

# Participation in clinical and epidemiological studies on nutrition

## **EPIDEMIOLOGICAL TRIALS**

**PREDIMED STUDY** (*Prevención con Dieta Mediterránea*, [www.predimed.org](http://www.predimed.org) [1]):

- STUDY DESIGN: Multicenter, randomized, controlled, parallel-group clinical trial, initially with 4 years of follow-up. An estimated 7500 participants at high cardiovascular risk have been assigned to 3 interventions: 1) Mediterranean diet with virgin olive oil; 2) Mediterranean diet with mixed nuts; 3) control diet, low-fat diet following the "American Heart Association" guidelines.
- OBJECTIVE: To assess the effects of the Mediterranean diet in the primary prevention of cardiovascular disease.



**EPIC STUDY** (*European Prospective Investigation into Cancer*, [www.epic-spain.com](http://www.epic-spain.com) [2]), thanks to the collaboration with Dr. Carlos Alberto Gonzalez Svatetz and Dr. Raul Zamora Ros.

- STUDY DESIGN: A prospective cohort and multicenter study coordinated by the International Agency for Research on Cancer (IARC), launched in 1992. In the Spanish cohort of the study 40,000 men and women aged between 35 and 70 have been included. Each of the participants were surveyed about their diet, a questionnaire on lifestyle and other factors, and anthropometric measurements and a blood sample were collected.
- OBJECTIVE: Our partnership with the EPIC project focuses on the study of the association between consumption of polyphenols and cancer incidence.

**InCHIANTI STUDY** (*Invecchiare nel Chianti*, [www.inchiantistudy.net](http://www.inchiantistudy.net)), through collaboration with Dr. Antonio Cherubini.

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- STUDY DESIGN: Prospective study which includes medical and functional data of two populations of the geographical region of Chianti (Italy).
- OBJECTIVE: Move epidemiological research in geriatric clinical tools that permit the realization of a more precise diagnosis and more effective treatment in older people with mobility problems. Our partnership with the InCHIANTI project focuses on the study of the effect of consumption of diets rich in phenolic compounds and their association with conditions associated with aging.

### **CLINICAL TRIALS**

We are also participating in several prospective, crossed, controlled and randomized clinical trials to evaluate the beneficial effects of the intake of polyphenol-rich food (wine, cocoa, tea, citric fruits) on health in humans and animals. We have used this type of study because it offers the greatest level of scientific evidence.

**ACUTE AND REGULAR INTAKE OF COCOA IN HUMANS**, in collaboration with the Hospital Clínic of Barcelona.

#### **ACUTE INTAKE STUDY:**

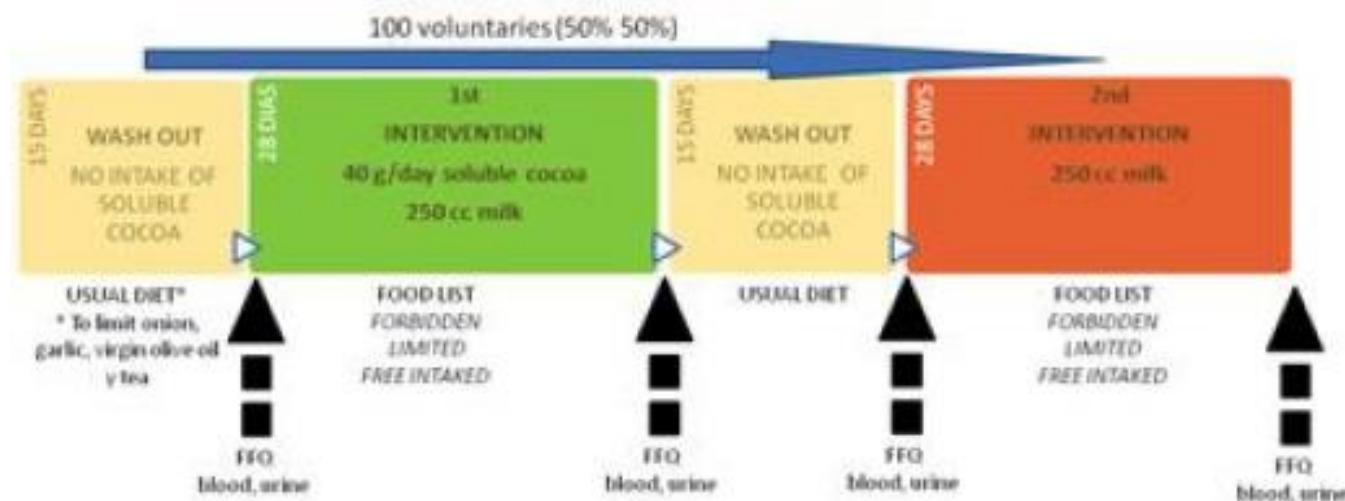
- STUDY DESIGN: Open, prospective, randomized and crossover clinical trial, in which 21 healthy individuals were subjected to the following nutritional interventions: 1)intake of a single dose of 40g of cocoa powder mixed with 250ml of water, 2)intake of a single dose of 40g of cocoa powder mixed with 250ml of milk, 3) intake of 250ml of milk, after a wash-out period of 48 hours.
- OBJECTIE: To assess the bioavailability of phase II metabolites and microbiota of the cocoa polyphenols of cocoa, taking into account the effect of food matrix.

#### **REGULAR CONSUMPTION STUDY:**

- STUDY DESIGN: Controlled, prospective, randomized and crossover clinical trial, in which 42 healthy individuals were subjected to a period of "wash-out" followed by the following nutritional interventions: 1) intake of 500 mL of skimmed milk for 28 days , 2) two intakes of 20g cocoa powder mixed with 250ml of skimmed milk for 28 days.
- OBJECTIVE: To assess the bioavailability of phase II metabolites and microbiota of the cocoa polyphenols of cocoa, taking into account the effect of food matrix. To assess the inflammatory markers involved in atherosclerosis measuring the health impact of regular intake of soluble cocoa.

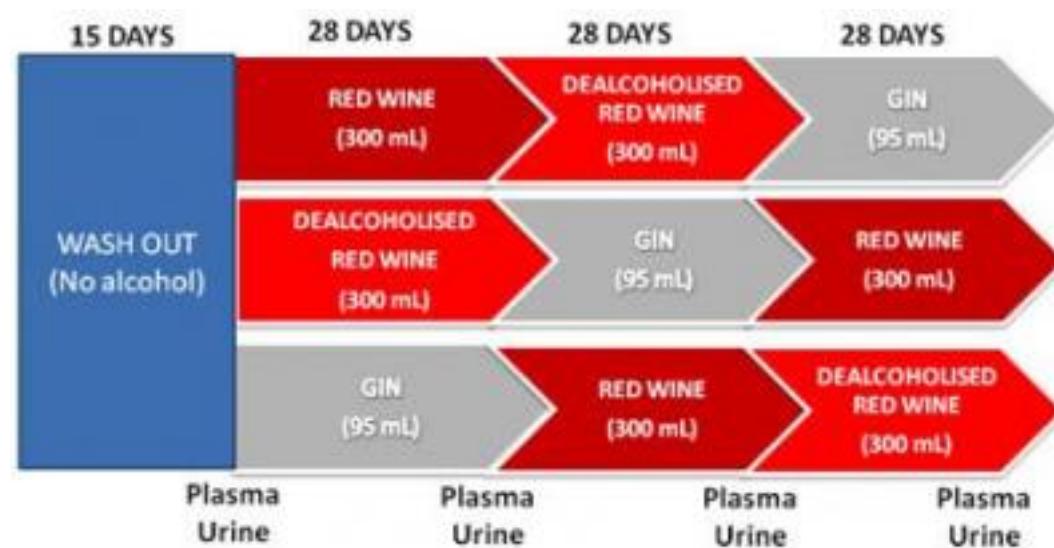
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### MODERATE AND REGULAR CONSUMPTION OF WINE IN HUMANS, in collaboration with the Hospital Clínic of Barcelona.

- STUDY DESIGN: Controlled, prospective, randomized and crossover clinical trial, in which 72 men at high risk of cardiovascular events ingested a quantity of 30 grams of alcohol per day in form of red wine (alcoholic beverage with a high content of polyphenols), gin (alcoholic drink without polyphenols), or the equivalent amount of alcohol-free red wine (non-alcoholic drink with a high content of polyphenols).
- OBJECTIVE: To determine the benefit/risk of a moderate and regular consumption of red wine and its relation to the amount of alcohol and/or polyphenols derived from grapes. To assess the positive effects on endothelial function and expression and function of monocyte adhesion molecules and endothelial cells, and the negative effects on the digestive system and liver. To relate the observed changes with the concentration of phenolic compounds found in plasma and urine, assessing the effect of the alcoholic matrix in its bioavailability.



**GROUP PUBLICATIONS****PREDIMED:**

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- Urpi-Sarda M et al. Virgin olive oil and nuts as key foods of the Mediterranean diet effects on inflammatory biomarkers related to atherosclerosis. *Pharmacological Research.* 2012;65(6):577-583. [PubMed](#) [4]
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**EPIC-Spain:**

- Zamora-Ros R, Andres-Lacueva C, Lamuela-Raventós RM, Berenguer T, Jakuszyn P, Barricarte A, Ardanaz E, Amiano P, Dorronsoro M, Larrañaga N, Martínez C, Sánchez MJ, Navarro C, Chirlaque MD, Tormo MJ, Quirós JR, González CA. Estimation of dietary sources and flavonoid intake in a Spanish adult population (EPIC-Spain). *Journal of American Dietetic Association.* 2010;110(3):390-398. [PubMed](#) [8]
- Zamora-Ros R, Andres-Lacueva C, Lamuela-Raventós RM, Berenguer T, Jakuszyn P, Martínez C, Sánchez MJ, Navarro C, Chirlaque MD, Tormo MJ, Quirós JR, Amiano P, Dorronsoro M, Larrañaga N, Barricarte A, Ardanaz E, González CA. Concentrations of resveratrol and derivatives in foods and estimation of dietary intake in a Spanish population: European Prospective Investigation into Cancer and Nutrition (EPIC)-Spain cohort. *British Journal of Nutrition.* 2008;100(1):188-196. [PubMed](#) [9]

**InCHIANTI Study:**

- Montserrat Rabassa, Antonio Cherubini, Raul Zamora-Ros, Mireia Urpi-Sarda, Stefania Bandinelli, Luigi Ferrucci, Cristina Andres-Lacueva. Low levels of a urinary biomarker of dietary polyphenol are associated with substantial cognition decline over a three-year period in older adults: the Invecchiare in Chianti (InCHIANTI) Study. *JAGS.* 2014. Accepted.
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Published on Biomarkers and Nutritional & Food Metabolomics (<https://www.nutrimetabolomics.com>)

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### **Cocoa Study:**

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### **Wine Study:**

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- Jiménez-Girón A et al. Comparative Study of Microbial-Derived Phenolic Metabolites in Human Feces after Intake of Gin, Red Wine, and Dealcoholized Red Wine. *Journal of Agricultural and Food Chemistry.* 2013;61(16):3909-3915. [PubMed](#) [19]
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- [3] <http://www.ncbi.nlm.nih.gov/pubmed/22465220>
- [4] <http://www.ncbi.nlm.nih.gov/pubmed/22449789>
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