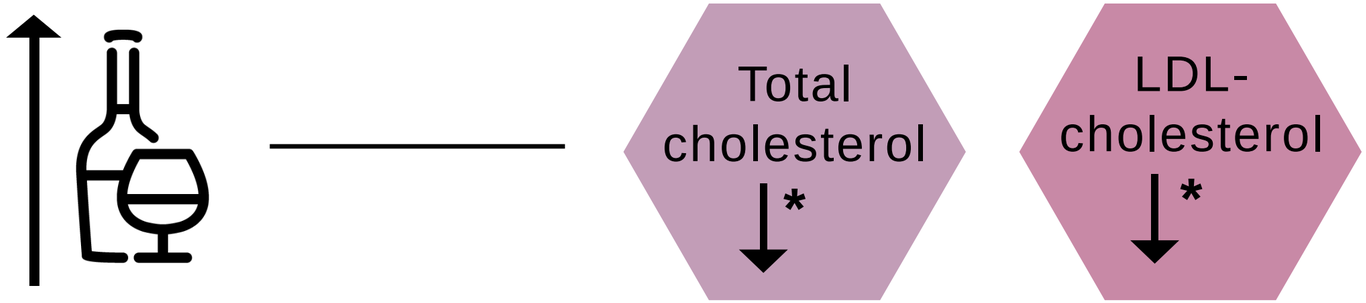
WHtR =

Waist circumference =

Biochemical outcomes

	Tartaric Concentration (µg/mg creatinine)	
	β (95% IC)	***p-value***
Total Cholesterol, mg/dL	-2.95 (-5.32, -0.58)	**0.020**
LDL, mg/dL	-2.91 (-5.50, -0.33)	**0.031**
HDL, mg/dL	<-0.01 (-0.03, 0.02)	0.801
Triglycerides, mg/dL	0.01 (-0.04, 0.07)	0.563
Glucose, mg/dL	0.02 (-0.02, 0.06)	0.245

Multivariable adjusted linear regression were performed using Stata 16.0 (StataCorp LP, Tx. USA).
Results adjusted by: age, education level, smoking status, physical activity, BMI, cholesterol-lowerging agents, total energy intake and fruits and vegetables intake. Robust variance estimators were usedd to account for intra-cluster correlation.



Take Home Message

- Better cardiovascular health parameters are observed in wine consumers
- Follow a Mediterranean dietary pattern, including a glass of wine with the meals, is high in polyphenols and will support efforts to better life style
- Moderate wine consumption is not associated to weight gain

Antioxidant Research team

University of Barcelona

UNIVERSITAT DE BARCELONA

POLYPHENOL RESEARCH

We would like to thank:

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Thank you for your attention!

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