P.A.N.

Prevenzione Alimentazione Nutrizione

CAMERA DEI DEPUTATI

Palazzo Marini - Sala delle Conferenze, Roma 26 maggio 2010

GIOVANI ED ALIMENTAZIONE: LET'S MOVE!
Sessione 4: STILI DI VITA E BENESSERE OGGI

IL PROGETTO MOLI-SANI

GIOVANNI de GAETANO

Direttore Laboratori di Ricerca
Centro di Ricerche e Formazione ad Alta Tecnologia
nelle Scienze Biomediche “Giovanni Paolo II”
Università Cattolica, Campobasso

Health, Genetics and Lifestyle



Project

A scientific initiative

for health promotion and disease prevention

Malattie cardiovascolari e Tumori

- **Più del 70% delle cause di morte e disabilità in Italia**

- **Le malattie cardiovascolari sono responsabili di quasi 1/2 delle morti e di ¾ delle disabilità croniche del nostro Paese**

- **L'incidenza delle malattie tumorali continua ad aumentare, soprattutto per l'istaurarsi o il persistere di abitudini di vita a rischio**

The Moli-sani study identikit

- ***A cohort prospective epidemiologic study***
- ***25,000 people living in Molise***
- ***Aged 35 years or more***
- ***Recruitment phase: 2005-2010***
- ***Follow-up: passive and active***
- ***Study duration …" ….∞ " years***

Moli-sani end-points

To identify risk factors for Cardiovascular disease and Tumors

"Common soil" hypothesis

The “common soil” hypothesis



A typical “Moli-sani” day: *the admission*

Volunteers arrive fasting in the spaces of the Catholic University at Campobasso or Termoli specifically arranged for the Moli-sani Project



Volunteers are welcomed by a secretary team that, after making them sign the informed consensus, provides them with a bar-code



A typical “Moli-sani” day: *the biological sample drawing*





- **Blood,** to analyze plasma and serum hematochemical and hemostatic variables, and to extract DNA

- **Urine**, to evaluate metabolic and nutrient levels

A typical “Moli-sani” day: *the clinical tests*







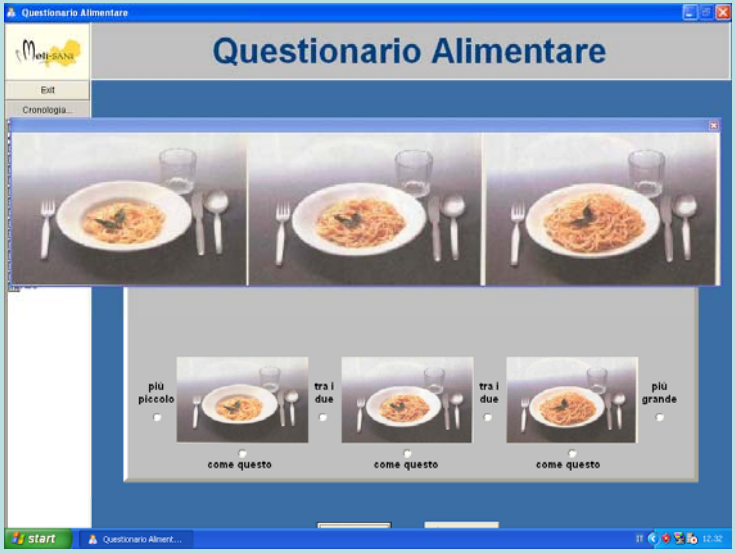
- ✓Electrocardiogram
- ✓Spirometry
- ✓Blood pressure
- ✓Weight and height (BMI)
- ✓Body fat distribution



A typical “Moli-sani” day: *paperless questionnaires*

- An anamnestic questionnaire explores each volunteer from a clinical and lifestyle point of view





- A Food Frequency Questionnaire (FFQ) provides information about major dietary factors involved in cardiovascular and tumor risk

A typical “Moli-sani” day: *the Laboratory*





- Biological samples test
  - ✓ Blood cell counts
  - ✓ Cholesterol, HDL, LDL, TG
  - ✓ Glucose,
  - ✓ C Reactive Protein…
  - ✓ D-dimers







- DNA extraction

- Aliquots of biological samples stored in liquid nitrogen

The Bio-Bank

- 1,000,000 samples
- Serum
- Citrated plasma
- EDTA plasma
- Buffy coats (DNA)
- Urine

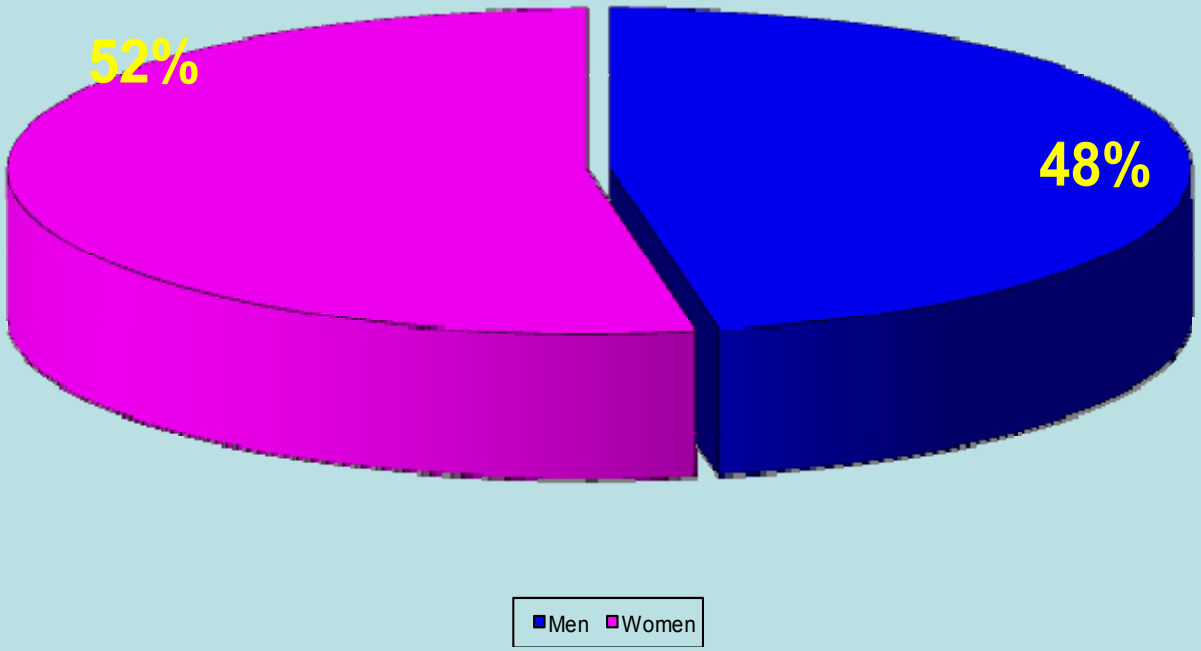






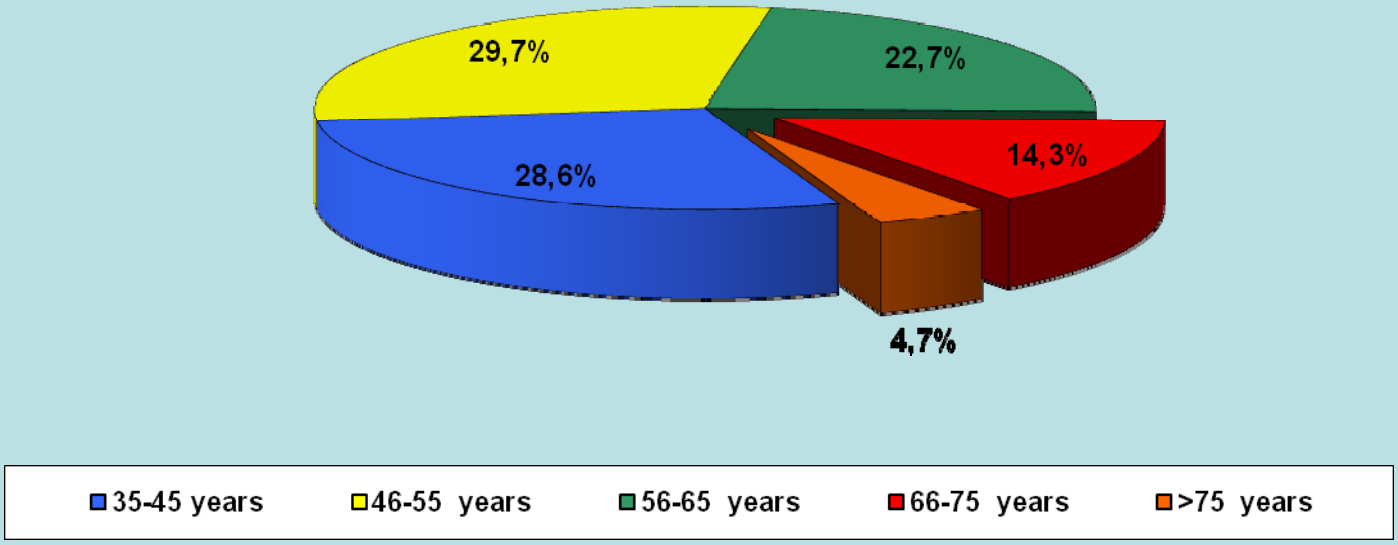
Demographics of Moli-sani

Sex

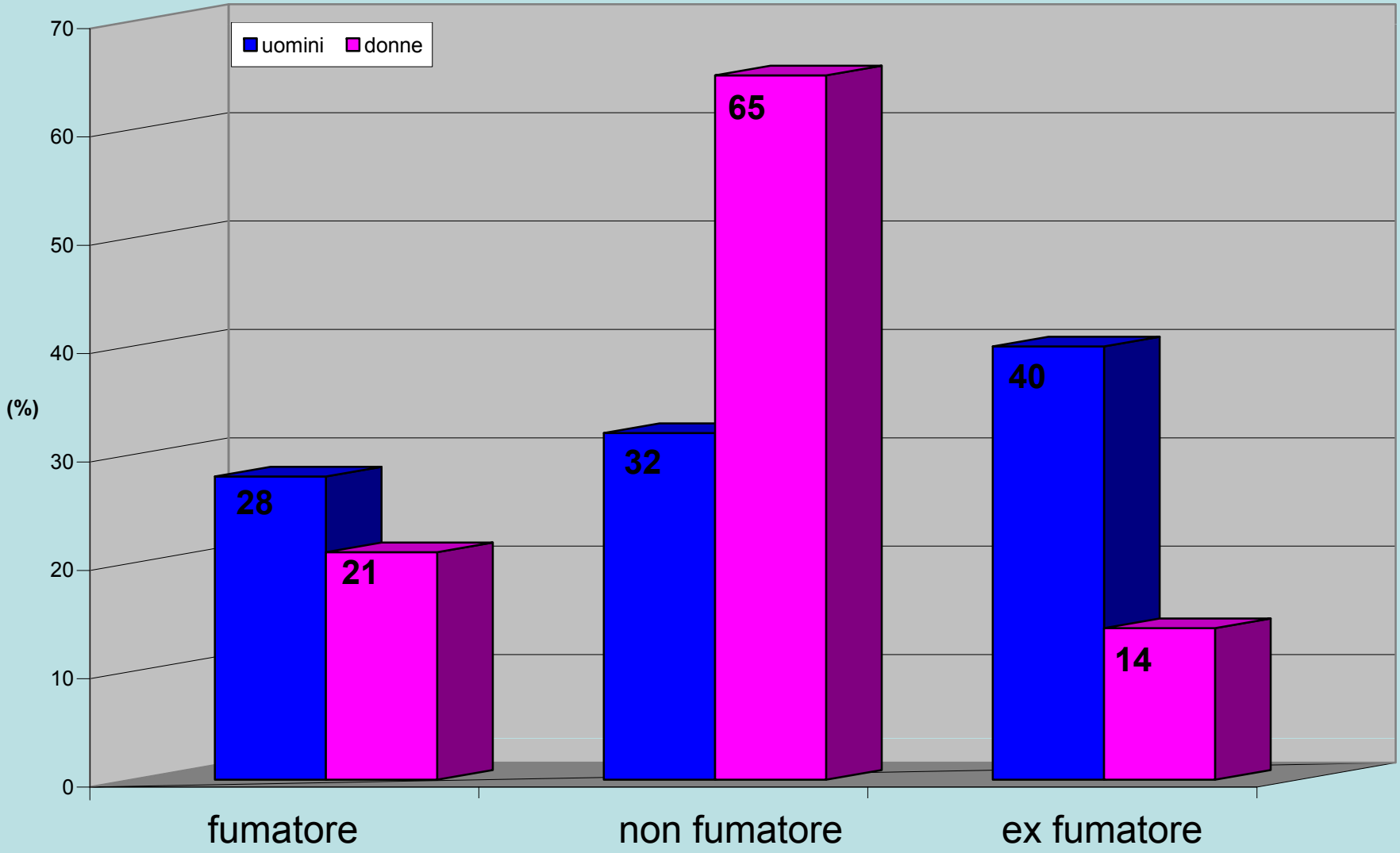


Demographics of Moli-sani

Age

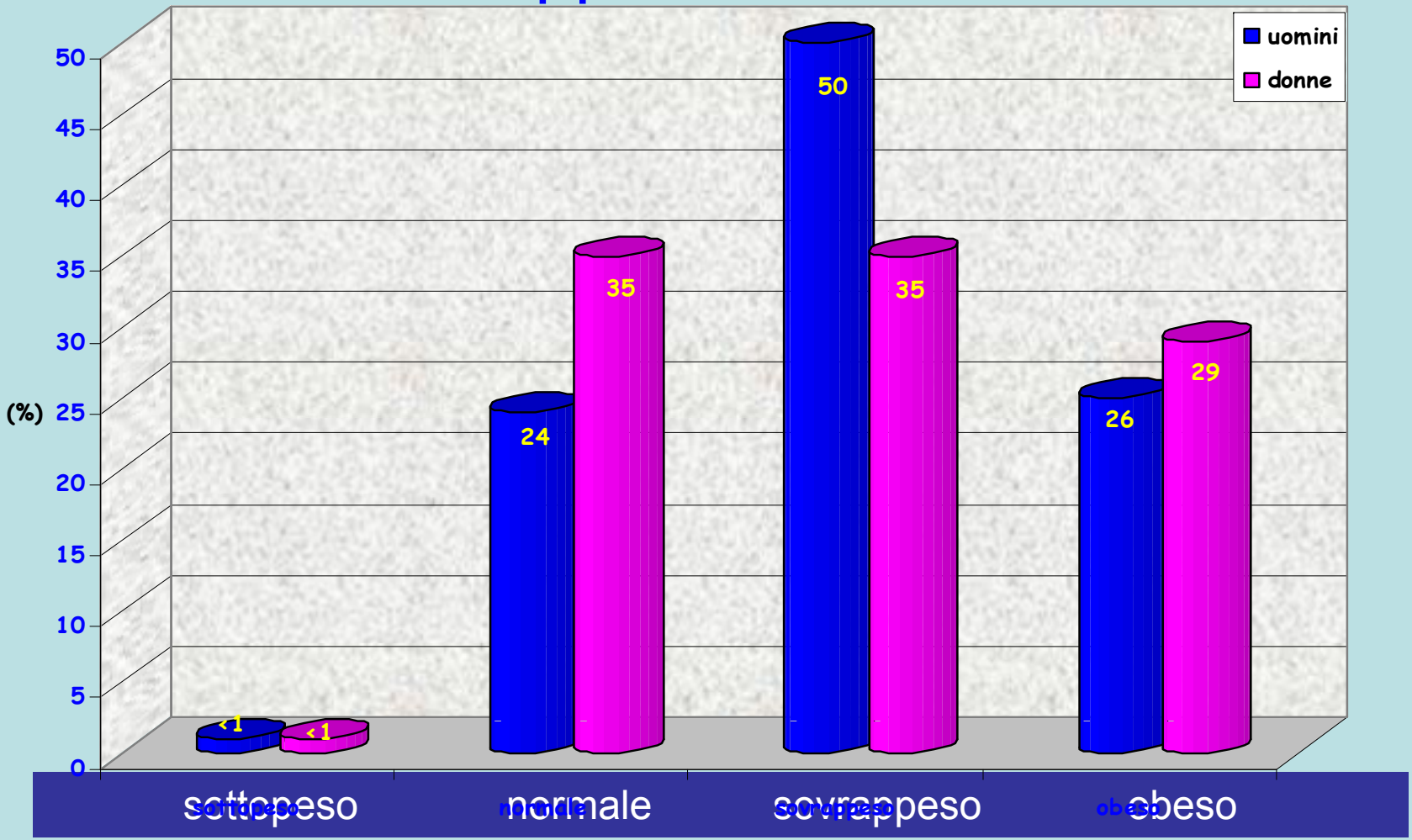


Moli-sani e fumo



Moli-sani

Sovrappeso e obesità







I Moli-sani aderiscono ancora alla Dieta Mediterranea?

WOMEN	25th percentile	50th percentile	75th percentile
NICOTERA 1960	—	—	—
POLLICA 1967	3.3	6.0	10.0
MOLI-SANI 2009	2.0	2.6	3.6

MEN	25th percentile	50th percentile	75th percentile
NICOTERA 1960	5.4	7.5	10.8
POLLICA 1967	3.2	6.0	8.4
MOLI-SANI 2009	2.5	3.6	5.4

Come mangiano i Moli-sani?

Dietary patterns, cardiovascular risk factors and C-reactive protein in a healthy Italian population

F. Centritto [a], L. Iacoviello [a,*], R. di Giuseppe [a],
A. De Curtis [a], S. Costanzo [a], F. Zito [a], S. Grioni [b],
S. Sieri [b], M.B. Donati [a], G. de Gaetano [a],
A. Di Castelnuovo [a], on behalf of Moli-sani Investigators

[a] *Laboratory of Genetic and Environmental Epidemiology. Research Laboratories, "John Paul II" Centre for High Technology Research and Education in Biomedical Sciences, Catholic University, Largo Gemelli 1, 86100 Campobasso, Italy*
[b] *Nutritional Epidemiology Unit, National Cancer Institute, Milan, Italy*

Nutr Metab Cardiovasc Dis. 2009 Mar 18. [Epub ahead of print]

FACTOR ANALYSIS

FOOD GROUPS	Pattern 1
OLIVE OIL	**0.88**
COOKED VEGETABLES	**0.66**
RAW VEGETABLES	**0.61**
LEGUMES	**0.44**
SOUPS	**0.36**
FISH	**0.30**
POTATOES	**0.29**
FRUITS	**0.29**
BOUILLON	**0.25**
FRESH CHEESE	**0.23**
WHITE MEAT	**0.20**
YOGURT	**0.17**
CRUSTACEANS, MOLLUSCS	0.16
CRISPBREAD, RUSKS	0.16
SNACKS	0.15
NUTS AND SEEDS	0.15

Un dolce esempio dallo studio Moli-sani

J. Nutr. 138: 1939–1945, 2008.

The Journal of Nutrition
Nutritional Epidemiology

Regular Consumption of Dark Chocolate Is Associated with Low Serum Concentrations of C-Reactive Protein in a Healthy Italian Population[1,2]

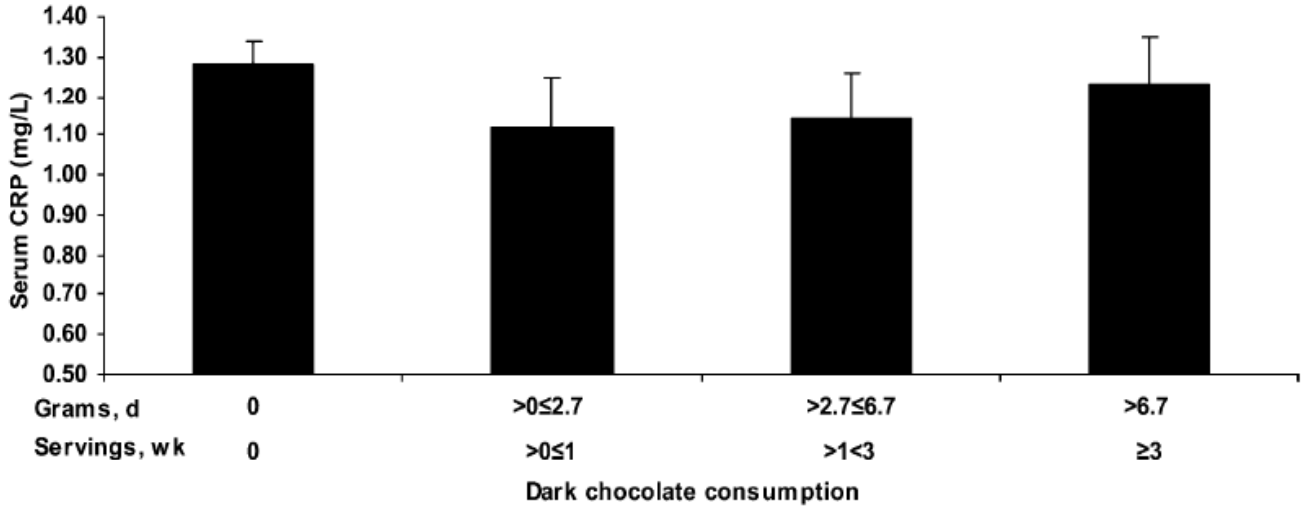
Romina di Giuseppe,[3] Augusto Di Castelnuovo,[3] Floriana Centritto,[3] Francesco Zito,[3] Amalia De Curtis,[3] Simona Costanzo,[3] Branislav Vohnout,[3] Sabina Sieri,[4] Vittorio Krogh,[4] Maria Benedetta Donati,[3] Giovanni de Gaetano,[3] and Licia Iacoviello[3]*

[3]Laboratory of Genetic and Environmental Epidemiology, Research Laboratories, "John Paul II" Centre for High Technology Research, Care and Education in Biomedical Sciences, Catholic University, 86100 Campobasso, Italy and [4]Nutritional Epidemiology Unit, National Cancer Institute, 20133 Milan, Italy

Moli-sani e cioccolato fondente

J. Nutr. 138: 1939–1945, 2008.

FIGURE 1 J-shaped relationship of serum CRP concentrations according to tertiles of dark chocolate intake among all subjects. Values are geometric means (95% CI), n = 1317, 211, 301, and 312 for nonconsumers, T1, T2, and T3, respectively. Consumption of dark chocolate was expressed both as g/d and as servings/wk (one serving = 20 g of dark chocolate).



I Moli-sani che mangiano cibi ricchi di antiossidanti

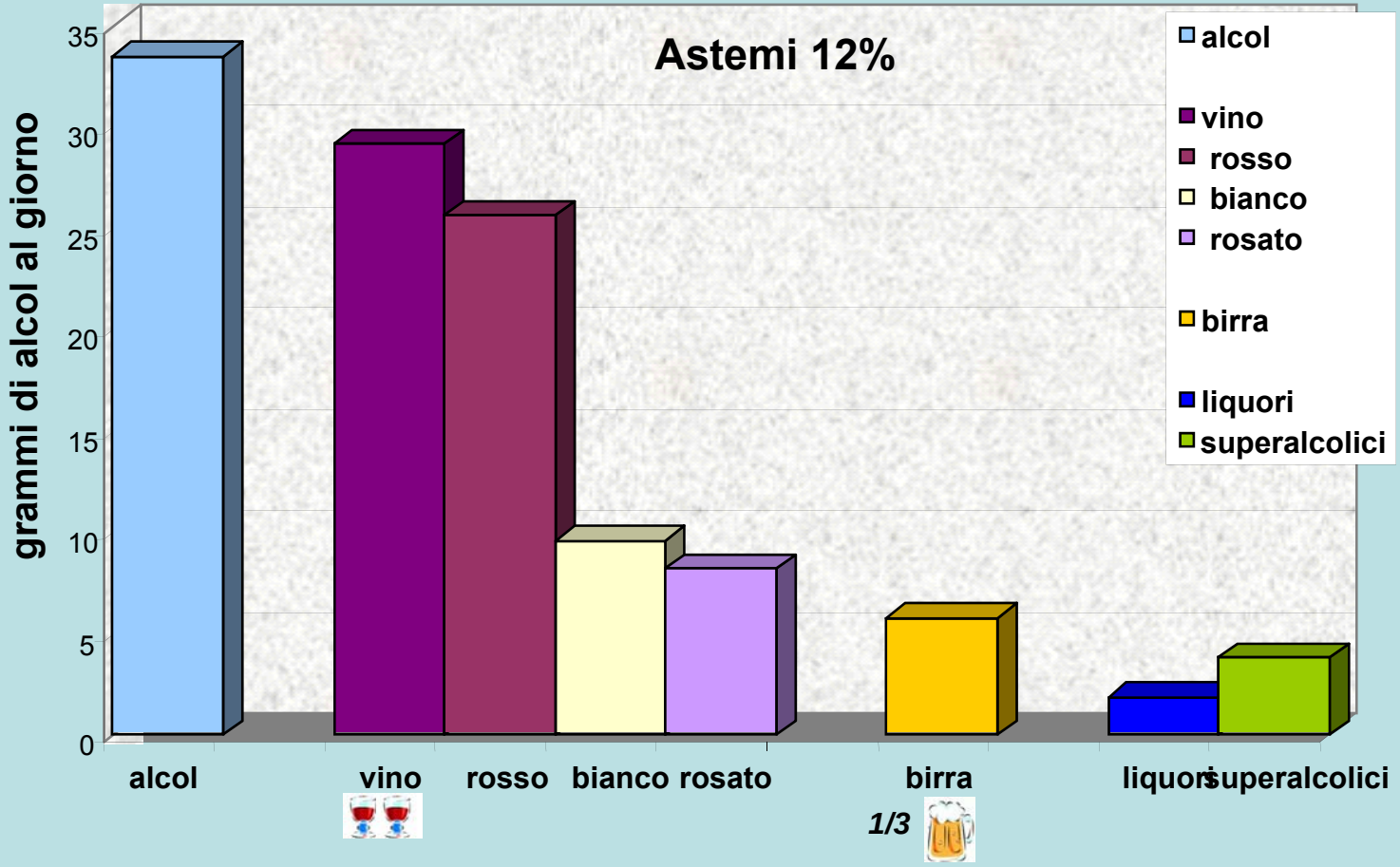
(frutta, verdura, vino rosso)

hanno un polmone più giovane di

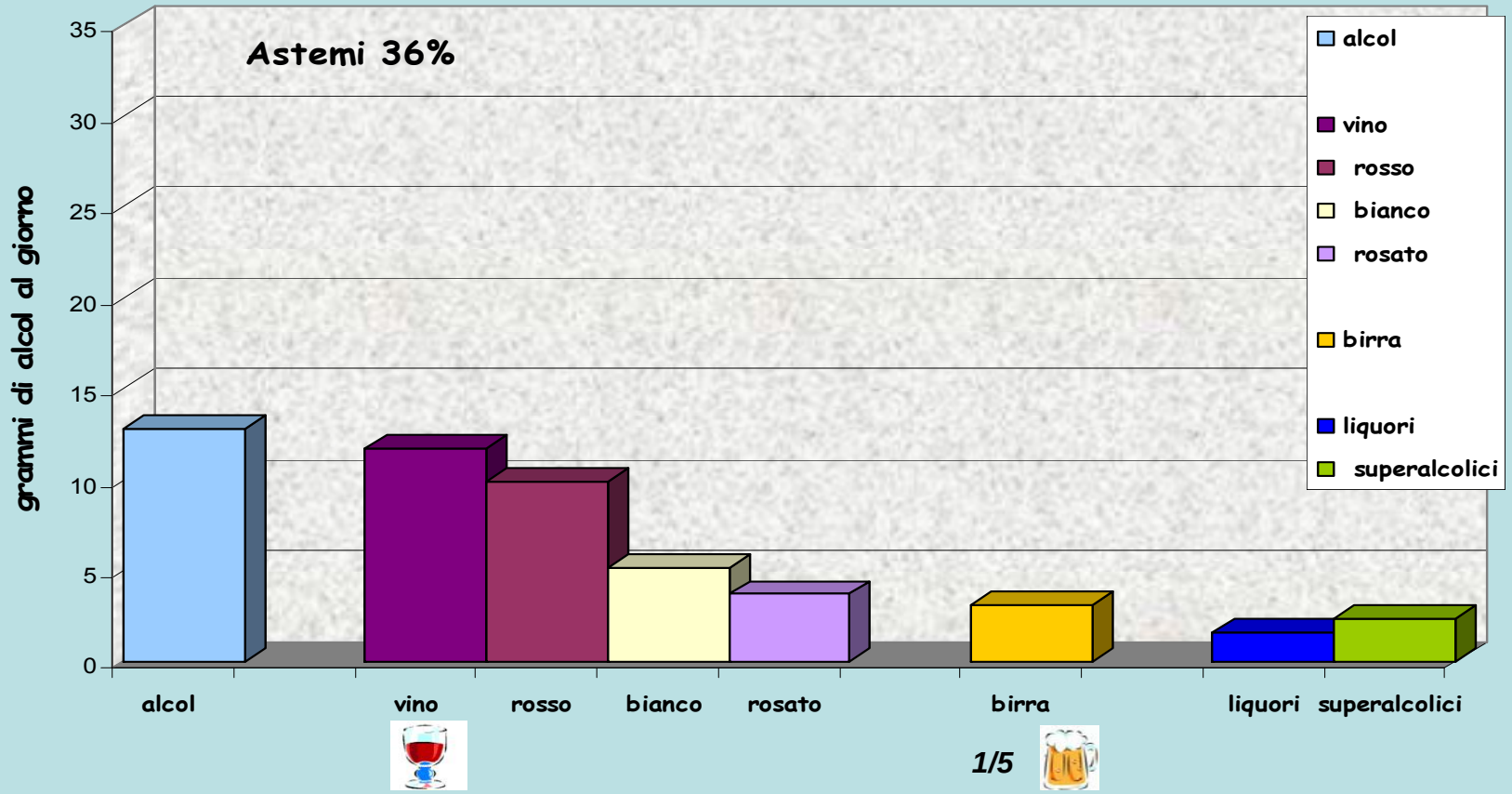
2.7 anni

rispetto a chi non consuma cibi ricchi di antiossidanti

Come bevono i Moli-sani (uomini)

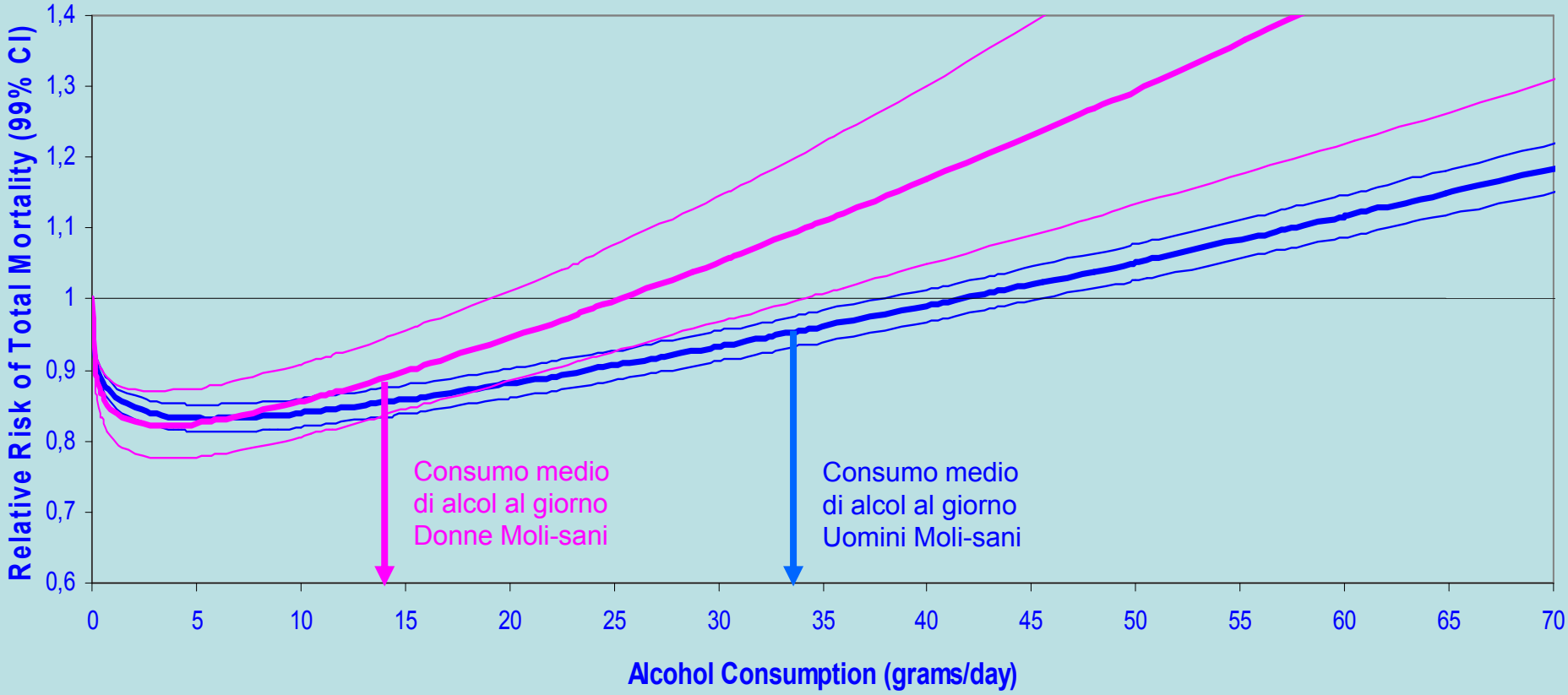


Come bevono i Moli-sani (donne)



MORTALITA' TOTALE E CONSUMO DI ALCOL: META-ANALISI DI 34 STUDI PROSPETTICI E PIU' DI UN MILIONE DI INDIVIDUI

(*Di Castelnuovo et al, Arch. Int. Med, 2006*)



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QUARTERLY FOCUS ISSUE: PREVENTION/OUTCOMES

Alcohol Consumption and Mortality in Patients With Cardiovascular Disease

A Meta-Analysis

Simona Costanzo, ScD, Augusto Di Castelnuovo, ScD, Maria Benedetta Donati, MD, PhD, Licia Iacoviello, MD, PhD, Giovanni de Gaetano, MD, PhD

Campobasso, Italy

Objectives The purpose of this study was to quantify the relation between alcohol consumption and cardiovascular and total mortality in patients with a history of cardiovascular events.

Background Regular, moderate alcohol consumption by healthy people is associated with lower cardiovascular and all-cause mortality. No extensive meta-analysis is presently available on the possible association of alcohol consumption with secondary events in patients with cardiovascular disease.

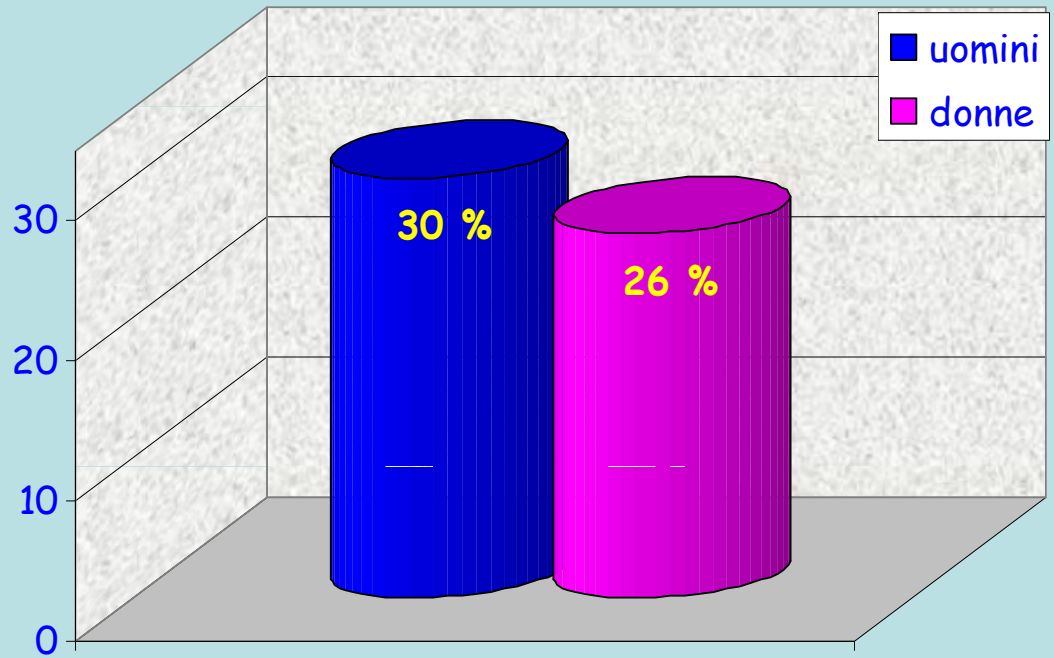
Methods Articles were retrieved through October 2009 by search in PubMed and EMBASE. Fifty-four publications were identified, but only 8 were selected for our analyses, including 16,351 patients with a history of cardiovascular disease. Secondary events were cardiovascular or all-cause mortality. All selected studies were prospective. Data were pooled with a weighted, least-squares regression analysis of second-order fractional polynomial models.

Results The meta-analysis on cardiovascular mortality showed a J-shaped pooled curve with a significant maximal protection (average 22%) by alcohol at approximately 26 g/day. In the meta-analysis on mortality for any cause, J-shaped pooled curves were observed in the overall analysis (average maximal protection of 18% in the range of 5 to 10 g/day) and in all subgroups according to either the type of patients or the characteristics of the studies.

Conclusions In patients with cardiovascular disease, light to moderate alcohol consumption (5 to 25 g/day) was significantly associated with a lower incidence of cardiovascular and all-cause mortality. (J Am Coll Cardiol 2010;55: 1339–47) © 2010 by the American College of Cardiology Foundation

Chi sono i Moli-sani

Sindrome metabolica

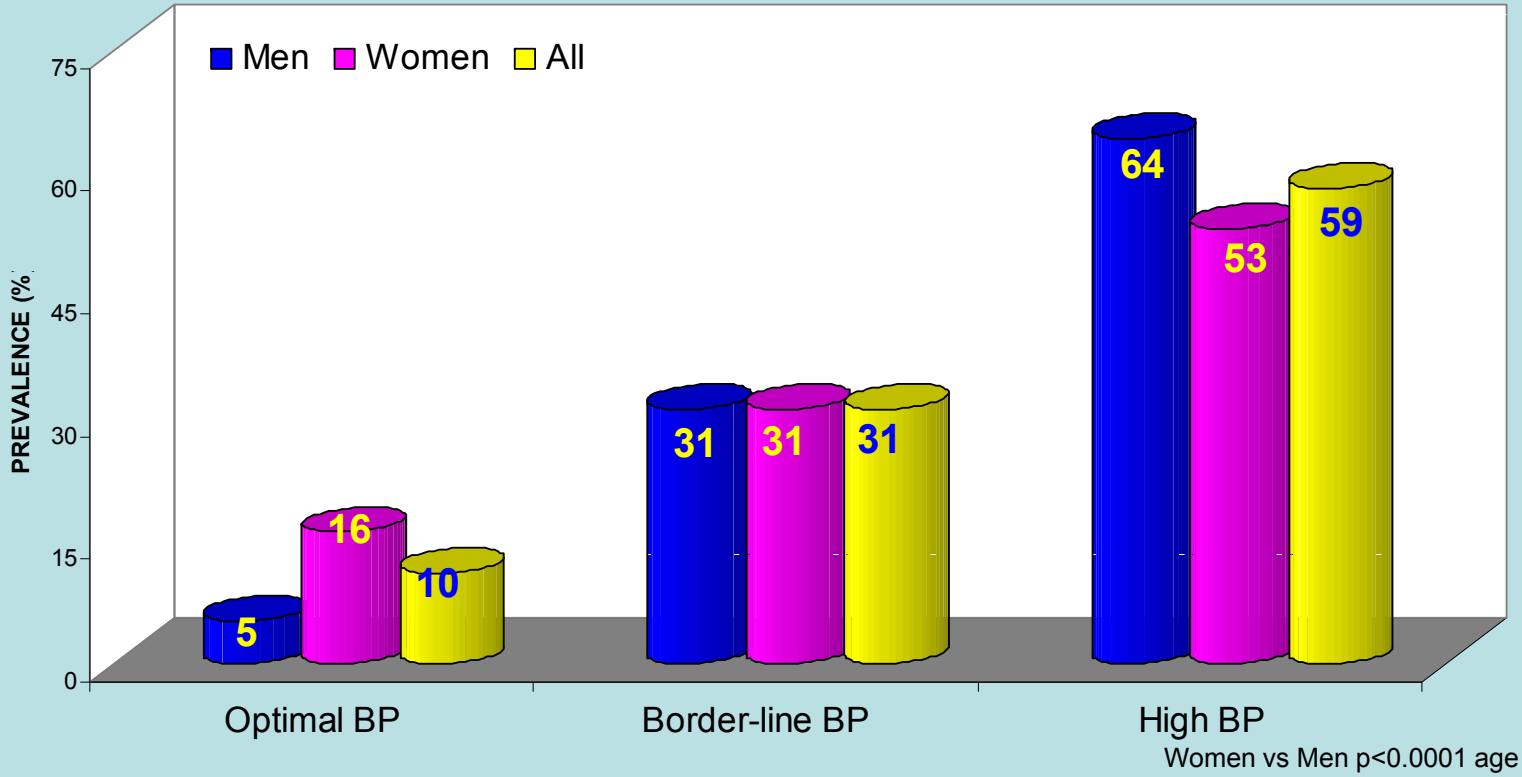


P<0.02 age adjusted

Almeno tre di:

Circonferenza vita	≥102 cm uomini ≥88 cm donne
Trigliceridi	≥150 mg/dl o trattamento farmacologico
HDL-Colesterolo	<40 mg/dl uomini <50 mg/dl donne
Pressione Arteriosa	SBP ≥130 mmHg o DBP ≥85 mmHg o trattamento farmacologico
Glicemia a digiuno	≥100 mg/dl o trattamento farmacologico

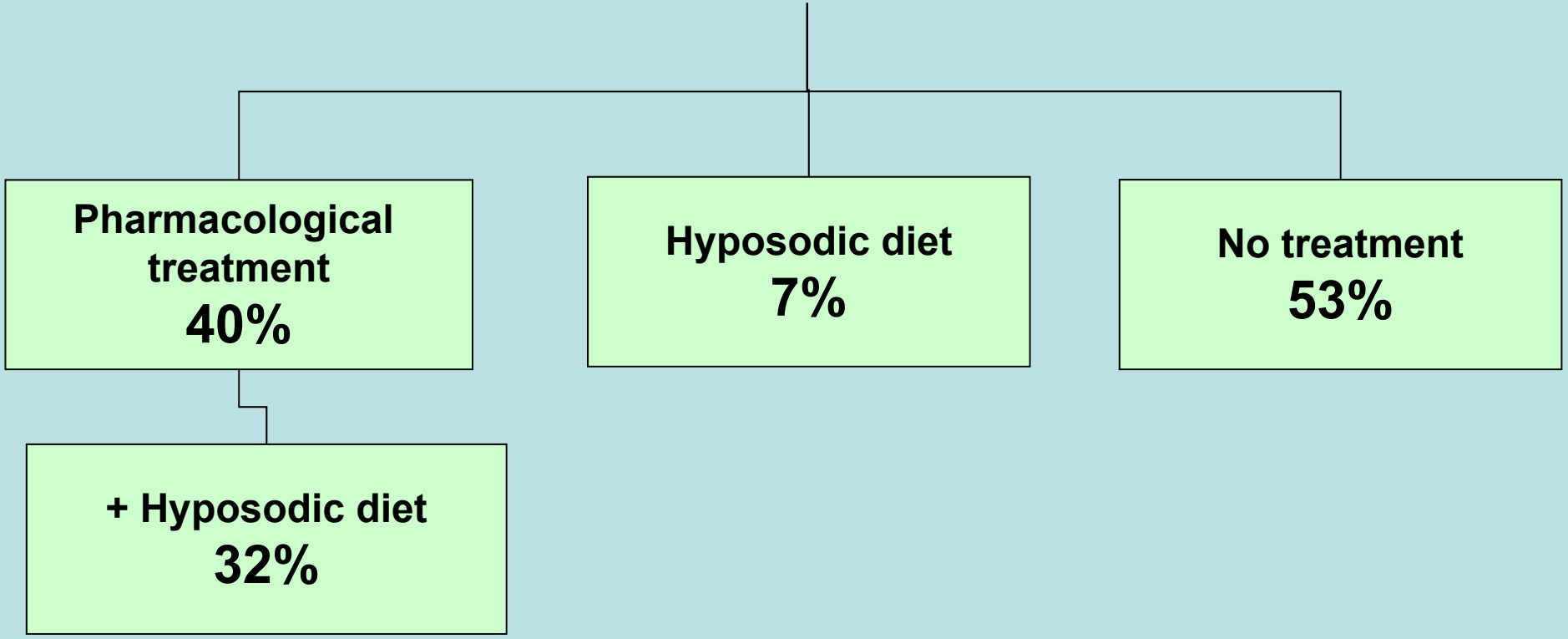
Prevalence of high blood pressure in the Moli-sani population



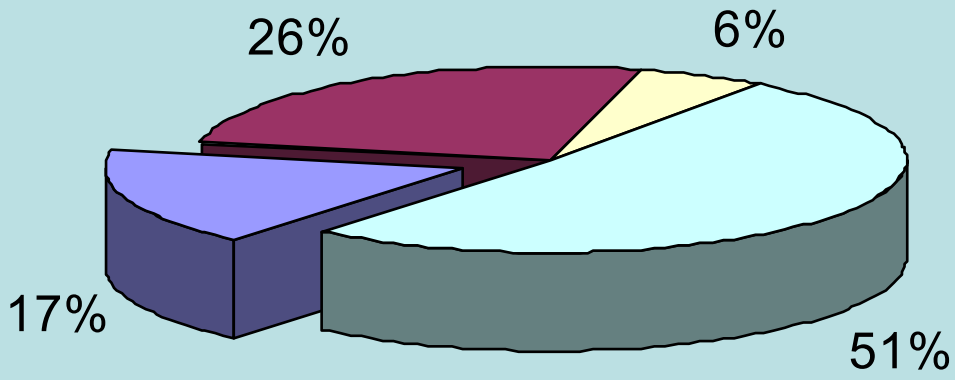
Women vs Men p<0.0001 age adjusted

Optimal BP:	SBP < 120 mmHg	&	DBP < 80 mmHg
Border-line BP:	SBP 120-139 mmHg	or	DBP 80-89 mmHg
High BP (Hypertension):	SBP ≥140 mmHg	or	DBP ≥ 90 mmHg
	or Treatment with Antihypertensive Medication		

Subjects with high blood pressure (SBP ≥140 mmHg and/or DBP ≥90 mmHg) or on treatment with antihypertensive medication



Anti-hypertensive Therapy Control



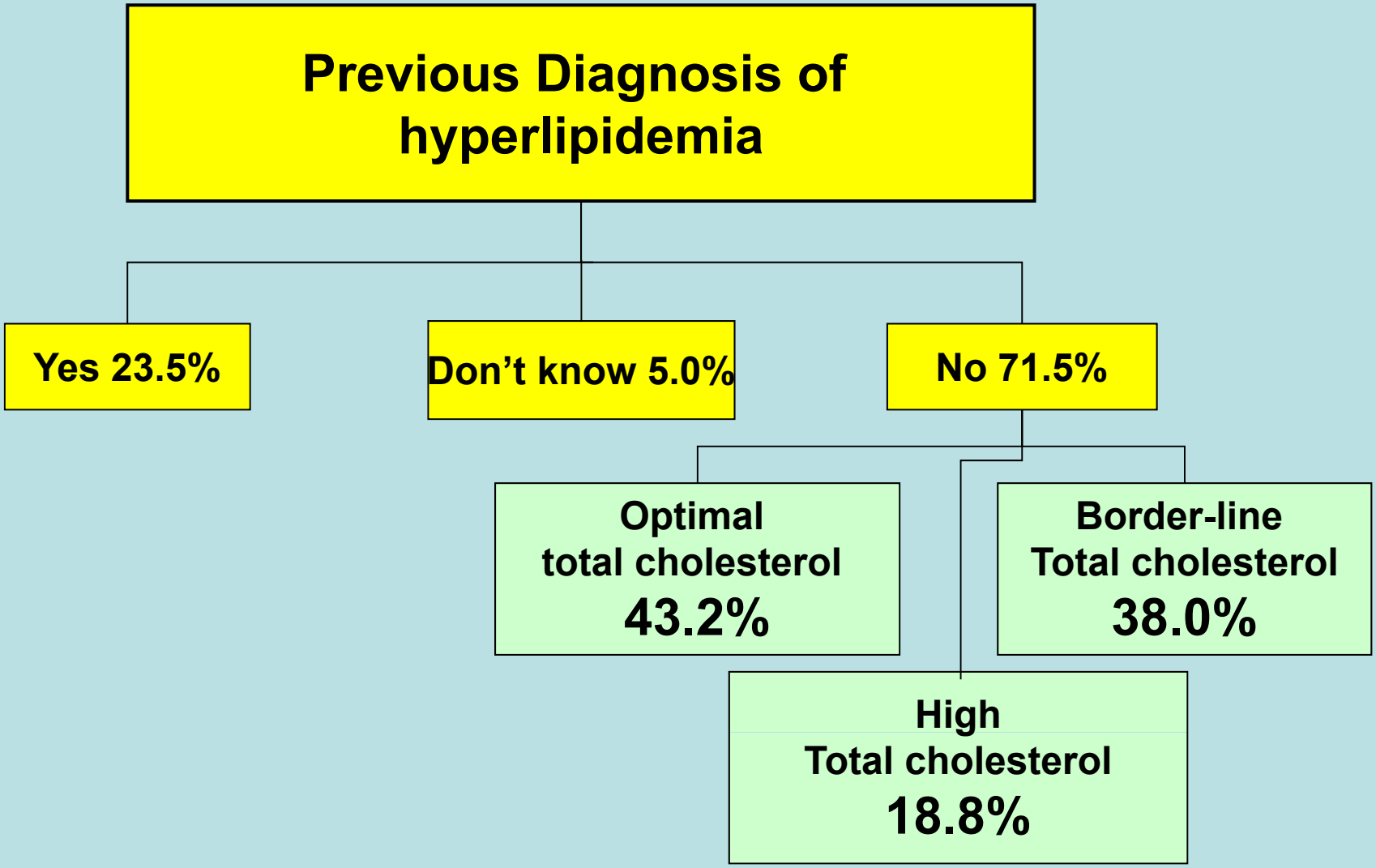
Lipid level distribution in the Moli-sani population

Total cholesterol > 200 mg/dL
61.2%

HDL < 40 mg/dL
8.4 %

LDL > 130 mg/dL
47.0%

Hyperlipidemia distribution in the Moli-sani population





Research Laboratories, Catholic University, Campobasso, Italy

Moli-sani Project Committees

Chairperson : Licia Iacoviello

Steering Committee:

Maria Benedetta Donati and Giovanni de Gaetano (Chairmen), Maria Pia Ruffilli, Simona Giampaoli (Istituto Superiore di Sanità, Rome, Italy)

Ethics and data monitoring Committee:

Jos Vermylen (University of Leuven, Belgium), Chairman, Ignacio De Paula Carrasco, Giovanni Sbaffi.

Event adjudicating Committee: Deodato Assanelli (Università di Brescia, Brescia,), Francesco Alessandrini (UCSC, Campobasso), Vincenzo Centritto (Campobasso), Dante Staniscia (Termoli), Paola Muti (Istituto Nazionale Tumori Regina Elena IRCCS, Rome), Holger Shunemann (Istituto Nazionale Tumori Regina Elena IRCCS, Rome,), Sergio Storti (UCSC, Campobasso), Pasquale Spagnuolo (Termoli)

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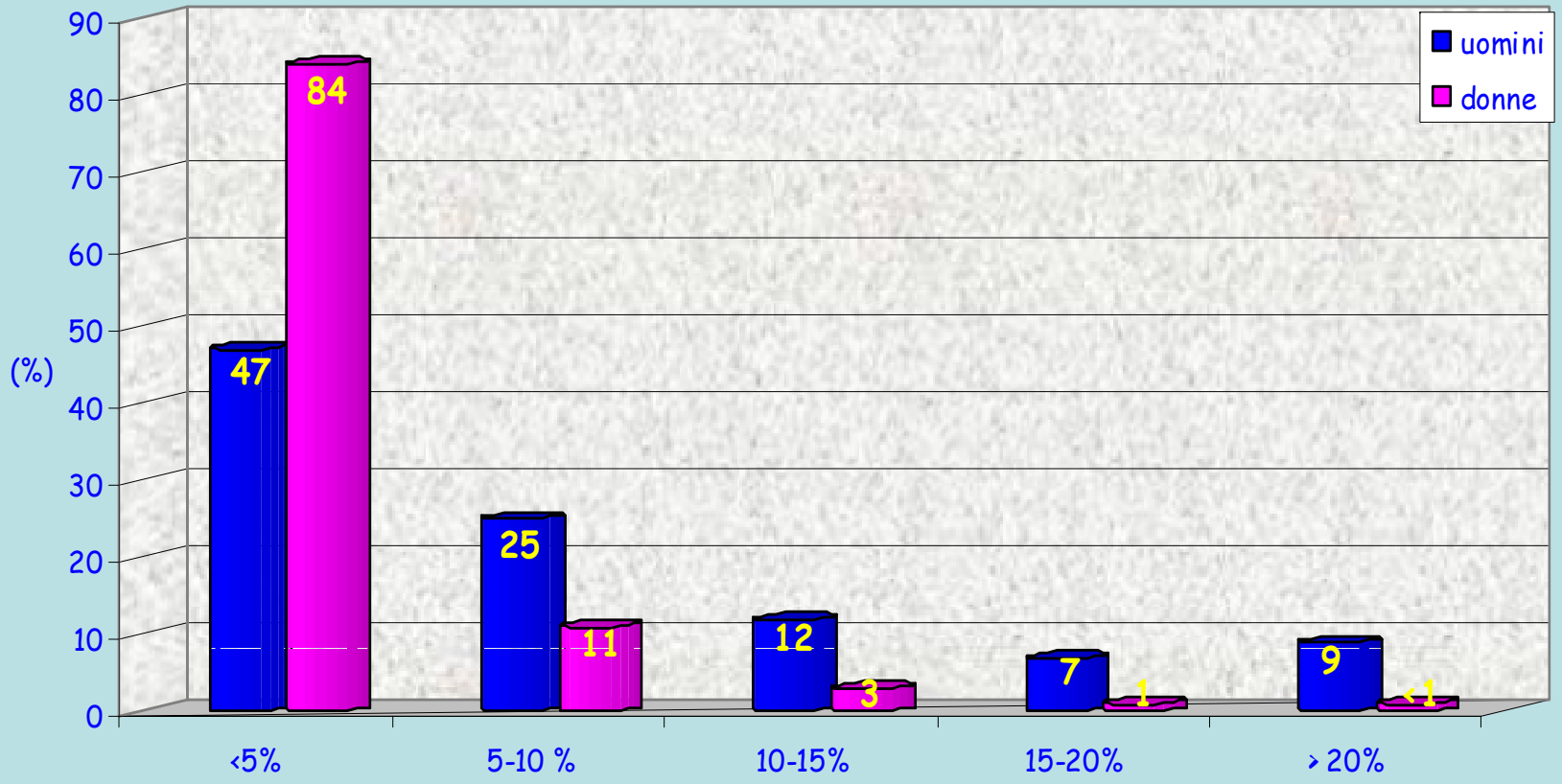
Chi sono i Moli-sani

Rischio Cardiovascolare





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Dark chocolates good for heart

24 Sep 2008, 1209 hrs IST,ANI

U.S.News & WORLD REPORT
usnews.com

Monday, September 29, 2008

Chocolate Helps Heart Stay Healthy

Some 6.7 grams of dark chocolate daily could fend off heart disease

Posted September 23, 2008

6,5 gramos es la cantidad ideal

Media barrita de chocolate por semana mantiene a raya el riesgo de ataque al corazón



UN PROGETTO DI RICERCA A SERVIZIO DEL TERRITORIO

La contro-emigrazione (o il ritorno) dei cervelli molisani

più di 40 giovani laureati del Molise hanno avuto la possibilità di sviluppare nella loro regione le loro competenze professionali