

Predictive models for the effect of foods containing (poly)phenols: a personalized nutritional approach

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STATE OF THE ART

(Poly)phenol-rich diets may play a key role in the prevention of cardiometabolic diseases. **Inter-individual variability** influences the metabolism and response to these dietary interventions, so **precision nutrition** may represent an **effective approach** in the prevention of non-communicable diseases. The **PRE-CARE-DIET** study aims at assessing how a personalized, sustainable, (poly)phenol-rich diet can affect cardiometabolic health.

2/3 will be allocated for 16 weeks to an **intervention** or a **control group**, assigning them a personalized diet with a **50% increase in the actual (poly)phenol intake** or general indications for healthy eating, respectively

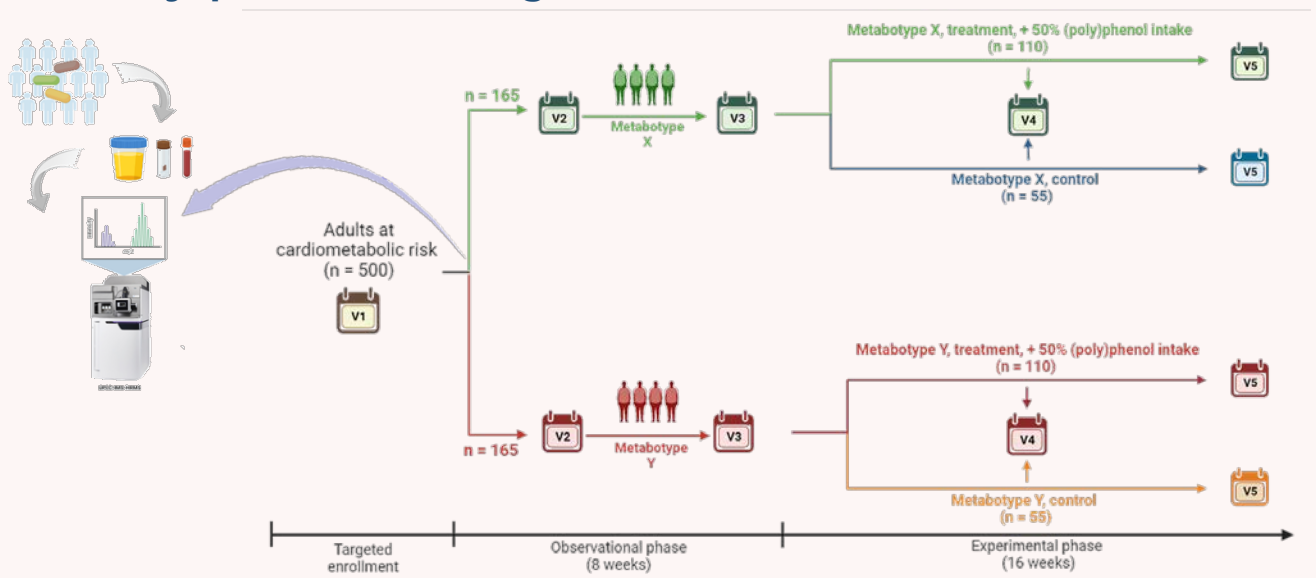


Biological samples will be collected and analyzed through a **multi-omics approach** allowing deep phenotyping

PhD THESIS OBJECTIVES

Statistical analysis and **machine learning** will be used to create **predictive models** merging multi-omics datasets. The idea is explaining, at individual level, the **cardiometabolic response** to personalized dietary interventions, the determinants of **inter-individual variability** to the consumption of (poly)phenols, and the contribution of each variable to **obesity prevention** to provide **personalized dietary advice**

A **targeted, randomized, controlled intervention** is being carried out in subjects (40-80 y.o., BMI 18.5-35.0 kg/m²) at **cardiometabolic risk**. A total of **500 volunteers** will be profiled based on two aggregate phenolic metabolites (**metabotyping**) following an "**Oral (Poly)phenol Challenge Test**"



Activity Months		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1)	Management of volunteers' enrolment and multiple schedule visits																								
	1) Enrolment																								
	2) Multiple visits																								
2)	Metabotyping																								
3)	Analysis of collected biological samples																								
4)	Statistical analysis and development of machine learning predictive models																								
5)	Thesis and Paper Preparation																								