

“Cominciate col fare ciò che è  
necessario, poi ciò che è  
possibile, e all'improvviso vi  
sorprenderete a fare  
l'impossibile”

# LA DIETA PREVENTIVA

道





## Cereali e legumi



Pasta e fagioli

Pesce

Patate/insalata

Formaggio

Pere/miele

Bistecca

Pomodori/vino

Prosciutto

Melone/fichi

Hamburger

Coca-cola

## WCRF 2007:

Mantenersi snelli per tutta la vita

Praticare quotidianamente esercizio fisico

Evitare bevande zuccherate ▼ ▼ ▼

Limitare le bevande alcoliche ▼ ▼

Limitare i cibi ad alta densità calorica ▼

Basare l'alimentazione quotidiana prevalentemente su un'ampia varietà di cereali non raffinati, legumi, verdure e frutta

Limitare le carni rosse ▲

Limitare sale e cibi conservati sotto sale ▲ ▲

Evitare le carni conservate ▲ ▲ ▲

Ricavare i nutrienti dai cibi, non da integratori

Allattare i figli

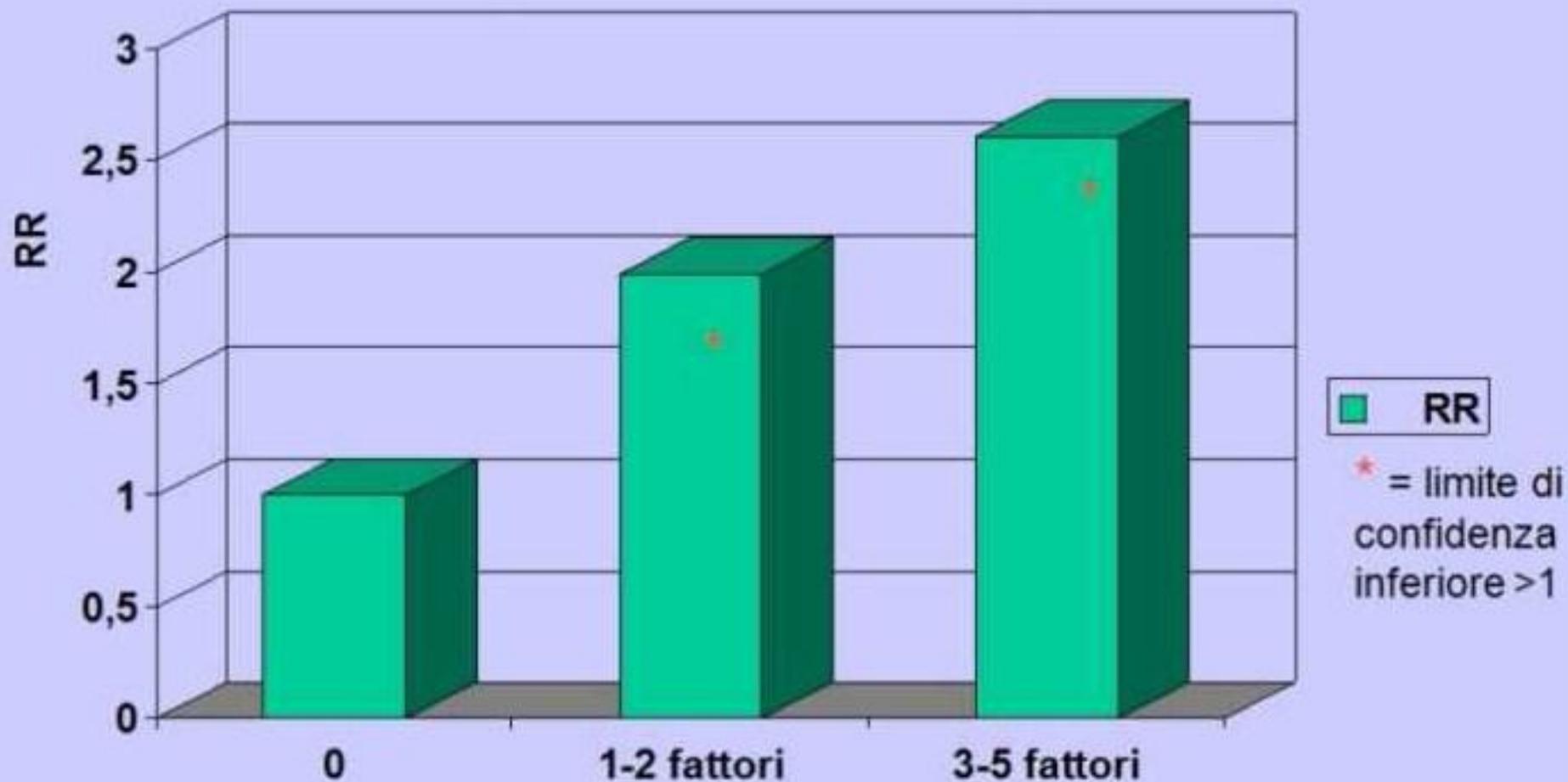
## Pattern alimentari prevalentemente vegetali e carcinoma mammario

• Sieri	2004	ORDET	salad	0.66 (0.46-0.94)
• Mannisto	2005	NLSC	vegetable	0.90
• “		SMC	“	0.91
• Velie	2005	BCDDP	traditional	0.78 (0.65-0.95)
• Fung	2005	NHS	prudent	0.62 (0.45-0.88)
• Ronco	2006	Montevideo	healthy	0.46 (0.31-0.69)
• Cui	2007	Shanghai	veg-soy	1.00
• Hirose	2007	HERPACC	prudent	0.73 (0.54-0.96)
• Murtaugh	2008	FCBSS	mediterranean	0.54 (0.37-0.90)
• Wu	2009	Asian-Amer.	Veg-soy	0.72 (0.54-0.96)
• “			mediterranean	0.65 (0.46-0.95)

## Sindrome Metabolica e Carcinoma Mammario

- Circonferenza vita (Connolly 2002)
- Ipertensione (Soler 1999)
- Trigliceridi (Potishman '91, Goodwin '97)
- HDL basse (Schreier 1999, Furberg 2004)
- Glicemia (Muti 2002)
- **Sindrome metabolica (Agnoli 2008)**

## RISCHIO DI CANCRO MAMMARIO IN FUNZIONE DEL NUMERO DI FATTORI DI SIDROME METABOLICA



Fonte: Progetto ORDET (postmenopausa). Agnoli et al. 2009

DIANA-2 (Pasanisi et al. Int J Cancer 2006)

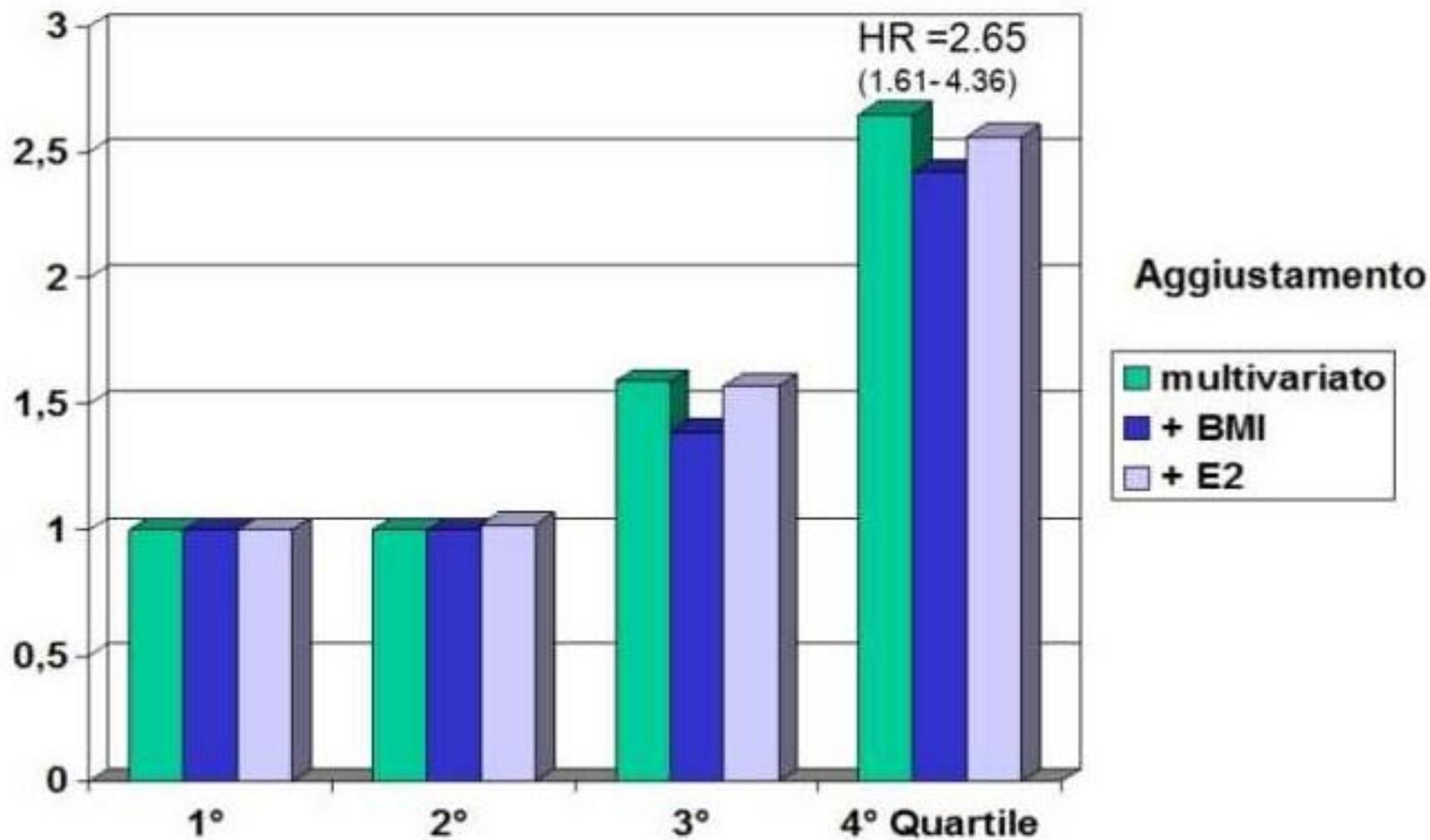
Breast cancer recurrences by metabolic syndrome and serum testosterone level (above or under the median value)

Metabolic syndrome	Testosterone ng/mL	Recurrences		HR (95%CI) adjusted*
		Yes	No	
No	≤ 0.4	7	46	1
Yes	≤ 0.4	1	3	2.2 (0.2-19.4)
No	> 0.4	17	24	<b>3.8</b> (1.5-9.5)
Yes	> 0.4	7	5	<b>6.7</b> (2.3-19.8)

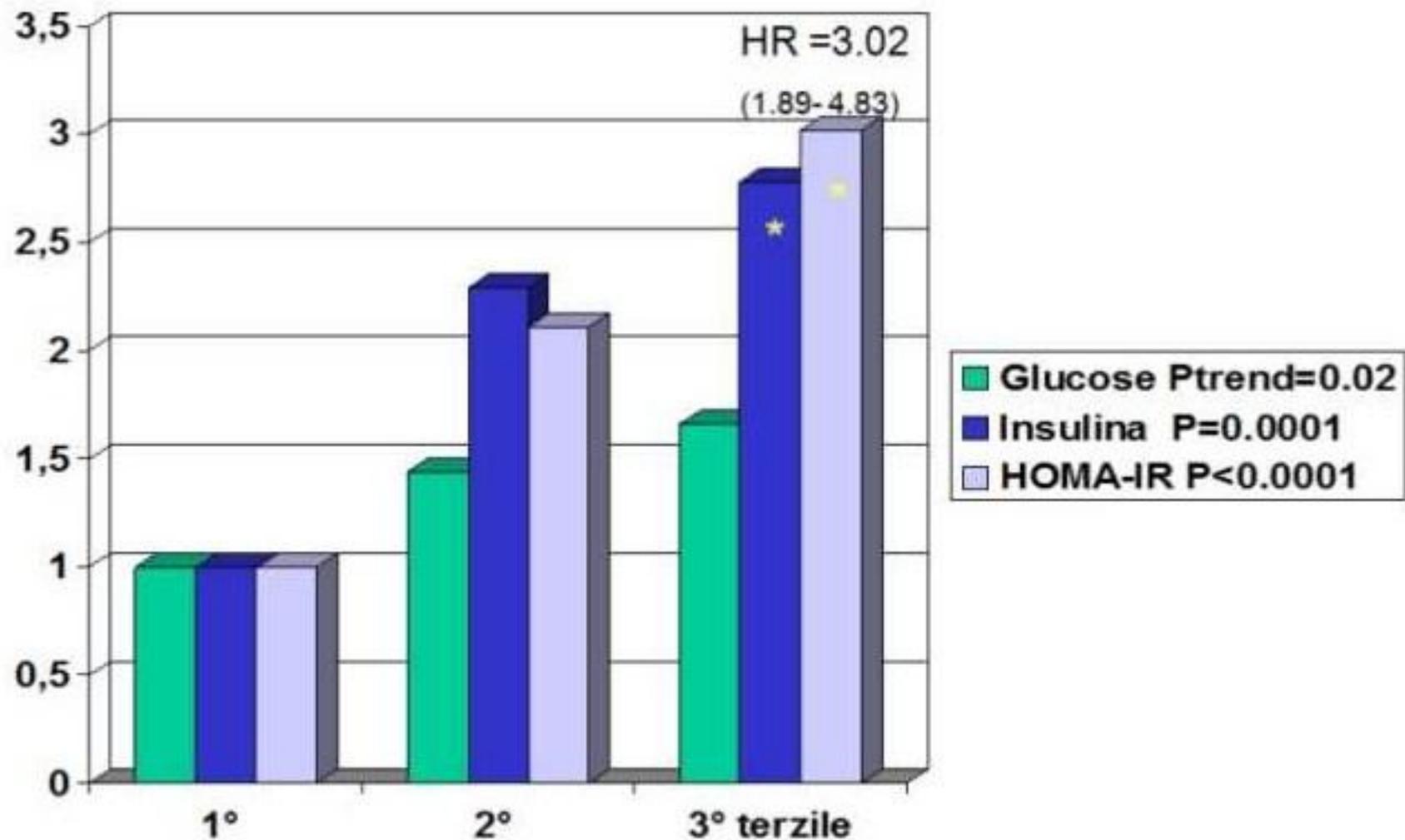
\* For age and pathological prognostic factors

# Fattori di rischio endocrini e metabolici del CM

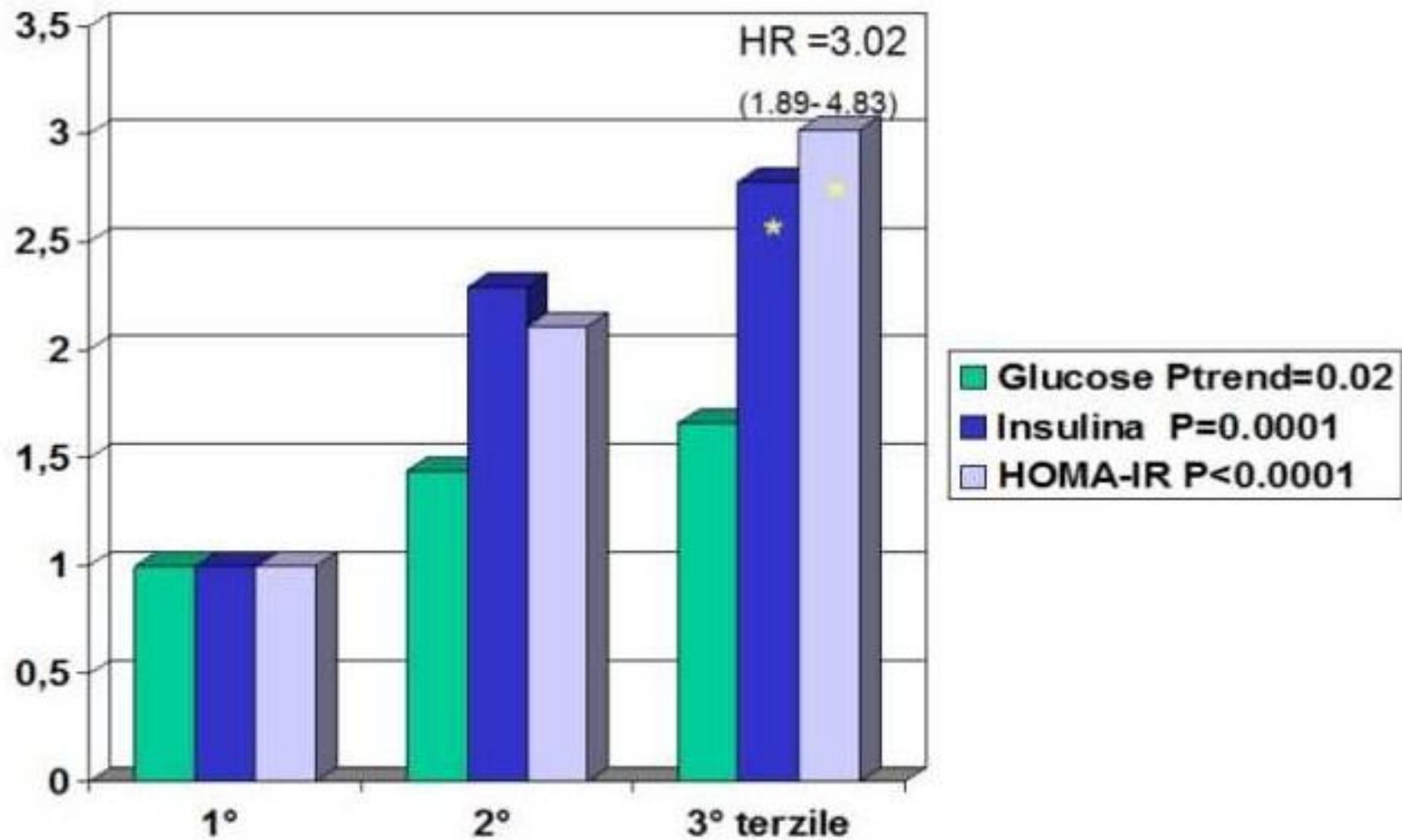




WHI-OS Gunter JNCI 2009: 835 casi incidenti di cancro mammario postmenopausali  
**RR in funzione dei livelli plasmatici di insulina**

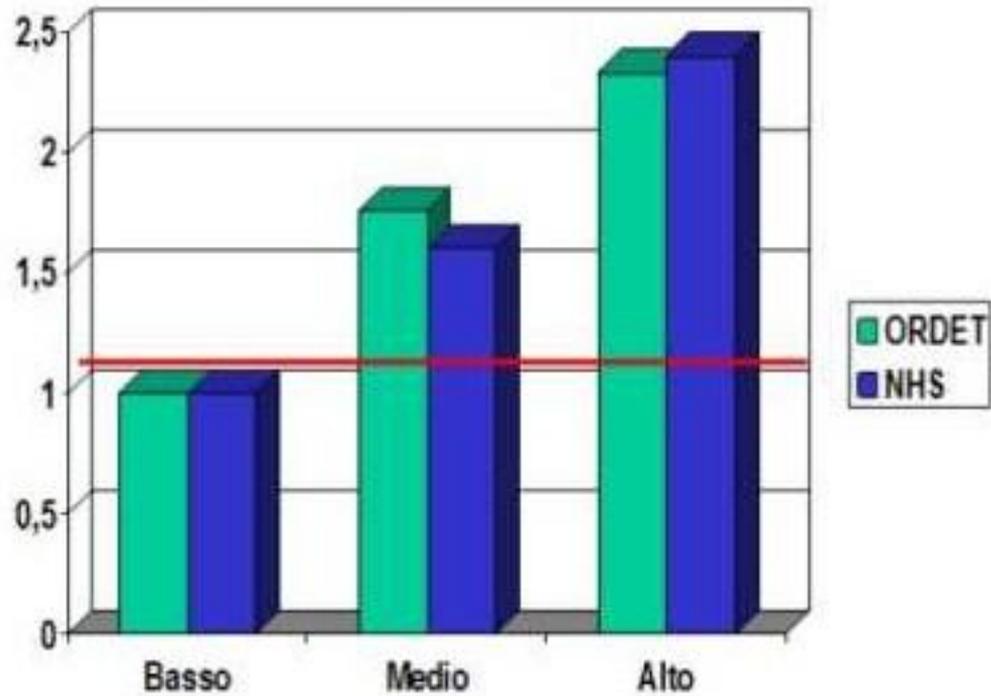


WHI (Kabat IJC 2009) 179 casi incidenti in 5450 partecipanti con esami ripetuti  
**Rischio di carcinoma mammario postmenopausale  
 in funzione della resistenza insulinica**



WHI (Kabat IJC 2009) 179 casi incidenti in 5450 partecipanti con esami ripetuti  
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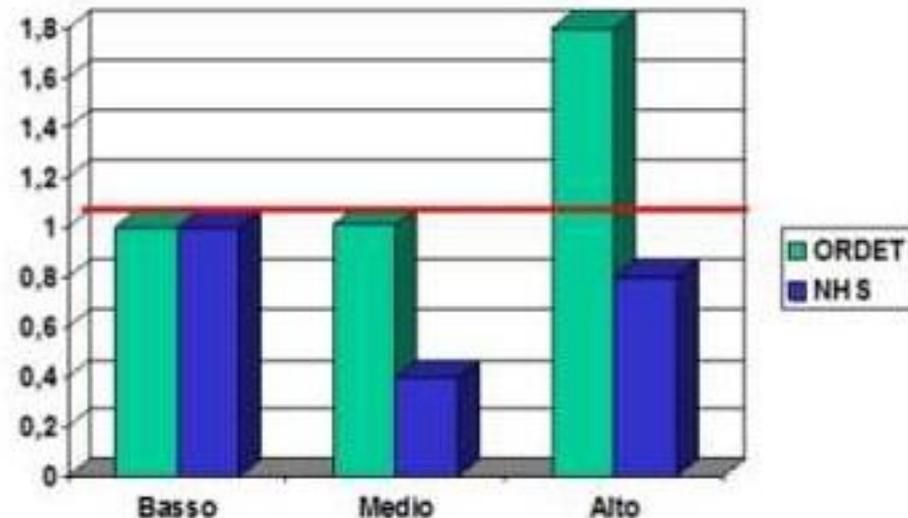
## ER+PR+



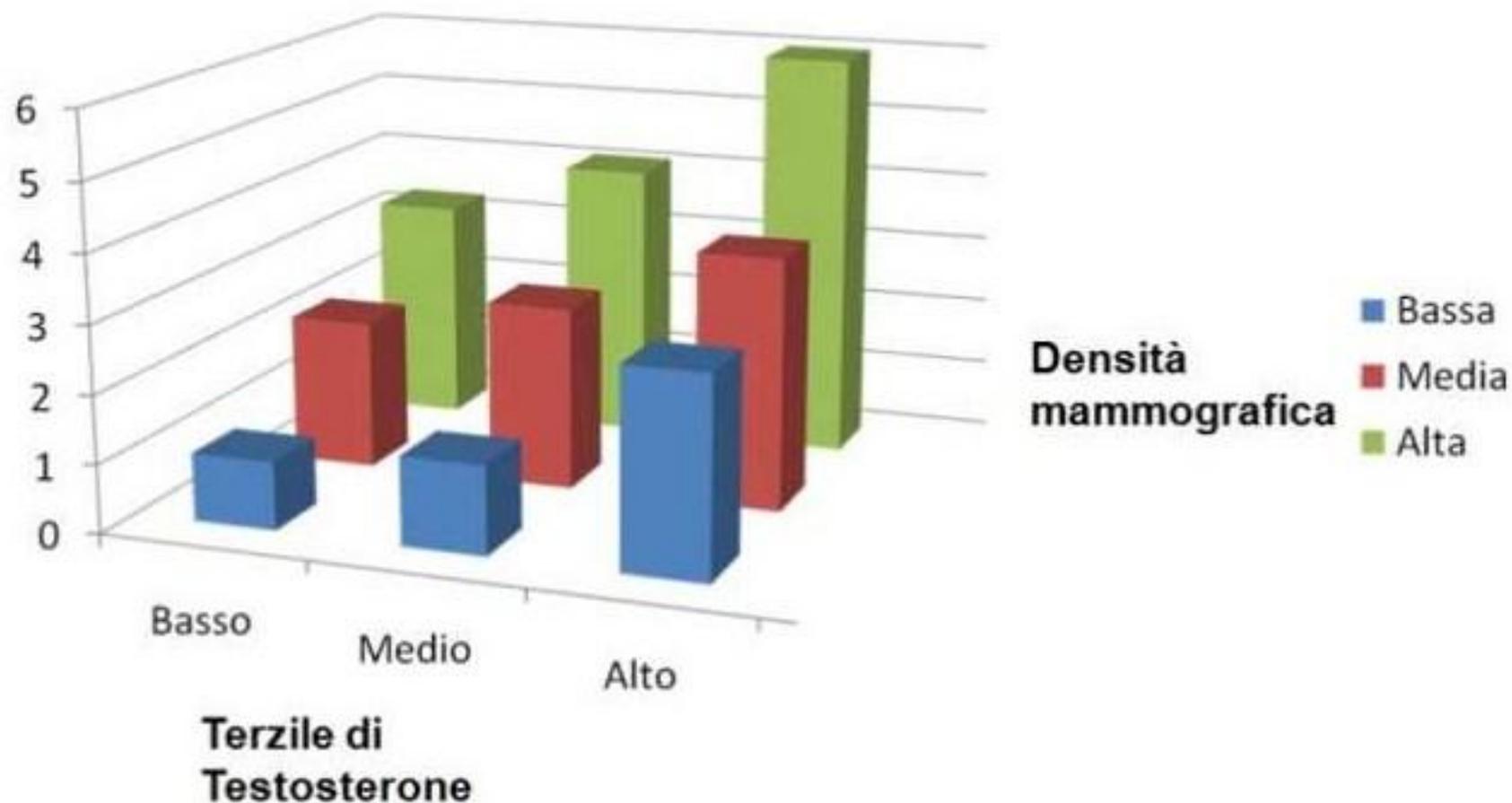
## Terzili di Testosterone

RR di cancro mammario in funzione della concentrazione sierica di testosterone e dell'espressione recettoriale  
Sieri et al. 2009

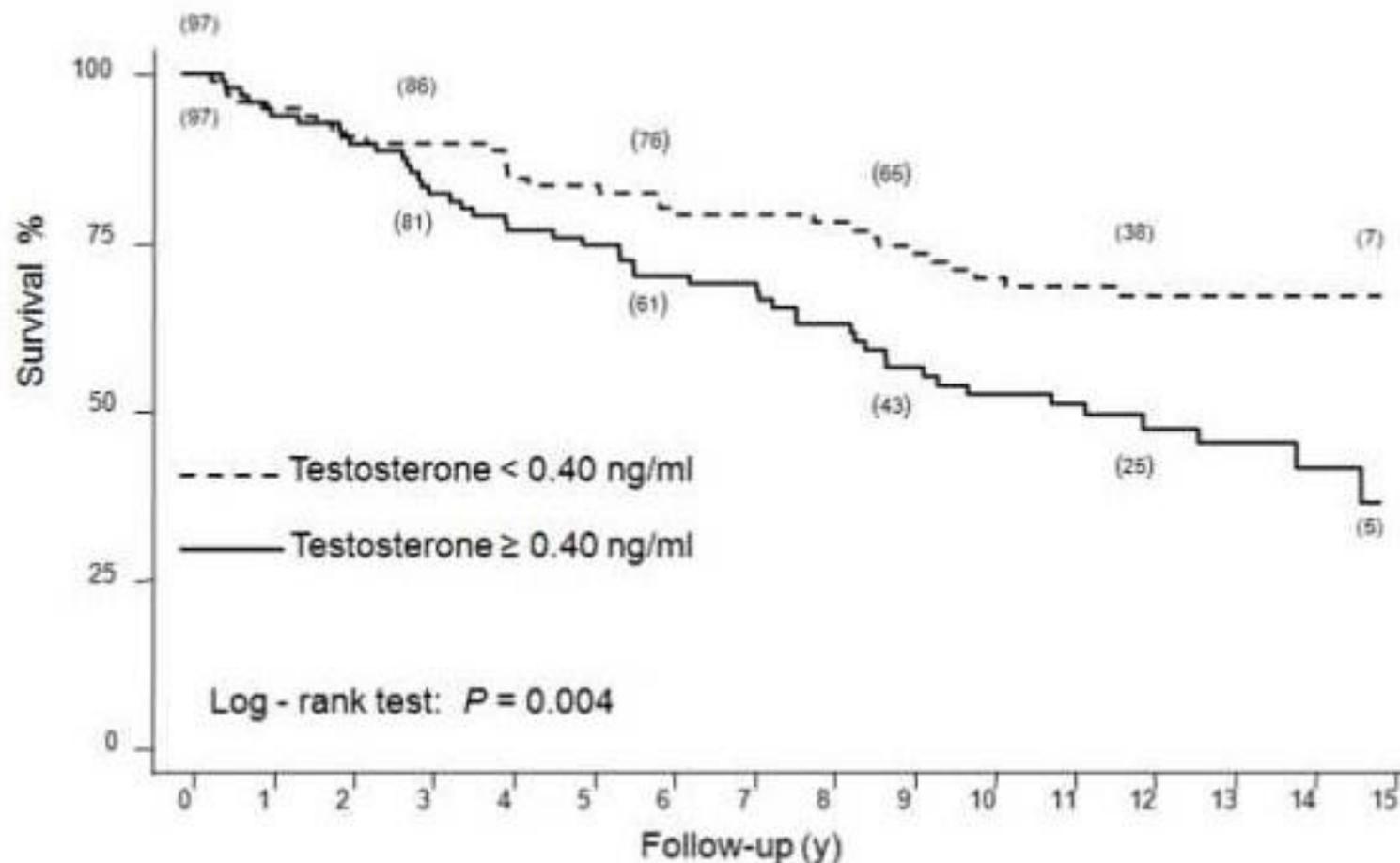
## ER-PR-



# RR di cancro mammario in funzione della concentrazione sierica di testosterone e della densità mammografica (NHS, Tamimi JNCI 2007)



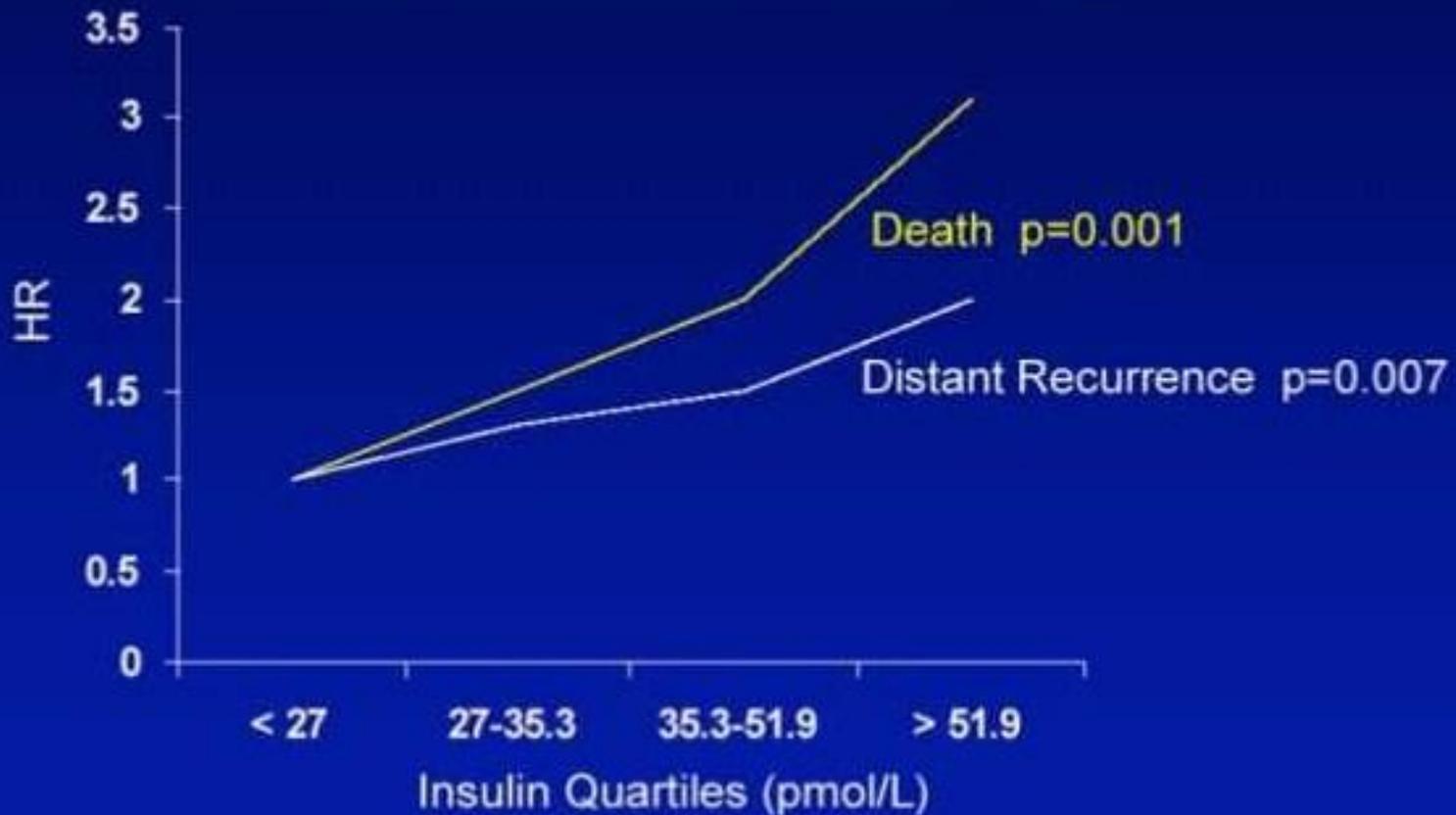
## Sopravvivenza libera da recidive o nuovi tumori a seconda del livello di testosterone in 194 pazienti postmenopausali operate per CM



NOTE. Cancer-event-free survival was estimated by the Kaplan-Meier method; events considered were: local relapse, regional relapse, distant metastases, ipsilateral breast cancer, contralateral breast cancer, and second primary cancer at non breast site. In parentheses the number of women at risk. (Micheli et al JCO 2007)

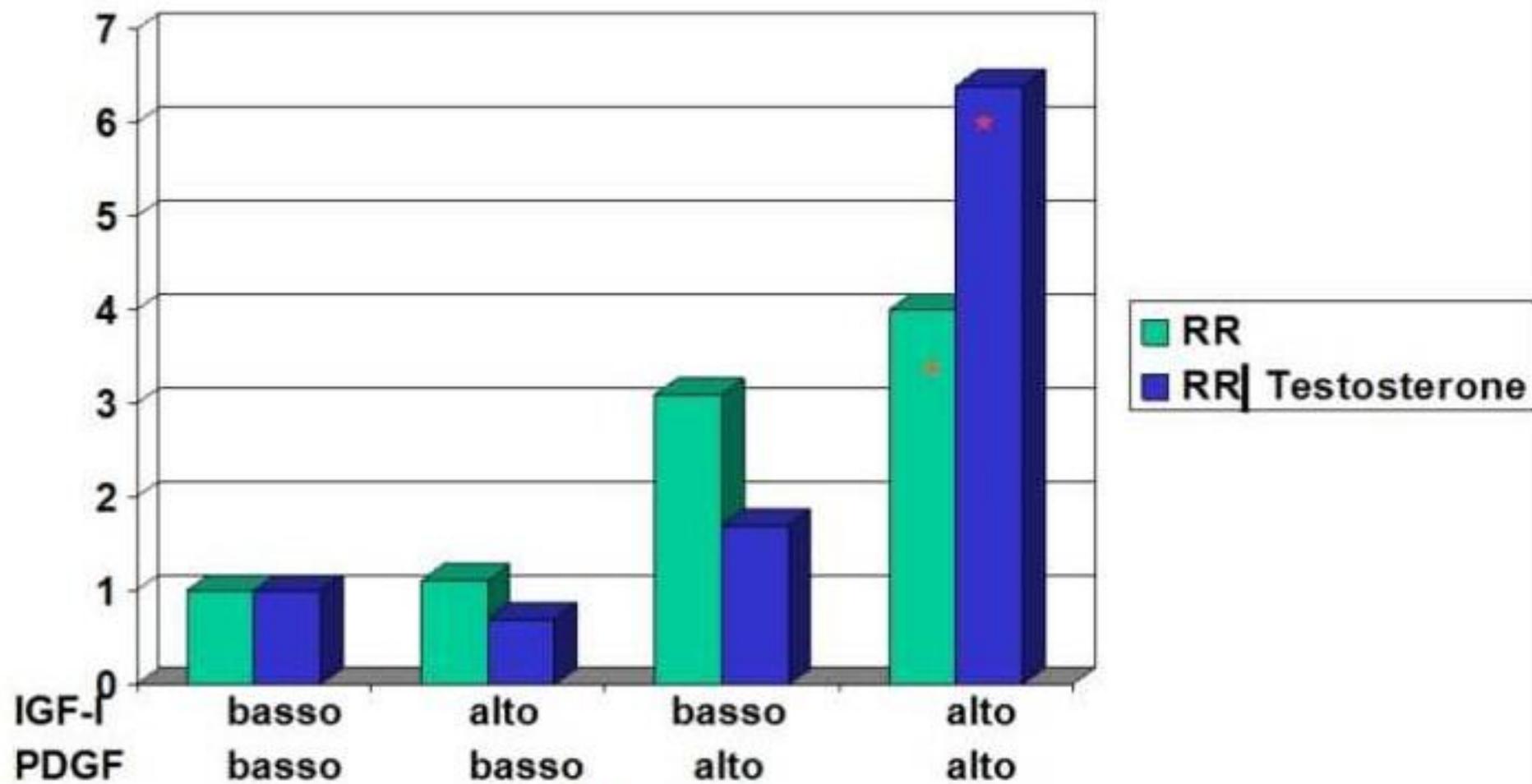
## Il rischio di recidiva aumenta con i livelli di insulina nel siero

### Insulin and Breast Cancer Prognosis



Goodwin PJ et al. *J Clin Oncol* 2002;20:42-51

Il rischio di recidiva di carcinoma mammario è alto se sono alti nel siero sia il PDGF sia l'IGF-I (DIANA-2)



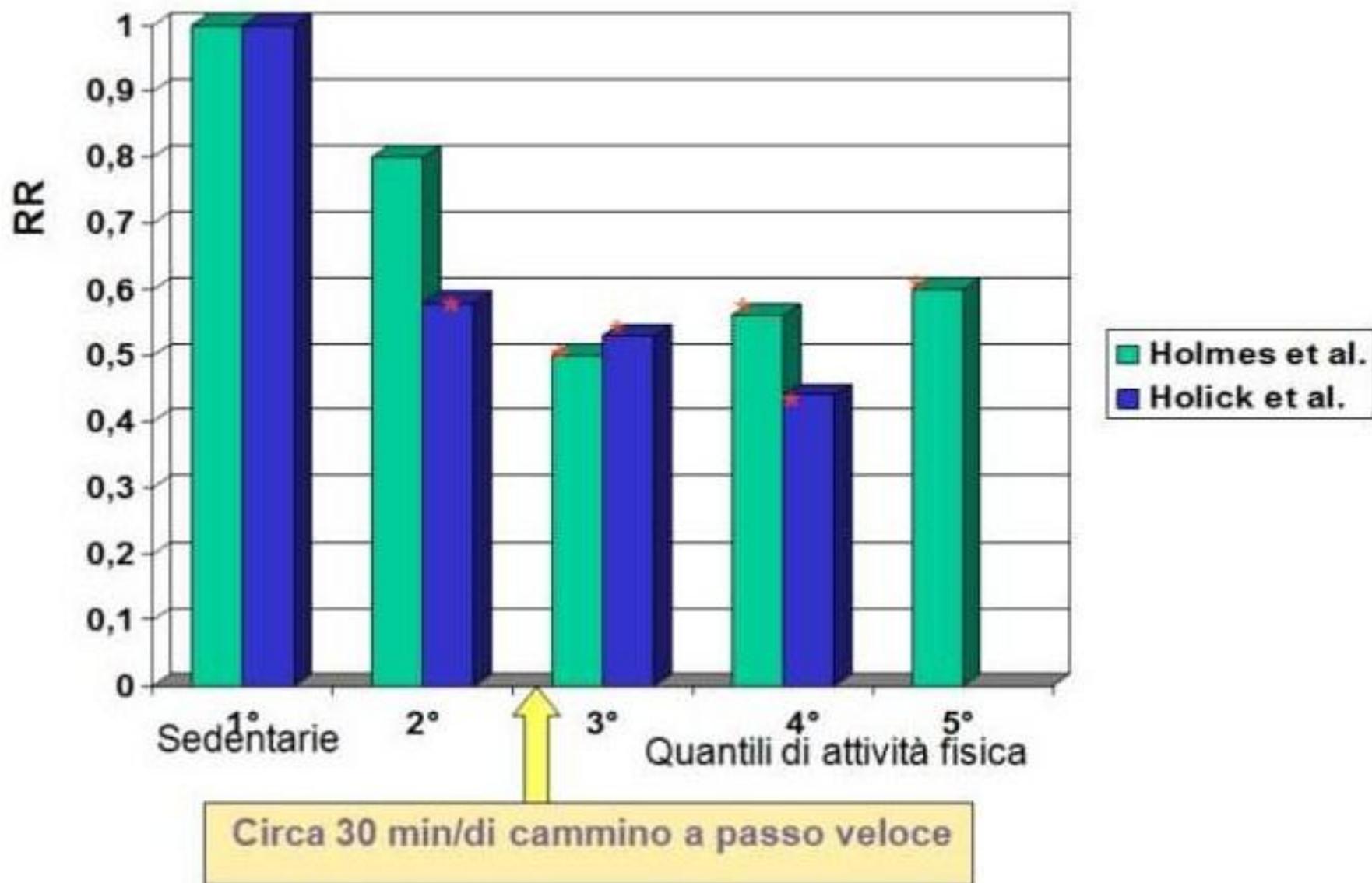
\* = limite di confidenza inferiore >1

## ORDET 2008: consumo di alcol al reclutamento e prognosi del carcinoma mammario

alcol al giorno	HR*	LC 95%
< 5 grammi	1	
5-12	0.84	(0.4-1.9)
>12 grammi	3.61	(1.6-8.1)

\*Aggiustati per età, stadio, recettori, BMI

# L'attività fisica dopo il cancro riduce il rischio di recidive



## Prognosi e indice di massa corporea

	Normali		Sovrappeso		Obese	
	DFS	OS	DFS	OS	DFS	OS
Totale	1	1.04	1.13	1.10	1.25	
ER neg	1	0.96	0.96	1.13	1.17	
ER pos	1	1.07	1.08	1.10	1.12	
Pre-peri	1	1.06	1.11	1.16	1.22	
Post	1	1.04	1.06	1.06	1.10	

# DIANA (DIeta e ANdrogeni)-5

sperimentazione clinica controllata

dell'efficacia della dieta e dell'attività fisica

per prevenire o ritardare eventuali recidive nelle donne operate per carcinoma mammario ad alto rischio per fattori ormonali o metabolici



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## “Westernization” of lifestyle and cancer.

### Western Lifestyle:

- Energy dense diet, rich in
- fat
- refined carbohydrates
- animal protein
- Low physical activity
- Smoking and drinking

### Consequences:

- Greater adult body height
- Early menarche
- Obesity
- Diabetes
- Cardiovascular disease
- Hypertension

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...and cancer

1900  
Hershey's



2 oz  
297 calories



7 oz  
1,000 calories

1916  
Coca-Cola



6.5 fluid oz  
79 calories



16 fluid oz  
194 calories

1950s  
Movie popcorn



3 cups  
174 calories



21 cups (buttered)  
1,700 calories

1954  
Burger King



2.8 oz  
202 calories

2004



4.3 oz  
310 calories

1955  
McDonald's



2.4 oz  
210 calories



7 oz  
610 calories

World  
Cancer  
Research Fund



American  
Institute for  
Cancer Research



**Food, Nutrition,  
Physical Activity,  
and the Prevention  
of Cancer:**  
a Global Perspective

## Raccomandazioni del World Cancer Research Fund, 2007



- Be as lean as possible without becoming underweight.



- Be physically active for at least 30 minutes every day.

# Body weight and breast cancer

- More than 100 studies show that excess body weight increases the risk of postmenopausal breast cancer
- RR level off near BMI 28 in high-risk countries but not in low- to moderate risk countries
- Adult weight gain is a strong predictor of postmenopausal breast cancer risk

# EPIC: RR of breast cancer by body weight

Adj. for center, age, SES, smoking, alcohol, parity, age 1°, menarche

<i>Kg</i>	<i>-56</i>	<i>57-61</i>	<i>62-67</i>	<i>68-74</i>	<i>75+</i>	<i>P trend</i>	<i>N° cases</i>
<b>Pre-me nopause</b>	1	0.78	0.95	0.91	0.83	0.46	474
<b>Postm. HRT+</b>	1	1.20	1.19	1.04	0.92	0.53	494
<b>Postm. HRT-</b>	1	1.21	1.33	1.51	1.65	0.000	911



**Limit consumption of energy-dense foods (foods high in fats and/or added sugars and/or low in fibre) and avoid sugary drinks.**



**Eat more of a variety of vegetables, fruits, wholegrains, and pulses such as beans.**



**Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats.**

**CMAJ • June 10, 2003; 168**

### **Sugar industry sour on WHO report**

The US Sugar Association wants Congress to reconsider its funding of the World Health Organization after a WHO report recommended that "added sugar" be limited to 10% of a person's caloric intake.

The association says the report, from WHO and the UN's Food and Agriculture Organization, is "scientifically flawed" because other research indicates that up to 25% of daily calories can be provided safely by added sugars.

# Dietary fibre in food and protection against colorectal cancer in the European Prospective Investigation into Cancer and Nutrition (EPIC): an observational study

Sheila A Bingham, Nicholas E Day, Robert Luben, Pietro Ferrari, Nadia Slimani, Teresa Norat, Françoise Clavel-Chapelon, Emmanuelle Kesse, Alexandra Nieters, Heiner Boeing, Anne Tjønneland, Kim Overvad, Carmen Martínez, Miren Dorronsoro, Carlos A Gonzalez, Timothy J Key, Antonia Trichopoulou, Androniki Naska, Paolo Vineis, Rosario Tumino, Vittorio Krogh, H Bas Bueno-de-Mesquita, Petra HM Peeters, Göran Berglund, Göran Hallmans, Eiliv Lund, Guri Skeie, Rudolf Kaaks, Elio Riboli

## Summary

**Background** Dietary fibre is thought to protect against colorectal cancer but this view has been challenged by recent prospective and intervention studies that showed no protective effect.

**Methods** We prospectively examined the association between dietary fibre intake and incidence of colorectal cancer in 519 978 individuals aged 25–70 years taking part in the EPIC study, recruited from ten European countries. Participants completed a dietary questionnaire in 1992–98 and were followed up for cancer incidence. Relative risk estimates were obtained from fibre intake, categorised by sex-specific, cohort-wide quintiles, and from linear models relating the hazard ratio to fibre intake expressed as a continuous variable.

**Findings** Follow-up consisted of 1 939 011 person-years, and data for 1065 reported cases of colorectal cancer were included in the analysis. Dietary fibre in foods was inversely related to incidence of large bowel cancer

(adjusted relative risk 0.75 [95% CI 0.59–0.95] for the highest versus lowest quintile of intake), the protective effect being greatest for the left side of the colon, and least for the rectum. After calibration with more detailed dietary data, the adjusted relative risk for the highest versus lowest quintile of fibre from food intake was 0.58 (0.41–0.85). No food source of fibre was significantly more protective than others, and non-food supplement sources of fibre were not investigated.

**Interpretation** In populations with low average intake of dietary fibre, an approximate doubling of total fibre intake from foods could reduce the risk of colorectal cancer by 40%.

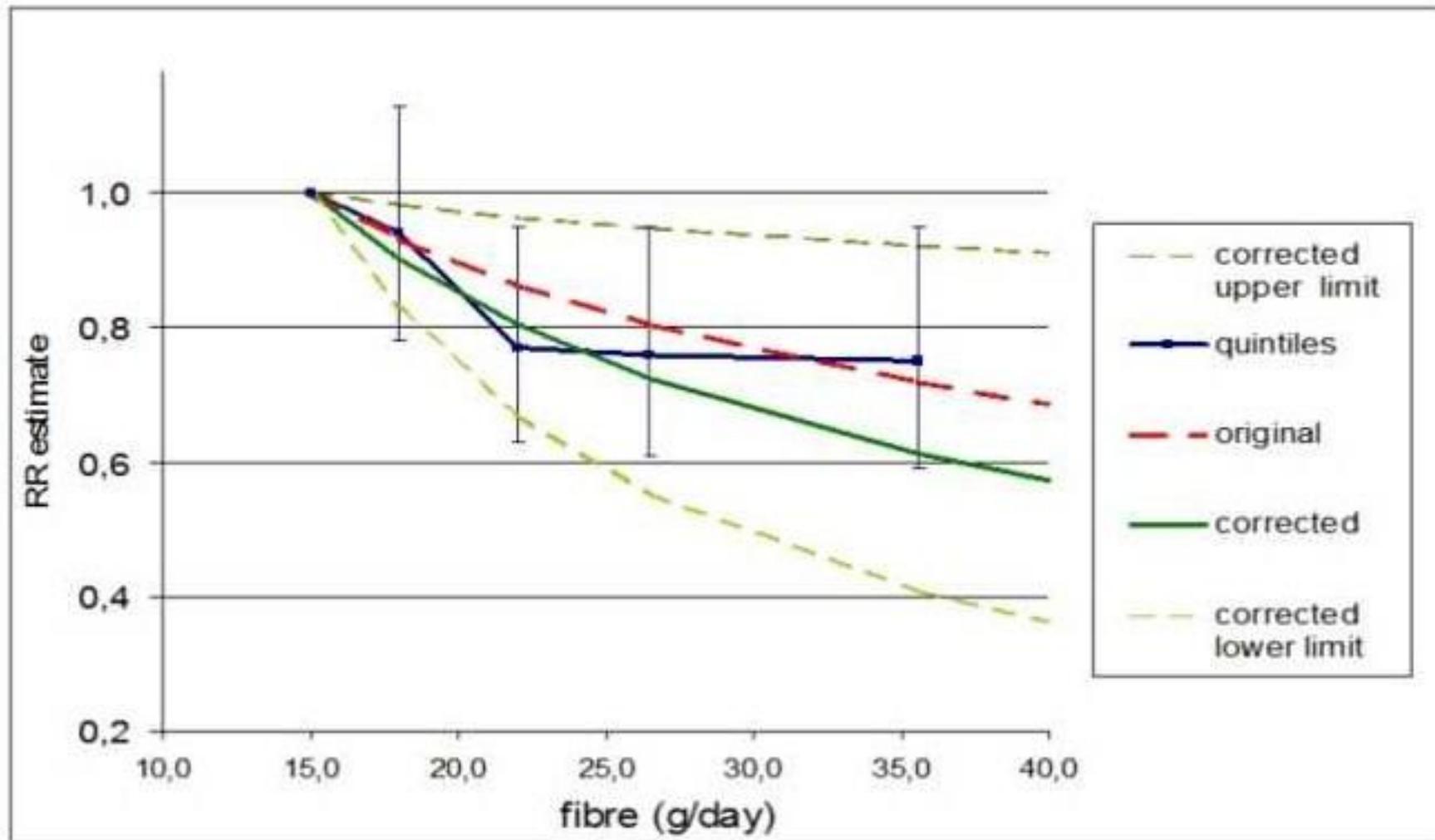
Lancet 2003; 361: 1496–501

See Commentary page

## Introduction

Whether dietary fibre (non-starch polysaccharides) lowers the risk of colorectal cancer is debatable. In reports from large prospective studies in the USA, Finland, and Sweden, no protective effects of fibre were seen.<sup>1–3</sup> In addition, results of large intervention trials have shown that supplements of bran, soluble fibre, or vegetables have not reduced recurrence rates of adenomatous colorectal polyps.<sup>4,5</sup> Dutch data for

# Colorectal cancer and dietary fibre



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## ARTICLES

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### **Meat, Fish, and Colorectal Cancer Risk: The European Prospective Investigation into Cancer and Nutrition**

*Teresa Norat, Sheila Bingham, Pietro Ferrari, Nadia Slimani, Mazda Jenab, Mathieu Mazuir, Kim Overvad, Anja Olsen, Anne Tjømmeland, Françoise Clavel, Marie-Christine Boutron-Ruault, Emmanuelle Kesse, Heiner Boeing, Manuela M. Bergmann, Alexandra Nieters, Jakob Linseisen, Antonia Trichopoulou, Dimitrios Trichopoulos, Yannis Tountas, Franco Berrino, Domenico Palli, Salvatore Panico, Rosario Tumino, Paolo Vineis, H. Bas Bueno-de-Mesquita, Petra H. M. Peeters, Dagrun Engeset, Eiliv Lund, Guri Skeie, Eva Ardanaz, Carlos González, Carmen Navarro, J. Ramón Quirós, Maria-José Sanchez, Göran Berglund, Irene Mattisson, Göran Hallmans, Richard Palmqvist, Nicholas E. Day, Kay-Tee Khaw, Timothy J. Key, Miguel San Joaquin, Bertrand Hémon, Rodolfo Saracci, Rudolf Kaaks, Elio Riboli*

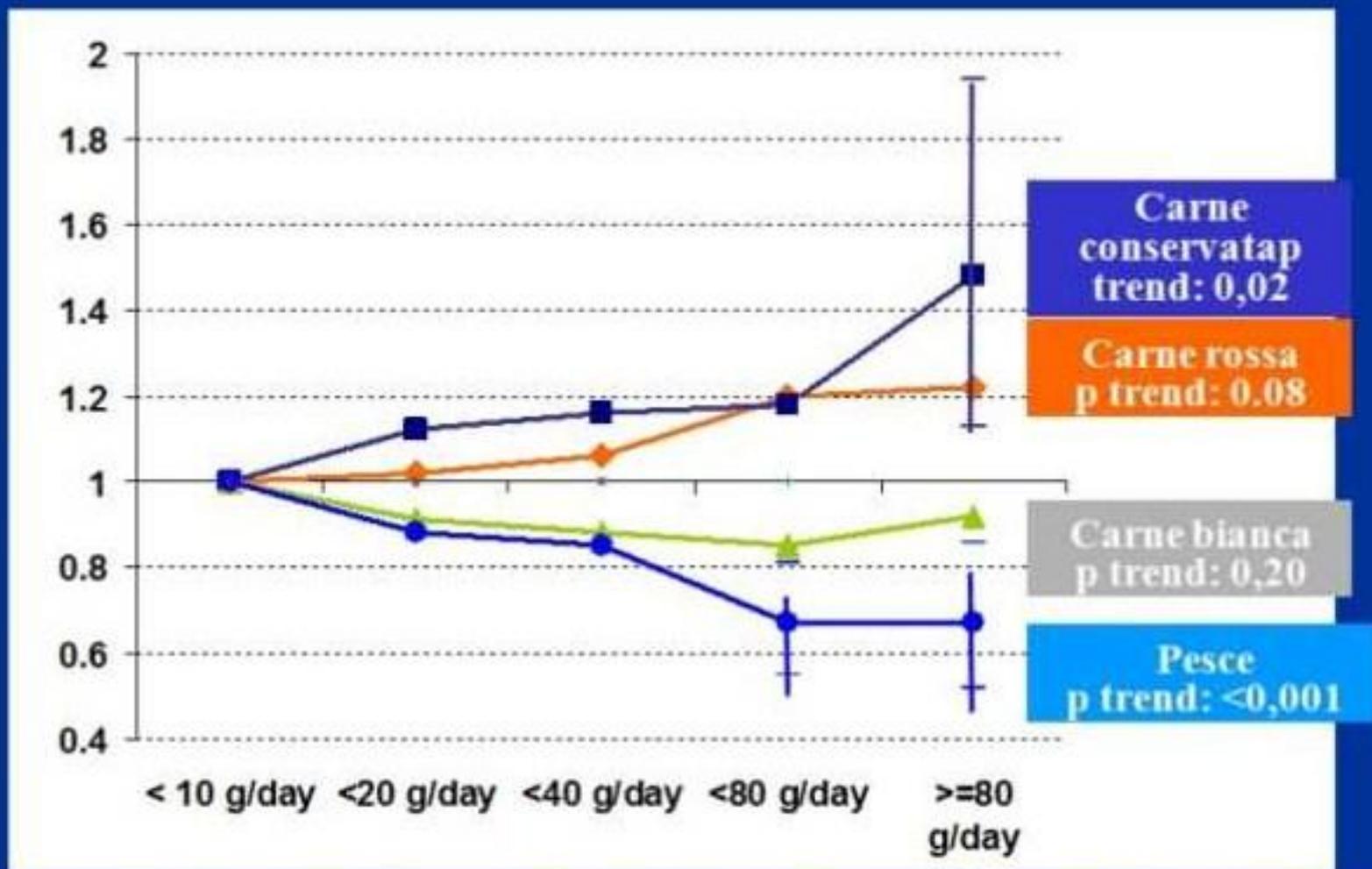
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**Background:** Current evidence suggests that high red meat intake is associated with increased colorectal cancer risk. High fish intake may be associated with a decreased risk, but the existing evidence is less convincing. **Methods:** We prospectively followed 478 040 men and women from 10 European

cancer risk is positively associated with high consumption of red and processed meat and support an inverse association with fish intake. [J Natl Cancer Inst 2005;97:1-11]

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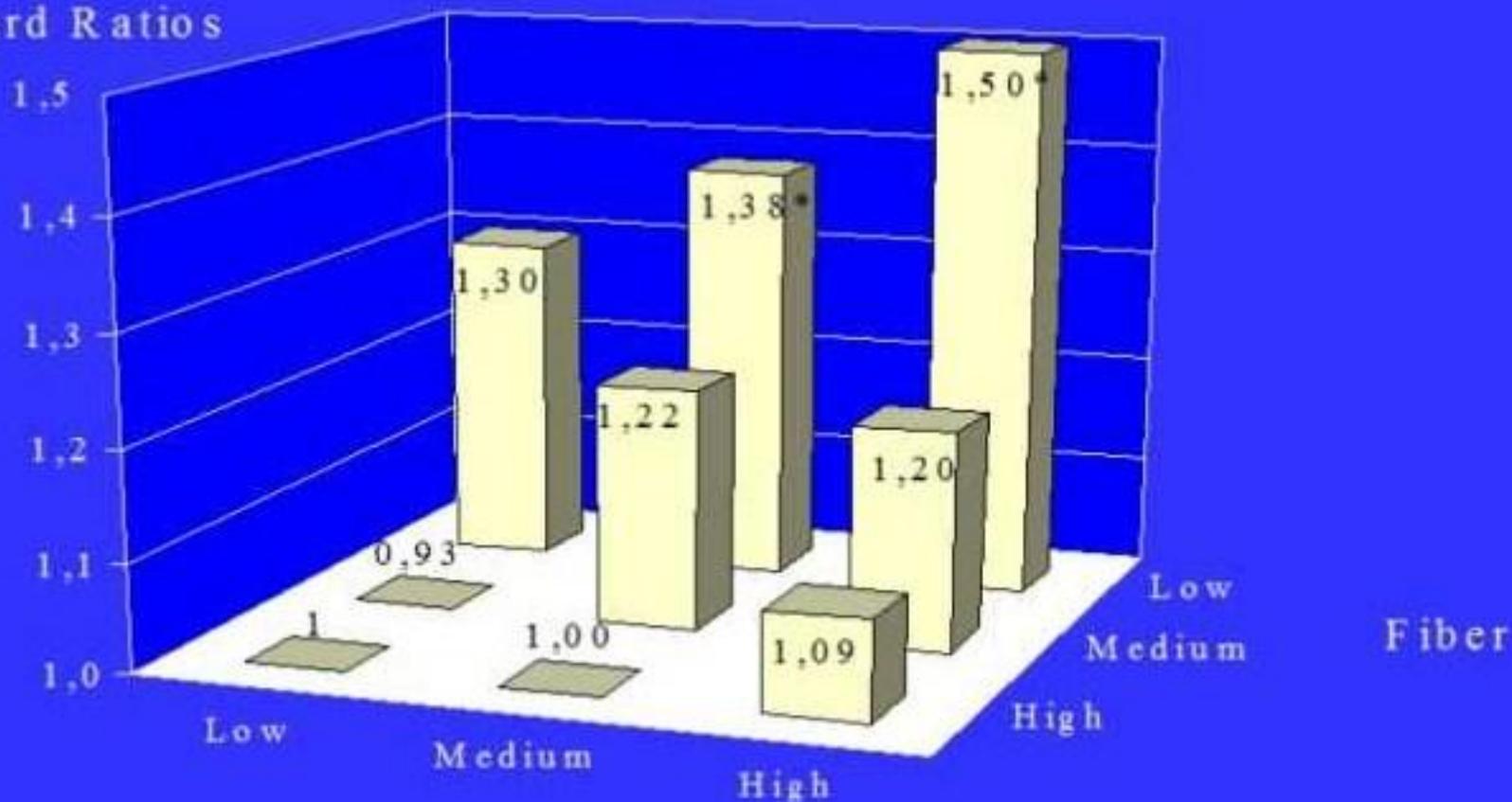
## Rischio di cancro dell'intestino in funzione del consumo di carni



*Adjusted by age, centre, sex, energy from fat, energy from non-fat, height, weight, smoking, occupational physical activity, dietary fibre and alcohol intake*

## Rischio relativo di cancro dell'intestino in funzione del consumo di carni rosse e conservate e del consumo di fibre vegetali

### Hazard Ratios



### Red and processed meat

Cox's regression using energy from non-fat sources (continuous variable), energy from fat sources (continuous variable), height (tertiles defined for each sex and center), weight (tertiles defined for each sex and center), work-related physical activity (no activity, sedentary, standing, manual or heavy manual) smoking status (never, former, current smoker), alcohol consumption (g/day) and stratified for centre



**If consumed at all, limit alcoholic drinks to 2 for men and 1 for women a day.**



**Limit consumption of salty foods and foods processed with salt (sodium).**



**Don't use supplements to protect against cancer.**

## Studi randomizzati di chemioprevenzione con sostanze alimentari

Studio	tumori bersaglio	sostanze	risultato
CARET	polmone	$\beta$ -carotene + retinolo	+28%
NPSC	pelle	Selenio	+25%
ATBC	polmone	$\beta$ -carotene	+18%
SELECT	prostata	Vitamina E	+13%
WHI	colonretto	Ca + Vit D	+ 8%
Linxian	tutti i tumori	Mo + Vit C	+ 6%
SELECT	prostata	Selenio	+ 4%
SUVIMAX	tutti (donne)	basse dosi di Vit &Min	+ 4%
Linxian	tutti i tumori	Zn + Retinolo	=
ATBC	polmone	Vitamina E	- 1%
PHS	tutti i tumori	$\beta$ -carotene	- 2%
Linxian	tutti i tumori	Se + $\beta$ car + Vit E	- 7%
SCPS	pelle	retinolo	-26%
SUVIMAX	tutti (uomini)	basse dosi di Vit &Min	-31%

giallo =  $p < 0.05$

PREVEDO CHE QUESTA NOTTE AVRO' UNA  
FAME PAZZESCA... ECCO PERCHE' LA COMBATTO  
PREVENTIVAMENTE... IO INFATTI PUNTO  
SULLA PREVENZIONE...



“Gli igienisti sono quelle persone  
che vivono tutta la vita come  
malati, per poi morire sani  
come pesci”