



“Studi clinico-nutrizionali”

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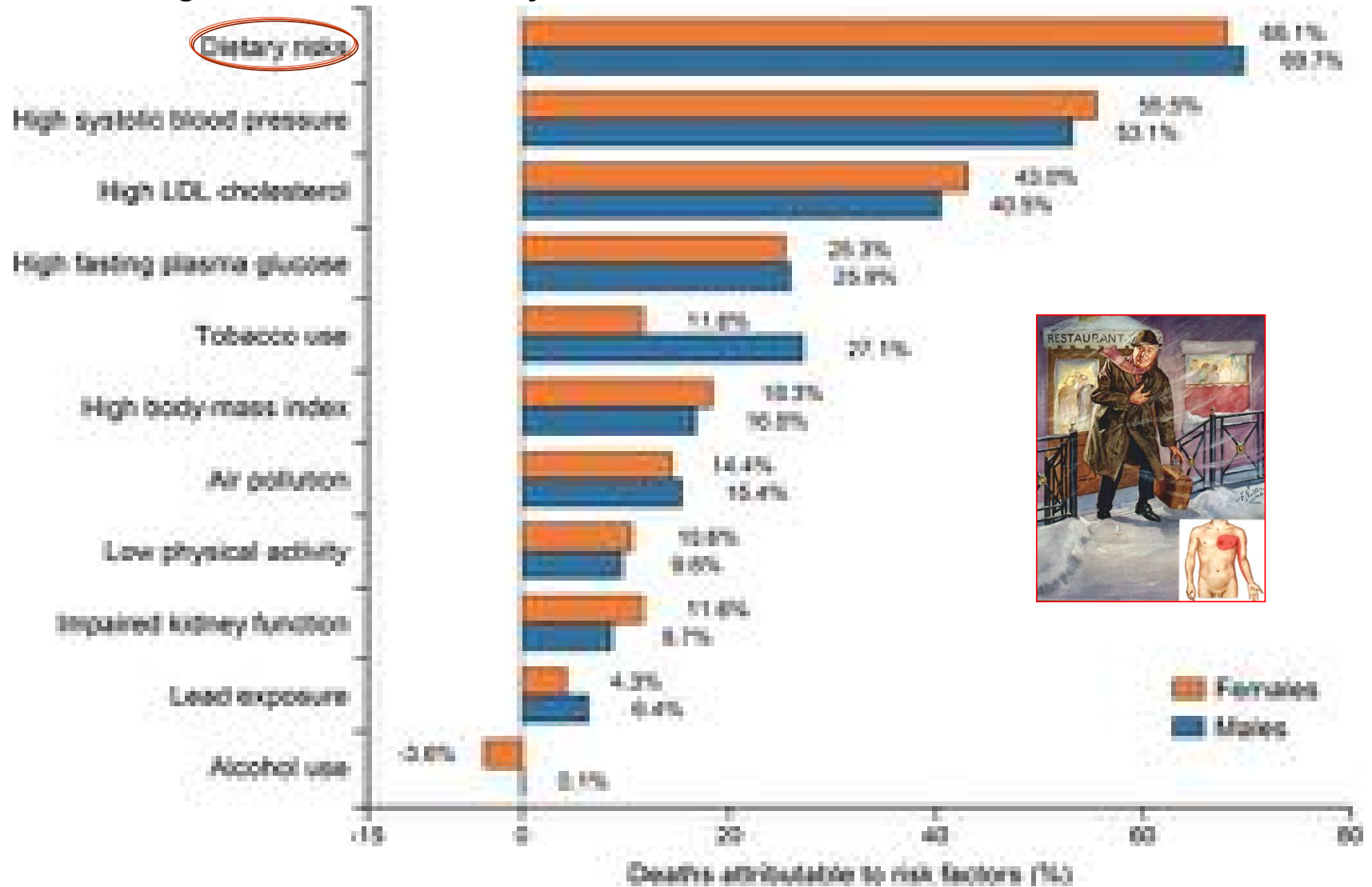


Principali cause dei tumori

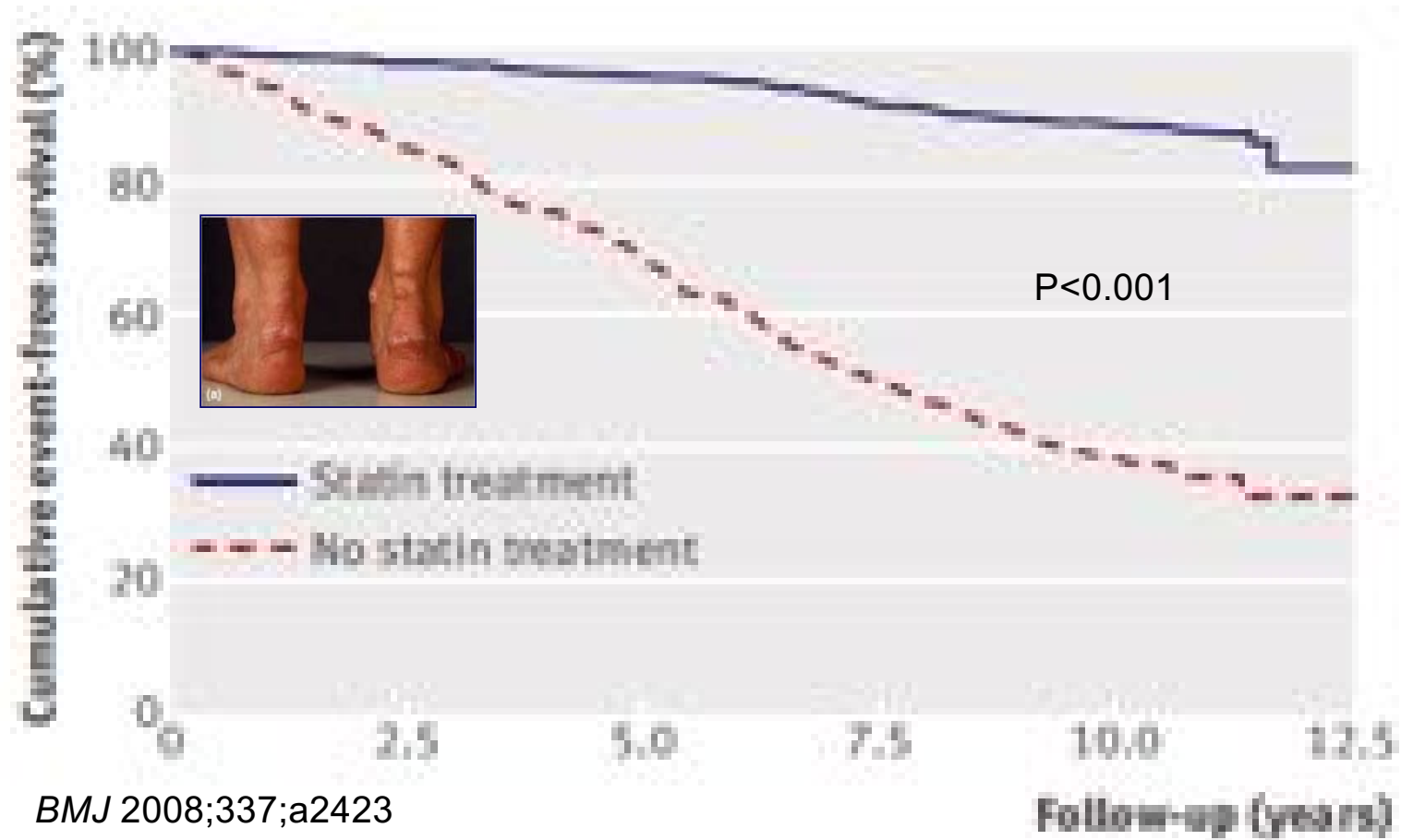
(Anand, 2008)

	%
Alimentazione /obesità	30-35
Fumo	25-30
Infezioni	15-20
Fattori geofisici (radiazioni)	<10
Genetica	5-10
Inattività fisica	
Inquinamento ambientale	

Percentage contributions of major risk factors to ischaemic heart disease age-standardized deaths by sex, 2017. GBD 2017 Diet Collaborators, Lancet, 2019



Kaplan-Meier curve estimates of cumulative coronary heart disease-free survival among patients with familial hypercholesterolaemia according to statin treatment



Statins therapy: cost-benefit analyses in relation to the coronary heart disease risk at 10 years

(Lipid Management in Adults 2009, www.icsi.org)

% CHD risk at 10 years	NNT to prevent 1 event in 5 years
35	9,5
30	11
25	13
20	17
15	19
10 (mild)	33
5 (low)	67

ESC/EAS Guidelines for the management of dyslipidaemias

The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS)

Developed with the special contribution of: European Association for Cardiovascular Prevention & Rehabilitation[†]

cessation may also contribute to HDL-C elevation.¹²⁷

6.4 Dietary supplements and functional foods active on plasma lipid values

Innovative nutritional strategies to improve dyslipidaemia have been developed; they are based either on changing some 'truly' dietary components or on encouraging the consumption of specifically targeted 'healthy' functional foods and/or dietary supplements; these so-called 'nutraceuticals' can be used either as alternatives or in addition to lipid-lowering drugs.¹²⁸

Nutritional evaluation of functional foods includes not only the search for the clinical evidence of beneficial effects relevant to improved health or reduction of disease risk, but also the demonstration of good tolerability and the absence of major undesirable effects. The substantiation of health claims relevant for each food should be based on results from intervention studies in humans that are consistent with the proposed claims.¹²⁹

Overall, the available evidence on functional foods to be identified in this field is lacking; the major gap is the absence of diet-based intervention trials of sufficient duration to be relevant for the natural history of dyslipidaemia and CVD.

Phytosterols

The principal phytosterols are sitosterol, campesterol, and stigmasterol, and they occur naturally in vegetable oils and, in smaller amounts, in vegetables, fresh fruits, chestnuts, grains, and legumes. The dietary intake of plant sterols ranges between an average of 250 mg/day in Northern Europe to ~300 mg/day in Mediterranean countries. Phytosterols compete with cholesterol for intestinal absorption, thus modulating TC levels.

n-3 unsaturated fatty acids

Supplementation with 1–3 g/day of fish oil (rich in long chain n-3 fatty acids) can reduce TG levels by 25–30% in both normolipidemic and hyperlipidemic individuals. α -linolenic acid (a medium chain n-3 fatty acid present in chestnuts, some vegetables, and some seed oils) is less effective on TG levels. Long chain n-3 PUFA also reduce the post-prandial lipemic response. Long chain n-3 PUFA, at doses of ~3 g/day given as supplements, may increase LDL-C by ~5% in severely hypertriglyceridemic patients.¹³⁰ However, a low dose supplementation of a margarine with n-3 PUFA (900 mg/day) or α -linolenic acid (2 g/day) did not significantly reduce TG levels in an RCT involving HLP post-MI patients; neither did the supplementation reduce the rate of major CV events.¹³¹

Polycosanol enriched yeast rice

Polycosanol is a natural mixture of long chain aliphatic alcohols extracted primarily from sugarcane wax.¹³² Studies show that polycosanol from sugarcane, rice, or wheat germ has no significant effect on LDL-C, HDL-C, TG, apo B, Lp(a), homocysteine, hs-CRP, fibrinogen, or blood coagulation factors.¹³³

'Red yeast rice' (RYR) is a source of fermented pigment used in China as a food colourant and flavour enhancer for centuries. Possible bioactive effects of RYR are related to a statin-like mechanism [inhibition of hydroxymethylglutaryl-coenzyme A (HMG-CoA) reductase]. Different commercial preparations of RYR have different concentrations of monacolin, the bioactive ingredients, and lower TC and LDL-C,¹³⁴ but the long-term safety of the regular consumption of these products is not fully documented. In one RCT from China in patients with CAD, a partially purified extract of RYR reduced recurrent events by 45%.¹³⁵

2016 European Guidelines on cardiovascular disease prevention in clinical practice

The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts)

Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR)

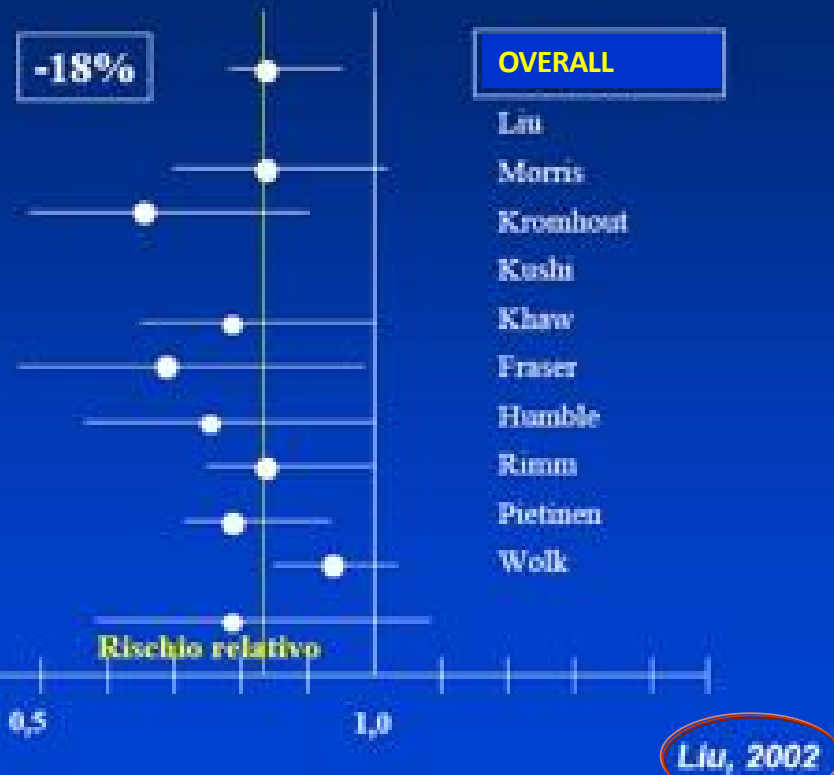
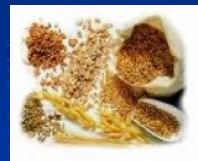
-Life-style

-Fibres (whole grains, legumes, vegetables, fruit), EVOO as functional food

-Nutraceuticals (phytosterols, red yeast rice, omega-3)

-Drugs

Fibres and CVD



2016 ESC/EAS Guidelines for the Management of Dyslipidaemias

The Task Force for the Management of Dyslipidaemias of the European Society of Cardiology (ESC) and European Atherosclerosis Society (EAS)

officially on HDL-C, but special attention should be paid in order to prevent weight gain in people who stop smoking.¹⁰³

5.5 Dietary supplements and functional foods for the treatment of dyslipidaemias

Innovative nutritional strategies to improve dyslipidaemias have been developed. They are based on either changing some 'usual' dietary components or encouraging the consumption of specifically targeted 'healthy' functional foods and/or dietary supplements; these so-called nutraceuticals can be used either as alternatives or in addition to lipid-lowering drugs.¹⁰⁴ Nutritional evaluation of functional foods includes not only the search for clinical evidence of beneficial effects relevant to improved health or reduction of disease risk, but also the demonstration of good tolerability and the absence of major undesirable effects. The substantiation of health claims relevant for each food should be based on results from intervention studies in humans that are consistent with the proposed claims. Overall, the available evidence on functional foods so far identified in this field is incomplete; the major gap is the absence of diet-based intervention trials of sufficient duration to be relevant for the natural history of dyslipidaemia and CVD.

5.5.1 Phytosterols

The principal phytosterols are sitosterol, campesterol and stigmasterol; they occur naturally in vegetable oils and in smaller amounts in vegetables, fresh fruits, chestnuts, grains and legumes. The dietary intake of plant sterols ranges between an average of 250 mg/day in Northern Europe to ~500 mg/day in Mediterranean countries. Phytosterols compete with cholesterol for intestinal absorption, thereby modulating TC levels.

Phytosterols have been added to spreads and vegetable oils (functional margarine, butter and cooking oils), as well as in yogurt and other foods; however, food matrices do not significantly influence the cholesterol-lowering efficacy of phytosterols at equivalent doses.¹⁰⁵ The daily consumption of 2 g of phytosterols can effectively lower TC and LDL-C by 7–10% in humans (with a certain degree of heterogeneity among individuals), while it has little or no effect on HDL-C and TG levels.¹⁰⁶ Although the effect of plant sterol consumption on TC levels has been clearly shown, no studies have been performed yet on the subsequent effect on CVD. However, the meta-analysis of Robinson et al.¹⁰⁷ indicates that LDL-C reduction translates into CV benefits, independent of the mechanism involved. Long-term surveillance is also needed to guarantee the safety of the regular use of phytosterol-enriched products. The

5.5.2 Monacolin and red yeast rice

Red yeast rice (RYR) is a source of fermented pigment that has been used in China as a food colorant and flavour enhancer for centuries. Hypocholesterolaemic effects of RYR are related to a statin-like mechanism. Inhibition of hydroxymethylglutaryl-coenzyme A (HMG-CoA) reductase, of monacolin, which represent the bioactive ingredients. Different commercial preparations of RYR have different concentrations of monacolin, and lower TC and LDL-C to a variable extent,¹⁰⁸ but the long-term safety of the regular consumption of these products is not fully documented. However, side effects similar to those observed with statins have been reported in some people using these nutraceuticals. Furthermore, their quality may vary widely.

In one RCT from China in patients with CAD, a partially purified extract of RYR reduced recurrent events by 45%.¹⁰⁹ No other trial has been performed to confirm this finding. A clinically relevant hypocholesterolaemic effect (up to a 20% reduction) is observed with RYR preparations providing a daily dose of ~2.5–10 mg monacolin K.¹¹⁰ Nutraceuticals containing purified RYR may be considered in people with elevated plasma cholesterol concentrations who do not qualify for treatment with statins in view of their global CV risk.

5.5.3 Dietary fibre

Available evidence consistently demonstrates a TC- and LDL-C-lowering effect of water-soluble fibre from oat and barley beta-glucan. Foods enriched with these fibres are well tolerated, effective and recommended for LDL-C lowering at a daily dose of at least 3 g/day.^{86,111}

5.5.4 Soy protein

Soy protein has been indicated as being able to induce a modest LDL-C-lowering effect when replacing animal protein foods.¹¹¹ However, this was not confirmed when changes in other dietary components were taken into account.

5.5.5 Policosanol and berberine

Policosanol is a natural mixture of long chain aliphatic alcohols extracted primarily from sugarcane wax.¹⁰⁸ Studies show that policosanol from sugarcane, rice or wheat germ has no significant effect on LDL-C, HDL-C, TGs, apoB, apoA, homocysteine, hs-CRP, fibrinogen or blood coagulation factors.¹⁰⁸

As for berberine, a recent meta-analysis has evaluated its effects on plasma lipids in humans; six trials were available for this purpose: the berberine group contained 229 patients and the control group contained 222 patients.¹⁰¹ The studies, showing a statistically

Cardio-metabolic risk factors.

Non-pharmacological treatment could be considered an option in

- patients at low-mild cardiovascular risk
- pre-menopausal women
- children of parents with premature cardiovascular diseases
- patients not controlled with available drugs
- patients already consuming multiple drugs
- patients intolerant to drugs

**Offer a CV prevention to those patients
who are not classified as high-risk but that are at risk**



**Nutrheff: 34 ricercatori censiti
nell'area "Studi clinico-nutrizionali"**

Le sfide: alimenti funzionali, nutraceutici, disseminazione



EWHETA (Eat Well for a HEalthy Third Age) Project: novel foods to improve the nutrition in the elderly people

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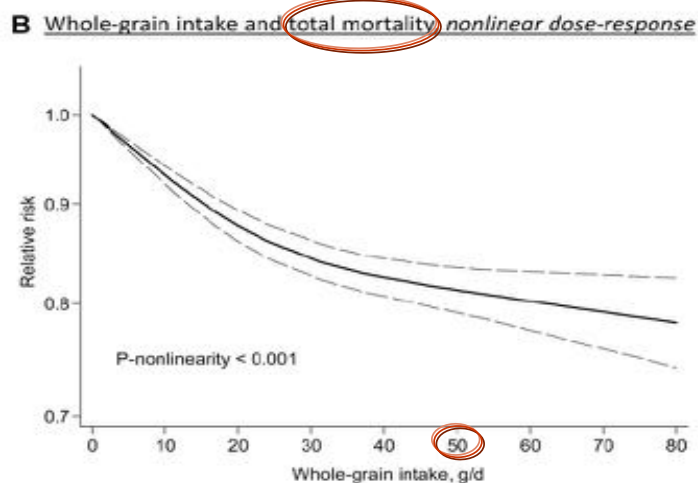
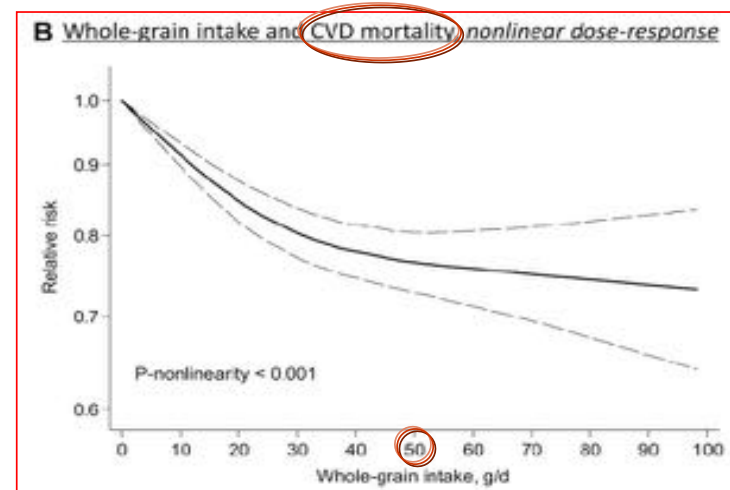
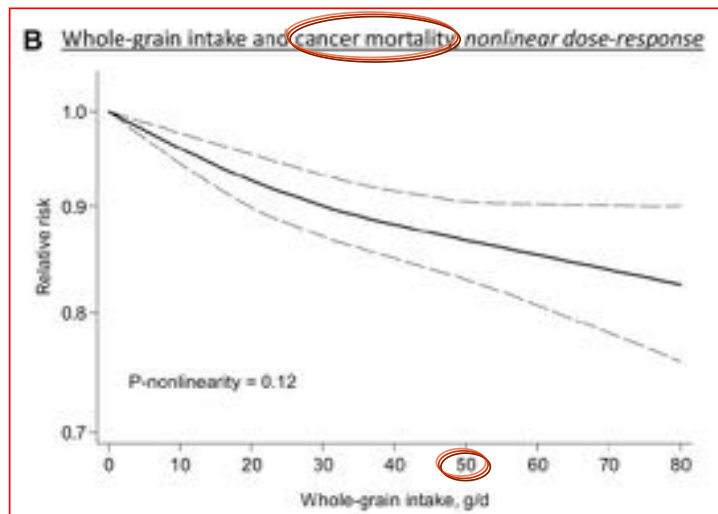
Replacement Meal: Effectiveness of a Soluble Powder Rich in Fibers and at Low Glycemic Index in Overweight but Not in Obese Patients

Volpe Roberto¹, Abdulkader Bisan², Pacioni Fabrizio³, Reggiani Francesco⁴, Schiavetto Emanuela¹

A diet rich in whole grains is protective

Whole-grain intake and cardiovascular, cancer, and total mortality (n. 104,061): a systematic review and meta-analysis of prospective studies (n. 13)

Chen GC et al, Am J Clin Nutr 2016



Suggested by EBM: about 50 grams of whole grain per day (about 100 g of WG food)

Quantità giornaliera di cereal integrali suggerita: 3 porzioni
(1 porzione = 16 g di peso secco, US 2015 Dietary Guidelines)

1 fettona di pane (circa 80-100 kcal)

3-4 fette biscottate (circa 90-120 kcal)

2-3 cucchiaini di cereali da colazione (circa 140-210 kcal)

80 g di pasta (circa 280-310 kcal)

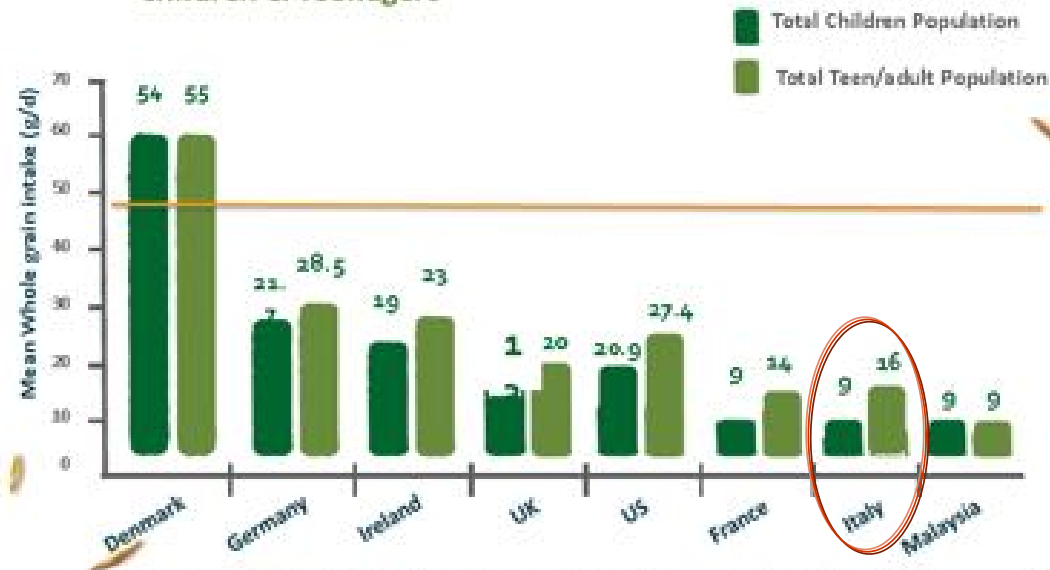
80 g di riso (circa 270-300 kcal)



Unità Prevenzione e Protezione
Consiglio Nazionale delle Ricerche

Few people are achieving whole grain recommendations

Global overview of the Whole Grain intakes (g/d) in Children & Teenagers



Marrin et al 2015, Devlin et al 2013, Bellisle et al 2014, Sette et al 2015, Albertson et al 2016, Ait et al 2015, Alexy et al 2010