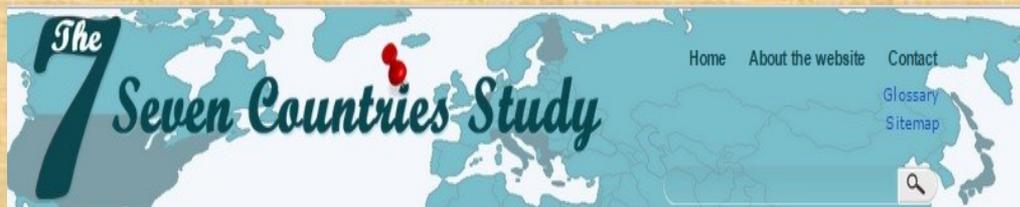




UNIVERSITA' degli STUDI di ROMA  
**TOR VERGATA**  
FACOLTA' DI MEDICINA E CHIRURGIA

*Prof. Antonino De Lorenzo*



*Dieta Mediterranea  
Disegni di legge n°313 e n°926*

*Audizione commissione agricoltura e  
produzione agroalimentare Senato della  
Repubblica*

*Roma - 10 Febbraio 2016*

# Seven Countries Study History



**1952 – Confronto vigili del fuoco di Napoli con i colleghi del Minnesota**

*Differenza nella dieta nel contenuto di grassi circa il 20% dell'energia totale*

**1954 – Riunione di esperti internazionale a Napoli**

**1957-1959 – Studio Pilota a Nicotera**

*Studio Pilota: Applicazione iniziale, su piccola scala, di un protocollo di studio, al fine di verificare se il progetto è adeguato, stabilirne la fattibilità o ricavare informazioni che permettano di determinare la grandezza del campione dello studio definitivo.*

**1960 – Estensione dello studio a 16 coorti**



# Italy



Italy played a central role not only in the SCS but also in the pilot studies leading up to it. In 1957, a preliminary field survey was carried out in Nicotera, a small village in Calabria in the south of Italy. Two rural cohorts and a railroad cohort with different diets were enrolled in the Study. Italian colleagues later joined the FINE study and

the HALE project.



European Journal of Clinical Nutrition (1999) 53, 854-860  
© 1999 Stockton Press. All rights reserved 0954-3007/99 \$13.00  
<http://www.stockton-press.co.uk/ejcn>

## Dietary studies on two rural Italian population groups of the Seven Countries Study. 3. Trend of food and nutrient intake from 1960 to 1991

A Alberti-Fidanza<sup>1\*</sup>, F Fidanza<sup>1</sup>, MP Chiuchiu<sup>1</sup>, G Verducci<sup>1</sup> and D Fruttini<sup>1</sup>

<sup>1</sup>Nutrition Section, Department of Internal Medicine and Endocrinological and Metabolic Sciences, University of Perugia, Italy

### Discussion

As we have shown previously each Mediterranean country has its own Reference Mediterranean Diet (Alberti-Fidanza, 1990; Fidanza, 1991b). For Italy we have suggested as the Reference Mediterranean Diet that of the subjects from Nicotera, in 1960, a rather poor rural area in the south, perched on a spur overlooking the Tyrrhenian Sea about 60km north of Reggio Calabria near the toe of Italy. The main farm products, obtained after heavy manual work, were olives, grapes, figs, oranges, tomatoes, pulses, wheat and for local use a little meat and poultry. In the hamlet of Nicotera Marina a few families were engaged in fishing. At that time Nicotera was one of the rural Italian areas of the Seven Countries Study, but because of shortage of money and similarity with the two rural areas of Greece, the longitudinal study was not carried out.



# HEART ATTACK PREVENTION

A History of Cardiovascular Disease Epidemiology



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# ITALY AND CRETE PILOT SURVEY 1957

Seven Countries Study systems and staff were pilot tested in two field sites in Fall, 1957: Nicotera, Italy and a village on Crete, and were followed by a TV film crew.

## Video

Italy and Crete Pilot Survey 1957

0:14

0:18 / 12:14

YouTube

# Correlazioni esistenti fra i valori medi di colesterolemia e il consumo di grassi saturi e l'incidenza o la mortalità per cardiopatia ischemica nel seven countries study



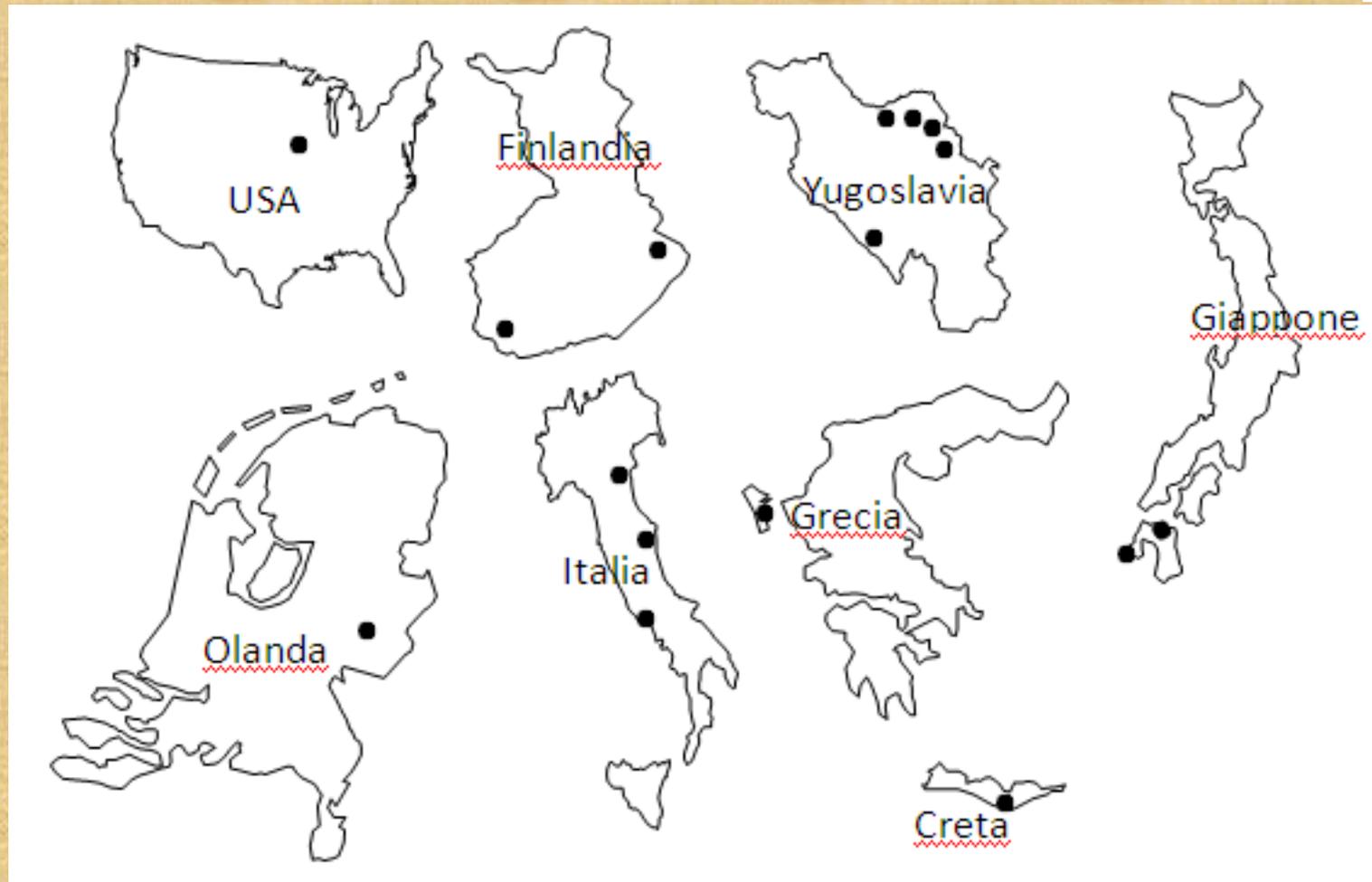
Relazioni	N. Coorti	Coeff. correlazione lineare
Consumo medio di grassi saturi vs Valore medio di colesterolemia	16	0,89
Valore medio di colesterolemia vs Incidenza di eventi coronarici in 5 anni	13	0,76
Valore medio di colesterolemia vs Mortalità per cardiopatia ischemica in 10 anni	16	0,80
Valore medio di colesterolemia vs Mortalità per cardiopatia ischemica in 15 anni	15	0,87

Il Seven Countries Study of Cardiovascular Diseases è uno studio epidemiologico longitudinale iniziato nel 1958 ed ancora in corso. Promosso da Ancel Keys con la collaborazione di ricercatori di vari paesi, ha avuto lo scopo di rispondere a 3 quesiti:

- Se tra popolazioni diverse e contrastanti per varie caratteristiche e per la dieta, esistessero reali differenze di incidenza, prevalenza e mortalità per cardiopatia coronarica ed altre malattie cardiovascolari;
- Se, ammesso che tali differenze fossero vere, le caratteristiche generali delle popolazioni e la loro dieta fossero in grado di spiegare le differenze di incidenza, prevalenza e mortalità per cardiopatia coronarica e altre malattie cardiovascolari;
- Se alcune caratteristiche individuali misurate all'inizio dello studio fossero in grado di predire la comparsa di eventi coronarici e cardiovascolari successivi all'interno di singole popolazioni

# The Cohorts of the seven countries study

## le 16 coorti del Seven Countries Study



Lo studio è stato condotto su 16 coorti di popolazioni in sette Paesi: 1 negli Stati Uniti, 2 in Finlandia, 1 in Olanda, 3 in Italia, 5 nell'ex-Yugoslavia, 2 in Grecia e 2 in Giappone.

# Dietary Characteristics of USA, Greece, Japan and Nicotera (1960)



	USA	GREECE	JAPAN	NICOTERA
Fats - oils (% energy)	39	37	11	30
Saturated fat (% energy)	18	8	3	7
Fruits & Vegetables (g/day)	404	654	232	301
Legumes (g/day)	1	30	91	43
Bread - Cereals (g/day)	123	453	481	401
Meat (g/day)	273	35	8	37
Fish (g/day)	3	39	150	32



# Seven Countries Study - Revisione

FLAMINIO FIDANZA      ANTONINO DE LORENZO  
EMIDIO DOMINO

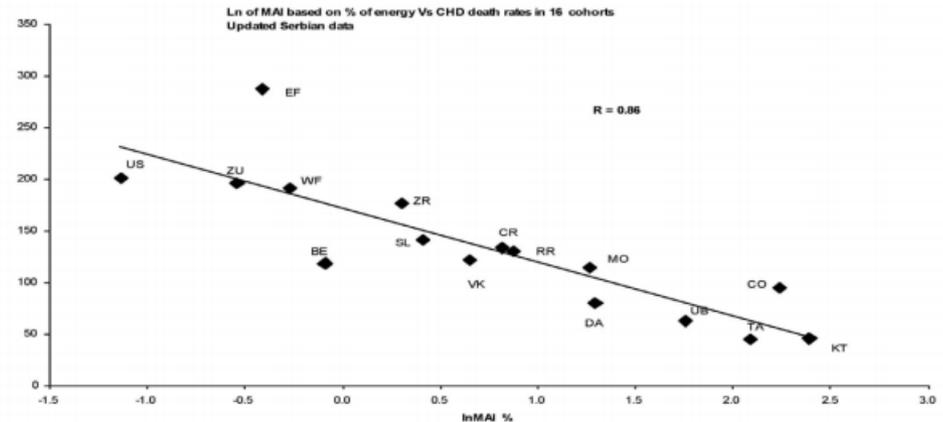
Cinquantenario del rilevamento dei consumi alimentari  
condotto a Nicotera nel 1960  
SEVEN COUNTRIES STUDY

AndreaLivi Editore

	EUROPA MEDITERRANEA	EUROPA NON MEDITERRANEA
15° ANNO (1973-76)		
Uomini a rischio	3506	2701
Tutte le cause	1612	2078
CHD	284	655
25° ANNO (1983-86)		
Uomini a rischio	3598	2884
Tutte le cause	4299	5550
CHD	978	1947

**Tassi Di Mortalità Per 10000 Individui Standardizzati Per L'età Al Quindicesimo E Venticinquesimo Anno Di Riesame Per Tutte Le Cause E Per Cardiopatia Coronarica (Chd)**

**FIG. 1 - CORRELAZIONE DEL LOGARITMO NATURALE DEL MAI DELLE DIETE DELLE 16 COORTI DEL SEVEN COUNTRIES STUDY (ln MAI dopo esclusione della birra e dei superalcolici) CON IL TASSO DI MORTALITÀ PER CARDIOPATIA CRONARICA AL 25° ANNO DI RIESAME**



*I simboli sono: US-ferrovieri USA; EF-Finlandia orientale; WF-Finlandia occidentale; ZU-Zutphen, Olanda; CR-Crevalcore, Italia; MO-Montegiorgio, Italia; RR-ferrovieri di Roma, Italia; D-Dalmazia, Croazia-ex Jugoslavia; SL-Slavonia, Croazia, ex Jugoslavia; VK-Velika Krsna, Serbia, ex Jugoslavia; ZR-Zrenjanin, Serbia, ex Jugoslavia; BE-Belgrado, Serbia, ex Jugoslavia; KT-Creta, Grecia; CO-Corfù, Grecia; TA-Tanushimaru, Giappone; UB-Ushibuka, Giappone.*

# Indice di Adeguatezza Mediterraneo (IAM)



$$\text{IAM} = \frac{\% \text{ energia da CARBOIDRATI + PROTETTIVI}}{\% \text{ energia da DERIVATI ANIMALI + DOLCI}}$$

**Carboidrati:** *pane, cereali, legumi, patate*

**Protettivi:** *vegetali, frutta, pesce, vino rosso, olio d'oliva*

**(Gruppi di alimenti appartenenti alla dieta mediterranea)**

**Derivati animali:** *latte, formaggio, carne, uova, grassi animali e margarina*

**Dolci:** *bevande dolci, biscotti/torte, zucchero*

**(Gruppi di alimenti non appartenenti alla dieta mediterranea)**



## Mediterranean Adequacy Index of Italian diets

Adalberto Alberti-Fidanza\* and Flaminio Fidanza

Nutrition Section, Department of Internal Medicine, University of Perugia, Via S. Vetturino 4/B, I-06126 Italy

MAI USA	MAI CREVALCORE	MAI MONTEGIORGIO	MAI POLLICA	MAI NICOTERA
0,8-0,9	2,4	5,6	5,6-6,3	7,2-10

## The Mediterranean Adequacy Index: Further confirming results of validity

Nutrition, Metabolism & Cardiovascular Diseases (2009) 19, 61e66

Adalberto Alberti <sup>a,\*</sup>, Daniela Fruttini <sup>b</sup>, Flaminio Fidanza <sup>a</sup>

# Simopoulos AP (ed): Nutrition and Fitness: Mental Health, Aging, and the Implementation of a Healthy Diet and Physical Activity Lifestyle.

*World Rev Nutr Diet. Basel, Karger, 2005, vol 95, pp 115-121*



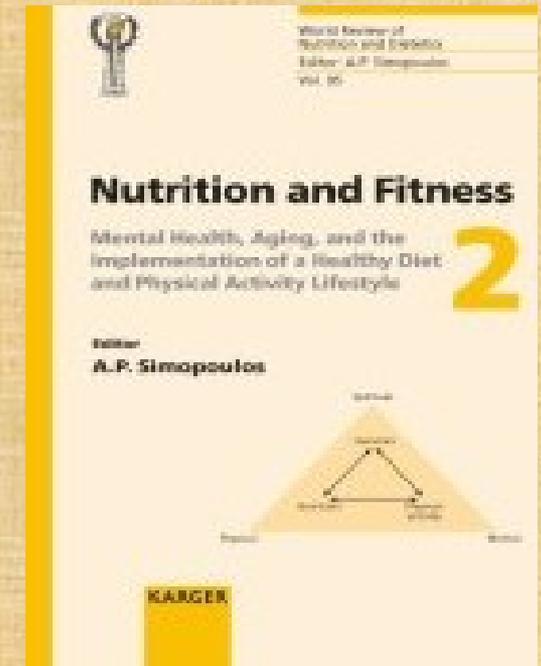
## The Nicotera Diet: The Reference Italian Mediterranean Diet

Flaminio Fidanza<sup>a</sup>, Adalberto Alberti<sup>a</sup>, Daniela Fruttini<sup>b</sup>

<sup>a</sup>Human Nutrition Unit, University of Rome-Tor Vergata, Rome, and WBC Section, CNR Research Center, Rome-Tor Vergata and <sup>b</sup>Department of Statistical Sciences, University of Perugia, Perugia, Italy

Nicotera, a small town in the Calabria Region in Southern Italy, was the third Italian rural area of the Seven Countries Study (SCS) examined in the fall of 1957 as a pilot study. Because both due to shortage of funds and similarity with the two rural areas of Greece, this study was not followed longitudinally.

Nicotera, selected for the quite high olive oil and legumes consumption, is perched on a spot of the Poro Mountain overlooking the Tyrrhenian Sea about 60 km north of Reggio Calabria near the toe of Italy. The main farm products were olives, grapes, figs, oranges, tomatoes, pulses, wheat, bergamot for the perfume trade, and for local use, a little meat and poultry. In the hamlet of Nicotera Marina few families were engaged in fishing. There was no manufacturing industry. The population was relatively poor in comparison to the two rural areas of Italy in the SCS, but there was a migration of persons under the age of 40. Besides the main center of Nicotera and the hamlet of Nicotera Marina there were three more detached hamlets: Comerconi, Badia, and Preitoni. The total population of the entire survey area was 9,043 inhabitants at the time of the survey. About 80% of the people lived in the centers and went out daily to work in their small fields often as far as several kilometers away. Both men and women were engaged in moderate physical activity and only men in some cases in rather heavy physical work. Because of its geography (altitude 0–641 m) and road conditions, transportation was mainly by mule. The prevalence of myocardial infarction in men aged 45–64 years was very low (4 cases out of 598 examined in 1957), and hypertension, overweight and obesity were uncommon. Similar findings were observed in the cohort of men from Corfu (Greece) examined in 1960.





Review

## Mediterranean Diet and Cardiovascular Disease: A Critical Evaluation of *A Priori* Dietary Indexes

Annunziata D'Alessandro <sup>1,\*</sup> and Giovanni De Pergola <sup>2</sup>

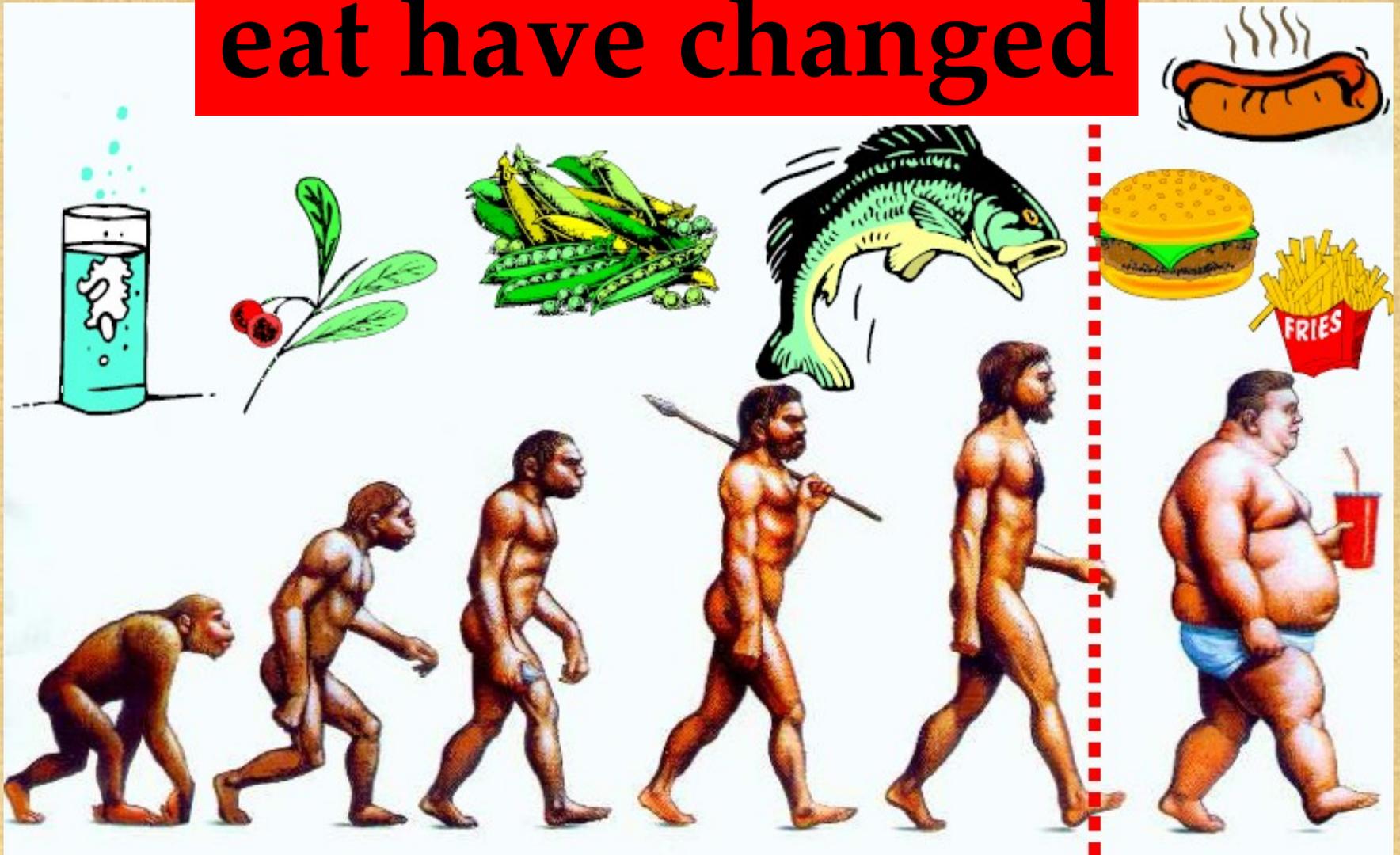
The MAI, computed in random samples of men surveyed for their eating habits and belonging to 16 cohorts of the *Seven Countries Study*, was inversely associated with the 25-year death rates from CHD ( $r = -0.72$ ;  $p = 0.001$ ) [32]. The HR for 1 unit of natural log of MAI (approximately corresponding to 2.7 units of MAI) was associated with a CHD mortality decrease of 26% (multivariate adjusted RR: 0.74; 95% CI: 0.55, 0.99) in 20 years of follow-ups and of 21% (multivariate adjusted RR: 0.79; 95% CI: 0.64, 0.97) in 40 years of follow-ups in two Italian rural cohorts of the *Seven Countries Study*, Crevalcore and Montegiorgio. The statistical analysis was multivariate adjusted for the covariates [33].

L'aumento di 2.7 unità dell'indice MAI è associato ad una diminuzione di mortalità per patologie cardiovascolari del:

**26% in 20 anni e del 21 % in 40 anni**



# The Things we eat have changed



# L'evoluzione della specie



## AUSTRALOPITECHI

capacità cranica piccola (400 – 550 cm<sup>3</sup>)

## Homo habilis

la capacità cranica aumenta sensibilmente (600-800cm<sup>3</sup>)

## Homo erectus

capacità cranica aumentata (900cm<sup>3</sup>) con sviluppo nel cervello dell'area che presiede al linguaggio

## Da Homo erectus a homo sapiens

capacità cranica superiore a 1100m<sup>3</sup>

L'evoluzione di questi Homo sapiens arcaici portò in Europa all'uomo di Neandertal, in Africa all'Homo sapiens.



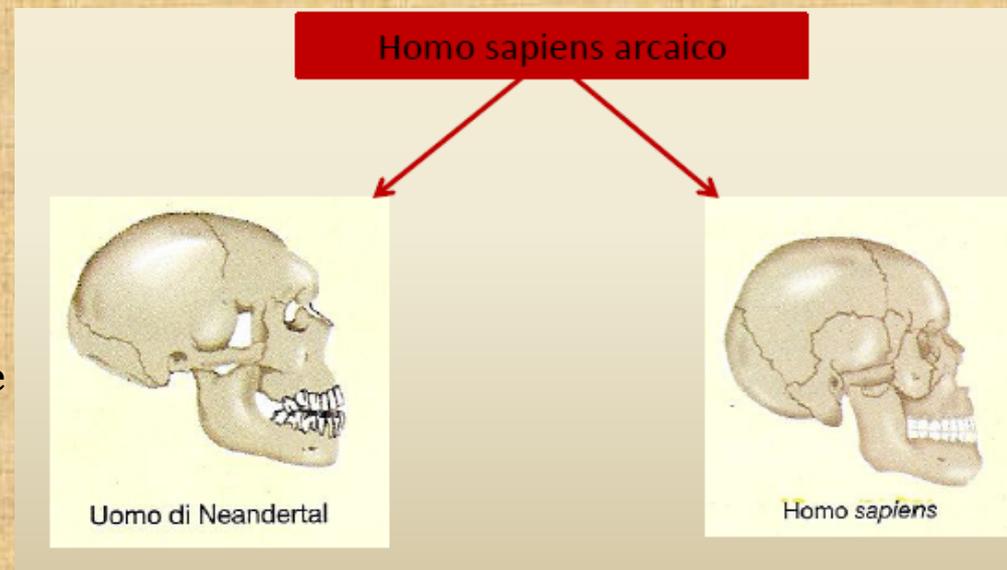
# L'evoluzione della specie



**Diminuisce il volume del nostro cervello: stiamo diventando ipoevoluti?**

**I recenti studi dimostrano una chiara tendenza nella specie umana alla riduzione della massa cerebrale**

**La diminuzione del volume rappresenta un progresso evolutivo nel quale il nostro cervello si trasforma assumendo una sembianza più snella e più efficiente. La dimensione media cerebrale degli esseri umani moderni, ossia dell'Homo Sapiens, è diminuita circa del 10 per cento nel tempo, passando da 1.500 a 1.359 centimetri cubici.**





# Article

## Mediterranean diet and brain structure in a multiethnic elderly cohort

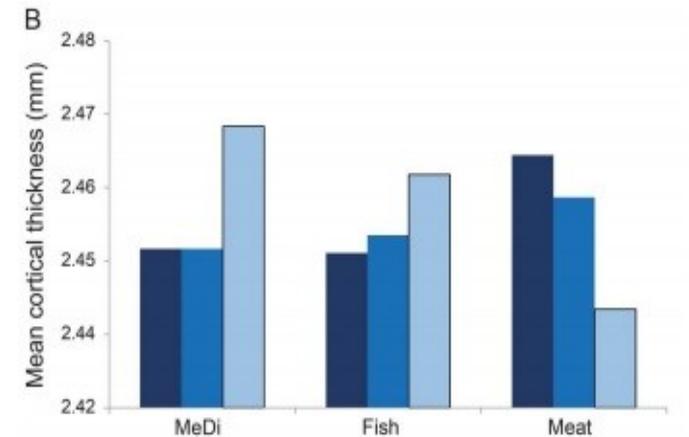
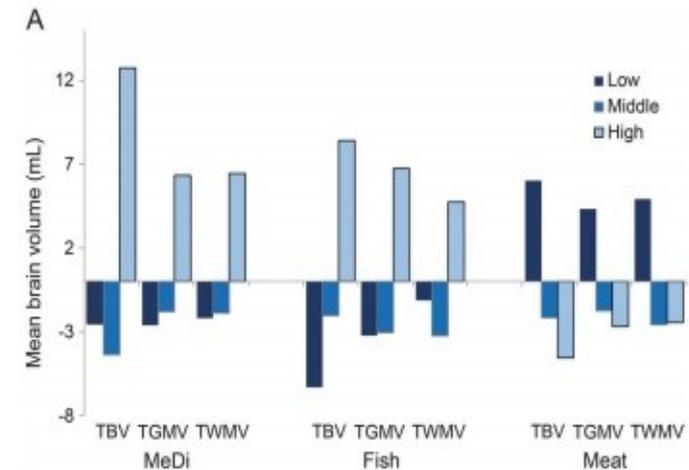
Yian Gu, PhD, Adam M. Brickman, PhD, Yaakov Stern, PhD, Christian G. Habeck, PhD, Qolamreza R. Razlighi, PhD, José A. Luchsinger, PhD, Jennifer J. Manly, PhD, Nicole Schupf, PhD, Richard Mayeux, MD and Nikolaos Scarmeas, MD

**Table 2** Cross-sectional association between Mediterranean diet and global brain measures

	TBV, mL		TGMV, mL		TWMV, mL		mCT, mm	
	B	p	B	p	B	p	B	p
<b>Model 1: Unadjusted</b>								
MeDi, per unit	4.13 <sup>a</sup>	0.01 <sup>a</sup>	2.47 <sup>a</sup>	0.007 <sup>a</sup>	1.93	0.09	0.003	0.35
MeDi, high vs low	16.95 <sup>a</sup>	0.003 <sup>a</sup>	7.97 <sup>a</sup>	0.01 <sup>a</sup>	8.76 <sup>a</sup>	0.03 <sup>a</sup>	0.01	0.53
<b>Model 2: Adjusted for age only</b>								
MeDi, per unit	3.37 <sup>a</sup>	0.01 <sup>a</sup>	1.79 <sup>a</sup>	0.02 <sup>a</sup>	1.77 <sup>a</sup>	0.05 <sup>a</sup>	0.002	0.44
MeDi, high vs low	14.43 <sup>a</sup>	0.002 <sup>a</sup>	6.48 <sup>a</sup>	0.01 <sup>a</sup>	7.9 <sup>a</sup>	0.01 <sup>a</sup>	0.007	0.44
<b>Model 3: Adjusted for age, sex, education, ethnicity, BMI, diabetes, and mean cognition</b>								
MeDi, per unit	3.07 <sup>a</sup>	0.03 <sup>a</sup>	1.31	0.08	1.55	0.10	0.001	0.63
MeDi, high vs low	13.11 <sup>a</sup>	0.007 <sup>a</sup>	5.00 <sup>a</sup>	0.05 <sup>a</sup>	6.41 <sup>a</sup>	0.05 <sup>a</sup>	0.004	0.66
<b>Model 3: Excluding MCI participants,<sup>b</sup> adjusted for age, sex, education, ethnicity, BMI, diabetes, and mean cognition</b>								
MeDi, per unit	4.02 <sup>a</sup>	0.01 <sup>a</sup>	2.32 <sup>a</sup>	0.006 <sup>a</sup>	1.85	0.08	0.002	0.46
MeDi, high vs low	14.87 <sup>a</sup>	0.007 <sup>a</sup>	6.79 <sup>a</sup>	0.02 <sup>a</sup>	6.87	0.07	0.005	0.63

Abbreviations: BMI = body mass index; MCI = mild cognitive impairment; mCT = mean cortical thickness; MeDi = Mediterranean diet; TBV = total brain volume; TGMV = total gray matter volume; TWMV = total white matter volume.  
<sup>a</sup> Significant ( $p < 0.05$ ).  
<sup>b</sup> Excluding 159 MCI participants, 23 participants whose cognitive data were insufficient for MCI diagnosis, and 24 participants missing 1 or 2 covariates. Model based on 468 remaining participants.

**Figure** Association of Mediterranean diet, fish, and meat with brain volume and cortical thickness



↑ Fish ↓ Meat ↑ Higher Mediterranean Diet Adherence Score  
 ↑ 13.11 mm Higher Total Brain Volume

The magnitude of the effect of consuming at **least 5 recommended MeDi food** components on TBV is comparable to that of **5 years of increasing age**

# Fish consumption and school grades in Swedish adolescents: a study of the large general population

J-L Kim (jeong-lim.kim@amm.gu.se)<sup>1</sup>, A Winkvist<sup>2</sup>, M Al Åberg<sup>3</sup>, N Åberg<sup>4</sup>, R Sundberg<sup>5</sup>, K Torén<sup>1</sup>, J Brisman<sup>1</sup>

2008

Parameter		Combined intelligence score Estimate (95% CI)	Verbal score Estimate (95% CI)	Visuospatial score Estimate (95% CI)
Fish consumption*	<u>&gt; once a week<sup>1</sup></u>	<b>0.58 (0.39 to 0.77)</b>	0.46 (0.29 to 0.64)	0.51 (0.32 to 0.69)
	Once a week <sup>1</sup>	0.36 (0.21 to 0.51)	0.20 (0.05 to 0.34)	0.33 (0.18 to 0.48)

Confronto tra i valori di intelligenza combinata, capacità verbale e visuospatiale all'età di 15 e 18 anni. I dati sono espressi in punti di differenza sulla scala Stanine (STANDARD NINE), un metodo di valutazione a 9 punti con media 5 e deviazione standard 2.

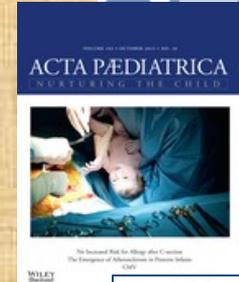
## Fish intake of Swedish male adolescents is a predictor of cognitive performance

Maria Al Åberg (mab@neuro.gu.se)<sup>1</sup>, Nils Åberg<sup>2</sup>, Jonas Brisman<sup>3</sup>, Rosita Sundberg<sup>4</sup>, Anna Winkvist<sup>5</sup>, Kjell Torén<sup>3</sup>

2009

	N (%)	Mean grade (SD) <sup>†</sup>	p-value*
Fish consumption			
Less than once a week	2283 (24.2)	196.6 (63.4)	<0.001
Once a week	5341 (56.5)	215.7 (57.5)	
<u>More than once a week</u>	1824 (19.3)	<b>225.5 (58.3)</b>	
Body mass index			
Normal	6580 (69.6)	216.2 (58.9)	<0.001
Overweight	550 (5.8)	198.7 (59.1)	
Obese	171 (1.8)	189.2 (61.9)	
Physical exercise during free time			
Never	593 (6.3)	180.6 (69.0)	<0.001
Occasionally (A few times/month)	1199 (12.8)	198.7 (66.1)	
Frequently (A few times/week)	7142 (76.0)	217.7 (56.9)	
Daily	462 (4.9)	218.5 (57.9)	

Il consumo di pesce, una volta a settimana, è stato registrato nel 56,5% degli adolescenti, mentre solo il 19,3% lo consuma più di una volta a settimana. Paragonando I voti dei soggetti che consumano regolarmente pesce rispetto a chi invece lo consuma meno di una volta a settimana la differenza è lampante: voti medi di 196 contro 225... ottenuti su un punteggio massimo di 330!



# Mediterranean Diet, Telomere Maintenance and Health Status among Elderly

April 2013 | Volume 8 | Issue 4 | e62781

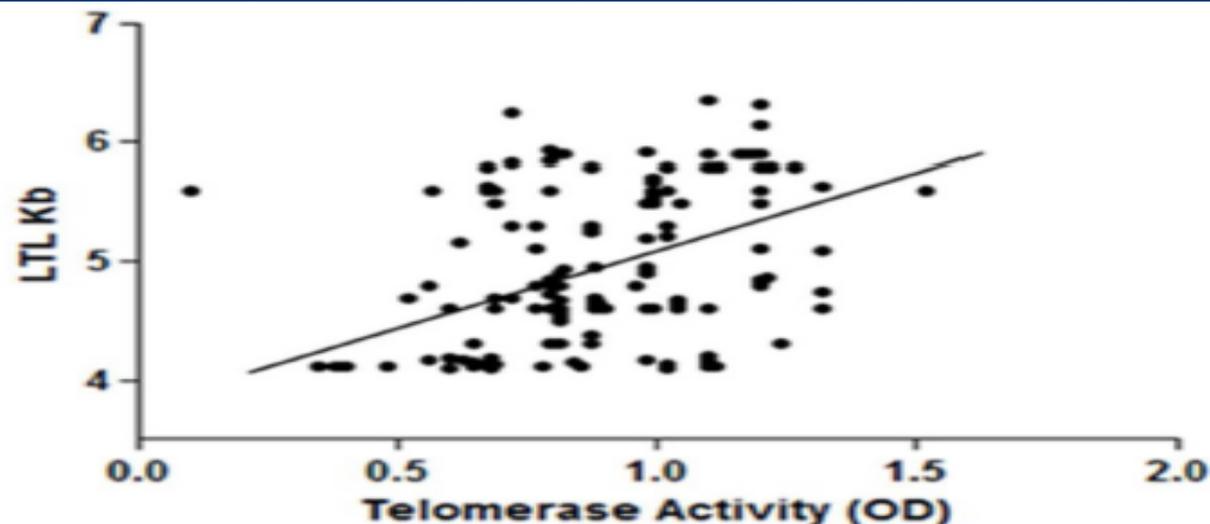
PLOS ONE



Virginia Boccardi, Antonietta Esposito, Maria Rosaria Rizzo, Raffaele Marfella, Michelangela Barbieri, Giuseppe Paolisso\*

## Abstract

Leukocyte telomere length (LTL) and rate of telomere shortening are known biomarkers of aging while, numerous studies showed that Mediterranean diet (MD) may boost longevity. We studied association between telomere length, telomerase activity and different adherence to MD and its effects on healthy status. The study was conducted in 217 elderly subjects stratified according Mediterranean diet score (MDS) in low adherence ( $MDS \leq 3$ ), medium adherence ( $MDS 4-5$ ) and high adherence ( $MDS \geq 6$ ) groups. LTL was measured by quantitative polymerase chain reaction and telomerase activity by a PCR-ELISA protocol. High adherence group showed longer LTL ( $p = 0.003$ ) and higher telomerase activity ( $p = 0.013$ ) compared to others. Linear regression analysis including age, gender, smoking habit and MDS showed that MDS was independently associated with LTL ( $p = 0.024$ ) and telomerase activity levels ( $p = 0.006$ ). Telomerase activity was independently associated with LTL ( $p = 0.007$ ) and negatively modulated by inflammation and oxidative stress. Indeed, telomerase levels were associated with healthy status independently of multiple covariates ( $p = 0.048$ ). These results support a novel role of MD in promoting health-span suggesting that telomere maintenance, rather than LTL variability is the major determinant of healthy status among elderly.



**Figure 1. Correlation between LTL and telomerase activity in all population study.** Partial correlations ( $r = 0.208$ ;  $p = 0.002$ ) between Leukocyte Telomere Length (LTL) and PBMC telomerase activity in all study population ( $n = 217$ ), adjusted by gender, age and smoking habit.

doi:10.1371/journal.pone.0062781.g001



# Microbiota e obesità “MicrObesity”



**Firmicutes**



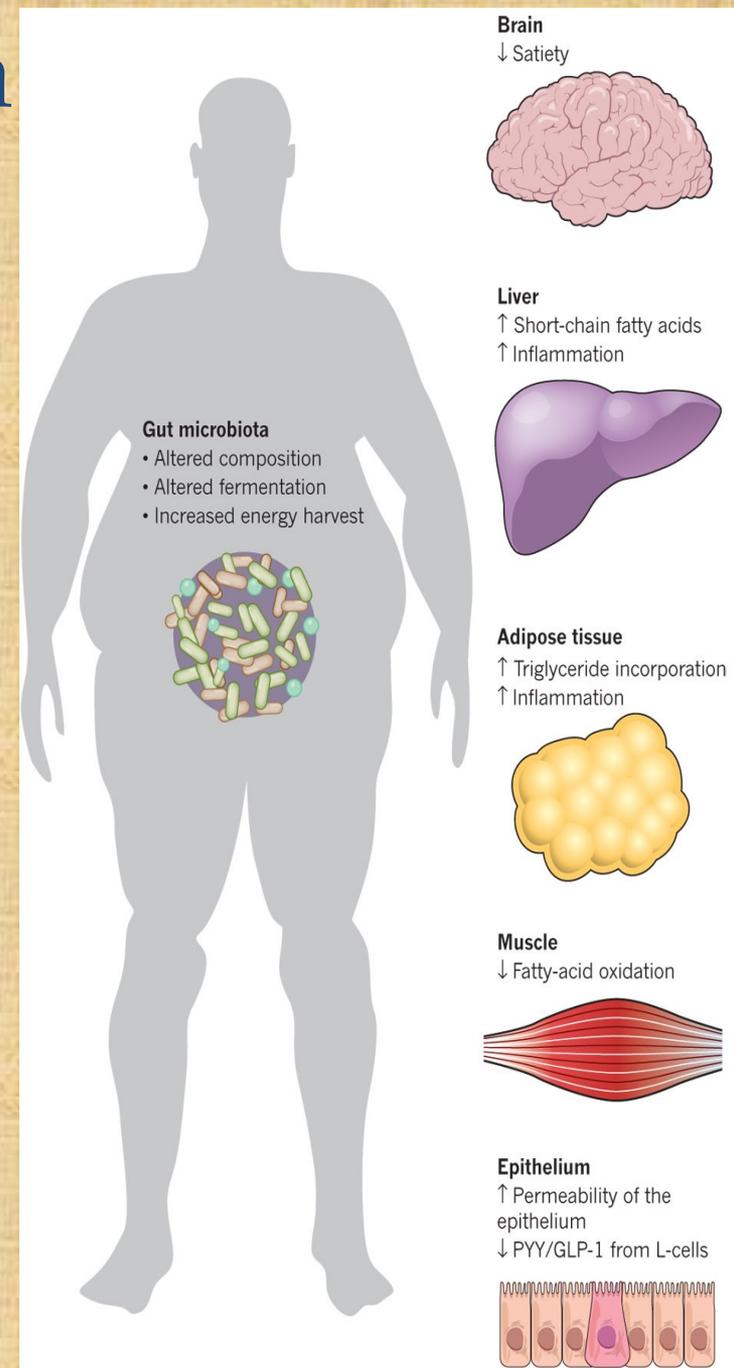
**Bacteroidetes**



**Lactobacillus reuteri e gasseri**



**Lactobacillus paracasei**



# L'attività cognitiva è influenzata dalla flora batterica intestinale alterata da diete ricche di zuccheri o di grassi !!



“...dopo solo quattro settimane di dieta ricca di grassi o di zuccheri, la performance dei topi in vari tests su funzioni fisiche o mentali incominciò a decadere. Il cambiamento più significativo si è avuto nella “flessibilità cognitiva”:



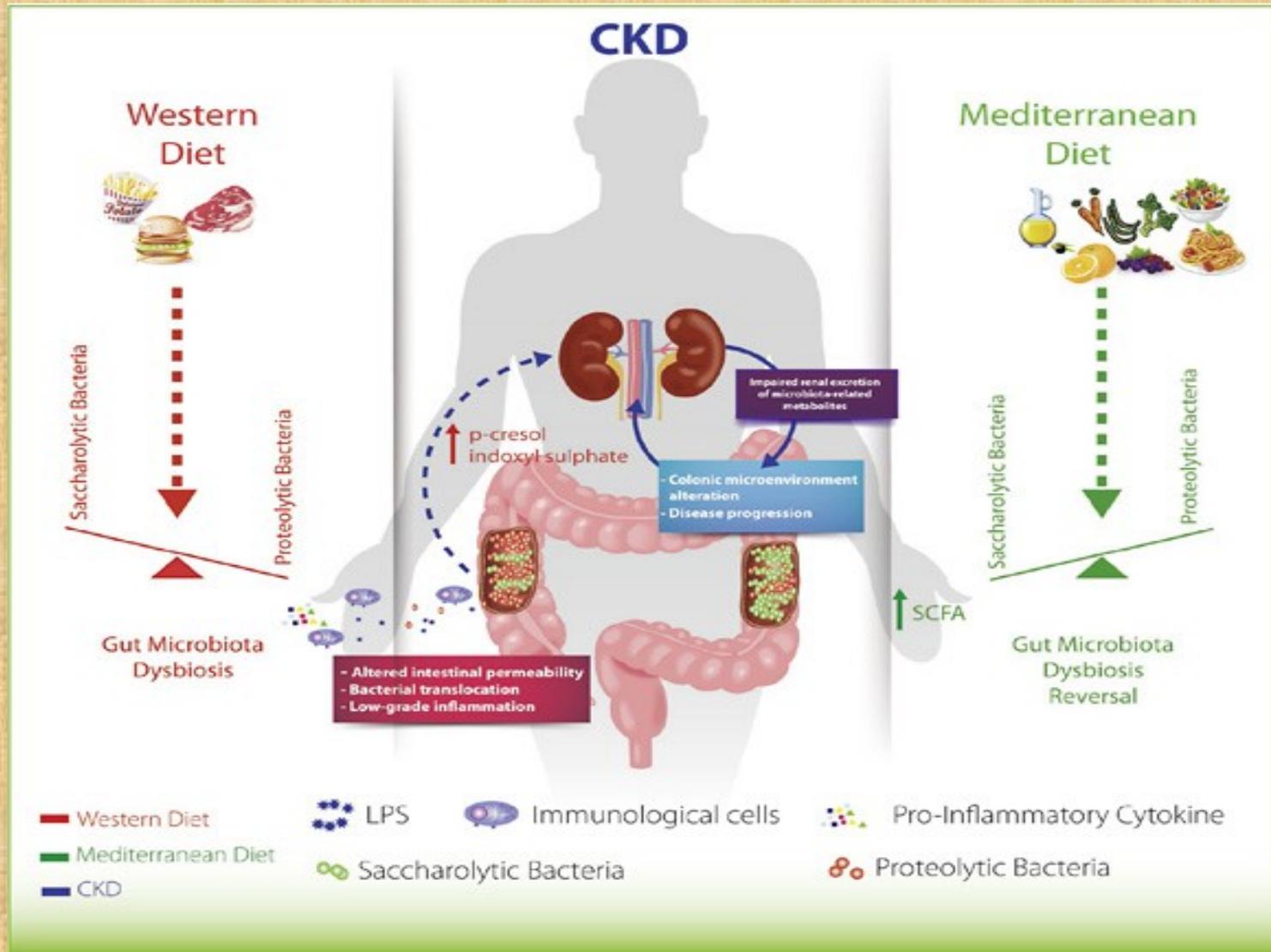
“Il decadimento della flessibilità cognitiva è stato forte.” Questo vuol dire che di fronte a un problema inatteso – anche piccolo – non si è in grado di trovare soluzioni efficaci. Questo studio è stato condotto su animali giovani, i quali normalmente hanno un sistema biologico più integro e perciò più capace di resistere alle influenze patologiche del loro microbiota.”

Quella che viene indicata come “dieta occidentale”, ricca di grassi e zuccheri semplici è stata messa in relazione con una varietà di malattie croniche negli Stati Uniti, includenti l'obesità sempre più diffusa e un'augmentata incidenza di malattia di Alzheimer.

*(Science daily, June 22, 2015)*

# What Would You Like to Eat, Mr CKD Microbiota? A Mediterranean Diet, please!

Montemurno E. *Kidney Blood Press Res* 2014;39:114-123



# Mediterranean diet, a story of positive biology

EMBO  
reports

EMBO reports VOL 13 | NO 3 | 2012

*science & society*  
science & society

## ‘Positive biology’ as a new paradigm for the medical sciences

Focusing on people who live long, happy, healthy lives might hold the key to improving human well-being

*Colin Farrelly*

## The **7** Seven Countries Study

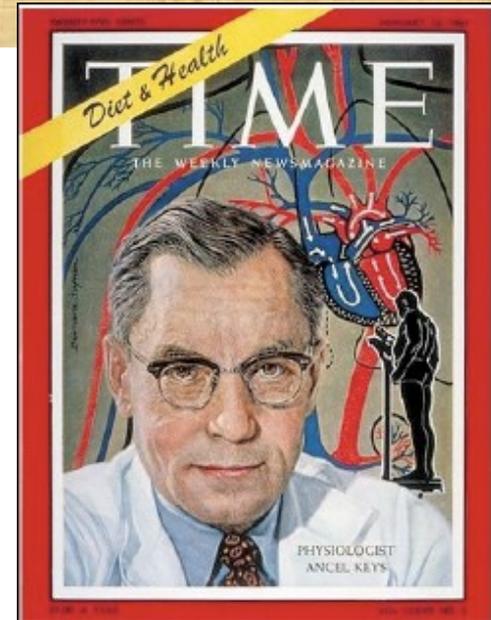
From 1984, focus of investigations  
shifted to healthy ageing

Mediterranean diet related to low all-cause mortality

 All-cause mortality

 Mental health

 Functional status



# Seven Countries Study

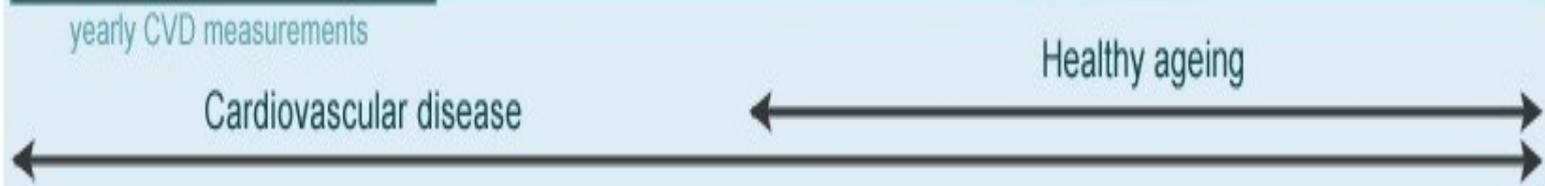
## Timeline legend

-  CVD examinations
-  Dietary survey
-  Healthy ageing determinants
-  Mortality follow-up  
Mortality data was available for 13 of the 16 cohorts.  
For Dalmatia, Slavonia and Rome Railroad only 25-year follow-up was available



**FINE**  
Finland, Italy, Netherlands Elderly study

**HALE**  
Healthy Ageing Longitudinal study in Europe (FINE+SENECA) project



# Mediterranean Diet Score Criteria

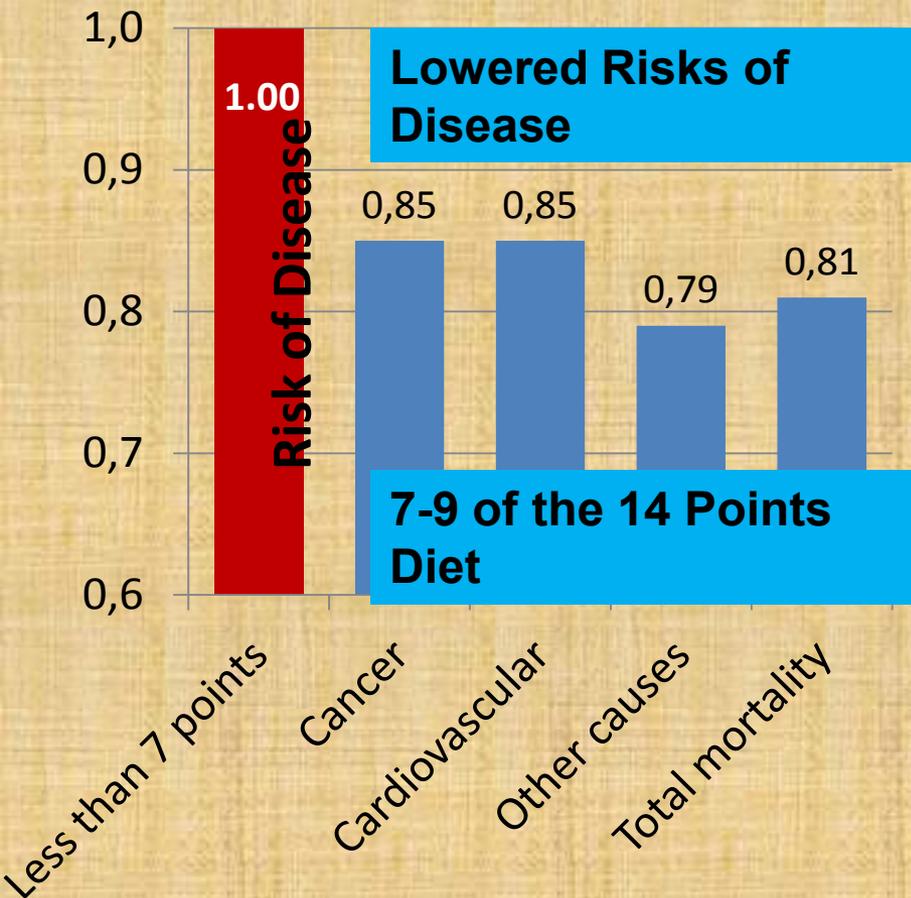


Food Group	Criteria for Earning 1 Point
<input type="checkbox"/> Vegetables	3-5+ servings/day
<input type="checkbox"/> Legumes	4+ servings/week
<input type="checkbox"/> Fruit	3 + servings per day
<input type="checkbox"/> Nuts	4-5+ servings per week
<input type="checkbox"/> Whole grains	2-3+ servings per day
<input type="checkbox"/> Fish	2+ servings per week
<input type="checkbox"/> Healthy fats (plant oils)	Mostly plant oils, 1.5 to 1 ratio, plant to animal fats
<input type="checkbox"/> Red and processed meats	None, or limited to no more than 1-2 servings/week
<input type="checkbox"/> Red wine intake	Limited, women no more than 2-7 drinks/week Men, no more than 4-7 drinks per week

Score 0-9 possible. High score is linked to lower risk of death from cancer, heart disease, and stroke, and a significant decrease in all causes of mortality.

*Harvard Study: 6-7 years of follow-up: 6,137 men; 11,278 women  
American Journal Clinical Nutrition. 2014;99:172-180.*

# Mediterranean Diet Score AND Mortality



- Getting 7 to 9 points of the Predimed diet means lowered risk of disease.
- Compare those with 7-9 points to those with fewer than 7 points. More points means decreased risk of these diseases:
  - 15% ↓ risk of cancer
  - 15% ↓ risk of cardiovascular disease
  - 21% ↓ risk of death from other causes
  - 19% ↓ risk of death from all causes

*Harvard Study: 6-7 years of follow-up: 6,137 men; 11,278 women  
American Journal Clinical Nutrition. 2014;99:172-180.*

# Mediterranean diet and CVD mortality



***Ethnically diverse population in Melbourne, Australia  
40,653 volunteers 1990-1994***



**Adherence to a Mediterranean  
style diet that included:**

- ❖ Garlic
- ❖ Cucumber
- ❖ Olive oil
- ❖ Salad greens
- ❖ Capsicum
- ❖ Cooked dried legumes
- ❖ Legume soups
- ❖ Tomato

- ❖ Pasta dishes
- ❖ Olives
- ❖ Celery, Fennel
- ❖ Feta, ricotta cheese
- ❖ Fish
- ❖ Onion/leeks
- ❖ Chicken
- ❖ Leafy greens

# Consumption of Mediterranean foods:



**-34% Total mortality**



**-49% Ischemic heart disease**

*Among those without previous history  
of CVD*

*Harriss LR et al. AJCN 2007*



# Aderenza alla dieta mediterranea e Miglioramento della salute

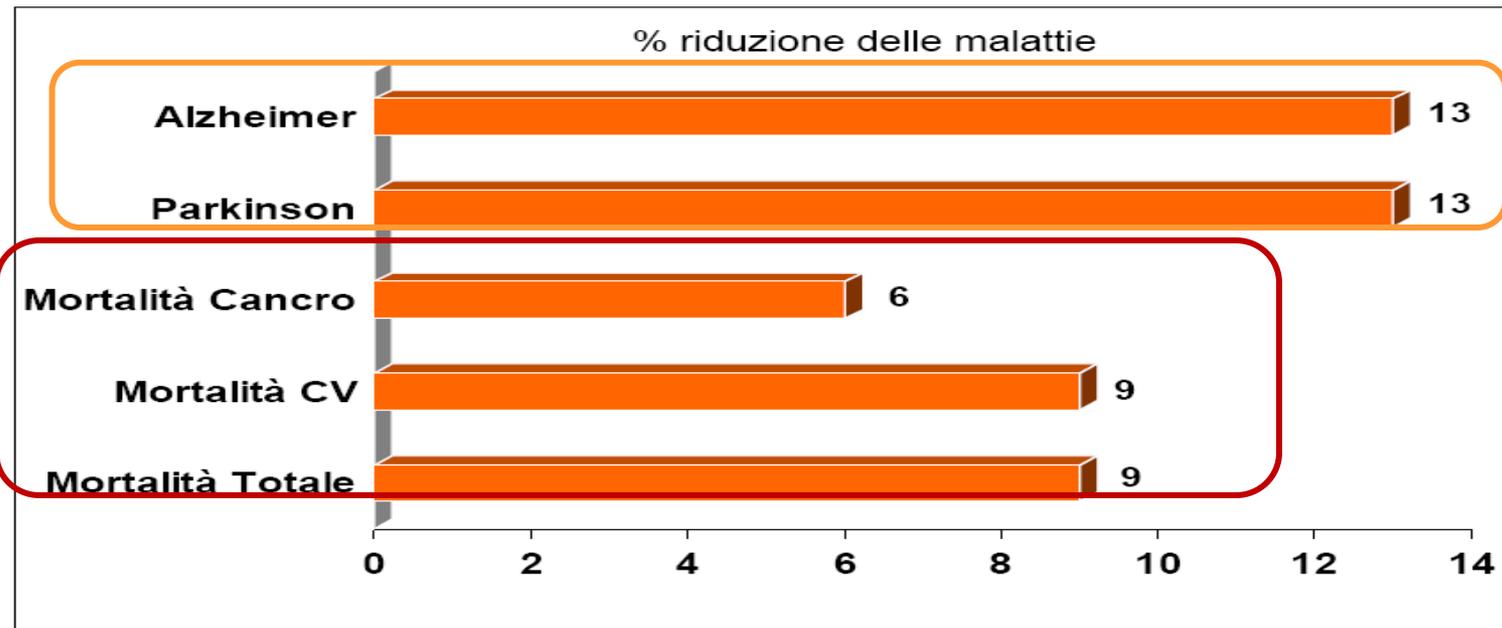


BMJ

RESEARCH

## Adherence to Mediterranean diet and health status: meta-analysis

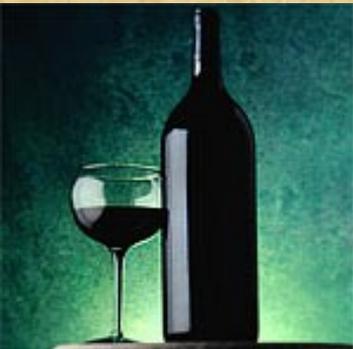
Francesco Sofi, researcher in clinical nutrition,<sup>1,2,5</sup> Francesca Cesari, researcher,<sup>1</sup> Rosanna Abbate, full professor of internal medicine,<sup>1,5</sup> Gian Franco Gensini, full professor of internal medicine,<sup>3</sup> Alessandro Casini, associate professor of clinical nutrition<sup>2,4,5</sup>



12 studi, 1.574.299 persone, follow up variabile da 3 a 18 anni

F. Sofi et al. Meta-analysis, BMJ september 2008

# Combination of Dietary Components



<u>Dietary Component</u>	<u>% Reduction</u>
Wine (150 ml/day)	32%
Fish (114 g 4x/week)	14%
Dark Chocolate (100 g/day)	21%
Fruits and Vegetables(400 g/day)	21 %
Garlic (2.7 g/day)	25%
Almonds (68 g/day)	12%

**76% decreased risk of CVD**

# Costo – Beneficio Prevenzione patologie Cardiovascolari



Treatment

Cost per life year gained  
(£ sterling)

Aspirin	50
Thiazide (antihypertensive)	66
<i>Mediterranean Diet</i>	<i>290</i>
ACE Inhibitor (antihypertensive)	5634
Simvastatin (cholesterol lowering)	8240

enpam

Rapporto  
O.M.S. - F.A.O.  
La nutrizione  
come strumento  
di prevenzione

 Collana Universalia



Rapporto O.M.S. - F.A.O.

**La nutrizione  
come strumento  
di prevenzione**

Prefazione a cura  
di Eolo Parodi e Antonino de Lorenzo

Fondazione E.N.P.A.M.

Source: Ebrahim S, Davey-Smith G, McCabe C, Payne N, Pickin M, Sheldon TA et al. What role for statins? A review and Economic model. *Health Technol Assess* 1999;3:No (19)

[www.enpam.it](http://www.enpam.it)

# Le malattie cronico degenerative



(Western disease cluster)

Alzheimer e Parkinson

Tumori

Diabete di tipo 2 (casi in età scolare)

Ipertensione e malattie cardio-circolatorie

(Malattie del grosso intestino)

(Allergie e intolleranze)

*Obesità e sovrappeso*

*Elevati livelli plasmatici di lipidi*

*Sindrome metabolica (glicemia, trigliceridi, pressione sanguigna elevati, colesterolo*

*HDL basso, circonferenza di vita > 85 cm F e >100 cm M)*

## La prevenzione attraverso la dieta

Studi di lunga durata associano l'alimentazione e uno stile di vita sani a rischi inferiori di:

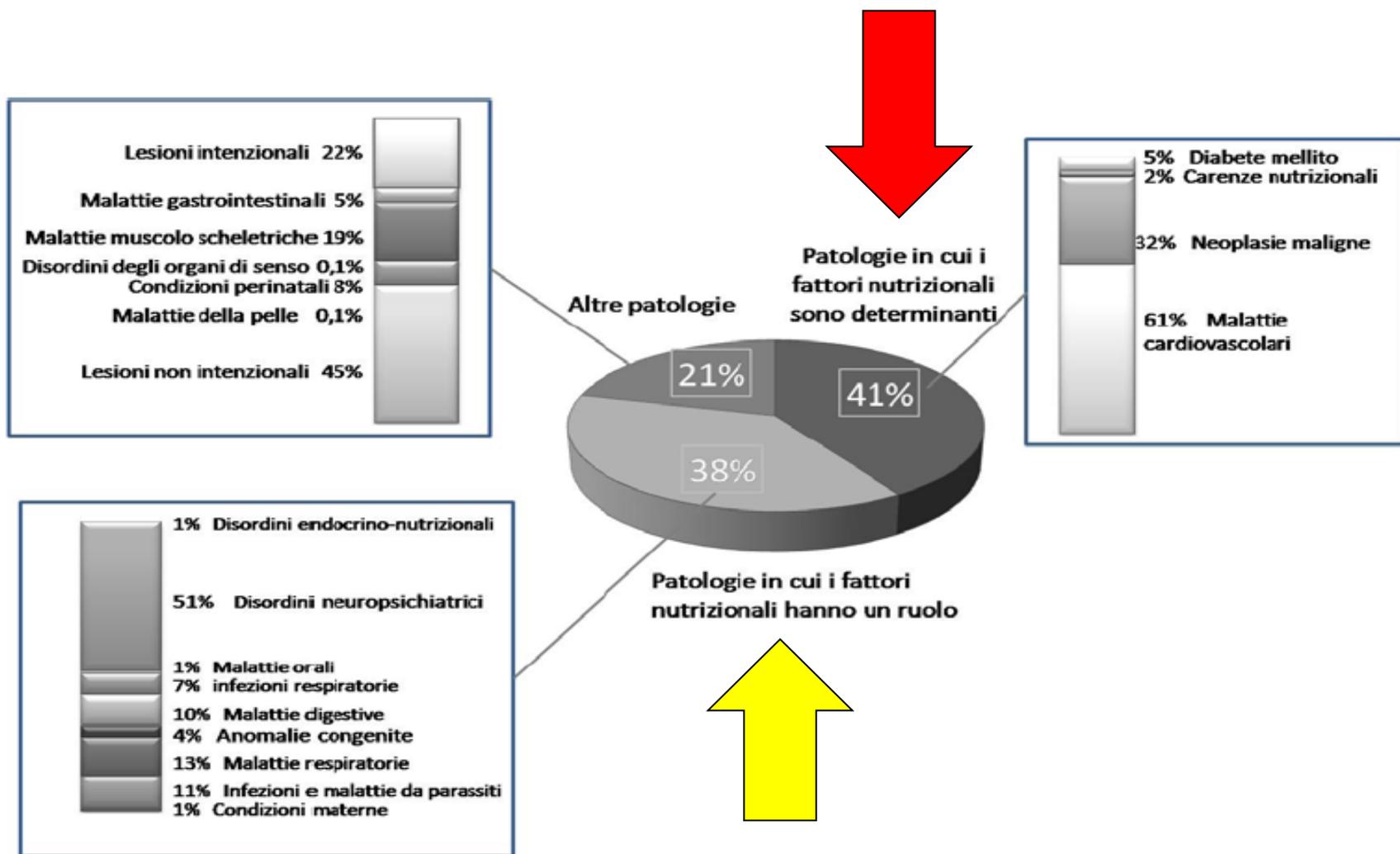
Malattie cardiovascolari (-83%)

Diabete (-50%)

Infarto (con la dieta mediterranea: -70% secondo attacco, -50% mortalità)

Forme di demenza e capacità cognitive

# Relazione tra nutrizione e principali malattie



# Intervalli di valori relativi agli obiettivi Nutrizionali per la popolazione

Rapporto O.M.S. – F.A.O. 2004



Fattori alimentari	Obiettivi (% di energia totale, se non indicato diversamente)
<b>Grasso totale</b>	<b>15-30%</b>
<b>Acidi grassi saturi</b>	<b>&lt;10%</b>
<b>Acidi grassi poliinsaturi (PUFA)</b>	<b>6-10%</b>
<b>Acidi grassi poliinsaturi n-6</b>	<b>5-8%</b>
<b>Acidi grassi poliinsaturi n-3</b>	<b>1-2%</b>
<b>Acidi grassi trans</b>	<b>&lt;1%</b>
<b>Acidi grassi monoinsaturi (MUFA)</b>	<b>dalla differenza</b>
<b>Carboidrati totali</b>	<b>55-75%</b>
<b>Zuccheri liberi</b>	<b>&lt;10%</b>
<b>Proteine</b>	<b>10-15%</b>
<b>Colesterolo</b>	<b>&lt;300 mg/die</b>
<b>Cloruro di sodio (sodio)</b>	<b>&lt;5 g/die (&lt;2 g/die)</b>
<b>Frutta e verdura</b>	<b>≥400 g/die</b>
<b>Fibre alimentari totali</b>	<b>dagli alimenti</b>
<b>Polisaccaridi non amidacei (NSP)</b>	<b>dagli alimenti</b>

# Urbanizzazione, crescita economica, cambiamenti tecnologici per il lavoro, tempo libero & processamento dei cibi, crescita dei mass media

«C'è da mangiare?»

**Pattern 1**  
Riduzione della carestia

- Cibi ricchi di amido, scarsa varietà, basso contenuto di grassi, alto contenuto di fibre
- Lavoro intensivo/tempo libero

- Bassi livelli di MCH, malattie dello svezzamento, arresto della crescita (malnutrizione cronica)

Lenta riduzione della mortalità

«Cosa c'è da mangiare»

**Pattern 2**  
Malattie Degenerative

- Aumento del consumo di grassi, zuccheri, cibi processati
- Cambiamento nelle tecnologia a lavoro e nel tempo libero

Aumento dell'obesità, problemi di densità ossea

Aumentata aspettativa di vita, spostamento verso un aumento delle malattie non trasmissibili correlate alla nutrizione

«Cosa mangiare?»

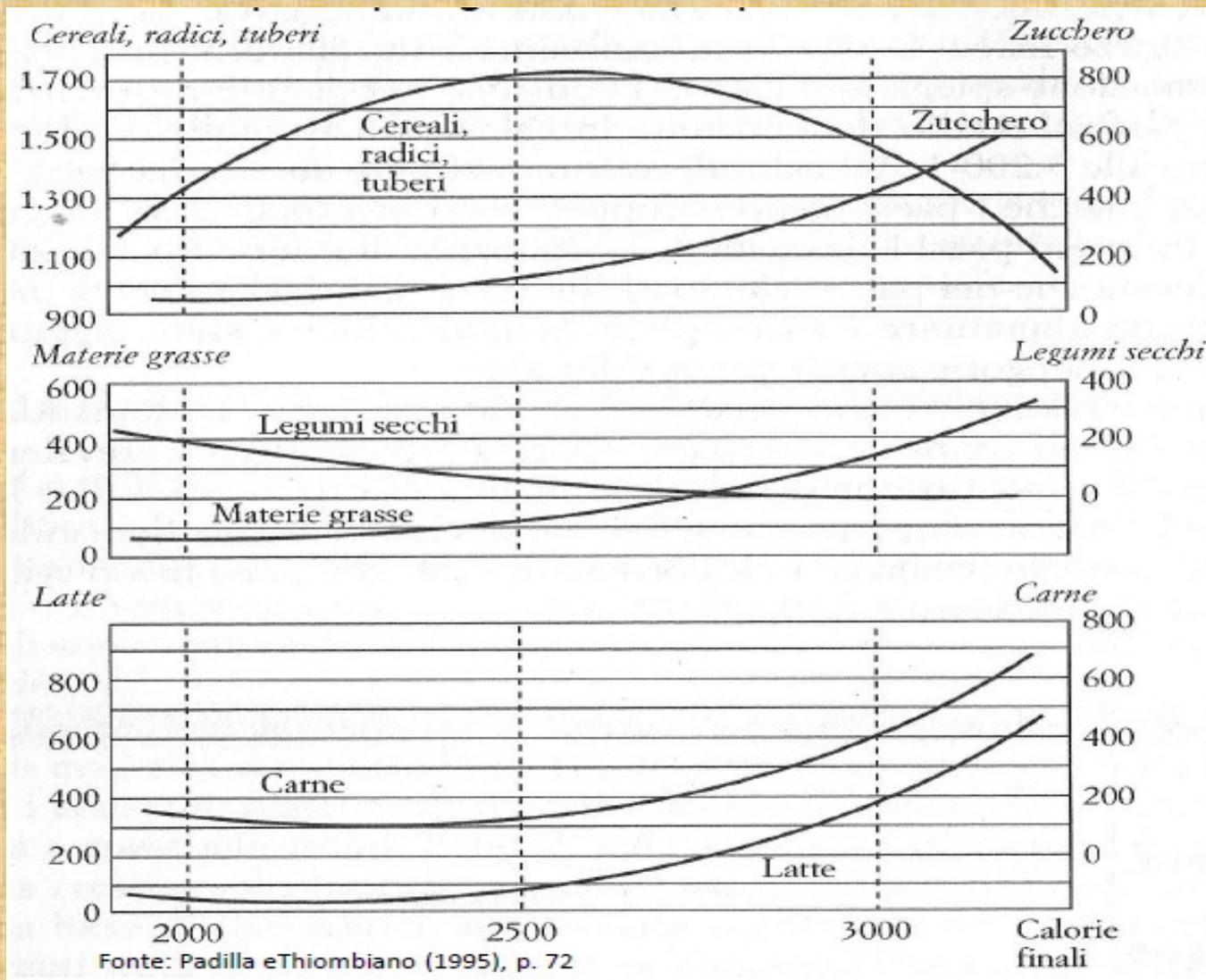
**Pattern 3**  
Cambiamento comportamentale

- Riduzione dei grassi, aumento di frutta, vegetali, carboidrati, fibre
- Sostituzione della sedentarietà con cambiamenti propositivi in attività ricreative

Riduzione del grasso corporeo, aumento della massa ossea

Aumento dello stato di salute con l'età, riduzione delle malattie non trasmissibili correlate alla nutrizione

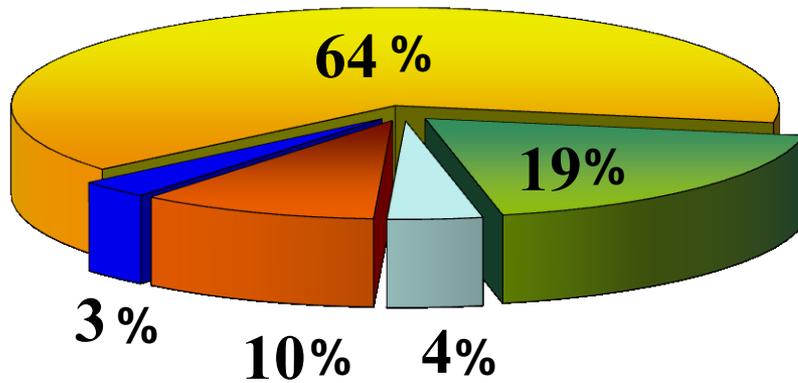
# Evoluzione del consumo medio dei principali prodotti in funzione del consumo alimentare pro capite giornaliero, espresso in calorie



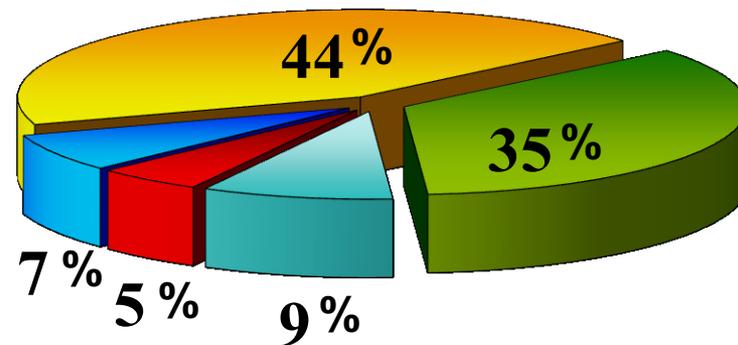
# 1960-1996: Daily Intake of Nutrients in Nicotera (% of Total Intake)



**1960**



**1996**



- animal fat
- plant fat
- Plant proteins
- Animal proteins
- carbs

# ITALY AND CRETE PILOT SURVEY 1957



Seven Countries Study systems and staff were pilot tested in two field sites in Fall, 1957: Nicotera, Italy and a village on Crete, and were followed by a TV film crew.

## NICOTERA E CRETA = DIETE MEDITERRANEE DI RIFERIMENTO

**1991:**

+25% grassi saturi

-20.7% grassi insaturi

Obesità centrale

Aumento della colesterolemia

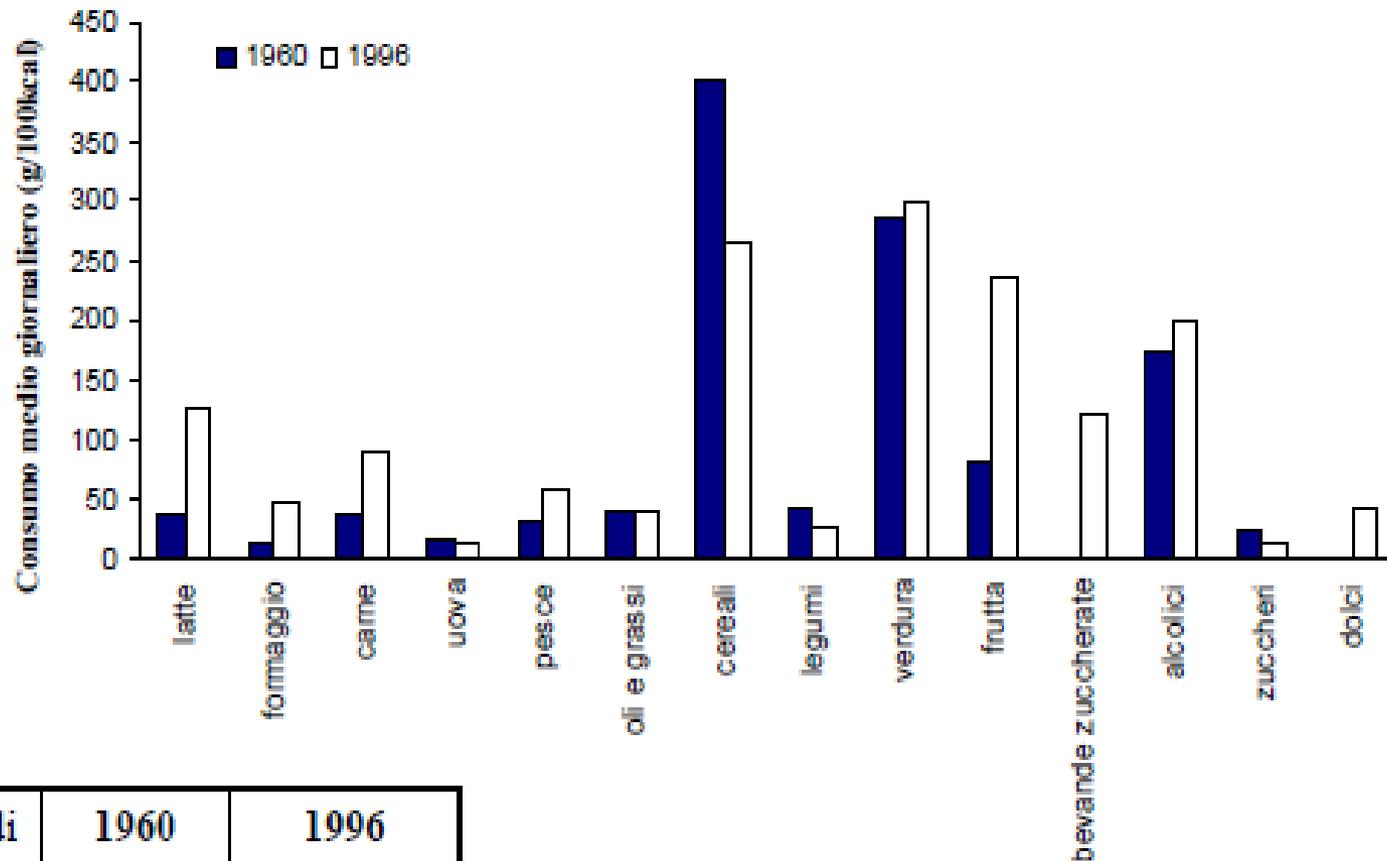
Aumento della pressione arteriosa



**Peggioramento fattori  
di rischio CHD**

**Heart disease risk-factor status and dietary changes in the Cretan population over the past 30 y: the Seven Countries Study.** Kafatos et al. (1997)  
*Am J Clin Nutr* 65: 1882

## Food habits in a southern Italian town (Nicotera) in 1960 and 1996: still a reference Italian Mediterranean diet? De Lorenzo et al., (2001) Diab Nutr Metab 14: 121.



Percentuale di energia (%) da:	1960	1996
Carboidrati	83	44
Lipidi	24	44
Proteine	13	12

1960: dieta di NICOTERA = dieta mediterranea italiana di riferimento: MAI = 9.4 per uomini, 11.4 per donne

1996: MAI = 2.8 per uomini, 2.5 per donne

# Distribuzione dei percentili del MAI della dieta degli uomini delle coorti rurali italiane del seven Countries study



Area	N	Percentili		
		25°	50°	75°
Nicotera 1960	64	5,4	7,5	10,8
Crevalcore 1965	171	2,2	2,2	4,4
Crevalcore 1970	171	1,5	2	2,6
Crevalcore 1991	171	1,7	2,2	3
Crevalcore 1991 (Giovani)	18	1,9	2,2	2,7
<b>Montegiorgio 1965</b>	82	4	5,6	7,6
<b>Montegiorgio 1970</b>	82	3	4,5	6,1
<b>Montegiorgio 1991</b>	82	2,6	3,9	4,8
<b>Montegiorgio 1991 (Giovani)</b>	23	1,9	2,4	2,9

**Mediterranean Adequacy Index of Italian diets.** Alberti-Fidanza & Fidanza  
(2004) Public Health Nutrition 7:937.

**Percentile distribution of the Mediterranean Adequacy Index among Italian men in rural cohorts of the Seven Countries Study**

	<i>n</i>	25th percentile	50th percentile	75th percentile
Nicotera, 1960*	64	5.4	7.5	10.8
Crevalcore, 1965	171	2.2	2.9	4.4
Crevalcore, 1970	171	1.5	2.0	2.6
Crevalcore, 1991	171	1.7	2.2	3.0
Crevalcore, 1991 (young)†	18	1.9	2.2	2.7
Montegiorgio, 1965	82	4.0	5.6	7.6
Montegiorgio, 1970	82	3.0	4.5	6.1
Montegiorgio, 1991	82	2.6	3.9	4.8
Montegiorgio, 1991 (young)†	23	1.9	2.4	2.9

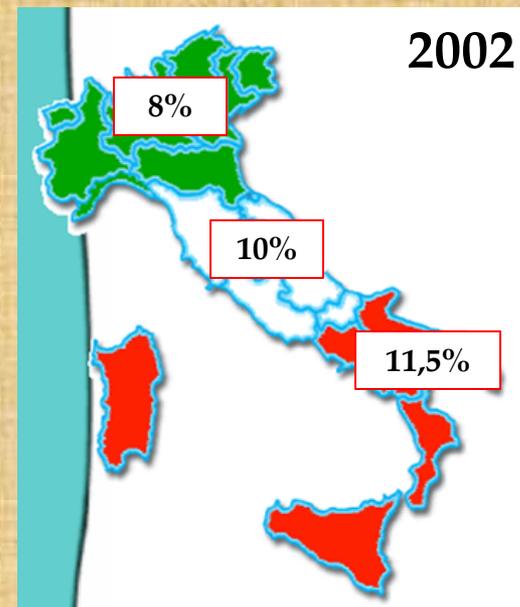
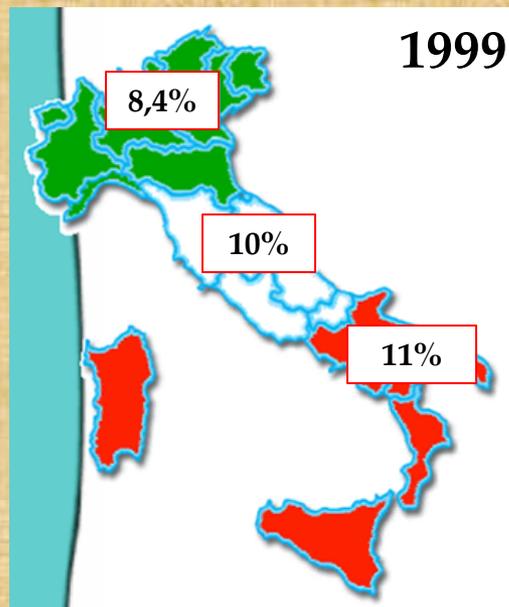
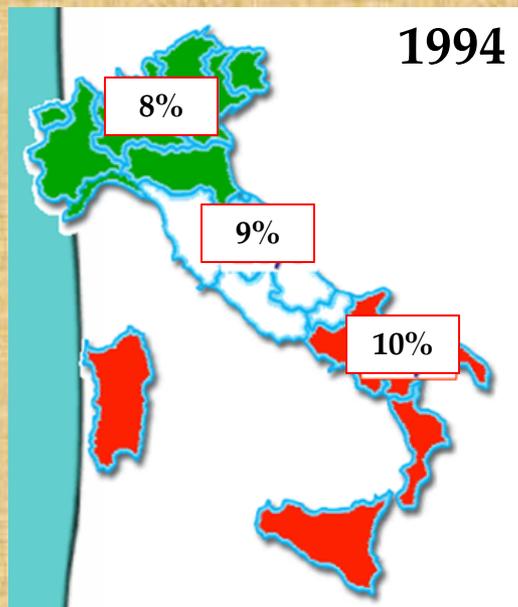
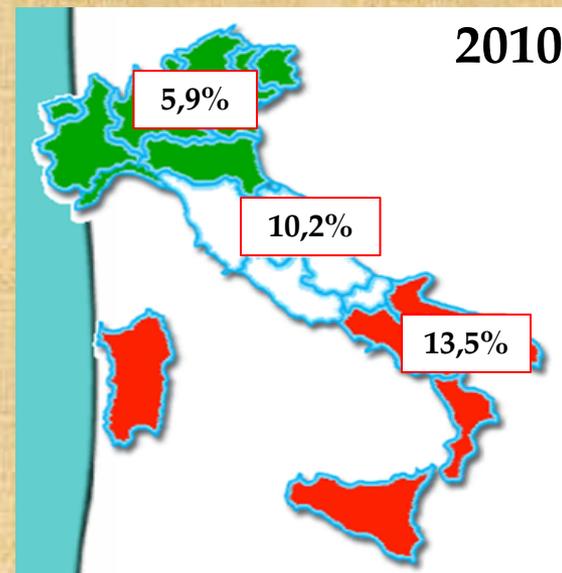
**Allontanamento progressivo dalla dieta Mediterranea Italiana di riferimento (NICOTERA, 1960)**

**Age-standardized death rates per 1000 in Crevalcore (Cr; men at risk=993) and Montegiorgio (Mg; men at risk=719)**

Years	5		10		15		20		25		30	
	Cr	Mg	Cr	Mg	Cr	Mg	Cr	Mg	Cr	Mg	Cr	Mg
Total mortality	61	39	137	100	245	202	376	312	492	445	625	578
CHD	15	8	28	15	52	46	94	70	132	109	180	153
Cancer	22	8	44	28	88	47	128	77	168	117	201	154
All other	24	23	65	57	107	109	156	165	192	219	244	271

**Dietary studies on two rural Italian population groups of the Seven Countries Study. 3. Trend of food and nutrient intake from 1960 to 1991.** Alberti-Fidanza *et al.* (1999) Eur J Clin Nutr 53: 854.

# Distribuzione geografica dell' *obesità* (%) in Italia età pediatrica (8-13)



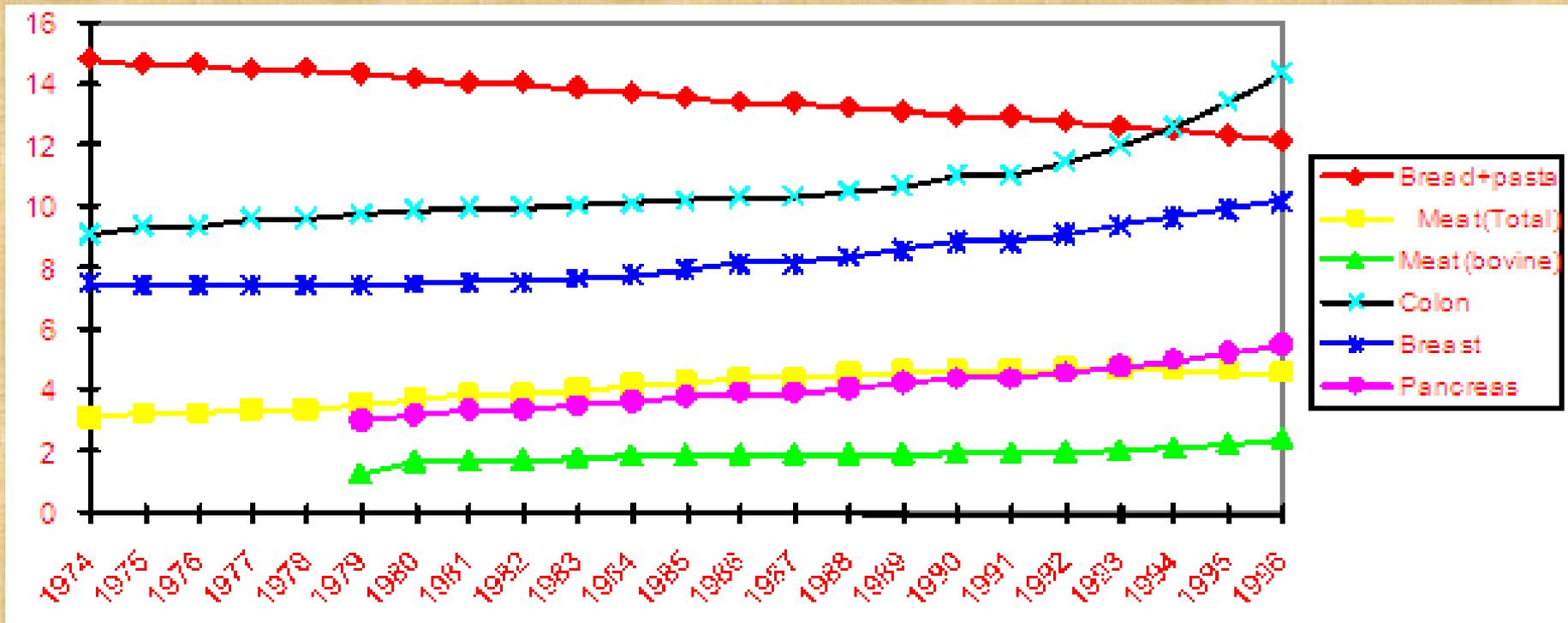
# Prevenzione del cancro e dieta mediterranea



Neutralizzazione  
di radicali liberi

**DIETA  
MEDITERRANEA**

Prevenzione  
della formazione di  
radicali liberi

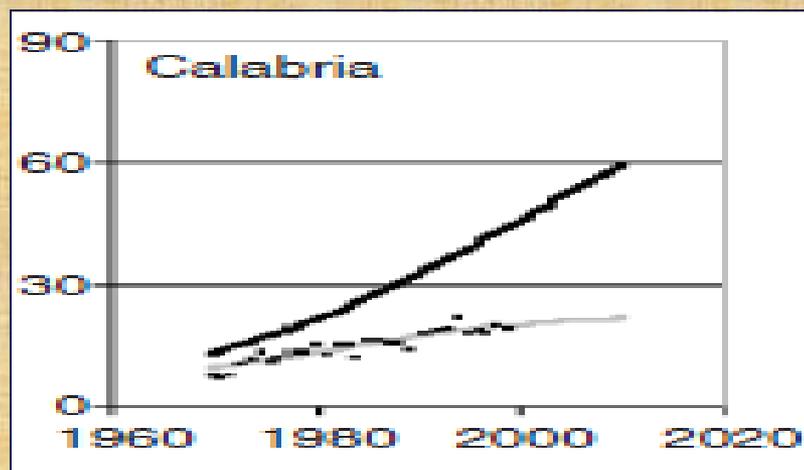




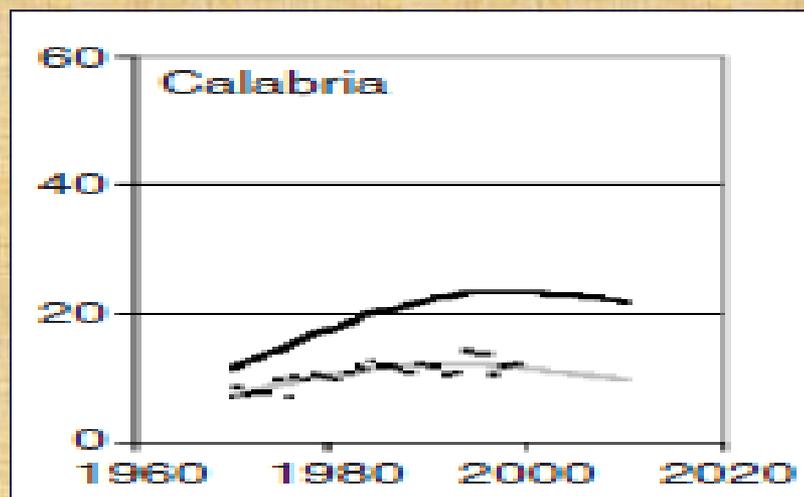
## REGIONAL ESTIMATES OF COLORECTAL CANCER BURDEN IN ITALY

Enrico Grande<sup>1</sup>, Riccardo Inghelmann<sup>1</sup>, Silvia Francischi<sup>1</sup>, Ardulno Verdecchia<sup>1</sup>, Andrea Micheli<sup>2</sup>, Paolo Balli<sup>2</sup>, Riccardo Capocaccia<sup>1</sup>, and Roberta De Angelis<sup>1</sup>

### Men



### Women

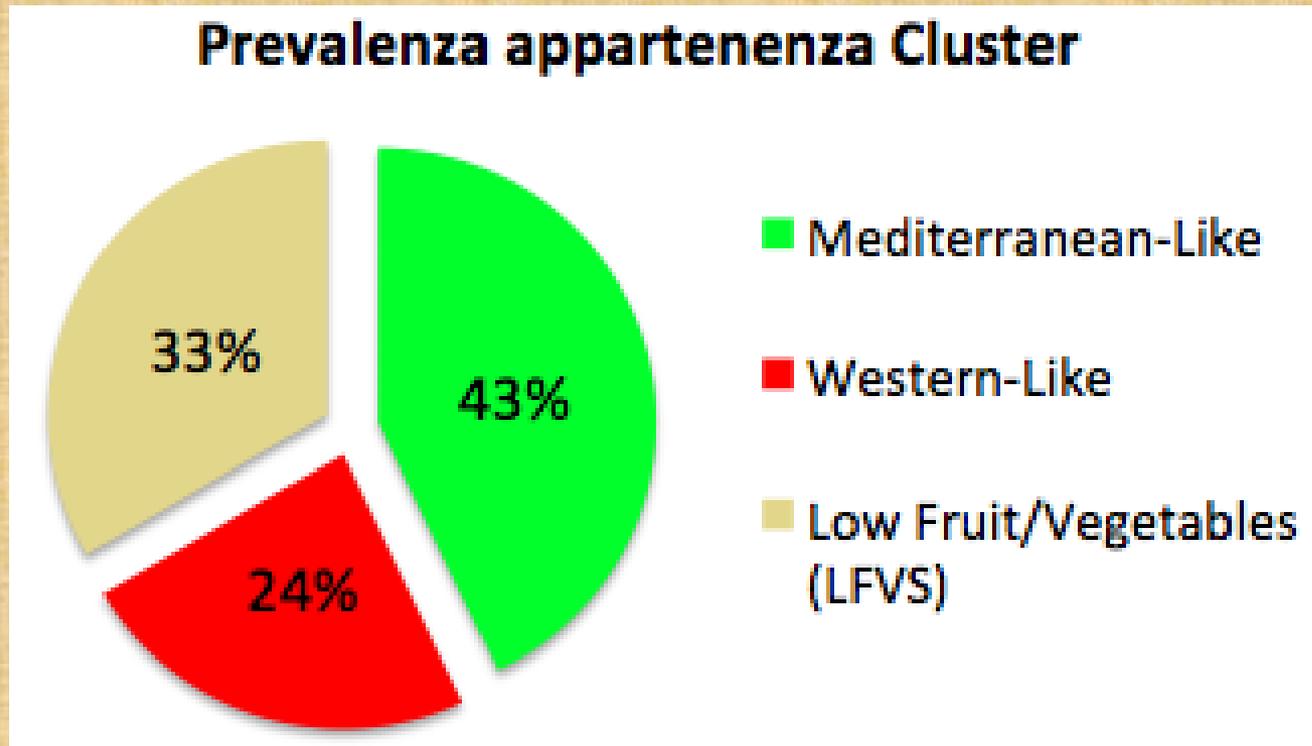


**Table 2 - Estimated colorectal cancer mortality in Italy and in Italian regions for the year 2005 by gender. Number of cases, crude and European age-standardized (age-std) rates per 100,000 person years. Age 0-84 years**

Macro-area and regions	Men			Women		
	no. of cases	crude rates	age-std rates	no. of cases	crude rates	age-std rates
North	4496	37	23	3214	26	12
Piemonte	766	38	23	530	25	12
Valle d'Aosta	22	38	23	15	25	12
Lombardia	1497	35	24	1116	25	13
Liguria	355	49	25	243	31	12
Trentino Alto Adige	160	35	24	112	24	12
Veneto	756	35	24	534	24	12
Friuli Venezia Giulia	191	35	24	137	24	12
Emilia Romagna	748	41	23	527	27	12
Center	1967	38	23	1431	26	13
Toscana	647	40	22	478	28	13
Umbria	176	45	24	126	31	14
Marche	294	43	24	197	28	14
Lazio	851	34	23	631	24	13
South	2859	28	21	2169	21	13
Abruzzo	246	41	25	136	22	11
Molise	63	41	25	35	22	11
Campania	708	25	22	562	19	13
Puglia	498	25	19	413	20	12
Basilicata	110	37	25	75	25	14
Calabria	288	29	21	179	17	10
Sicilia	685	28	20	577	22	14
Sardegna	260	33	25	192	23	14
Italy*	9360	34	23	6792	24	13

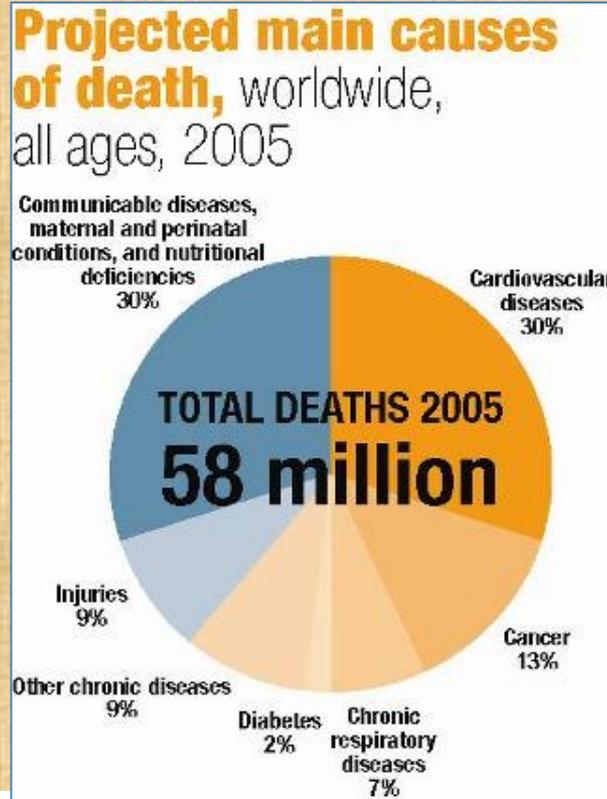
\*National estimate was obtained by applying a specific model and not as the sum of regional estimates.

I dati rilevati dallo studio IPSAD<sup>®</sup> hanno identificato **3 cluster alimentari** diffusi fra la popolazione che si caratterizzano per la differente frequenza di consumo settimanale di alimenti tipici della Dieta Mediterranea



Campione di 5278 soggetti, rappresentativo della popolazione generale residente in Italia di età 15-64 anni. Intervistate tramite questionario postale 16224 (response rate 34%).

# Did you know??



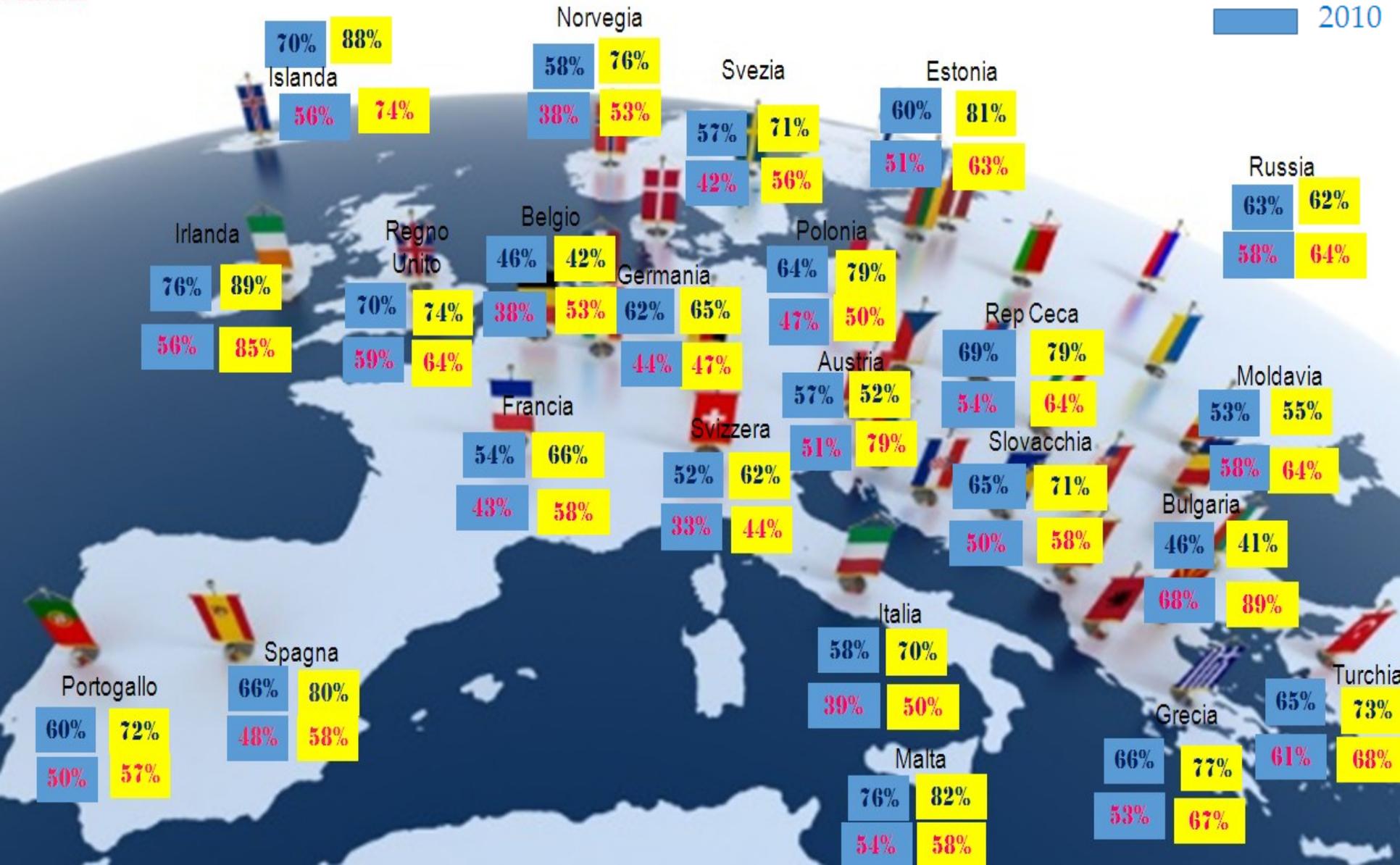
**35 000 000**  
**people died from**  
**chronic diseases**  
**in 2005**

**60%** of all deaths are due to chronic diseases

# EUROPE'S OVERWEIGHT BMI > 25 Kg/m<sup>2</sup> POPULATION



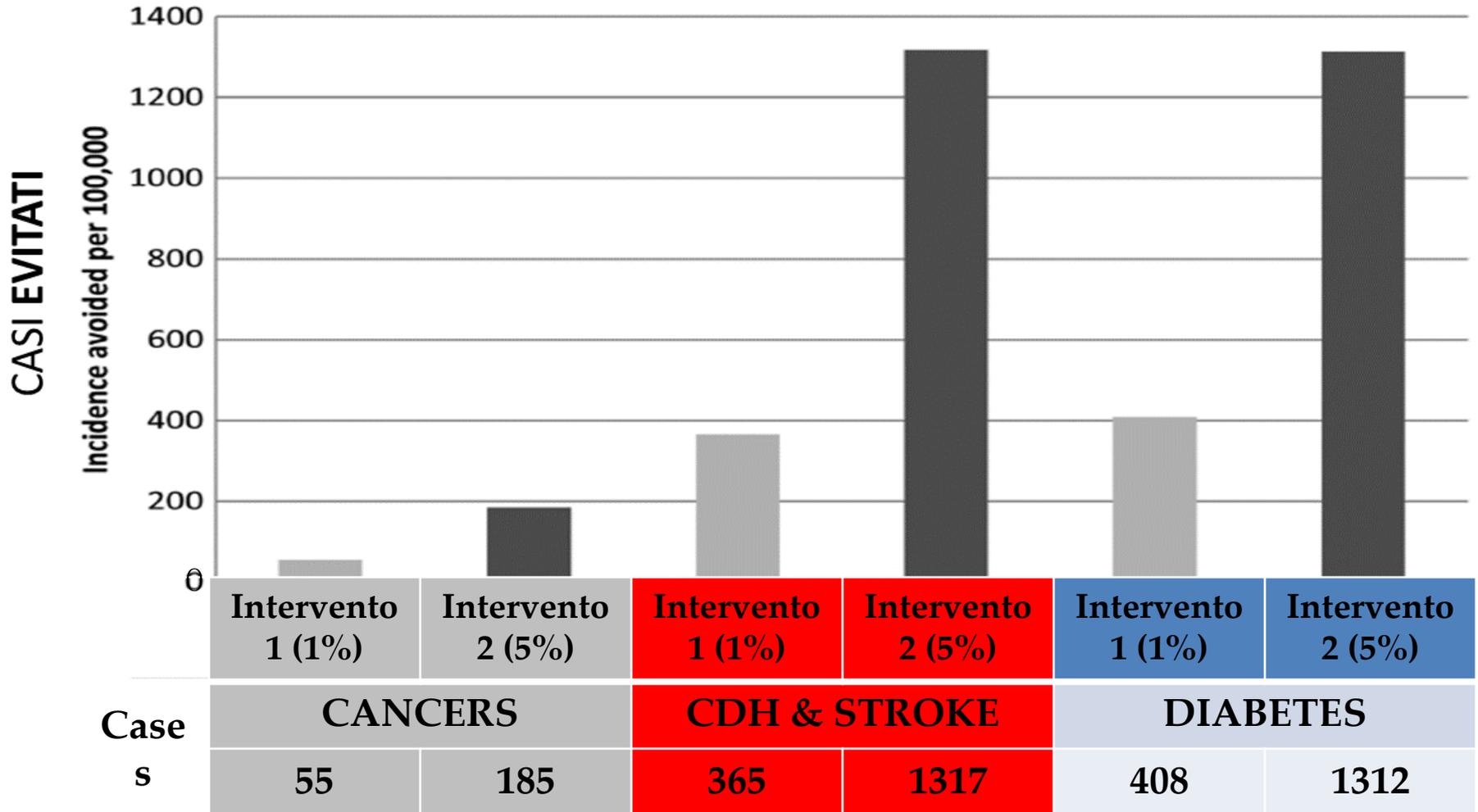
Males  
Females



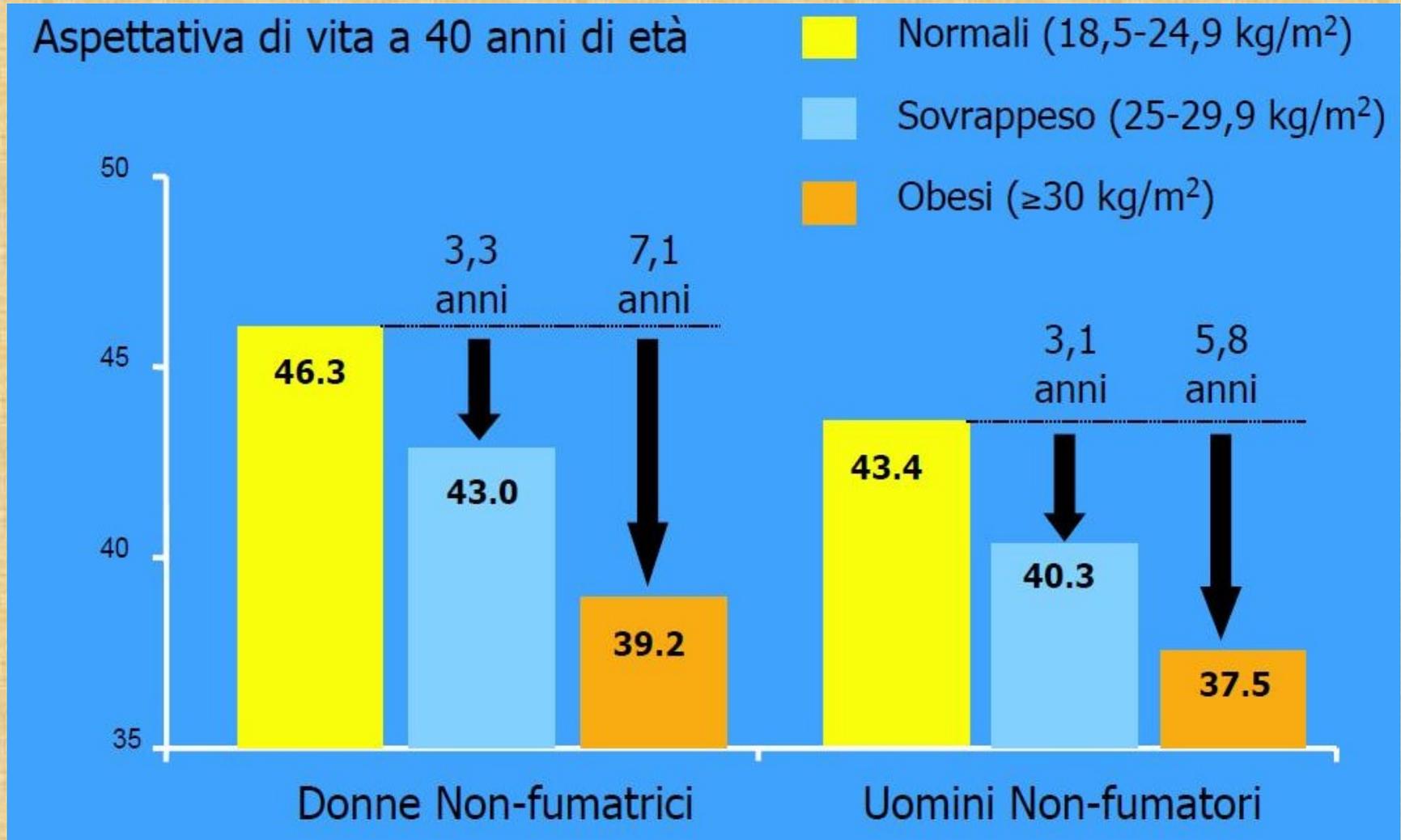
# The future burden of obesity-related diseases in the 53 WHO European-Region countries and the impact of effective interventions: a modelling study



Laura Webber,<sup>1</sup> Diana Divajeva,<sup>1</sup> Tim Marsh,<sup>1</sup> Klim McPherson,<sup>2</sup> Martin Brown,<sup>1</sup> Gauden Galea,<sup>3</sup> Joao Breda<sup>3</sup>



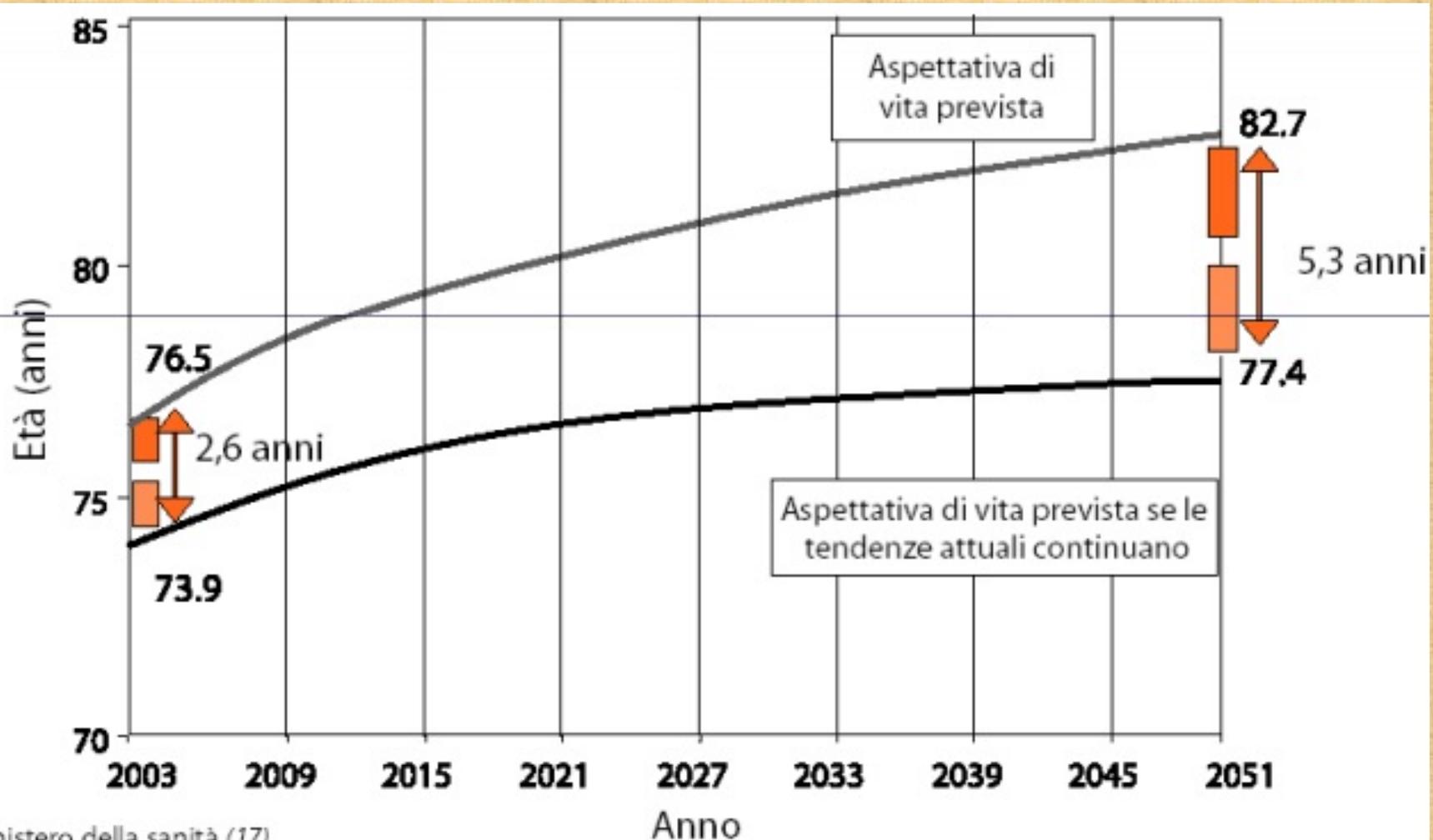
# Aspettativa di vita a 40 anni: impatto dell'eccesso di peso corporeo



# Sovrappeso e Obesità: Conseguenze per la salute



Riduzioni previste nell'aspettativa di vita media dei maschi nel Regno Unito, se si mantengono le attuali tendenze per obesità/sovrappeso



# Individual Foods and BMI Differences

## Mediterranean diet study



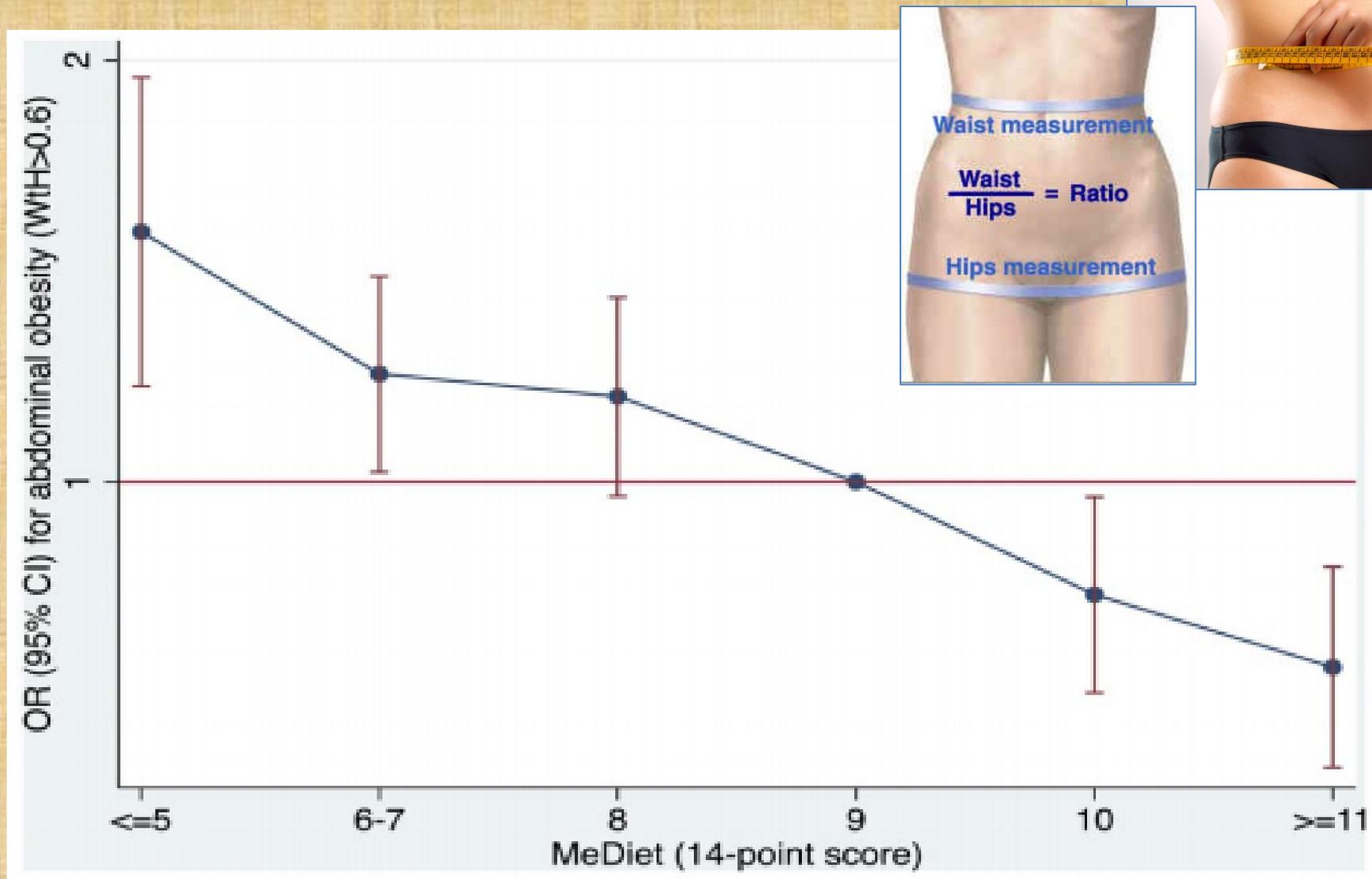
HIGH  
BMI



LOW  
BMI

A further analysis of the Mediterranean diet showed that those who followed the diet carefully (high score vs low score) had a significantly lower BMI, indicating that the Mediterranean diet is beneficial in preventing excessive weight gain.

# A 14-Item Mediterranean Diet Assessment Tool and Obesity Indexes among High-Risk Subjects: The PREDIMED Trial





# *Nicotera DIET*

1500 kcal MHD

Meat (130 g), or fish (170 g) or cheese (70 g) portion.

Weekly frequency:  
animal foods was 4 times for fish, 2 for meat and 2 for cheese.

Daily intake of carbohydrates derived mainly from pasta (80 g),  
bread (100 g) and fresh legumes (60 g, 3 times/week).  
Daily intake for fruit was  $500 \pm 50$ g and for vegetables  $250 \pm 50$ g.

Extravirgin olive oil was taken daily in a amount of  $20 \pm 5$ g.  
Fibers intake (27-30 g/day) and of the main micronutrients  
covered the Italian Recommended Daily Allowances

**MAI = 5.2**

# Use of quality control indexes in Moderately Mediterranean Diets for treatment of obesity



Table 1: Antropometric and body composition parameters before and after MHD.

	<u>bseline</u>	<u>2-mounths MHD</u>	<u>statistical significance</u>
<b>Weight, Kg</b>	84.70 ± 9.56	78.1 ± 10.53	p<0.0001
<b>BMI, Kg/m<sup>2</sup></b>	33.05 ± 2.61	31.18 ± 2.74	p<0.0001
<b>Waist, mm</b>	104.19 ± 7.6	99.85 ± 9.4	p<0.0001
<b>Hip, mm</b>	116.63 ± 7.95	110.50 ± 7.01	p<0.0001
<b>WHR</b>	0.92 ± 0.08	0.88 ± 0.07	p<0.001
<b>FMTOT, Kg</b>	39.619 ± 6360	37.010 ± 12899	p<0.0001
<b>FMLEG, Kg</b>	10.472 ± 3519	9.081 ± 3439	p<0.0001
<b>FMTRN, Kg</b>	18.214 ± 2955	17.540 ± 6505	p<0.0001
<b>LBMTOT, Kg</b>	40.847 ± 5061	40.155 ± 4837	NS
<b>LBMLEG, Kg</b>	17.149 ± 5175	16.653 ± 5135	NS
<b>LBMTRN, Kg</b>	20.253 ± 2309	19.213 ± 2257	NS
<b>BMD, g/cm<sup>2</sup></b>	1.2364 ± 0.122	1.2431 ± 0.123	NS
<b>BMC, Kg</b>	2.362 ± 331	2.340 ± 335	NS
<b>FATABD, Kg</b>	3.927 ± 643	2.447 ± 615	p<0.0001
<b>LEANABD, Kg</b>	3.945 ± 605	3.858 ± 596	NS
<b>RMR kcal</b>	1531 ± 152	1497 ± 123	NS

Values are expressed as mean ± SD

Statistical analysis was performed using un-paired *student's t-test*.

**A. De Lorenzo et all; Diab Nutr Met 14(3); 121-5; 2001**

# Use of quality control indexes in Moderately Mediterranean Diets for treatment of obesity



Table 2: Plasma chemistry and metabolic parameters before and after

	<u>bseline</u>	<u>2-mounths MHD</u>	<u>statistical significance</u>
<b>Albumin (g/100 ml)</b>	4.15 ± 0.14	4.02 ± 0.39	NS
<b>Fasting glucose (mmol/L)</b>	5.05 ± 0.45	4.98 ± 0.43	NS
<b>Fasting insulin (mU/ml)</b>	11.48 ± 6.77	8.07 ± 4.17	p<0.01
<b>AUC glucose</b>	29.50 ± 6.24	28.07 ± 5.29	NS
<b>AUC insulin</b>	263.2 ± 118.7	208.7 ± 82.6	p<0.005
<b>Fibrinogen (mg/100 ml)</b>	359 ± 78	324 ± 87	p<0.0001
<b>Total cholesterol</b>	5.40 ± 1.04	4.97 ± 0.92	p<0.05
<b>HDL cholesterol (mmol/L)</b>	1.30 ± 0.30	1.33 ± 0.33	NS
<b>LDL cholesterol (mmol/L)</b>	3.36 ± 1.07	2.90 ± 0.74	p<0.005
<b>Triglycerides (mmol/L)</b>	1.70 ± 1.00	1.46 ± 0.66	NS
<b>Uric acid (mmol/L)</b>	0.30 ± 0.06	0.28 ± 0.05	p<0.01

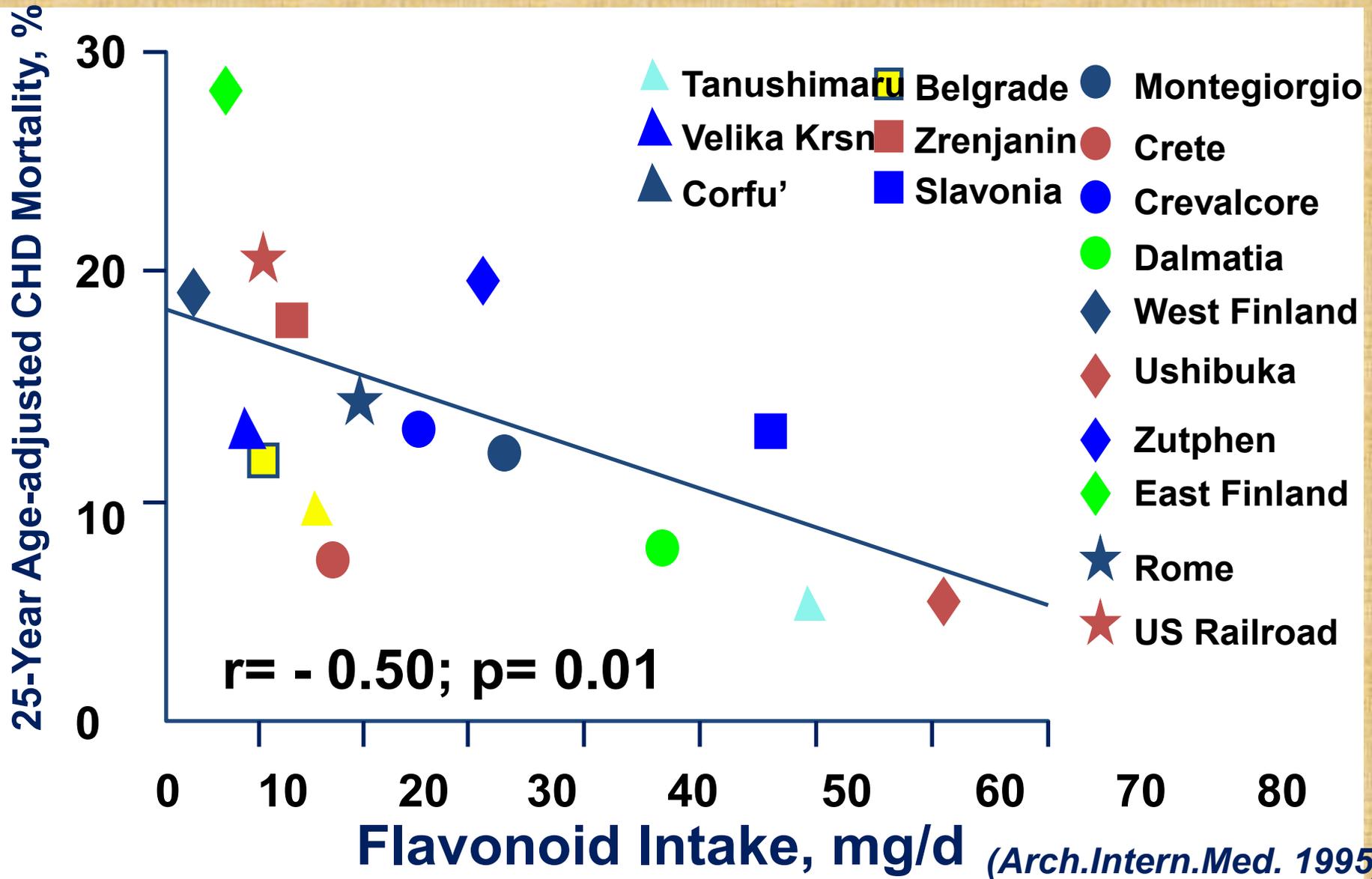
Values are expressed as mean ± SD

Statistical analysis was performed using un-paired *student's t-test*.

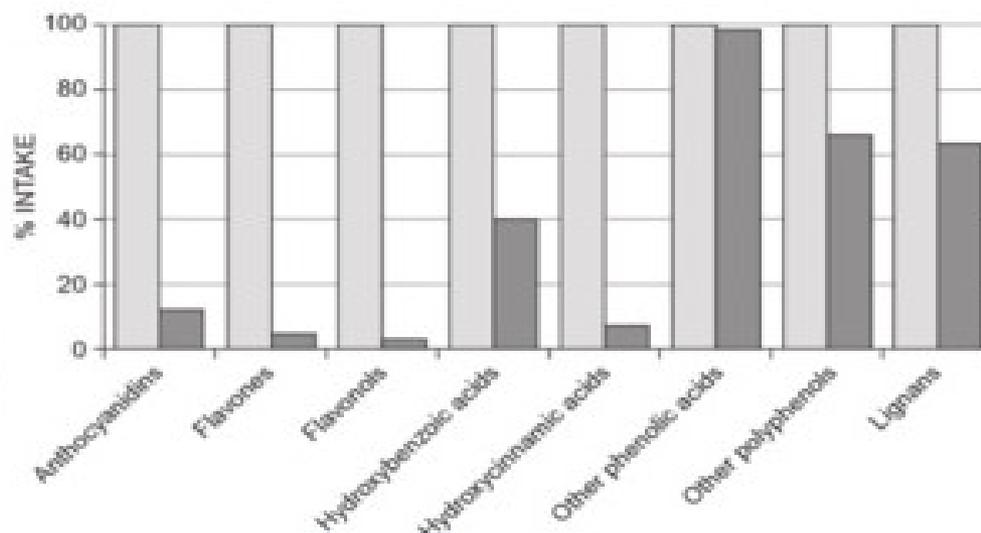
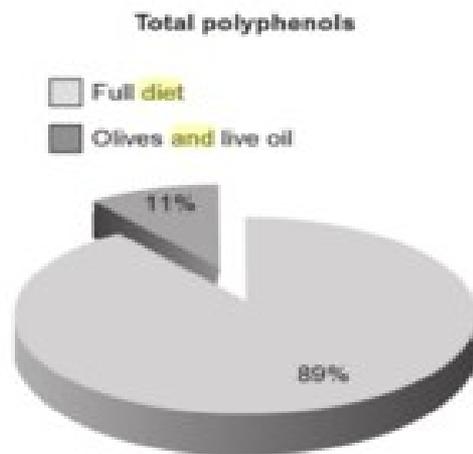
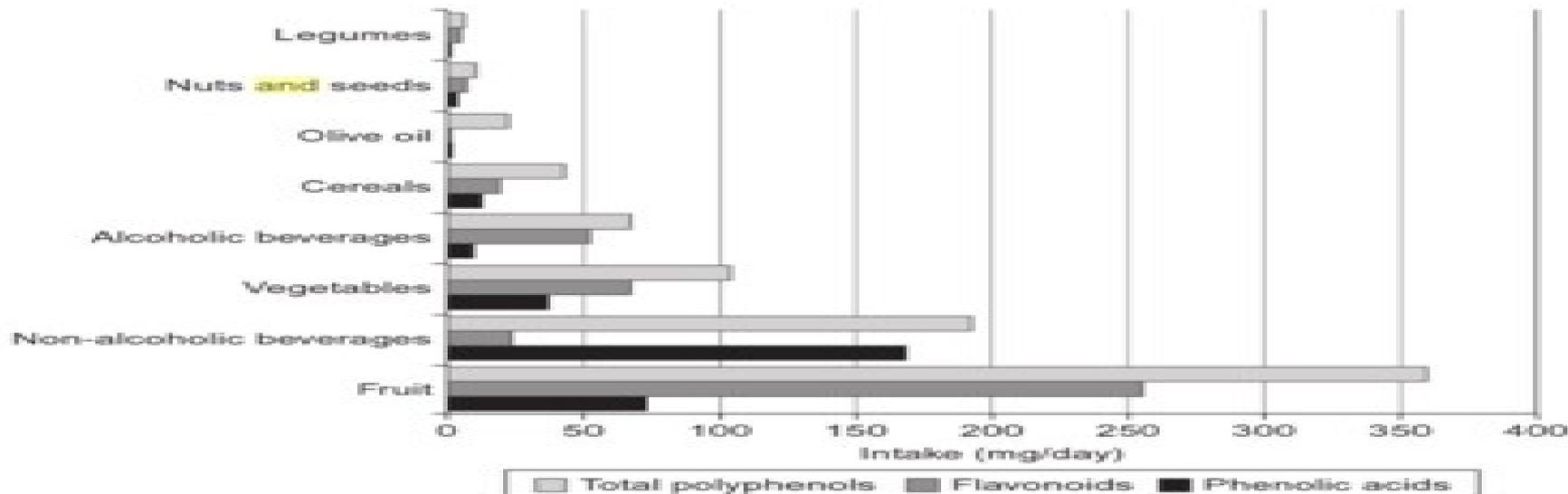
*A. De Lorenzo et al; Diab Nutr Met 2001*

# FLAVONOID INTAKE AND AGE-ADJUSTED MORTALITY FOR CHD

(25 years follow-up of the Seven Countries Study)



# Healthy Properties of Oil Polyphenols

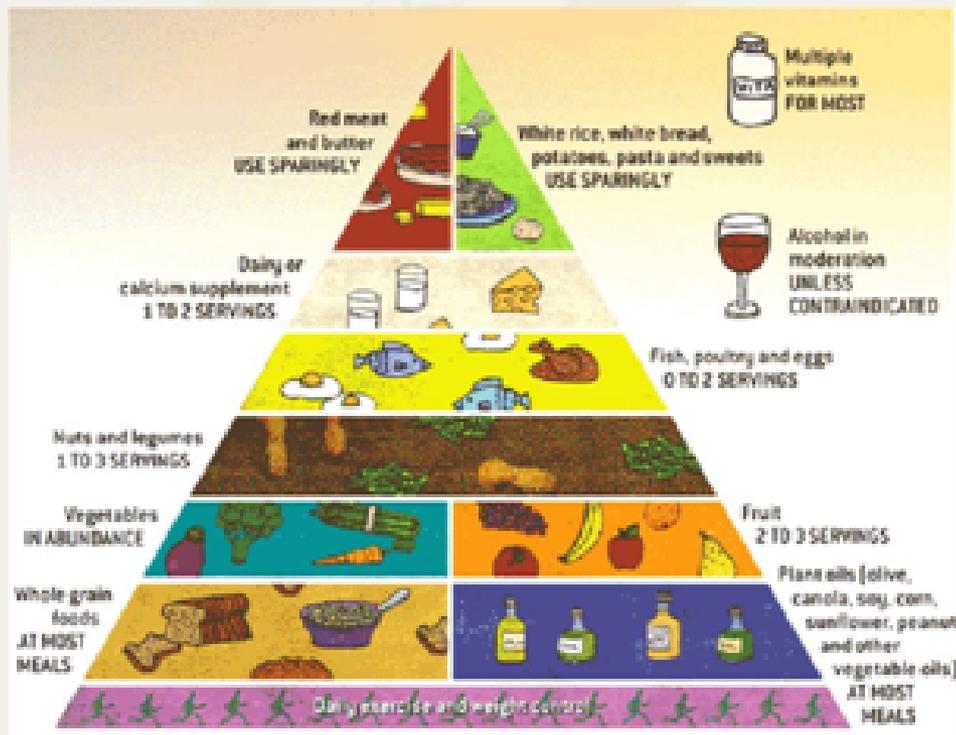




... le potenzialità di espansione nei nuovi paesi consumatori appaiono molto elevate anche in virtù dei ridotti consumi procapite

Italia	Spagna	Grecia	Tunisia	Germania	Gran Bretagna	Giappone	Usa
13,13	11,63	18,00	8,01	0,42	0,55	0,23	0,72

Fonte: FAO



**NEW FOOD PYRAMID**

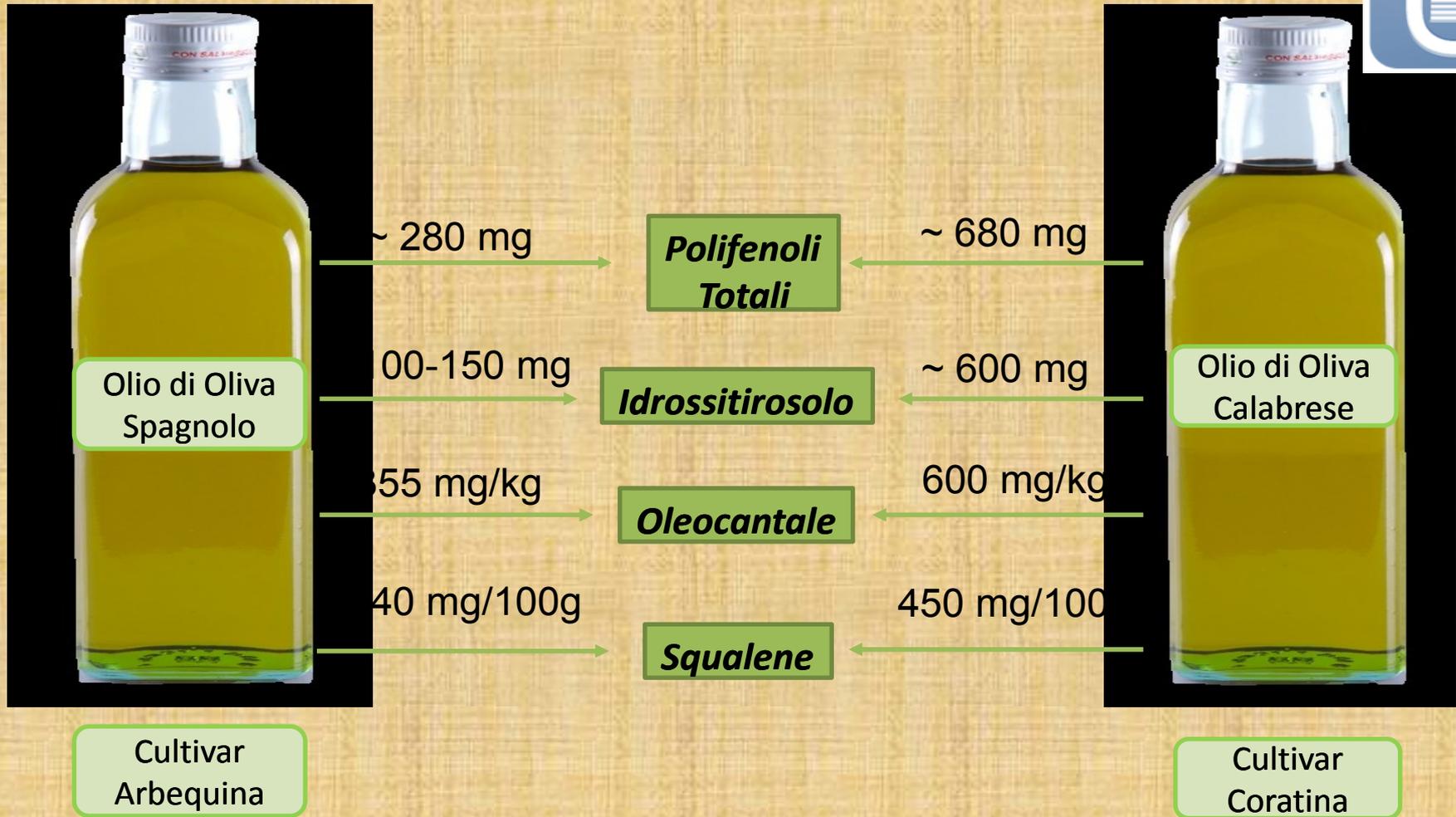
outlined by the authors distinguishes between healthy and unhealthy types of fat and carbohydrates. Fruits and vegetables are still recommended, but the consumption of dairy products should be limited.

*Il riconoscimento della FDA Qualified Health Claim.*  
*L'olio di oliva e i prodotti alimentari che lo contengono possono beneficiare in etichetta della seguente dizione:*  
*" Limited and not conclusive scientific evidence suggests that eating about 2 tablespoon ( 23 grams) of olive oil daily may reduce the risk of coronary heart disease"*

*1 americano su 10 = 800 gr.*  
*2 americani su 10 = 1,6 Kg.*  
*.....*  
*10 americani su 10 = 8 Kg.*



# 1 Kg di Olio D'Oliva contiene:



- Banca dati degli oli monovarietali italiani

- Potential of olive oil phenols as chemopreventive and therapeutic agents against cancer: a review of in vitro studies, Casaburi et al, Pharmacol Res. 2012



# EXTRA VIRGIN SUICIDE

THE ADULTERATION OF ITALIAN OLIVE OIL

---

By Nicholas Blechman

**Il suicidio  
dell'extra  
vergine. Ce lo  
meritiamo  
l'attacco del  
New York  
Times all'olio  
italiano**

*di Giorgia Cannarella*

**51 commenti**

# Olio made in Italy solo sulla carta: l'antifrode ipotizza il cartello, Parlamento secreta il dossier. E il ministero tace



Ambiente & Veleni

*Il nucleo di intelligence dell'Agenzia delle Dogane dal 2009 al 2013 ha redatto una serie di report da cui emerge l'attività di un trust italo-spagnolo che tiene bassi i prezzi, bypassa la qualità del prodotto ed elude le regole sulla concorrenza. E così sugli scaffali dei supermarket arriva extravergine di oliva con solo il 16% di olio italiano*



# Quantitative Flavonol Contents of Various Onion Cultivars Quantified as Milligrams of Quercetin per Kilogram of FW



Cultivar	Contents	Ref
Red Bone	117	83
<b>Tropea Rossa</b>	763	80
Rossa Lilia	487	80
Redwing	582	80



From bulbs of the cv. “Tropea”, which is cultivated in Southern Italy, Corea and co-workers (65) isolated 5.9 mg of taxifolin 7-glucoside, 53, and 98.1 mg of taxifolin per kilogram of FW.

The highest amount of free quercetin was detected in the fresh bulbs of “Tropea rossa tonda” (557.8 mg · kg<sup>-1</sup>) whereas the highest level of total flavonoids was found in “Dorata Density” (979.1mg · kg<sup>-1</sup>).

*RUNE SLIMESTAD, TORGILS FOSSEN, AND INGUNN MOLUND VÅGEN*  
*J. Agric. Food Chem. 2007, 55, 10067–10080 10067*

# Fai la scelta giusta...



## Contenuto in flavonoidi

	<i>Catechina (g/100g parte edibile)</i>	<i>Epicatechina (g/100g parte edibile)</i>	<i>Quercetina (g/100g parte edibile)</i>
<b>Mele fresche con buccia</b>	<b>0.95±0.01<sup>1</sup></b>	<b>8.14±0.05<sup>1</sup></b>	<b>4.42±0.06<sup>2</sup></b>
<b>Mele fresche senza buccia</b>	<b>0.86±0.02<sup>1</sup></b>	<b>6.23±0.01<sup>3</sup></b>	<b>1.50±0.22<sup>3</sup></b>

1) Arts et al, 2000    2) Hertog et al, 1992    3) Burda et al, 1990



## Confronto tra i valori FRAP e TRAP delle fragole di Aprica e delle fragole commerciali

Provenienza del prodotto	FRAP (mmol/kg)	TRAP (mmol/kg)
Aprica Valtellina	62,85±3,23	16,31±1,20
Commerciale	19,74±0,68	10,34±0,15



## Confronto tra i valori FRAP e TRAP della cicoria calabrese e della cicoria commerciale

Provenienza del prodotto	FRAP (mmol/kg)	TRAP (mmol/kg)
Cicoria di Pascolo Calabria	20,4±0,08	26,7±1,04
Commerciale	8,0±0,033	10,6±0,06



# Is antioxidant plasma status in humans a consequence of the antioxidant food content influence?

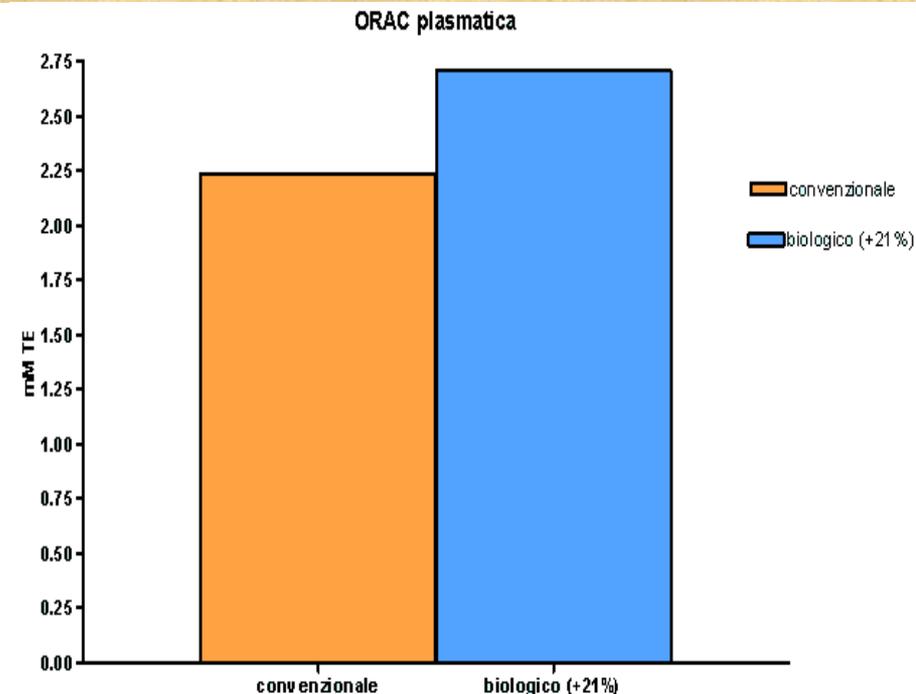
L. DI RENZO<sup>1,2</sup>, D. DI PIERRO<sup>3</sup>, M. BIGIONI<sup>1</sup>, V. SODI<sup>1</sup>, F. GALVANO<sup>4</sup>,  
R. CIANCI<sup>1,5</sup>, L. LA FAUCI<sup>4</sup>, A. DE LORENZO<sup>1</sup>

<sup>1</sup>Department of Neuroscience, Division of Human Nutrition, University of Tor Vergata, Rome (Italy)

<sup>2</sup>I.N.Di.M., National Institute for Mediterranean Diet and Nutrigenomic, Reggio Calabria (Italy)

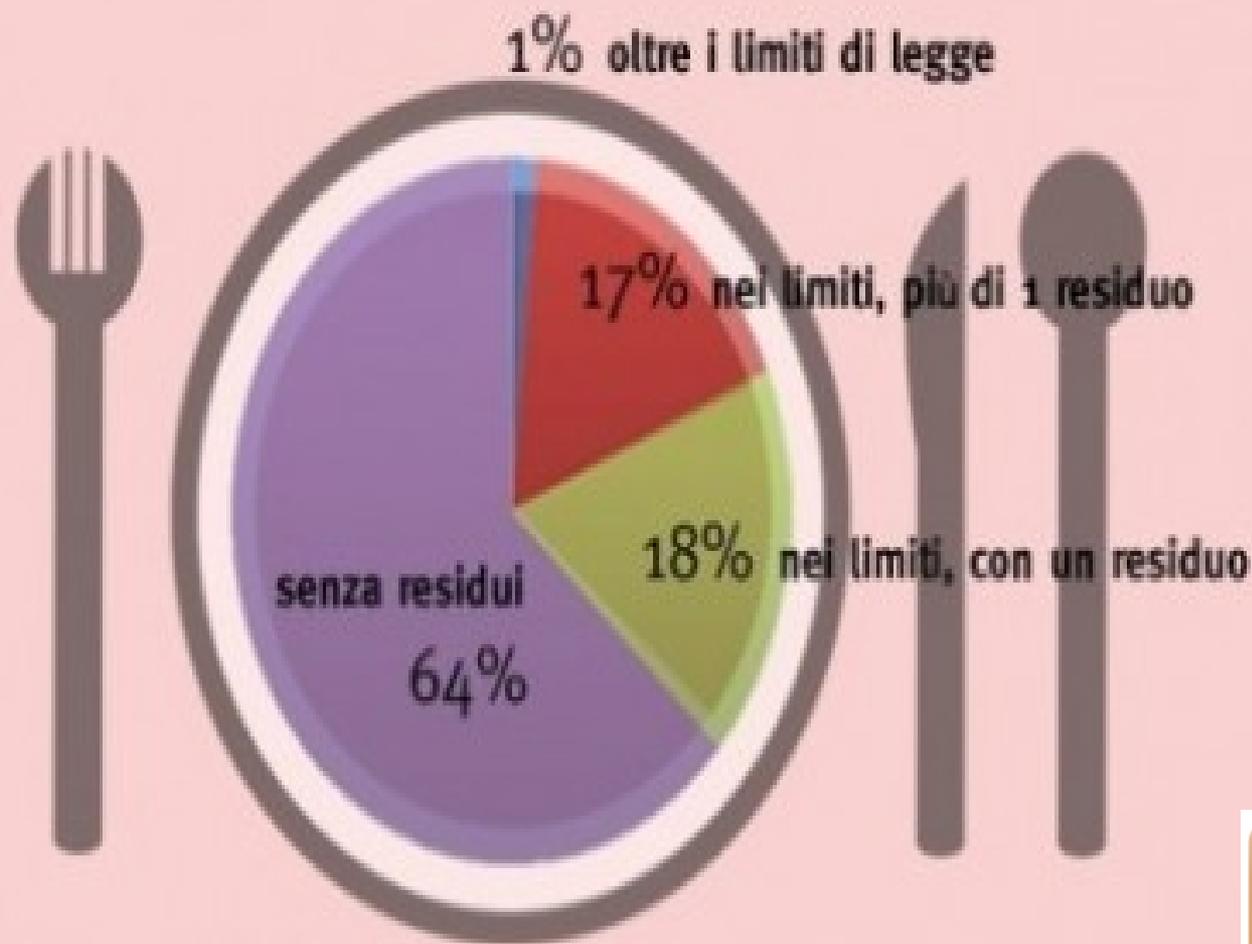
Table I. Antioxidant capacity in conventional and organic products.

	Conventional		Organic		_%
	Median	Range	Median	Range	
Garlic	2572,5	70	3816,5	52	48**
Orange	900	50	1606	56	79**
Banana	205,9	16	339	38,6	65**
Carrot	116,4	27,2	166,8	58,4	43**
Beans	50,4	21,2	207,6	31,2	312**
Strawberry	846,7	37,2	921,2	41,6	9**
Lettuce	756,3	99,8	608,5	80,8	-20**
Limon	1505	54	1603	48	7**
Apple	454	81,9	610,5	47	34**
Potato	298,8	4,4	423,6	50,8	42**
Tomato Souce	205,2	19,8	213,8	58,8	4
Pear	246,4	132,2	185,3	58,4	-25**
Peas	88,2	41,8	164,8	65	87**
Tomato	280,8	72,6	475,2	98,4	69**
Celery	265,7	119,8	414,9	40,4	56**
Wine	3132	280,2	4725	164	51**
Courgettes	774	148,8	894	60,6	15**
Milk	195,8	78,4	216,6	38,6	11*



# QUANTI PESTICIDI HO NEL PIATTO?

Un terzo (36%)  
dei campioni  
di frutta  
e verdura  
analizzati  
nel 2011  
presenta  
residui chimici  
(diserbanti,  
insetticidi,  
fungicidi, etc.)



# Twenty-four-hour urinary excretion of ten pesticide metabolites in healthy adults in two different areas of Italy (Florence and Ragusa)

Calogero Saieva<sup>a</sup>, Cristina Aprea<sup>b</sup>, Rosario Tumino<sup>c</sup>, Giovanna Masala<sup>a</sup>,  
Simonetta Salvini<sup>a</sup>, Graziella Frasca<sup>c</sup>, Maria Concetta Giurdanella<sup>c</sup>,  
Ines Zanna<sup>a</sup>, Adriano Decarli<sup>d</sup>, Gianfranco Sciarra<sup>b</sup>,  
Domenico Palli<sup>a,\*</sup>



ELSEVIER **Science of the  
Total Environment**  
An International Journal for Scientific Research  
into the Environment and its Relationship with Humankind

Mean adjusted<sup>a</sup> levels of daily urinary excretion of pesticide metabolites in sixty-nine 24-h urine samples by EPIC center (EPIC Florence and Ragusa)

Pesticide metabolite	Florence (nmol/day)	Ragusa (nmol/day)	<i>P</i> -value
TCP	31.5	16.7	<b>0.01</b>
Alkylphosphates <sup>b</sup>	459.9	204.5	<b>0.007</b>
-Diethylphosphates <sup>c</sup>	105.3	50.1	<b>0.009</b>
-Dimethylphosphates <sup>d</sup>	354.6	154.3	<b>0.01</b>
ETU	11.5	4.2	<b>0.03</b>
3PBA	5.8	7.1	0.61

<sup>a</sup> From a covariance analysis including terms for age, sex, BMI, smoking history and center.

<sup>b</sup> Alkylphosphates: sum of six alkylphosphates measured: DMP, DMTP, DMDTP, DEP, DETP, DEDTP.

<sup>c</sup> Diethylphosphates: sum of three diethylphosphates measured: DEP, DETP, DEDTP.

<sup>d</sup> Dimethylphosphates: sum of three dimethylphosphates measured: DMP, DMTP, DMDTP.

# La Correlazione NON è casualità



I Grassi saturi sono stati demonizzati da Ancel Keys nel "Seven Countries Study" nel 1970, concludendo che esiste una correlazione tra l'incidenza di malattie coronariche e la concentrazione di colesterolo ematico che a sua volta è correlata con la quota di energia fornita dai grassi saturi.

BMJ



BMJ 2013;347:f6340 doi: 10.1136/bmj.f6340 (Published 22 October 2013)

Page 1 of 2

## OBSERVATIONS

### FROM THE HEART

## Saturated fat is not the major issue

Let's bust the myth of its role in heart disease

Aseem Malhotra *interventional cardiology specialist registrar, Croydon University Hospital, London*



Indeed, recent prospective cohort studies have not supported any significant association between saturated fat intake and cardiovascular risk.<sup>5</sup> Instead, saturated fat has been found to be protective. The source of the saturated fat may be important. Dairy foods are exemplary providers of vitamins A and D. As well as a link between vitamin D deficiency and a significantly increased risk of cardiovascular mortality, calcium and phosphorus found commonly in dairy foods may have antihypertensive effects that may contribute to inverse associations with cardiovascular risk.<sup>6-8</sup> One study showed that



# Recognition at the American Heart Association

## AHA Scientific Statement

### **Dietary Sugars Intake and Cardiovascular Health A Scientific Statement From the American Heart Association**

Rachel K. Johnson, PhD, MPH, RD, Chair; Lawrence J. Appel, MD, MPH, FAHA;  
Michael Brands, PhD, FAHA; Barbara V. Howard, PhD, FAHA;

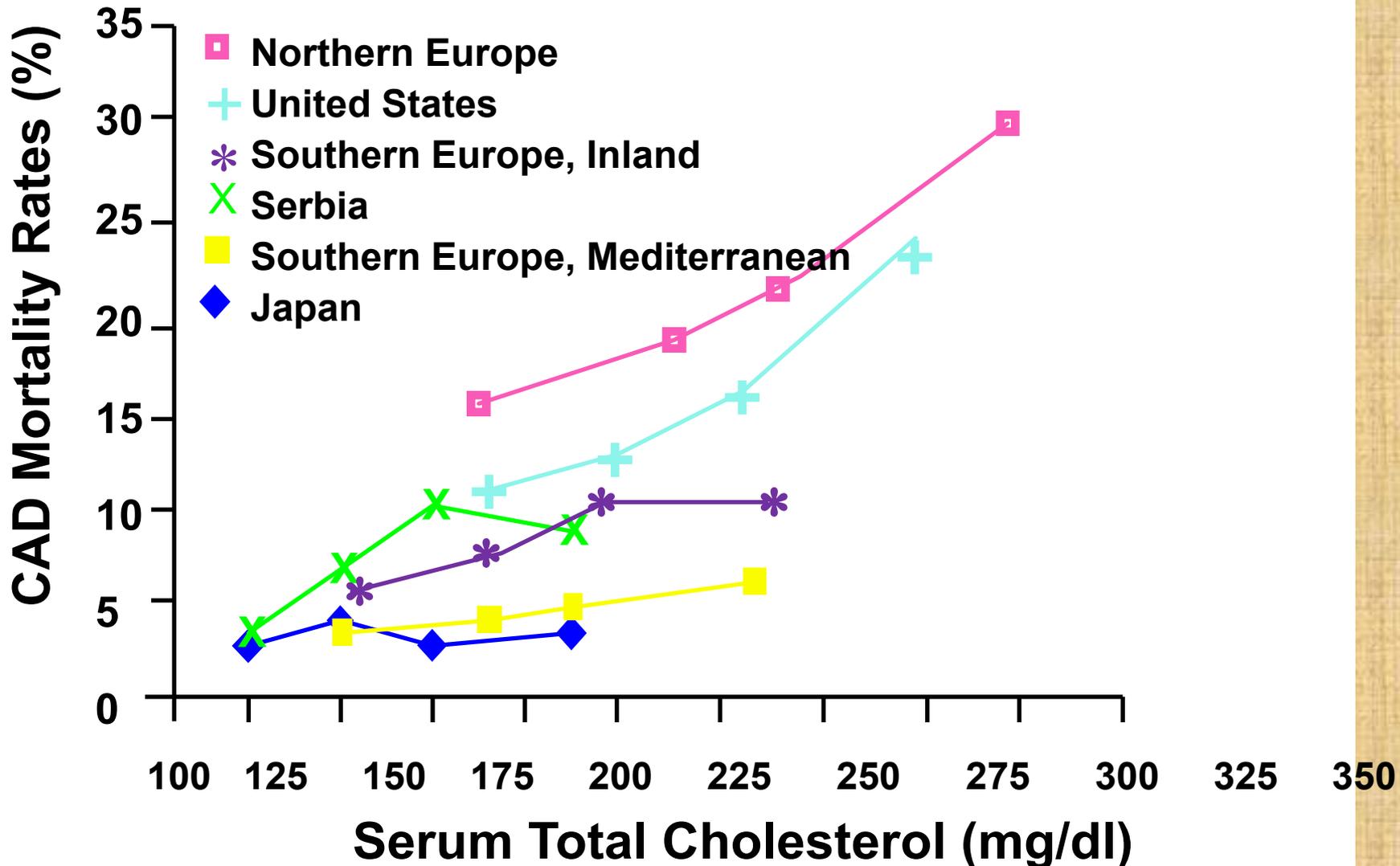
Michael Lefevre, PhD, FAHA; Robert H. Lustig, MD; Frank Sacks, MD, FAHA;

Lyn M. Steffen, PhD, MPH, RD, FAHA; Judith Wylie-Rosett, EdD, RD;

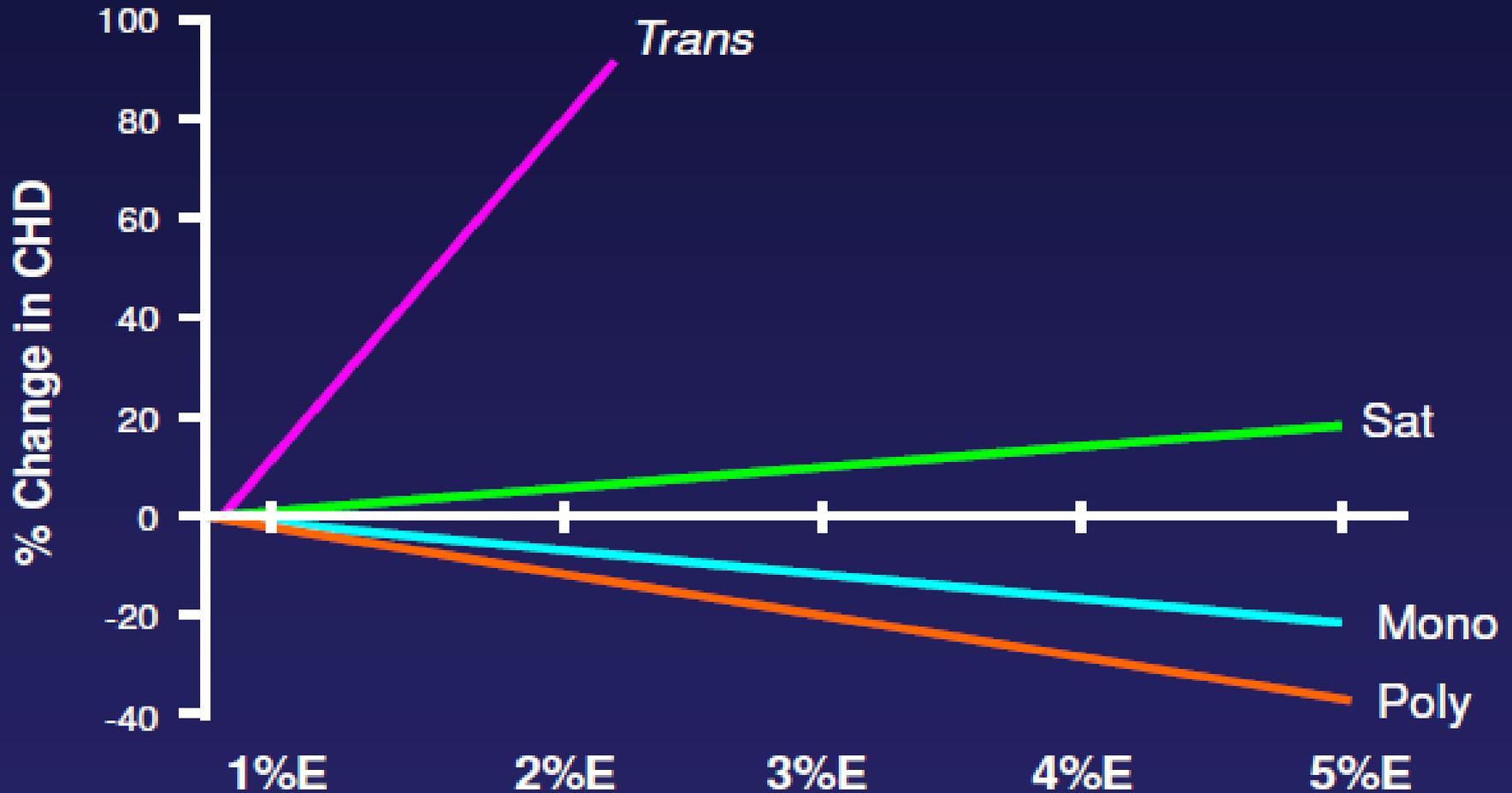
on behalf of the American Heart Association Nutrition Committee of the Council on Nutrition,  
Physical Activity, and Metabolism and the Council on Epidemiology and Prevention

**Recommends reduction in sugar intake from 22 tsp/day  
to 9 tsp/day (males) and 6 tsp/day (females)**

# Serum cholesterol and Long-term CAD Mortality 25-year Follow-up of the Seven Countries Study



# Types of Fat and Incidence of CHD



E = increment of energy intake.

Hu FB, et al. *N Engl J Med.* 1997;337:1491-1499.

# Sugar vs Cholesterol: John Yudkin vs Ancel Keys



- Based on the results of his 1970 "[Seven Countries](#)" study, American nutritionist Ancel Keys concluded that dietary fat was to blame for high serum cholesterol and thus for heart attacks. British physiologist [John Yudkin](#) disagreed, naming sugar, especially fructose, as the cause of heart disease as well as cavities, obesity, liver disease, and some forms of cancer.
- Yudkin's 1972 book, "[Pure, White and Deadly](#)," argued that dietary fat and saturated fat are harmless. He was quickly attacked by Keys. Greg sums up what followed: "Keys won." In response to the work of Keys and other advocates of low fat consumption, in the 1970s, the food industry successfully manufactured a huge market for its own processed foods, which contained little saturated fat but lots of sugar.

# Sugar vs. Cholesterol: John Yudkin vs. Ancel Keys



JOHN YUDKIN

SUGAR: Pure, White & Deadly.



DR. JOHN YUDKIN

- Message not welcomed by sugar & processed food industries

- These INDUSTRIES

Used various methods to impede Yudkin's work.  
(listed in the final Chapter of "Pure, White and Deadly")  
- interfered with his research funding & publication.

- Funded US epidemiologist **ANCEL KEYS**

- Ancel Keys proposed that saturated fat was primary cause of CHD
- used rancorous language & personal smears to dismiss the evidence that sugar was the true culprit

- Food industry successfully discredited case against sugar
- Yudkin died in 1995. His warnings were no longer taken seriously

# NYT: The Mediterranean Diet Is it the food or the Lifestyle



Al centro della tesi del cardiologo londinese vi è la convinzione che «non c'è una vera e propria Dieta Mediterranea. Non c'è mai stata. I veri segreti della longevità del Mediterraneo - spiega Malothra - sono certamente anche il cibo, ma ci sono ulteriori fattori legati a uno stile di vita che abbiamo ormai dimenticato. Siamo quindi tornati alla fonte per recuperare queste lezioni».

From the creators of "Cereal Killers" & "Run on Fat"

# The Pioppi Protocol



KICKSTARTER

Pledge 



a documentary film about bad science, good food and lessons in longevity from a tiny Italian village where the people forget to die



 Watch Now

# Cereal Killers



# Association Between Dietary Whole Grain Intake and Risk of Mortality

## Two Large Prospective Studies in US Men and Women

Hongyu Wu, PhD; Alan J. Flint, MD, ScD; Qibin Qi, PhD; Rob M. van Dam, PhD;  
Laura A. Sampson, RD; Eric B. Rimm, ScD; Michelle D. Holmes, MD, DrPH; Walter C. Willett, MD,  
DrPH; Frank B. Hu, MD, PhD; Qi Sun, MD, ScD

*JAMA Intern Med.* 2015;175(3):373-384. doi:10.1001/jamainternmed.2014.6283.

They found that whole grain intake was associated with up to 9% lower overall mortality and up to 15% lower CVD-related mortality. For each serving of whole grains (28g/day), overall mortality dropped by 5%, and by 9% for CVD-related mortality.



"All the News  
That's Fit to Print"

# The New York Times



VOL. CLXIV . . . No. 56,654

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NEW YORK, TUESDAY, OCTOBER 14, 2014

\$2.50

## ***"La dieta Mediterranea non esiste. segreto della longevità è nascosto nei vicoli di Pollica***

- Il documentario e l'articolo del New York Times ci riempiono di soddisfazione e di orgoglio - spiega il sindaco di Pollica, Stefano Pisani - La mia comunità e l'intero Cilento rappresentano da sempre il modello ideale di uno stile di vita sano. L'attenzione che il mondo scientifico internazionale ci riserva deve spingerci ad impegnarci sempre di più".

# Limita l'uso di "Junk Food" e di carni affumicate



- Il consumo di grassi contribuisce ai tumori del colon, mammella, prostata e altri organi
- Le carni affumicate contengono nitriti (bacon, hot dogs etc)
- Carcinoma gastrico ed esofageo

# Attenzione alle cotture...!!!



## *Effect of temperature*



160 °C  
27 ppb

170 °C  
70 ppb

180 °C  
326 ppb

Acrylamide levels in potato chips fried for 4 minutes increased with frying oil temperature.



# Indici nutrizionali di un pasto



tipico americano  
Valore di 100g



<b>Ingredienti:</b>	<b>kcal</b>	<b>238,6</b>
Hamburger 40g	Proteine(g)	14,9
Panino 26g	Carboidrati(g)	13,0
Maionese 5g	Lipidi(g)	14,5
Cetrioli 4g	INQ proteine	2,1
Lattuga 2g	INQ Carboidrati	0,3
Formaggio Fuso 13g	INQ lipidi	2,0
Cipolle 5g	CSI	6,7
Olio EVO 5g	AGEs (KU/100g)	7801
	H <sub>2</sub> O (litri)	795
	CO <sub>2</sub> Keq	1,86
	(fino alla distribuzione)	

tipico mediterraneo  
Valore di 100g



<b>Ingredienti:</b>	<b>kcal</b>	<b>334,5</b>
Pasta 55g	Proteine(g)	11,8
Fagioli 40g	Carboidrati(g)	54,8
Olio EVO 5g	Lipidi(g)	9,1
	INQ proteine	1,2
	INQ Carboidrati	1,0
	INQ lipidi	0,9
	CSI	2,0
	AGEs (KU/100g)	754
	H <sub>2</sub> O (litri)	98
	CO <sub>2</sub> Keq	0,17
	(fino alla distribuzione)	

# Position of the Academy of Nutrition and Dietetics: Interventions for the Treatment of Overweight and Obesity in Adults



## Journal of the Academy of Nutrition and Dietetics

Volume 116, Issue 1, January 2016, Pages 129–147



Mediterranean. There is not a standard definition for the Mediterranean diet, but generally the Mediterranean diet reflects the dietary patterns of Crete, Greece and southern Italy in the early 1960s. The traditional Mediterranean diet was focused on plant-based foods (eg. Fruits, vegetables, grains, nuts, seeds), minimally processed foods, olive oil as the primary source of fat, dairy products, fish and poultry consumed in low to moderate amounts, and minimal amount of red meat.

At this time, as long as the diet helps to reduce energy intake by 500 to 750 kcal/day, there is no one diet that falls into this category that has been shown to be more efficacious than another at producing clinically meaningful weight loss

# Identificazione degli NCCP

**Analisi ambientali:**  
caratteristiche pedoclimatiche  
areale di produzione,  
analisi del suolo

**Valutazione Impatto  
Ambientale  
VIA**

**Analisi  
Agronomiche:**  
genotipizzazione  
della cultivar,  
necessità di  
fertilizzazione  
del terreno per  
richieste nutritive,  
tecniche di  
coltivazione

**Analisi  
Veterinarie:**  
dati genetici, SNPs  
per caratteri  
favorevoli, dati  
clinico-veterinari,  
tipologia di  
stabulazione,  
farmaci veterinari

La Valutazione di Impatto Ambientale (VIA) nazionale viene introdotta in Italia sulla base di norme transitorie che traggono origine da quanto definito dall'art. 6 della legge 394/86 istitutiva del Ministero dell'Ambiente e conformemente alla direttiva del Consiglio della Comunità Europea n. 85/337 del 1985 modificata ed integrata dalla direttiva CEE 97/11



# Valutazione Impatto sulla Salute VIS

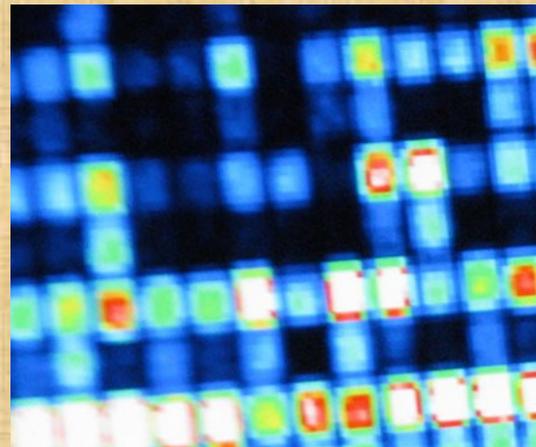


**Livello 1**  
**Analisi dello Stato Nutrizionale:**  
**abitudini alimentari, stile di vita e**  
**composizione Corporea**

**Effetto sul Consumatore**

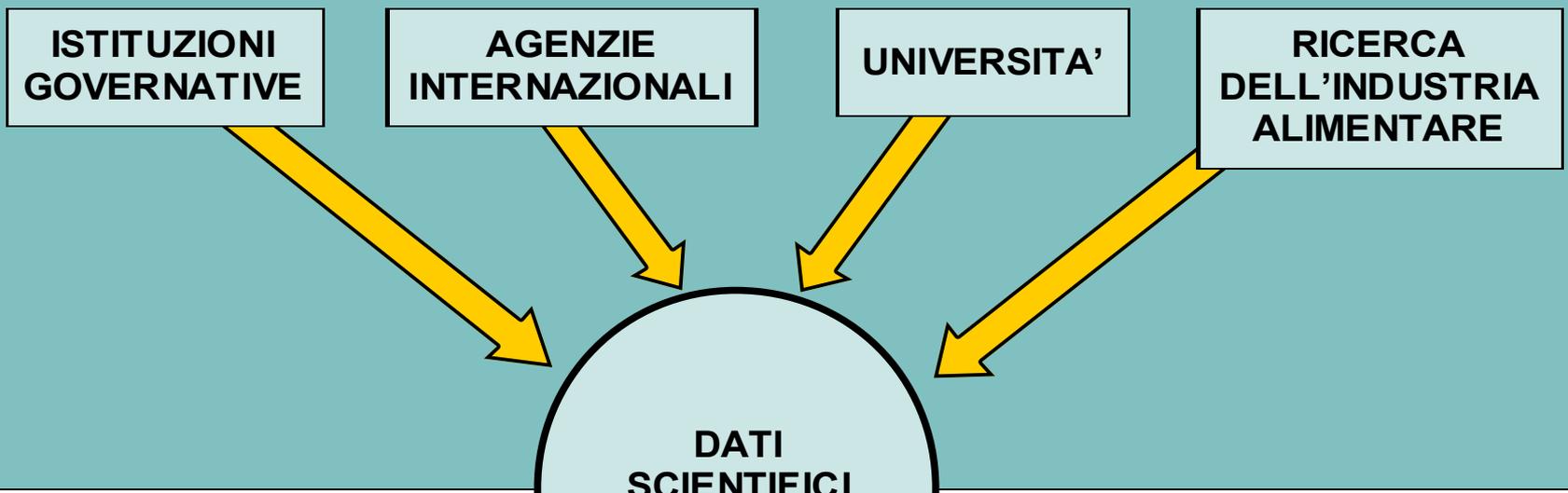
*Scelta di un biomarker  
diagnostico*

**Livello 2**  
**Analisi delle**  
**caratteristiche**  
**biochimiche: studio del**  
**profilo lipidico, glucidico,**  
**ossidativo ed**  
**infiammatorio**

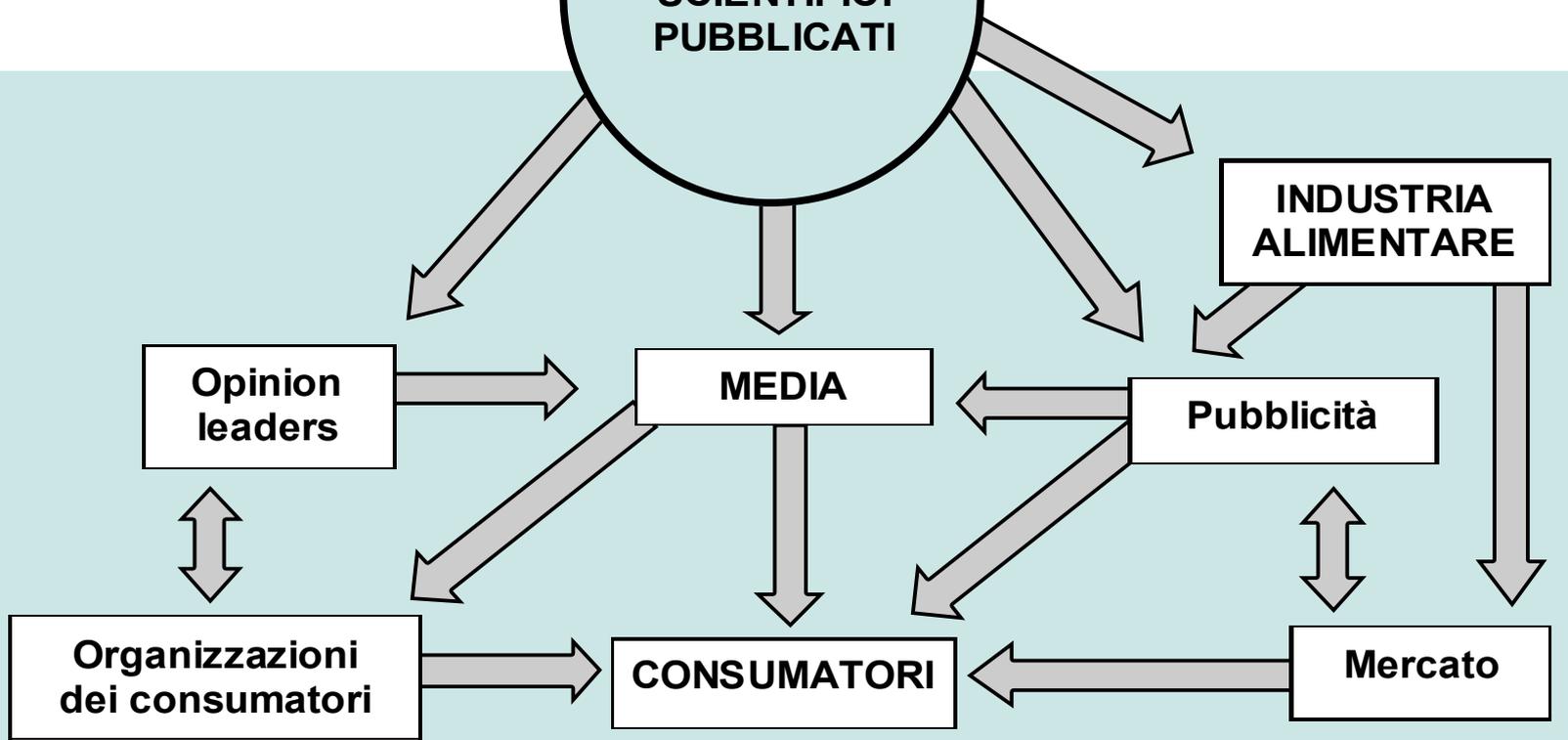


**Livello 3**  
**Analisi Nutrigenetiche**  
**e Nutrigenomiche**

**RICERCA**

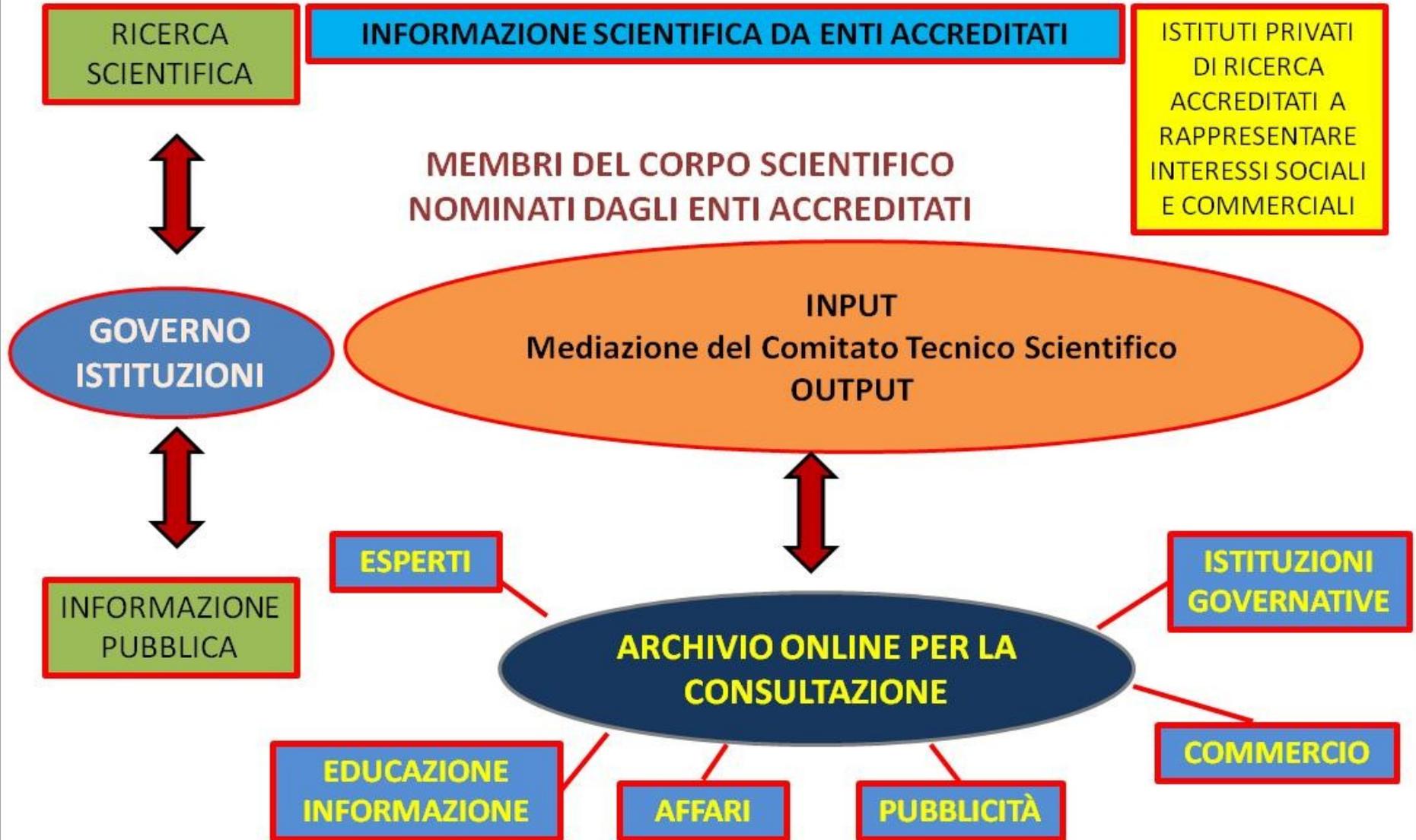


**COMUNICAZIONE**



# SISTEMA DI SICUREZZA E QUALITÀ NUTRIZIONALE

## OSSERVATORIO PUBBLICO PER L'INFORMAZIONE SULLA SICUREZZA DEGLI ALIMENTI (archivio pubblico per il rilascio di dati scientifici ufficiali)



# Dr. Christiaan Barnard



**«Se mi fossi occupato prima di prevenzione, invece di salvare 150 persone, avrei potuto salvarne 150 milioni»**