



DOMANDA 1-2

- Quali sono i dati che emergono dagli studi scientifici sulla correlazione stili di vita e tumori?
- Quali sono le prove che ci indirizzano ad un cambiamento degli stili di vita?



Stime WHO

Il 40% dei casi oncologici e l'80% dei casi di diabete e di malattie cardiovascolari sono prevenibili con lo stile di vita

**I CANCRI SONO IN COSTANTE
AUMENTO ANNUO IN TUTTE LE
FASCE DI ETA': 3% annuo**

**SI PREVEDE CHE LA POPOLAZIONE SI
AMMALERA' SEMPRE PRIMA E SEMPRE DI PIU'**



Body-mass index and risk of 22 specific cancers: a population-based cohort study of 5·24 million UK adults

Krishnan Bhaskaran, Ian Douglas, Harriet Forbes, Isabel dos-Santos-Silva, David A Leon, Liam Smeeth

Summary

Background High body-mass index (BMI) predisposes to several site-specific cancers, but a large-scale systematic and detailed characterisation of patterns of risk across all common cancers adjusted for potential confounders has not previously been undertaken. We aimed to investigate the links between BMI and the most common site-specific cancers.

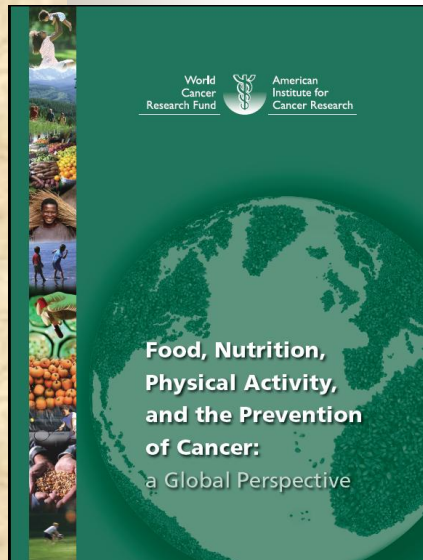
Methods With primary care data from individuals in the Clinical Practice Research Datalink with BMI data, we fitted Cox models to investigate associations between BMI and 22 of the most common cancers, adjusting for potential confounders. We fitted linear then non-linear (spline) models; investigated effect modification by sex, menopausal status, smoking, and age; and calculated population effects.

Findings 5·24 million individuals were included; 166 955 developed cancers of interest. BMI was associated with 17 of 22 cancers, but effects varied substantially by site. Each 5 kg/m² increase in BMI was roughly linearly associated with cancers of the uterus (hazard ratio [HR] 1·62, 99% CI 1·56–1·69; $p < 0·0001$), gallbladder (1·31, 1·12–1·52; $p < 0·0001$), kidney (1·25, 1·17–1·33; $p < 0·0001$), cervix (1·10, 1·03–1·17; $p = 0·00035$), thyroid (1·09, 1·00–1·19; $p = 0·0088$), and leukaemia (1·09, 1·05–1·13; $p \leq 0·0001$). BMI was positively associated with liver (1·19, 1·12–1·27), colon (1·10, 1·07–1·13), ovarian (1·09, 1·04–1·14), and postmenopausal breast cancers (1·05, 1·03–1·07) overall (all $p < 0·0001$), but these effects varied by underlying BMI or individual-level characteristics. We estimated inverse associations with prostate and premenopausal breast cancer risk, both overall (prostate 0·98, 0·95–1·00; premenopausal breast cancer 0·89, 0·86–0·92) and in never-smokers (prostate 0·96, 0·93–0·99; premenopausal breast cancer 0·89, 0·85–0·94). By contrast, for lung and oral cavity cancer, we observed no association in never smokers (lung 0·99, 0·93–1·05; oral cavity 1·07, 0·91–1·26); inverse associations overall were driven by current smokers and ex-smokers, probably because of residual confounding by smoking amount. Assuming causality, 41% of uterine and 10% or more of gallbladder, kidney, liver, and colon cancers could be attributable to excess weight. We estimated that a 1 kg/m² population-wide increase in BMI would result in 3790 additional annual UK patients developing one of the ten cancers positively associated with BMI.

Interpretation BMI is associated with cancer risk, with substantial population-level effects. The heterogeneity in the effects suggests that different mechanisms are associated with different cancer sites and different patient subgroups.

Funding National Institute for Health Research, Wellcome Trust, and Medical Research Council.

La revisione della letteratura sul rapporto fra alimentazione e tumori indica in modo sempre più “evidente” che sovrappeso e sedentarietà sono associati ad un maggior rischio di tumore



EUROPEAN CODE AGAINST CANCER

12 ways to reduce your cancer risk

- 1 Do not smoke. Do not use any form of tobacco.
- 2 Make your home smoke free. Support smoke-free policies in your workplace.
- 3 Take action to be a healthy body weight.
- 4 Be physically active in everyday life. Limit the time you spend sitting.
- 5 Have a healthy diet:
 - Eat plenty of whole grains, pulses, vegetables and fruits.
 - Limit high-calorie foods (foods high in sugar or fat) and avoid sugary drinks.
 - Avoid processed meat; limit red meat and foods high in salt.
- 6 If you drink alcohol of any type, limit your intake. Not drinking alcohol is better for cancer prevention.
- 7 Avoid too much sun, especially for children. Use sun protection. Do not use tanning beds.
- 8 In the workplace, protect yourself against cancer-causing substances by following health and safety instructions.
- 9 Find out if you are exposed to radiation from naturally high radon levels in your home. Take action to reduce high radon levels.
- 10 For women:
 - Breastfeeding reduces the mother's cancer risk. If you can, breastfeed your baby.
 - Hormone replacement therapy (HRT) increases the risk of certain cancers. Limit use of HRT.
- 11 Ensure your children take part in vaccination programmes for:
 - Hepatitis B (for newborns)
 - Human papillomavirus (HPV) (for girls).
- 12 Take part in organized cancer screening programmes for:
 - Bowel cancer (men and women)
 - Breast cancer (women)
 - Cervical cancer (women).

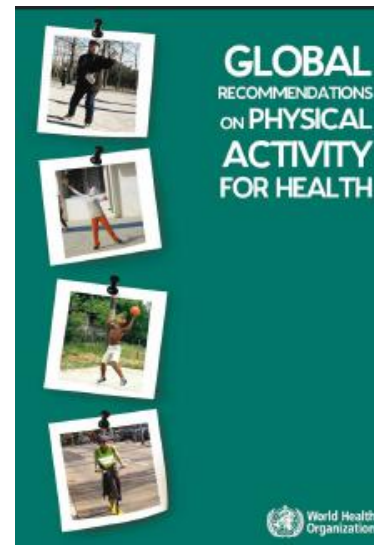
The European Code Against Cancer focuses on actions that individual citizens can take to help prevent cancer. Successful cancer prevention requires these individual actions to be supported by governmental policies and actions.

Find out more about the European Code Against Cancer at: <http://cancer-code-europe.iarc.fr>

International Agency for Research on Cancer
World Health Organization



These recommendations are the result of a project funded by the European Union and coordinated by the



Guideline:

Sugars intake for adults and children

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCER OF THE BREAST (PREMENOPAUSE)

In the judgement of the Panel, the factors listed below modify the risk of cancer of the breast (premenopause). Judgements are graded according to the strength of the evidence.

	DECREASES RISK	INCREASES RISK
Convincing	Lactation	Alcoholic drinks
Probable	Body fatness	Adult attained height¹ Greater birth weight
Limited — suggestive	Physical activity ²	
Limited — no conclusion	Cereals (grains) and their products; dietary fibre; potatoes; vegetables; fruits; pulses (legumes); soya and soya products; meat; poultry; fish; eggs; milk and dairy products; fats and oils; total fat; vegetable fat; fatty acid composition, <i>trans</i> -fatty acids; cholesterol; sugar (sucrose); other sugars; sugary foods and drinks; coffee; tea; carbohydrate; starch; glycaemic index; protein; vitamin A; riboflavin; vitamin B6; folate; vitamin B12; vitamin C; vitamin D; vitamin E; calcium; iron; selenium; carotenoids; isoflavones; dichlorodiphenyldichloroethylene; dichlorodiphenyltrichloroethane; dieldrin; hexachlorobenzene; hexachlorocyclohexane; <i>trans</i> -nonachlor; polychlorinated biphenyls; dietary patterns; culturally defined diets; adult weight gain; energy intake; being breastfed	
Substantial effect on risk unlikely	None identified	

- 1 Adult attained height is unlikely directly to modify the risk of cancer. It is a marker for genetic, environmental, hormonal, and also nutritional factors affecting growth during the period from preconception to completion of linear growth (see chapter 6.2.1.3).
- 2 Physical activity of all types: occupational, household, transport, and recreational.

For an explanation of all the terms used in the matrix, please see chapter 3.5.1, the text of this section, and the glossary.

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND CANCER OF THE BREAST (POSTMENOPAUSE)

In the judgement of the Panel, the factors listed below modify the risk of cancer of the breast (postmenopause). Judgements are graded according to the strength of the evidence.

	DECREASES RISK	INCREASES RISK
Convincing	Lactation	Alcoholic drinks Body fatness Adult attained height¹
Probable	Physical activity²	Abdominal fatness Adult weight gain
Limited — suggestive	Total fat	
Limited — no conclusion	Cereals (grains) and their products; dietary fibre; potatoes; vegetables and fruits; pulses (legumes); soya and soya products; meat; poultry; fish; eggs; milk and dairy products; fats and oils; vegetable fat; fatty acid composition; cholesterol; sugar (sucrose); sugary foods and drinks; coffee; tea; carbohydrate; starch; glycaemic index; protein; vitamin A; riboflavin; vitamin B6; folate; vitamin B12; vitamin C; vitamin D; vitamin E; calcium; iron; selenium; carotenoids; isoflavones; dichlorodiphenyldichloroethylene; dichlorodiphenyltrichloroethane; dieldrin; hexachlorobenzene; hexachlorocyclohexane; <i>trans</i> -nonachlor; polychlorinated biphenyls; dietary patterns; culturally defined diets; birth weight; birth length; energy intake; being breastfed	
Substantial effect on risk unlikely	None identified	

- 1 Adult attained height is unlikely directly to modify the risk of cancer. It is a marker for genetic, environmental, hormonal, and also nutritional factors affecting growth during the period from preconception to completion of linear growth (see chapter 6.2.1.3).
- 2 Physical activity of all types: occupational, household, transport, and recreational.

For an explanation of all the terms used in the matrix, please see chapter 3.5.1, the text of this section, and the glossary.



Scientific Report of the 2015 Dietary Guidelines Advisory Committee

Advisory Report to the Secretary of Health and Human Services
and the Secretary of Agriculture

Conclusions

Colon/Rectal Cancer: Moderate evidence indicates an inverse association between dietary patterns that are higher in vegetables, fruits, legumes, whole grains, lean meats/seafood, and low-fat dairy and moderate in alcohol; and low in red and/or processed meats, saturated fat, and sodas/sweets relative to other dietary patterns and the risk of colon/rectal cancer. Conversely, diets that are higher in red/processed meats, French fries/potatoes, and sources of sugars (i.e., sodas, sweets, and dessert foods) are associated with a greater colon/rectal cancer risk. **DGAC Grade: Moderate**

Breast Cancer: Moderate evidence indicates that dietary patterns rich in vegetables, fruit, and whole grains, and lower in animal products and refined carbohydrate, are associated with reduced risk of post-menopausal breast cancer. The data regarding this dietary pattern and pre-menopausal breast cancer risk point in the same direction, but the evidence is limited due to fewer studies. **DGAC Grade: Moderate for postmenopausal breast cancer risk; Limited for premenopausal breast cancer risk**

1092
1093
1094

Table D2.2. American Institute for Cancer Research / World Cancer Research Fund (AICR/WCRF) Summary of Strong Evidence on Diet, Nutrition, Physical Activity, and Cancer Prevention, updated 2014

	Mouth, Pharynx, Larynx (2007)	Nasopharynx (2007)	Esophagus (2007)	Lung (2007)	Stomach (2007)	Pancreas (2007)	Gall bladder (2007)	Liver (2007)	Colorectum (2011)	Breast Pre-menopause (2010)	Breast Post-menopause (2010)	Ovary (2014)	Endometrium (2013)	Prostate (2014)	Kidney (2007)	Skin (2007)
↓ ↓ Convincing decreased risk. ↓ Probable decreased risk. ↑ ↑ Convincing increased risk. ↑ Probable increased risk. • Substantial effect on risk unlikely.																
Foods containing dietary fiber									↓ ↓							
Aflatoxins	↓		↓		↓			↑ ↑								
Non-starchy vegetables ¹					↓											
Allium vegetables									↓							
Garlic	↓		↓	↓	↓											
Fruits ²									↑ ↑							
Red meat									↑ ↑							
Processed meat																
Cantonese-style salted fish		↑														
Diets high in calcium ³									↓							
Salt, salted and salty foods					↑											
Glycemic load												↑				
Arsenic in drinking water				↑ ↑												↑
Mate			↑													
Alcoholic drinks ⁴	↑ ↑		↑ ↑					↑	↑ ↑ ↑	↑ ↑	↑ ↑				•	
Coffee					•								↓		•	
Beta-carotene ⁵				↑ ↑										•		•
Physical activity ⁶									↓ ↓		↓		↓			
Body fatness ⁷			↑ ↑			↑ ↑	↑		↑ ↑	↓	↑ ↑	↑	↑ ↑	↑	↑ ↑	
Adult attained height						↑			↑ ↑	↑	↑ ↑	↑ ↑		↑		
Greater birth weight										↑						
Lactation										↓ ↓	↓ ↓					

1095

Tabella 1. Associazioni convincenti (indicate con *) e probabili secondo il WCRF

Organo	Aumento del rischio	Riduzione del rischio
cavo orale, faringe, laringe	bevande alcoliche*	vegetali non amidacei frutta alimenti contenenti carotenoidi
nasofaringe	pesce salato stile cantonese	
esofago	bevande alcoliche* grasso corporeo*	vegetali non amidacei frutta alimenti contenenti carotenoidi alimenti contenenti vitamina C
pulmone	arsenico nell'acqua potabile* beta carotene come integratore*	frutta alimenti contenenti carotenoidi
stomaco	sale alimenti salati	vegetali non amidacei agliacee frutta
fegato	afatossine* bevande alcoliche	
pancreas	grasso corporeo* grasso addominale altezza da adulto	alimenti contenenti folati
colecisti	grasso corporeo	
colon e retto	carne rossa* carne conservata* bevande alcoliche (uomini* e donne*) grasso corporeo* grasso addominale* altezza da adulto*	alimenti contenenti fibre latte calcio aglio attività fisica*
mammella (pre menopausa)	bevande alcoliche* altezza da adulta peso elevato alla nascita	allattamento* grasso corporeo
mammella (post menopausa)	bevande alcoliche* grasso corporeo* altezza da adulta* grasso addominale aumento di peso da adulta	allattamento* attività fisica
ovaio	altezza da adulta	
endometrio	grasso corporeo* grasso addominale	attività fisica
cervice uterina		
prostata	dieta ricca di calcio	alimenti contenenti licopene alimenti contenenti selenio selenio
rene	grasso corporeo*	
cute	arsenico nell'acqua potabile	

* per le donne, associazione solo probabile



DOMANDA 3

Quali sono i meccanismi
sottostanti che possono
determinare queste alterazioni?

Come influisce il tipo di alimentazione ?

- **Stato di infiammazione:** può predisporre a ogni forma di cancro,
- **Equilibrio ormonale:** può favorire od ostacolare lo sviluppo di diversi tumori (mammella, prostata, ovaio, endometrio nella donna).

European Prospective Investigation into Cancer and Nutrition (EPIC) (sostenuto da AIRC)

Dieta e cancro

- La dieta ricca in grassi saturi e povera di vegetali, tipica dei paesi occidentali specie del Nord è associata al rischio di tumori
- Tra il 40 e il 60% dei tumori potrebbe essere evitato con una dieta congrua. I lipidi negli USA rappresentano il 40-60% delle calorie

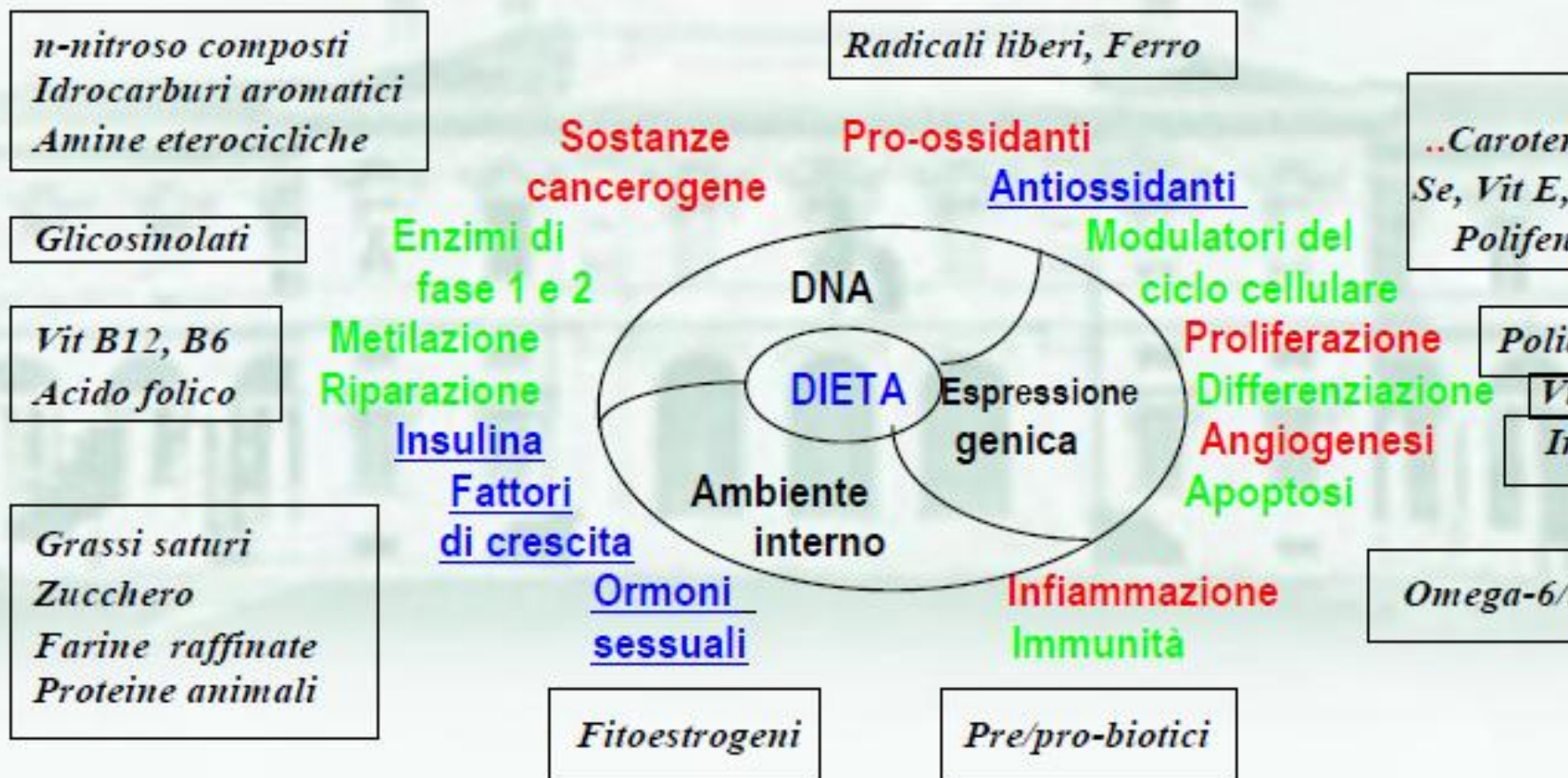
1. Colon
2. Mammella
3. Pancreas
4. Fegato
5. Prostata
6. Utero
7. Stomaco

Ipotesi patogenetiche

1. Veicolo per carcinogeni naturali liposolubili
2. Aumento estrogeni
3. La loro ossidazione dà luogo ai Ros



La dieta influenza l'iniziazione e la promozione dei tumori con differenti meccanismi



Il TESSUTO ADIPOSO è un organo endocrino, cioè sintetizza ormoni e il cambiamento di questi ormoni può interferire con lo sviluppo di neoplasie

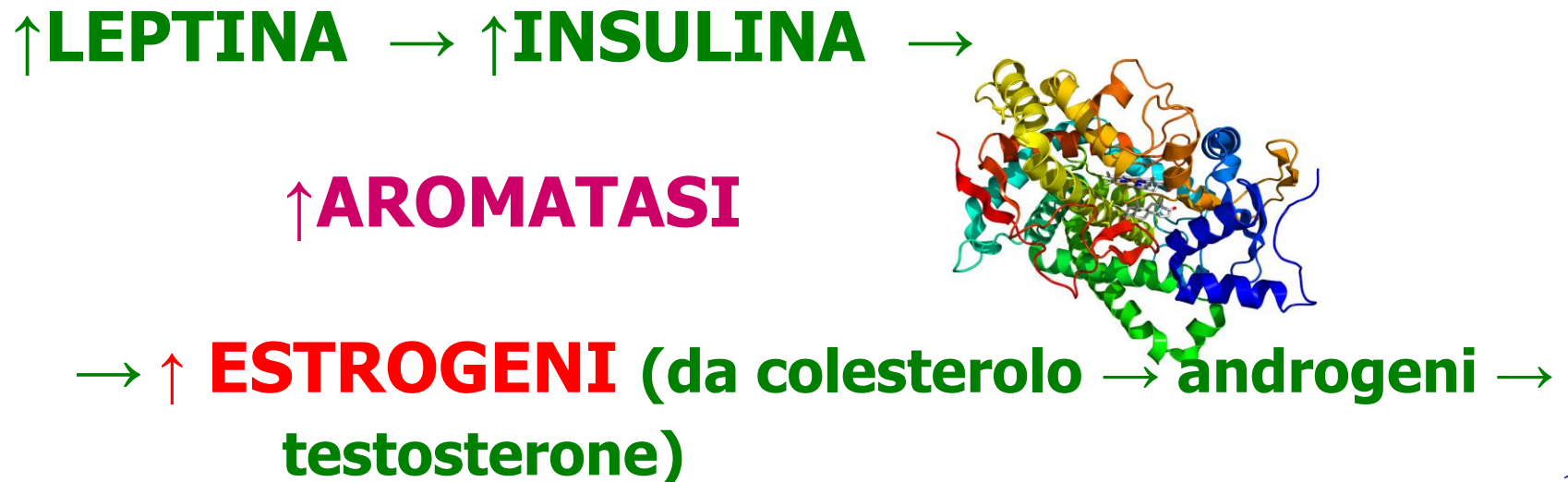
LEPTINA: (tramite meccanismi che coinvolgono il sistema nervoso) è in grado di diminuire il senso della fame e aumentare la spesa energetica tramite la termogenesi adattativa

ADIPONECTINA: controlla il metabolismo energetico di lipidi e carboidrati; incrementa il consumo dei lipidi e modulare l'effetto dell'insulina

Nell'obesità si trova una leptina-resistenza: nonostante gli alti livelli di leptina l'appetito rimane elevato e il tessuto adiposo aumenta

La leptino-resistenza, sia a livello centrale (SNC) che periferico (muscolare), può portare all'insulino-resistenza e di conseguenza al diabete tipo 2.

**Steinberg GR, Am J Physiol Endocrinol Metab. 2004
Jan;286(1):E57-63.**

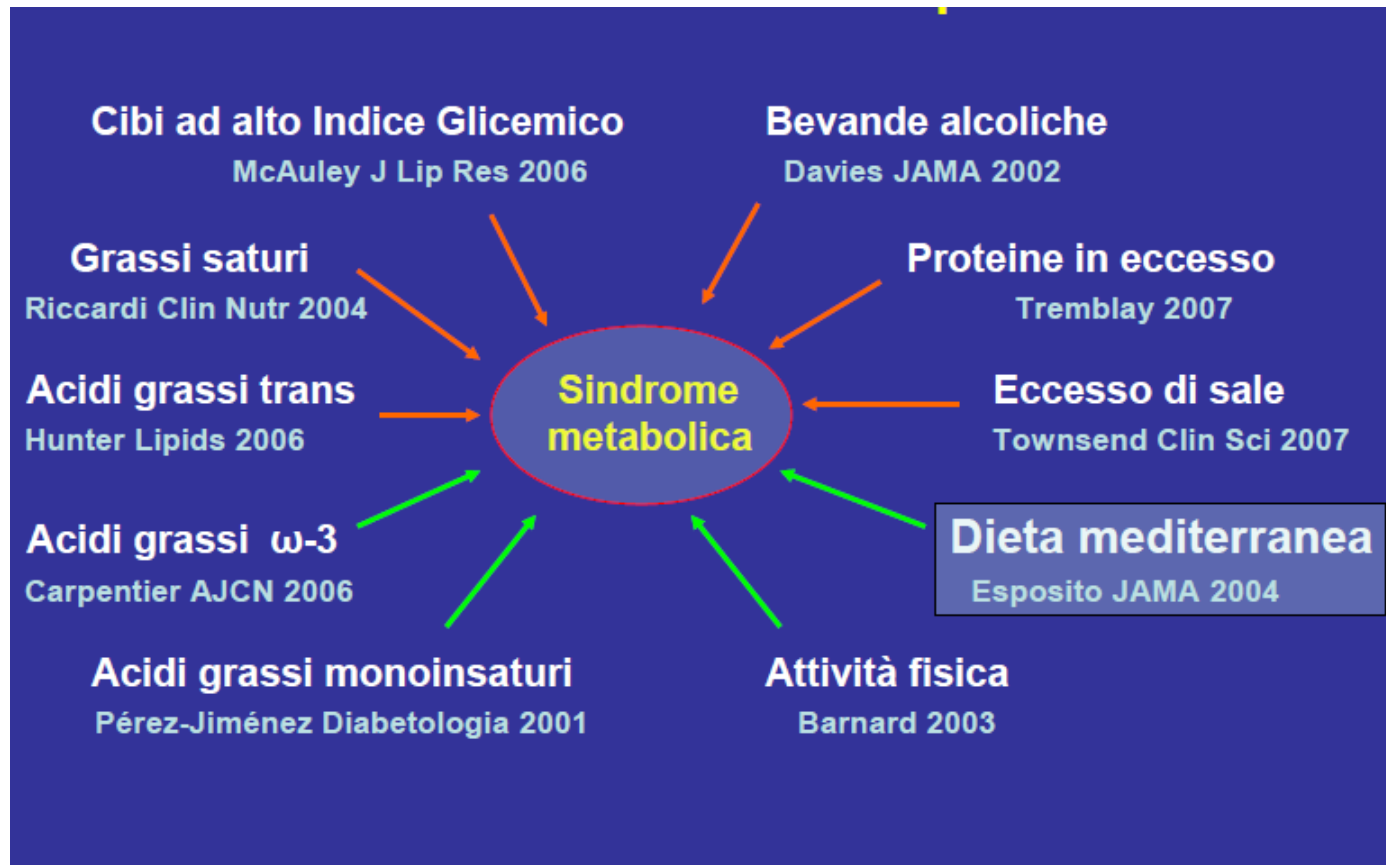




DOMANDA 4

La sindrome metabolica in che modo è correlata?

Sindrome metabolica



The role of diet and physical activity in breast, colorectal, and prostate cancer survivorship: a review of the literature

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BACKGROUND: Evidence for the role of diet and physical activity in cancer incidence is well documented, but owing to increased cancer survivorship, an understanding of these lifestyle factors after a cancer diagnosis is of crucial importance. The purpose of this review was to update the literature in a review undertaken for the National Cancer Survivorship Initiative and to include observational studies that were not included in the WCRF survivorship systematic review.

METHODS: Evidence was initially gathered from pre-defined searches of the Cochrane Library Database and PubMed from March 2006 to February 2010. After a comprehensive review regarding lifestyle and cancer, for the purpose of this article, any studies not related to diet and physical activity, prognostic outcomes, and breast, colorectal or prostate cancers were excluded. Another search of 2011 literature was conducted to update the evidence.

RESULTS: A total of 43 records were included in this review. Evidence from observational studies suggests that a low-fat, high-fibre diet might be protective against cancer recurrence and progression. However, there is a paucity of RCTs substantiating this. There is more support for physical activity, with a dose response for better outcomes. When synthesized with findings from the World Cancer Research Fund review of RCTs investigating the effect of diet and physical activity interventions on cancer survival, evidence suggests that the mechanism of benefit from diet and physical activity pertains to body weight, with excess body weight being a risk factor, which is modifiable through lifestyle.

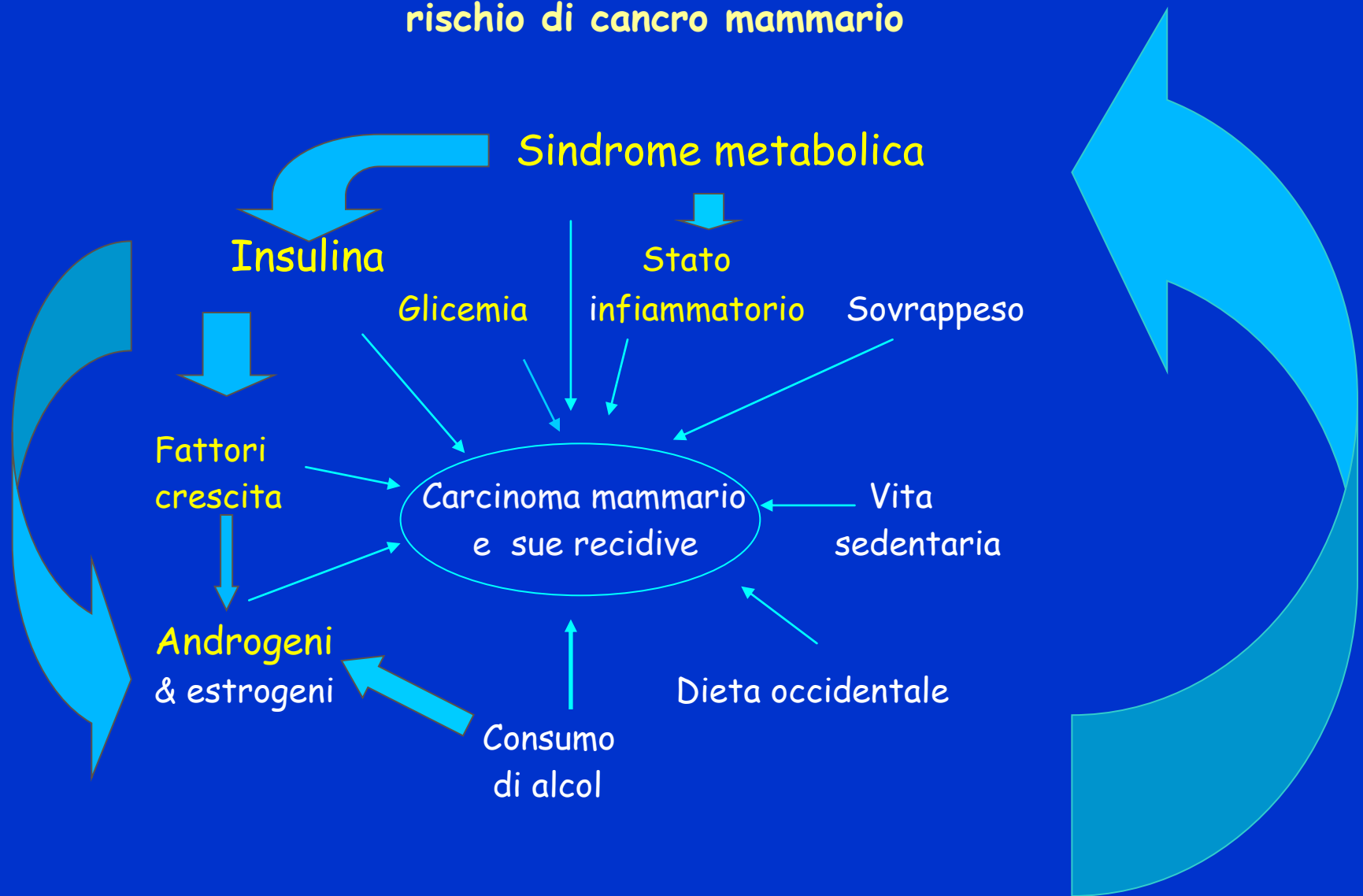
IMPLICATIONS: Cancer survivors would like to have a more active role in their health care and to know how to look after themselves after diagnosis, including what diet and lifestyle changes they should make. The challenge is in integrating lifestyle support into standardised models of aftercare.

British Journal of Cancer (2011) **105**, S52–S73; doi:10.1038/bjc.2011.423 www.bjcancer.com

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Keywords: diet; lifestyle; physical activity; weight

Fattori ormonali e metabolici che influenzano il rischio di cancro mammario





Quale terapia?

**Dieta a basso indice
glicemico**

**Attività fisica moderata
intensa**

RELAZIONE TRA PESO CORPOREO E RISCHIO DI CANCRO



Oltre a non fumare,
MANTENERSI NORMOPESO
È IL FATTORE PIÙ IMPORTANTE
per prevenire il cancro



Sovrappeso e obesità
AUMENTANO IL RISCHIO DI QUESTI TUMORI



■ Evidenze convincenti

■ Evidenze probabili

SmartFood

Attività fisica intensa

Jogging 300 kcal in 30 min	Bicicletta 300 kcal in 30 min	Corso 430 kcal in 30 min
Tennis 225 kcal in 30 min	Salire le scale 260 kcal in 30 min	Nuoto 260 kcal in 30 min
Ballo 170 kcal in 30 min	Aerobica 190 kcal in 30 min	Trekking 225 kcal in 30 min
Lavori domestici 130 kcal in 30 min	Passeggiata 150 kcal in 30 min	Giardinaggio 140 kcal in 30 min

3. Limita il consumo di alimenti ad alta densità energetica ed evita le bevande zuccherate

Una dieta troppo ricca di alimenti altamente energetici, in particolare prodotti industriali, è strettamente correlata a un aumento del rischio di sovrappeso e obesità; queste condizioni aumentano il rischio di cancro e di numerose altre patologie croniche. Anche le bevande dolci hanno un ruolo cruciale nell'aumento del peso, soprattutto se consumate con regolarità: questo effetto negativo non è dato soltanto dall'apporto calorico, bensì dalla loro incapacità di saziare portando a un consumo smodato. Non tutti gli alimenti ricchi di calorie sono deleteri per la salute, un classico esempio è rappresentato dalla frutta secca che, se consumata in quantità adeguata, è in grado di incidere positivamente sullo stato di salute poiché ricca di fibra, grassi salutari, micronutrienti e fitocomposti.



Alimenti ricchi di calorie fornite per la maggior parte da nutrienti non salutari come grassi saturi e zuccheri semplici.

Alimenti ricchi di fibra o poco calorici ma con un contenuto eccessivo di grassi, zuccheri o sale.

Alimenti ricchi di calorie ma fornite per la maggior parte da nutrienti utili, come grassi insaturi, vitamine, sali minerali.

Alimenti poveri di calorie e ricchi di acqua, fibra alimentare, vitamine, sali minerali e fitocomposti.

TABLE 1 American Cancer Society (ACS) Guidelines on Nutrition and Physical Activity for Cancer Prevention

ACS Recommendations for Individual Choices Maintain a healthy weight throughout life. • Balance caloric intake with physical activity. • Avoid excessive weight gain throughout the life cycle. • Achieve and maintain a healthy weight if currently overweight or obese. Adopt a physically active lifestyle. • Adults: engage in at least 30 minutes of moderate to vigorous physical activity, above usual activities, on 5 or more days of the week. Forty-five to 60 minutes of intentional physical activity are preferable. • Children and adolescents: engage in at least 60 minutes per day of moderate to vigorous physical activity at least 5 days per week. Consume a healthy diet, with an emphasis on plant sources. • Choose foods and beverages in amounts that help achieve and maintain a healthy weight. • Eat five or more servings of a variety of vegetables and fruits each day. • Choose whole grains in preference to processed (refined) grains. • Limit consumption of processed and red meats. If you drink alcoholic beverages, limit consumption. • Drink no more than one drink per day for women or two per day for men. ACS Recommendations for Community Action Public, private, and community organizations should work to create social and physical environments that support the adoption and maintenance of healthful nutrition and physical activity behaviors. • Increase access to healthful foods in schools, worksites, and communities. • Provide safe, enjoyable, and accessible environments for physical activity in schools, and for transportation and recreation in communities.

WCRF 2007: Raccomandazioni nutrizionali per la prevenzione del tumore e delle sue recidive

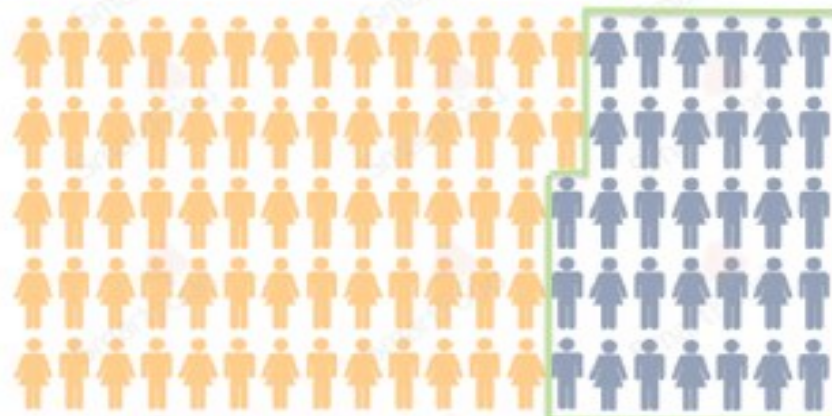


- **Mantenersi snelli per tutta la vita**
- **Praticare quotidianamente esercizio fisico**
- **Limitare cibi ad alta densità calorica ed evitare bevande zuccherate**
- **Basare l'alimentazione quotidiana prevalentemente su cibi di provenienza vegetale con un'ampia varietà di cereali non raffinati, legumi, verdure e frutta**
- **Limitare in consumo di carni rosse ed evitare il consumo di carni conservate**
- **Limitare il consumo di bevande alcoliche**
- **Limitare il consumo di sale e cibi conservati sotto sale, ed evitare cereali e legumi conservati in ambienti umidi**
- **Meglio non usare integratori alimentari**
- **Allattare i figli**

Dieci utili raccomandazioni in tema di nutrizione

Una sana alimentazione associata a uno stile di vita attivo è uno strumento valido per la prevenzione, la gestione e il trattamento di molte malattie. Un regime dietetico adeguato ed equilibrato non solo garantisce un apporto di nutrienti ottimale, in grado di soddisfare i fabbisogni dell'organismo, ma permette anche di ricevere sostanze che svolgono un ruolo protettivo e/o preventivo nei confronti di determinate condizioni patologiche.

Con uno stile di vita sano è possibile prevenire circa un terzo dei tumori



Consuma regolarmente
frutta e verdura



Riduci il sale



Consuma alimenti
ricchi di fibra



Riduci il consumo di
carne rossa e salumi



Attenzione agli zuccheri



Mantieniti normopeso



Proteggi la tua pelle



Mantieniti attivo



Non fumare



Non eccedere con l'alcol

Fonte: American Institute for Cancer Research