

SMART

Fighting *Big-e* with ~~nutrition~~: Myths *or* Facts



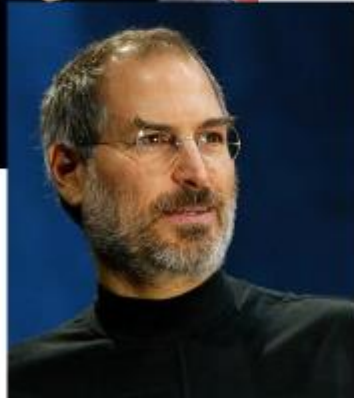
Barakatun Nisak Mohd Yusof ; PhD
Department of Nutrition and Dietetics
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia



Eat Smart, Move More, Be Healthy

The *Big-C*

- A drama of a strong Cathy who has diagnosed with CA and her desire to live life to the fullest
- Other celebrities include



vid

www.Publi.TV

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Eat Smart, Move More, Be Healthy



World Cancer
Research Fund
International

World Cancer Day
February 4, 2013

**Cancer myths and
misconceptions**

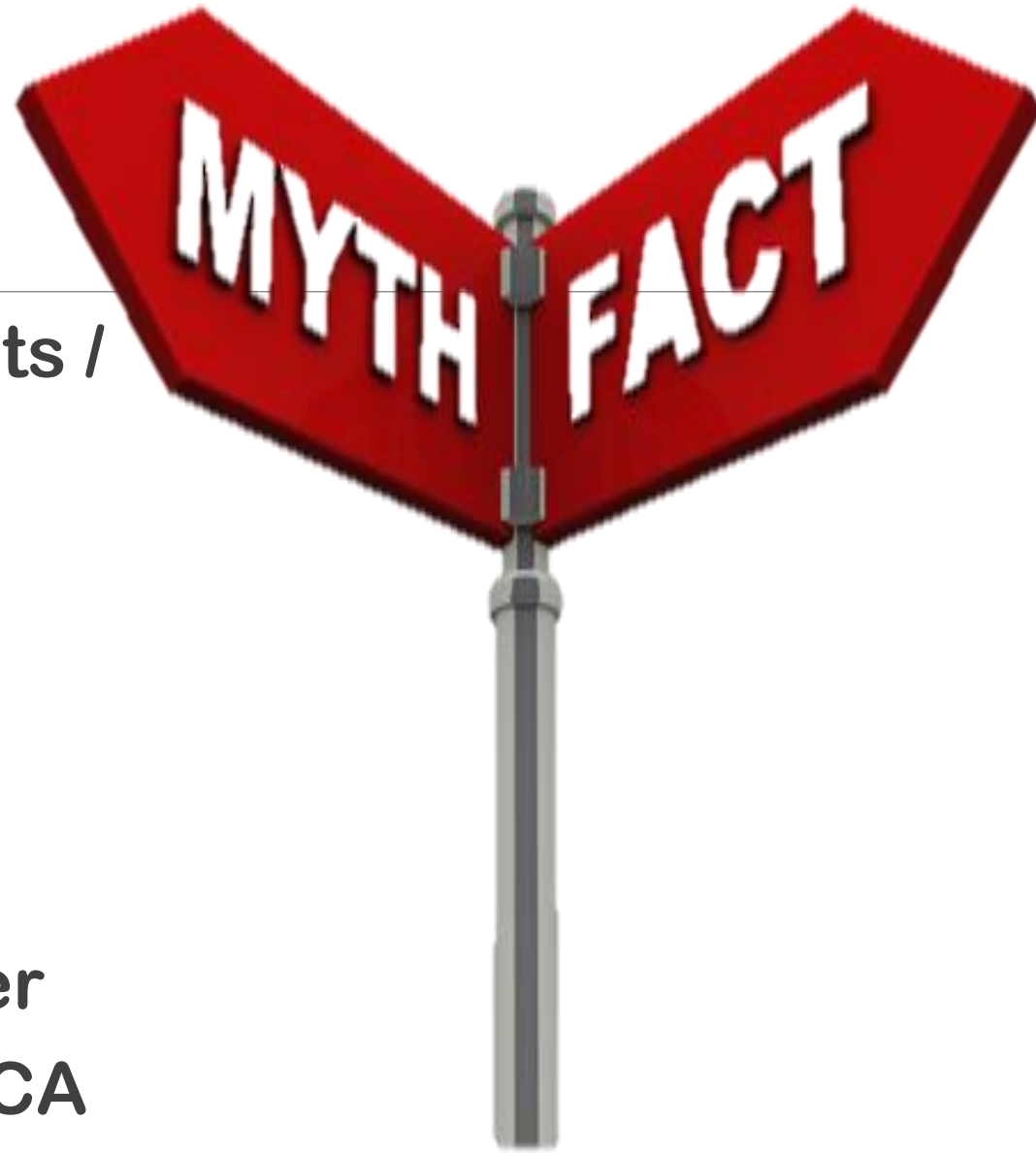


**CANCER
MYTHS
GET THE
FACTS**

worldcancerday.org

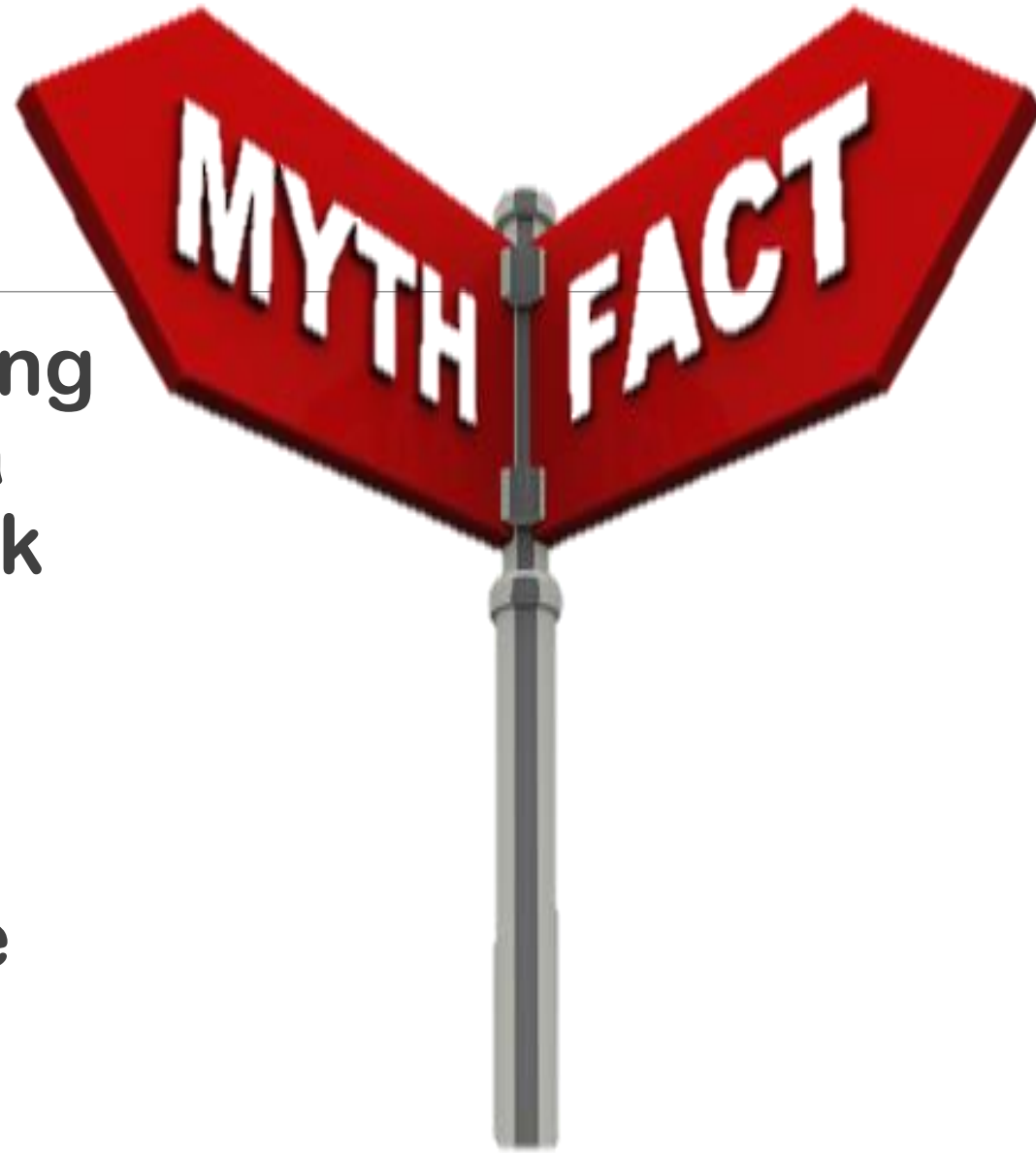
Debunked the Cancer Myths

- ☐ Do take anti-oxidants supplements / any other supplements to prevent getting CA.
- ☐ Go for organic foods
- ☐ Sugar feed cancer
- ☐ Say NO to acidic foods, choose alkaline foods
- ☐ Soy beans promote breast cancer
- ☐ Re-used cooking oils can cause CA



Debunked the Cancer Myths

- ❑ Sayur menjalar seperti kacang panjang, labu dan sebagainya menyebabkan kanser merebak (metastasis)
- ❑ Heaty foods such as milk cannot be taken during radiotherapy – as it can cause pangsai (diarrhea)
- ❑ Ikan bersisik should be avoided as it is toxic



Outline of Presentation:

SMART Nutrition to fight the *Big-C*

- ✓ What is *Big-C*?
- ✓ How much the size of the problem?
- ✓ Role of nutrition in *Big-C*
- ✓ How do we Figure out What May Affect *Big-C* Risk and Survivorship?
- ✓ Nutrition in *Big C*: Separating myths from facts



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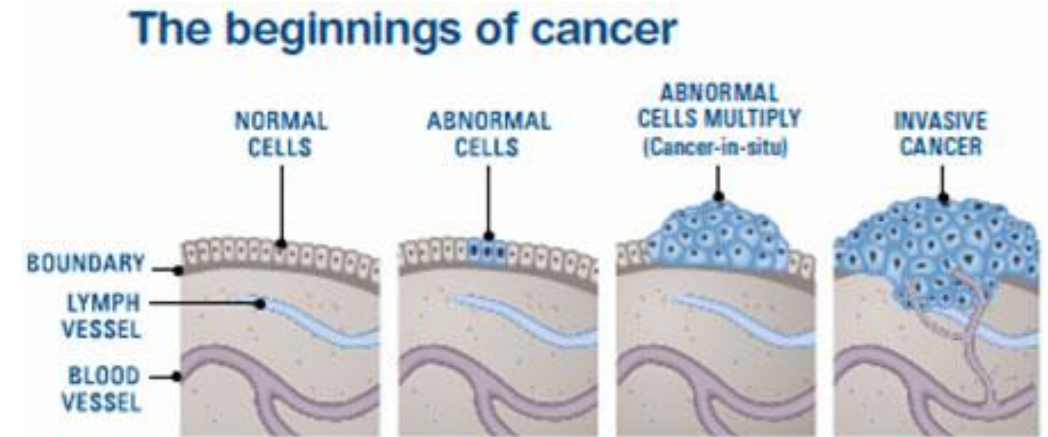
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What is *Big-e*?

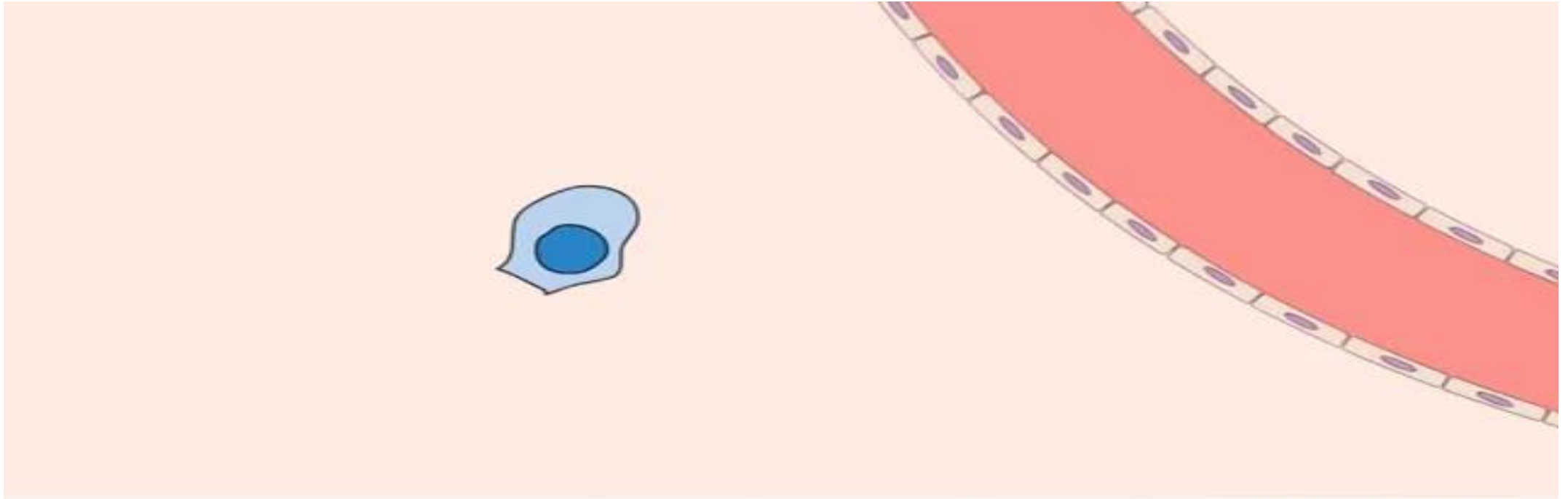


- *Big-e* or Cancer or CA
- Is a term used for diseases in which abnormal cells divide **without control**
- Able to invade other tissues
- CA can spread to other parts of the body through the blood





How the CA cell grow and spread?



Cancer starts when cells multiply out of control, forming a tumour.

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size of the problem

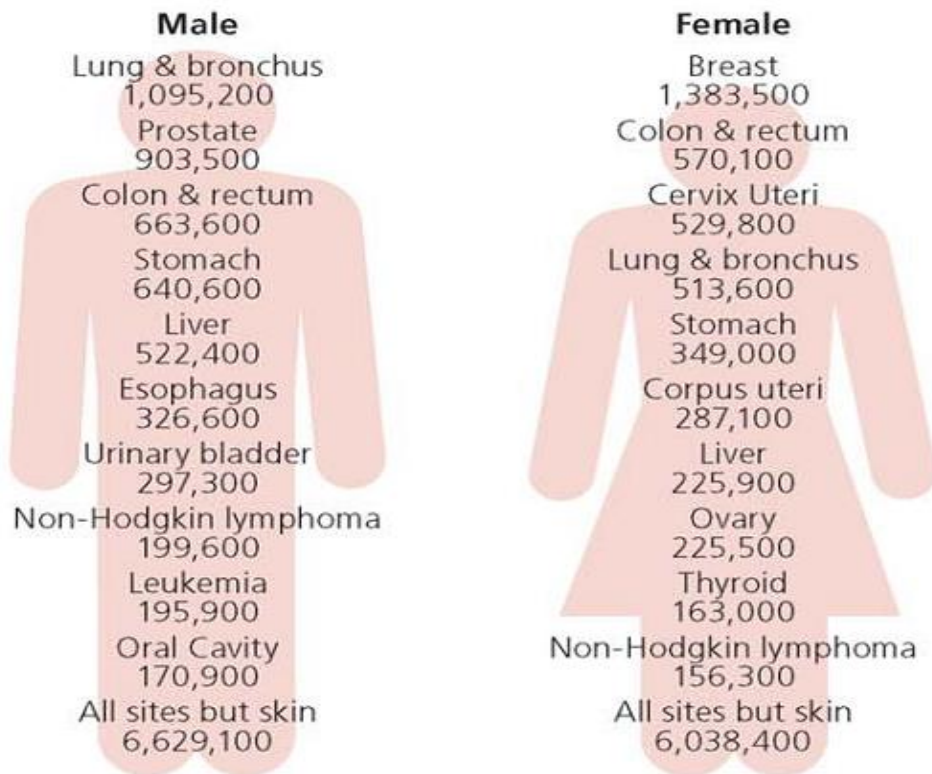


- CA among the leading causes of death world wide – accounting 14% death in 2012¹
- 60% in developing countries
- Most CA – lung, liver, stomach, colorectal and breast
- 30% are due to modifiable risk factors

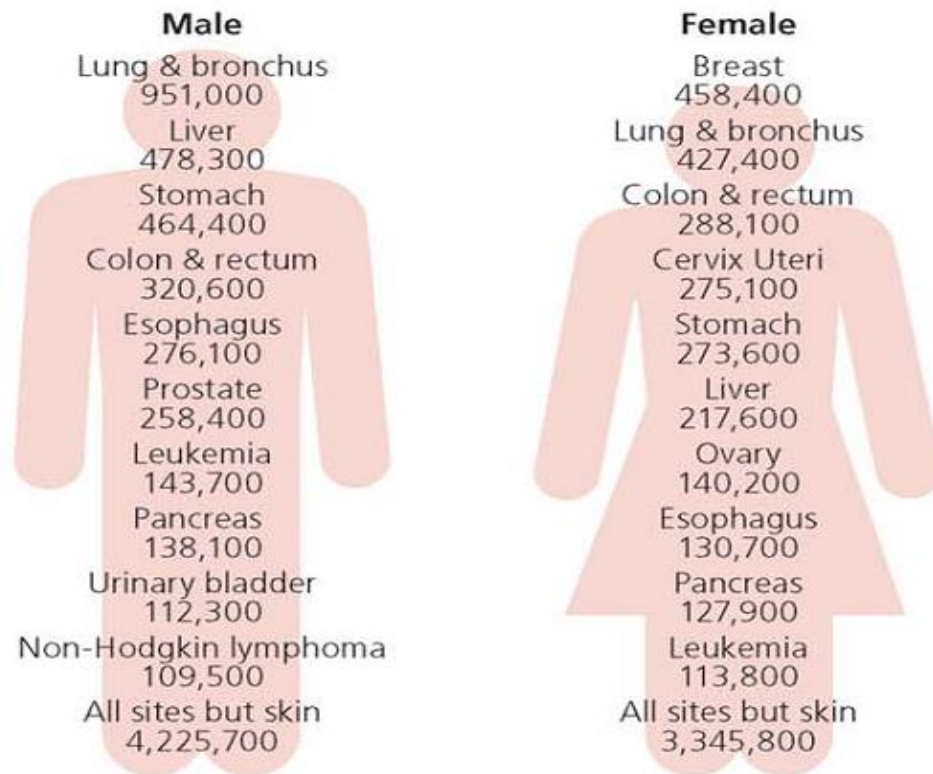


size of the problem

Estimated New Cases



Estimated Deaths



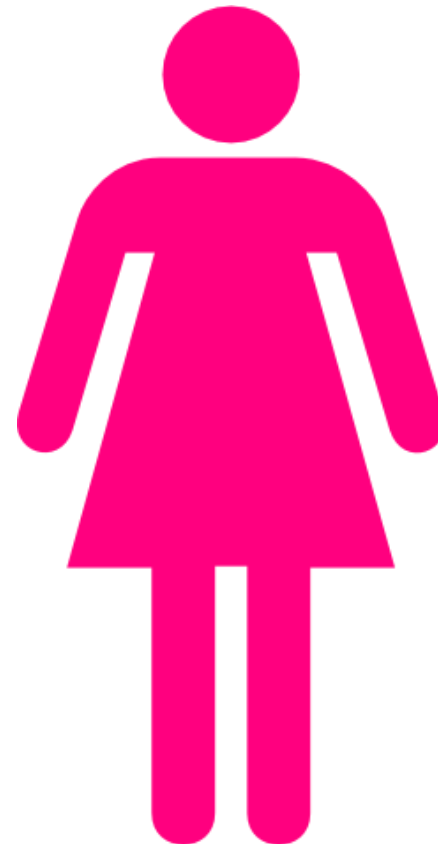


size of the problem

3rd cause of death



1. Lung
2. Colorectal
3. Nasopharyngeal
4. Lymphoma
5. Prostate



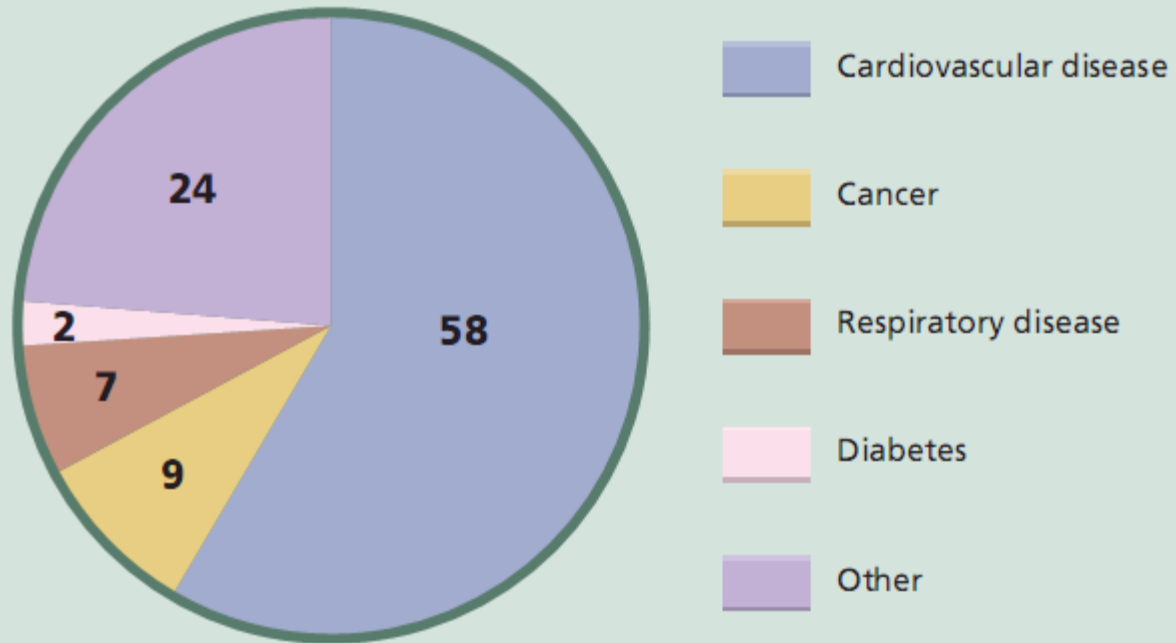
1. Breast
2. Colorectal
3. Cervical
4. Lung
5. Ovari

Other countries

Non-communicable causes of death

Egypt

Per cent of deaths

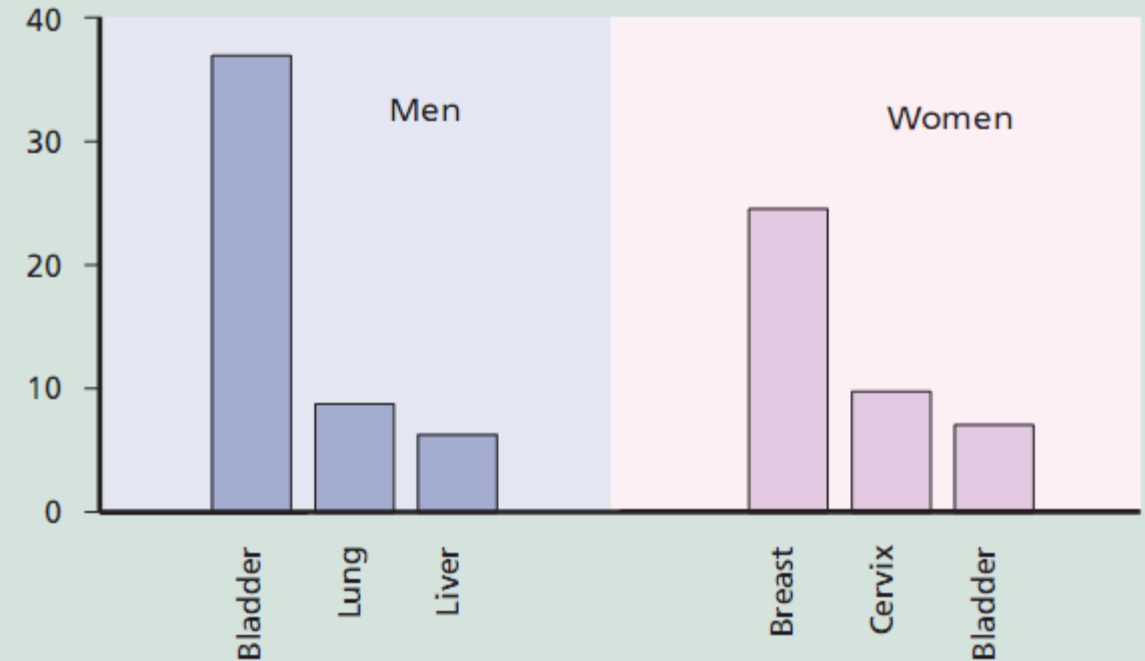


Data from World Health Organization⁴⁶

Age-standardised rates of common cancers

Egypt

Age-standardised rate per 100 000



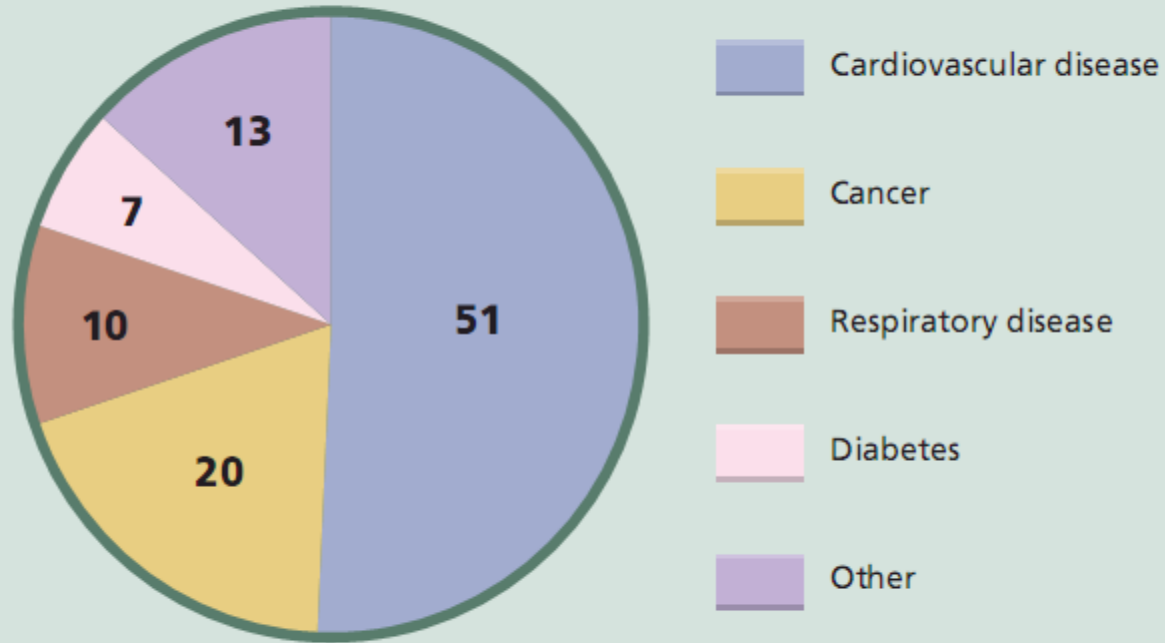
Data from International Agency for Research on Cancer²⁰

Other countries

Non-communicable causes of death

South Africa

Per cent of deaths

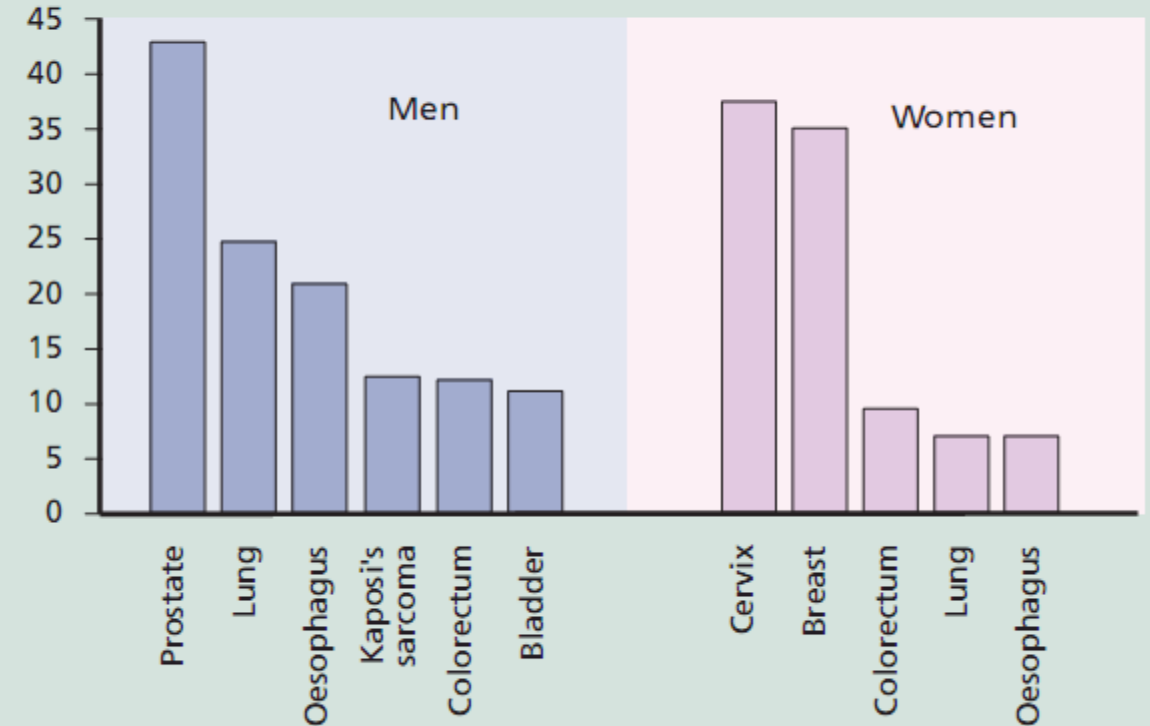


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Age-standardised rates of common cancers

South Africa

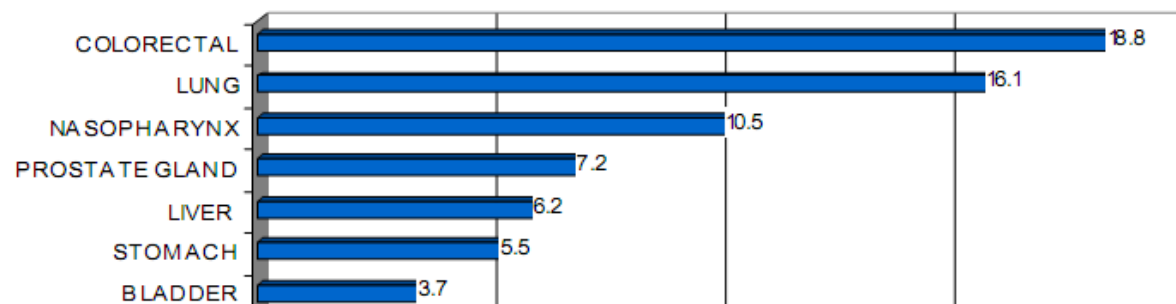
Age-standardised rate per 100 000



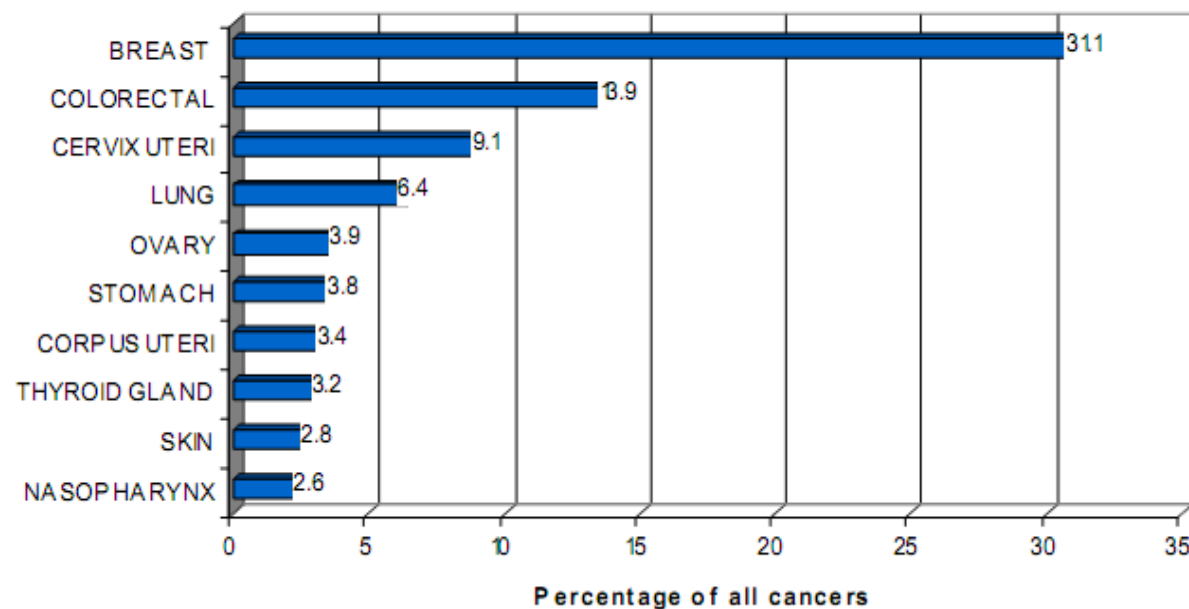
Data from International Agency for Research on Cancer²⁰

Other countries

Chinese



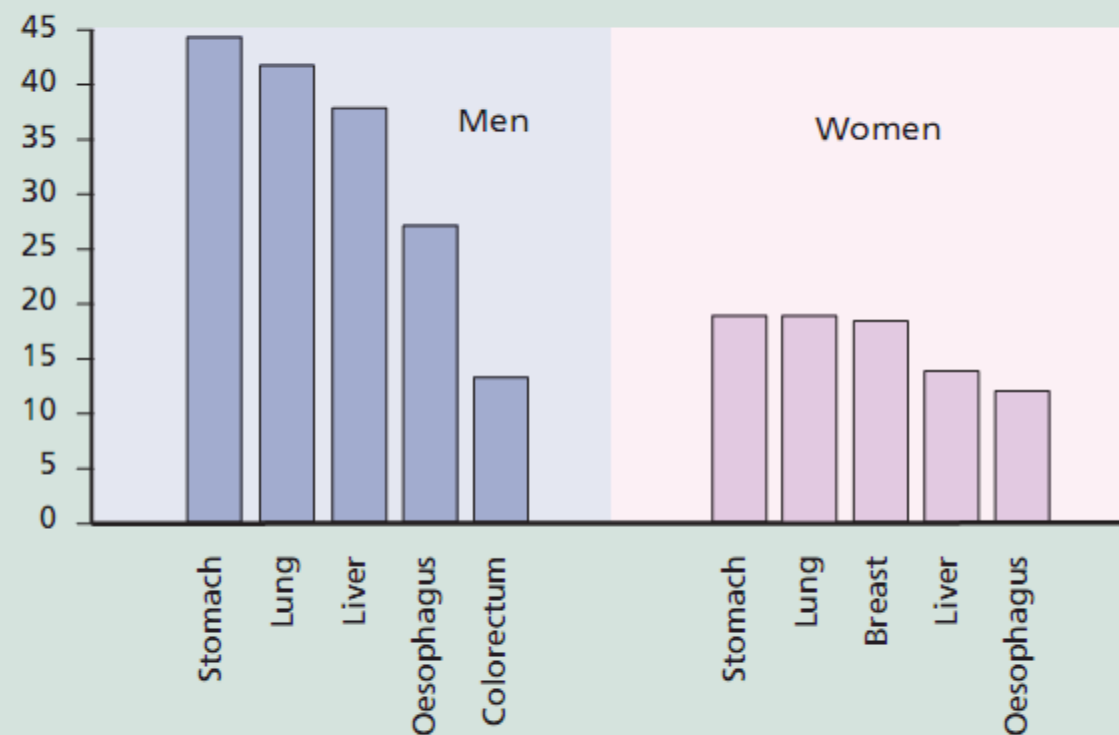
Chinese



Age-standardised rates of common cancers

China

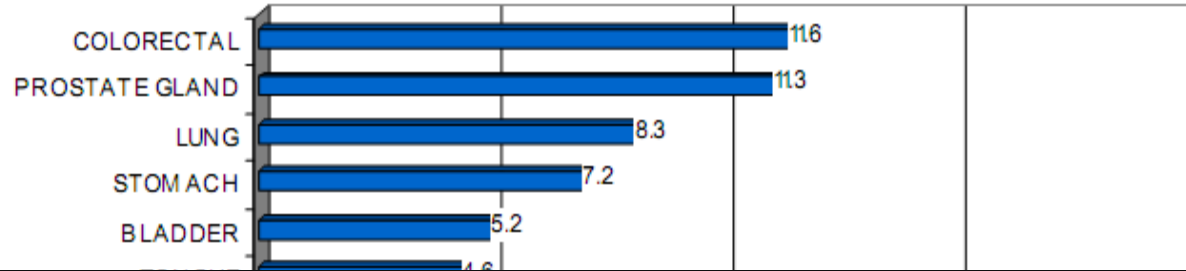
Age-standardised rate per 100 000



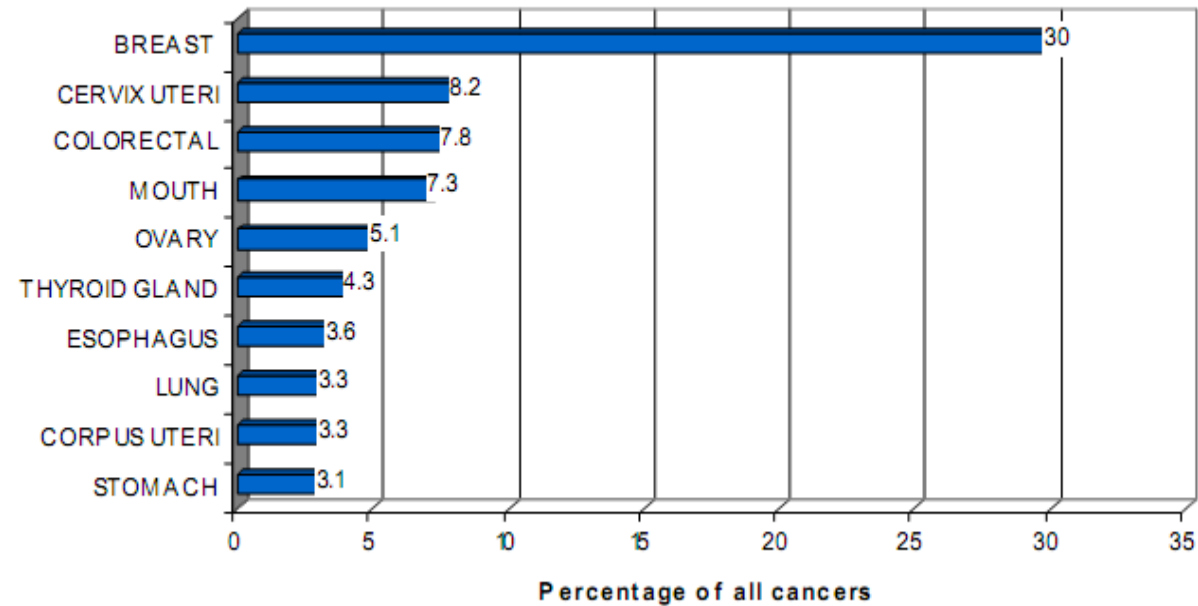
Data from International Agency for Research on Cancer²⁰

Other countries

Indian



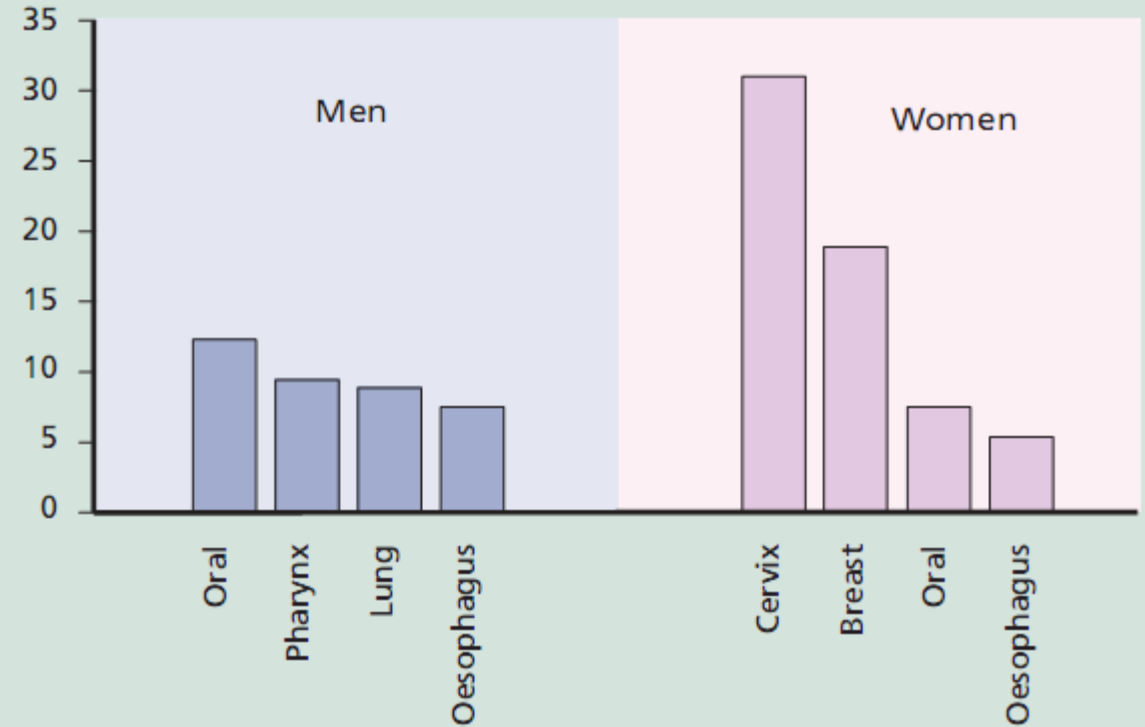
Indian



Age-standardised rates of common cancers

India

Age-standardised rate per 100 000



Data from International Agency for Research on Cancer²⁰

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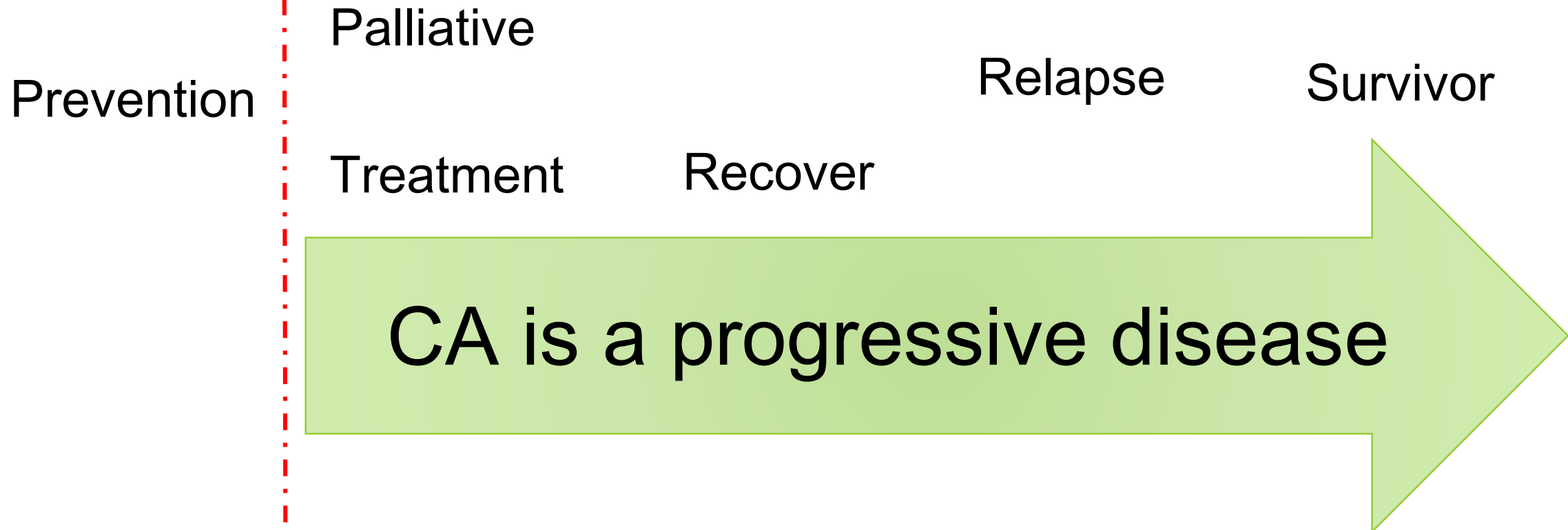
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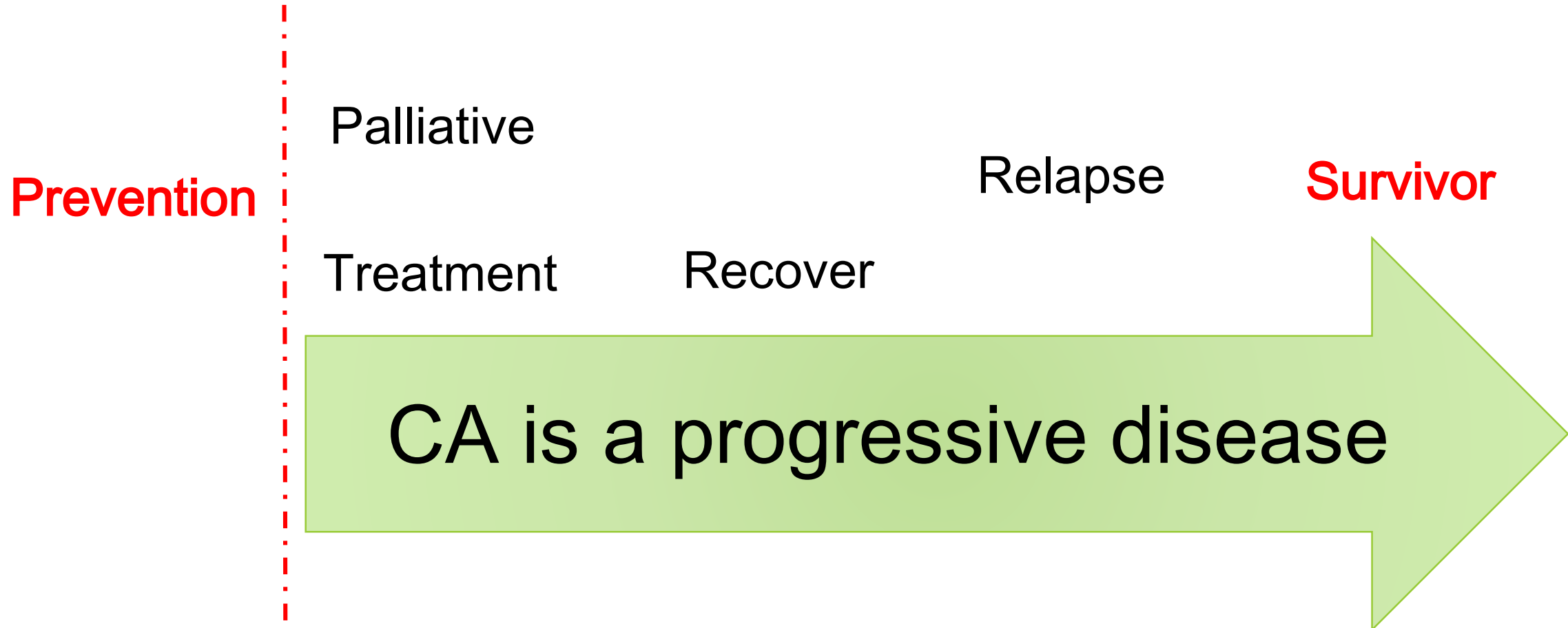


Role of nutrition in *Big-C*

Importance of nutrition across continuum of **Big-C**



Importance of nutrition across continuum of *Big-C*



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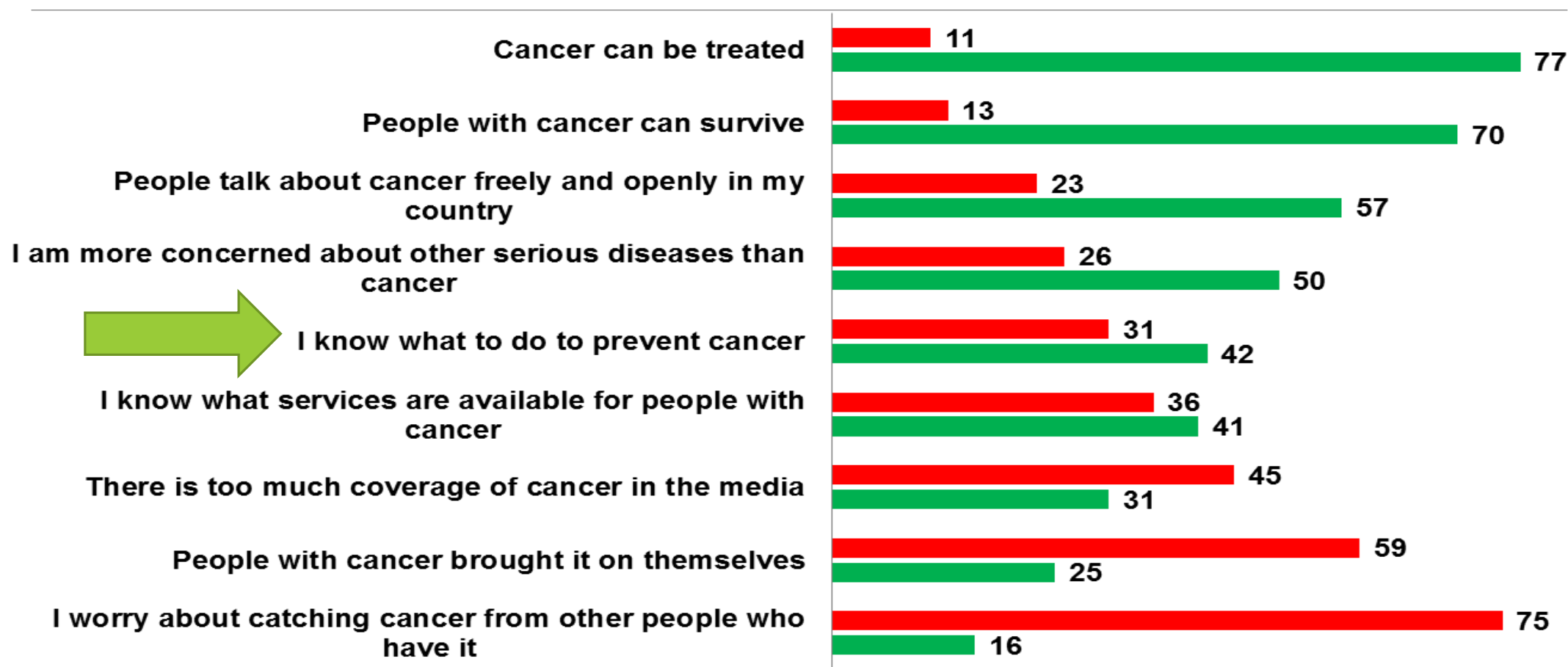
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**About one third of
all cancers can be
prevented**

Perceptions about cancer

■ Disagree ■ Agree



Cancer Stigma

Lance Armstrong Foundation conducted a survey on cancer stigma in 2008

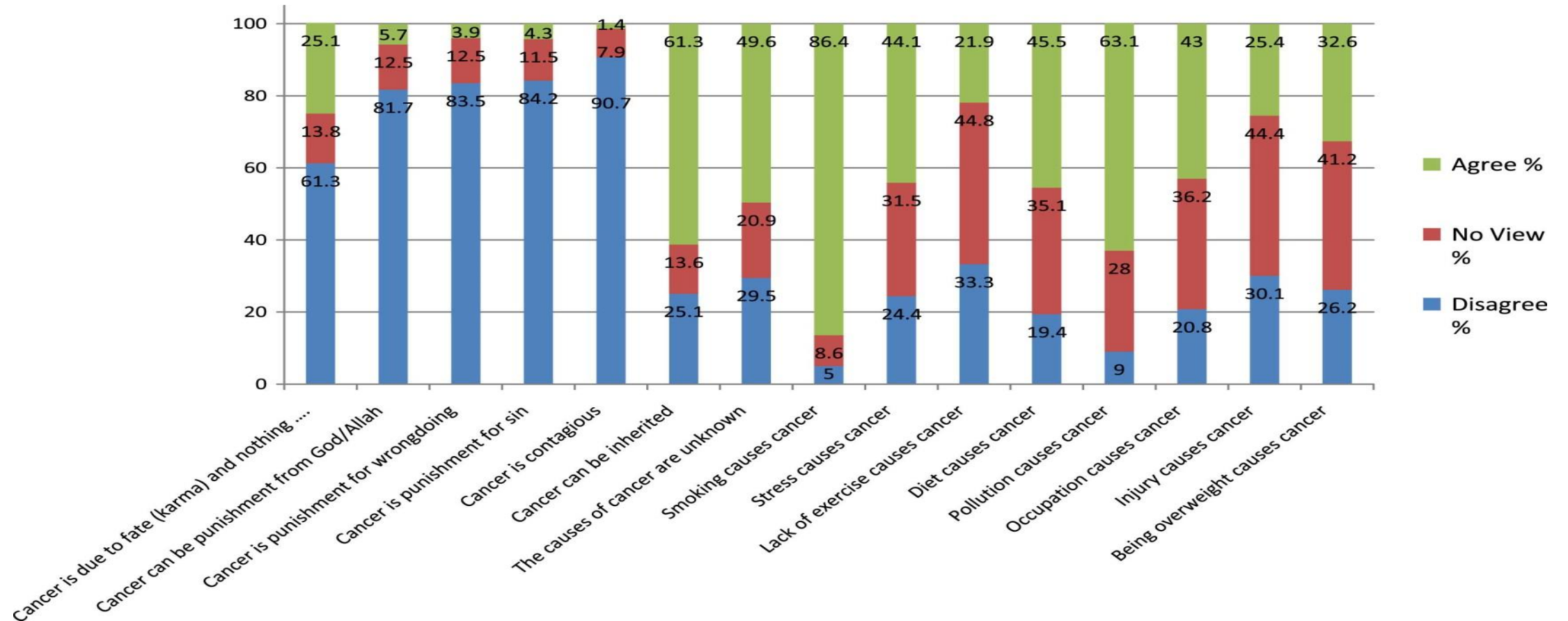
- Japan, Mexico, Russia, Argentina, Brazil, China, France, India, Italy, South Africa
- About 500 people polled in each country

Survey showed that

- Stigma continues to persist across countries, cultures and communities
- Caused by misinformation, lack of awareness, deeply engrained cultural myths and fear
- Opportunities to capitalise on shifting perceptions
- Mass media are key resources for facilitating more positive attitudes

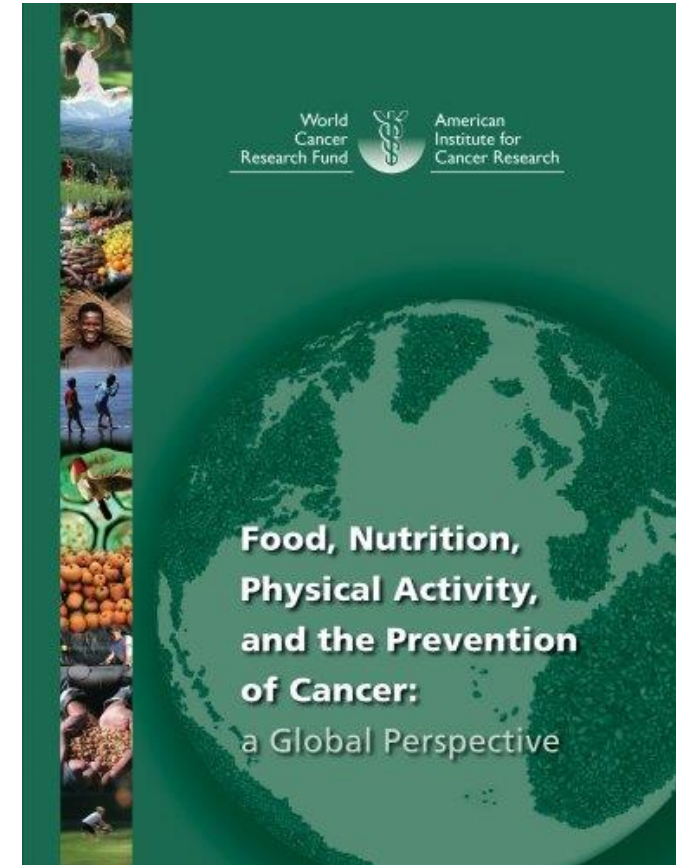
<http://www.livestrong.org/pdfs/3-0/LSGlobalResearchReport>

Beliefs: causes of cancer



How do we Figure out What May Affect *Big-C* Risk and Survivorship?

- The American Institute for Cancer Research in 2007 published - *“Food, Nutrition, Physical Activity and the Prevention of Cancer: a Global Perspective”*
- The result of an analysis of over 7000 research studies on the link between diet, lifestyle and cancer, and for the first time cancer survivors
- www.aicr.org → → “comprehensive global report” → **8 Recommendations + 2 Special Recommendations (n=10)**



Judging the Evidence

- Extensive work based on various research designs
- Criteria for grading the evidence
 1. Convincing
 2. Probable
 3. Limited (suggestive OR no conclusion)
 4. Substantial Effect on Risk Unlikely

PHYSICAL ACTIVITY, AND THE RISK OF CANCER

In the judgement of the Panel, physical activity¹ modifies the risk of the following cancers. Judgements are graded according to the strength of the evidence.

	DECREASES RISK	INCREASES RISK
Convincing	Colon²	
Probable	Breast (postmenopause) Endometrium	
Limited — suggestive	Lung Pancreas Breast (premenopause)	
Substantial effect on risk unlikely	None identified	

1 Physical activity of all types: occupational, household, transport, and recreational.

2 Much of the evidence reviewed grouped colon cancer and rectal cancer together as 'colorectal' cancer. *The Panel judges* that the evidence is stronger for colon than for rectum.

Judging the Evidence



1. Convincing

- Strong, consistent and unlikely to change in the future

2. Probable

- Compelling but not quite strong or consistent enough to be convincing

3. Limited –Suggestive

- Too limited to permit a probable judgment **BUT** general consistency in the data

4. Limited – No Conclusion

- Evidence is so limited that **NO** confirmation can be made

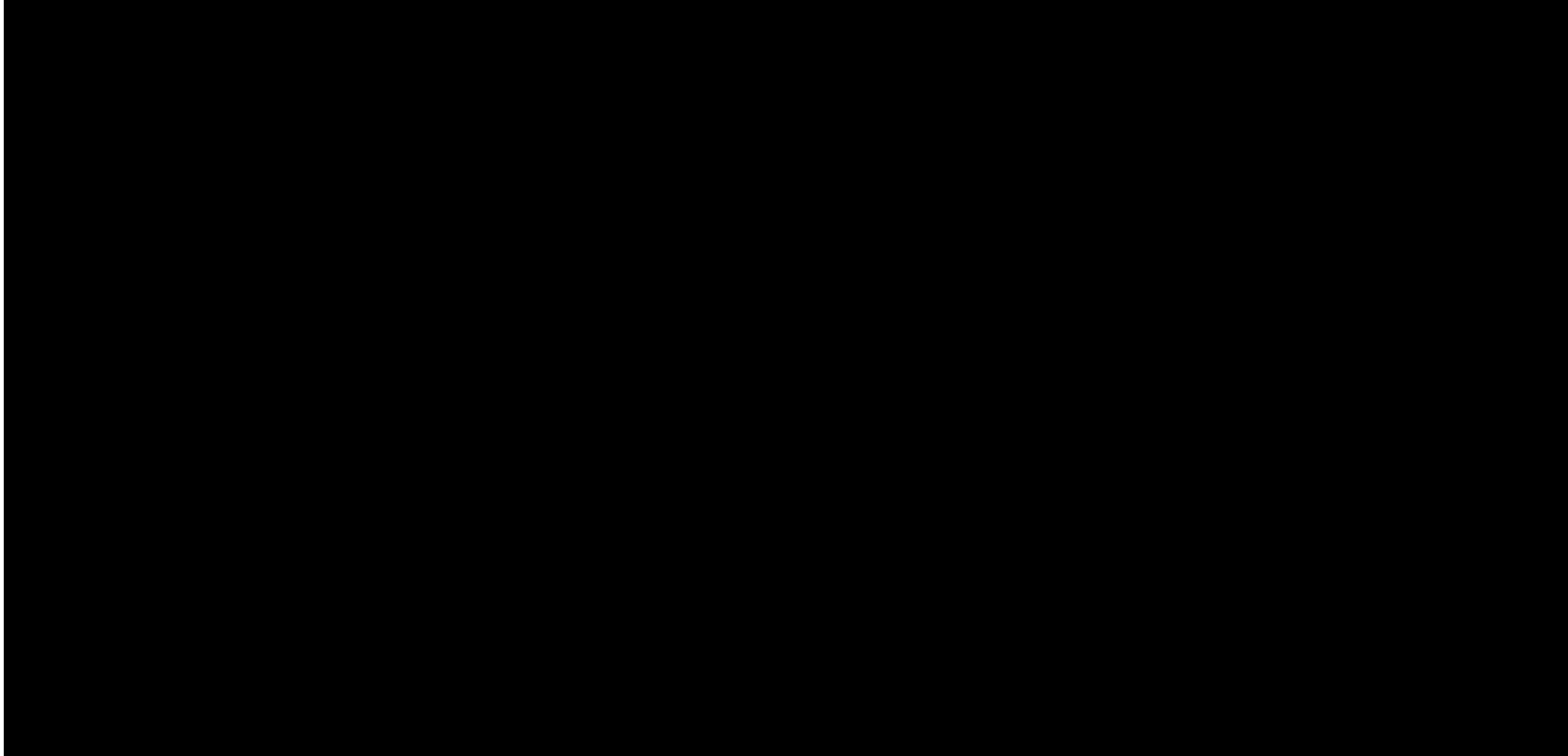
5. Substantial effect on risk unlikely

- Enough evidence to rule out connection

In other words....

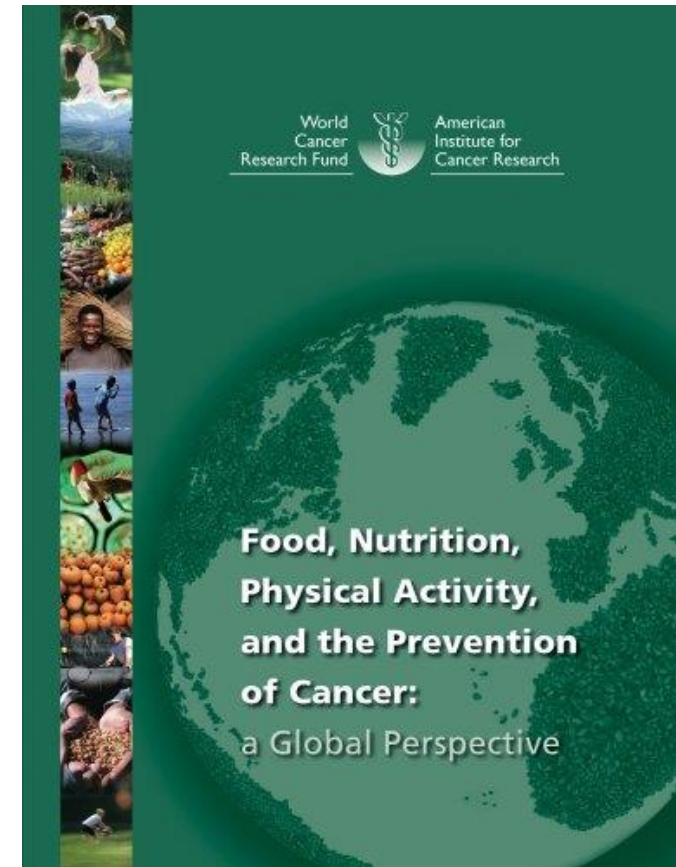
Grading	Putting into practice
Convincing	Follow the recommendation
Probable	Generally follow recommendation Use clinical judgment and patient preference Follow any new evidence that may arise
Limited-Suggestive	Use clinical judgment and patient preference Follow any new evidence that clarifies the balance of benefit versus harm.

SMART Nutrition to
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How do we Figure out What May Affect *Big-C* Risk and Survivorship?

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Recommendation 1

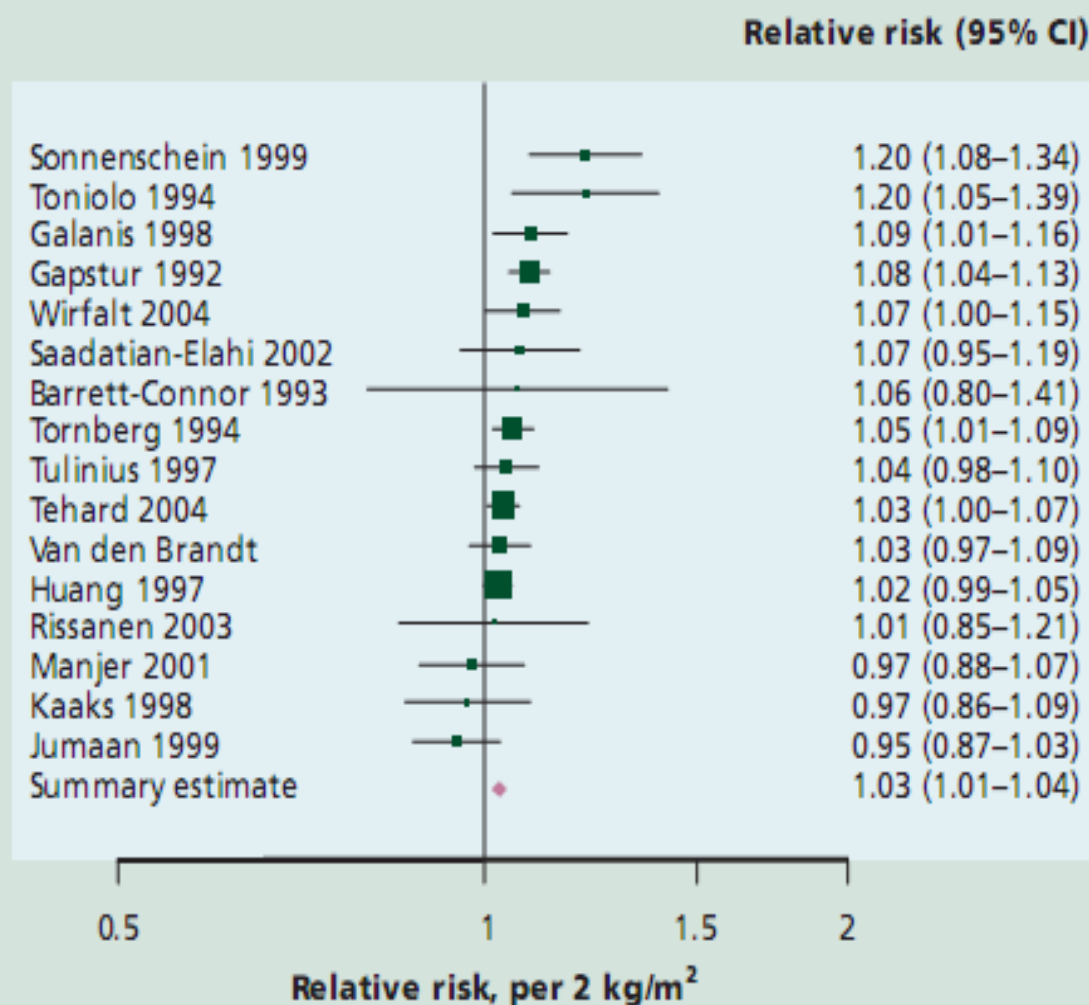
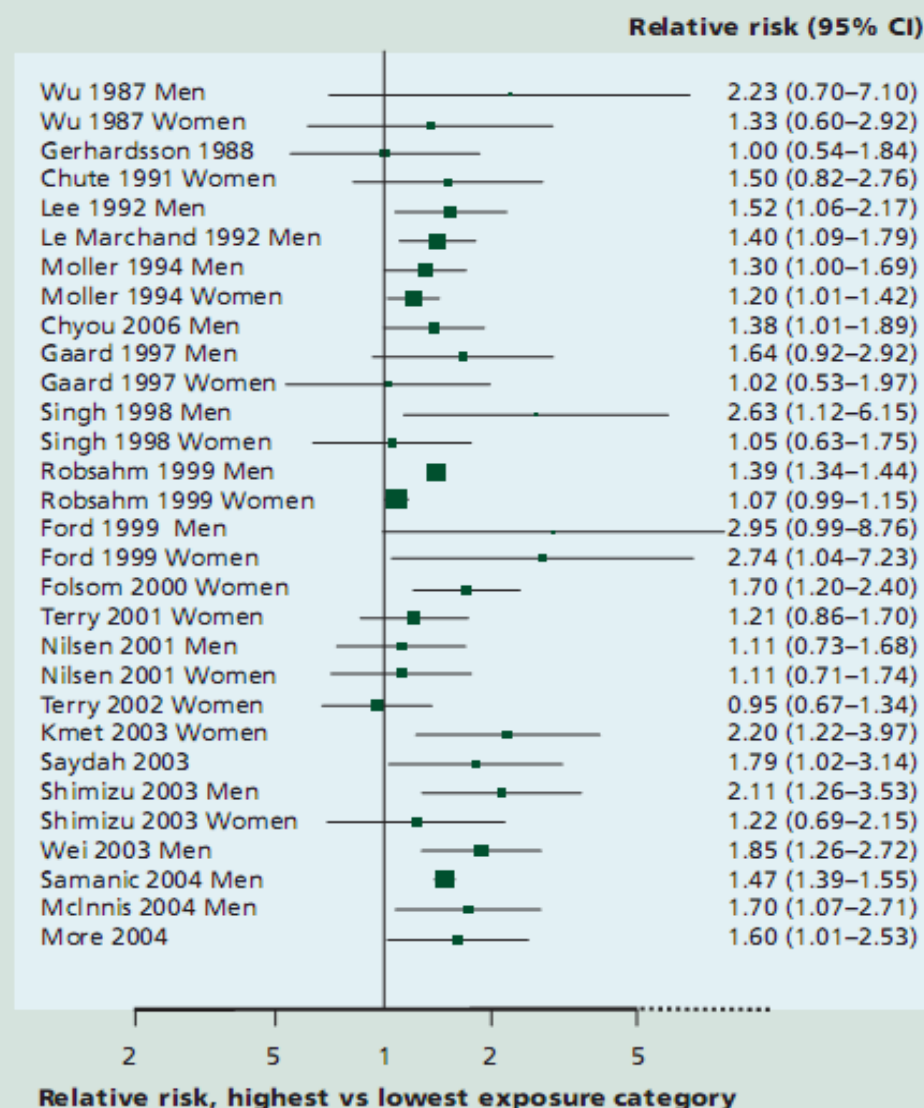


1. Body Fatness

Be as lean as possible within the normal range of body weight

Recommendations

- Ensure that body weight through childhood and adolescent growth projects towards the lower end of the normal BMI range at age 21
- Maintain body weight within the normal range from age 21
- Avoid weight gain and increases in waist circumference throughout adulthood

Figure 6.1.11**BMI and postmenopausal breast cancer;
cohort studies****Figure 6.1.7****BMI and colon cancer, cohort studies**

BODY FAT

Recommendations are graded according to the strength of the evidence.

Confirm body fatness increase risk of Breast (postmenopausal), colorectal, pancreatic, endometrial and ovarian CA

INCREASES RISK

Convincing

Exposure

Cancer site

Body fatness

Oesophagus¹
Pancreas
Colorectum
Breast (postmenopause)
Endometrium
Kidney

Abdominal fatness

Colorectum

Probable

Body fatness

Breast (premenopause)

Greater body fatness PROBABLY protects against breast CA diagnosed before the menopause

Body fatness

Gallbladder²

Abdominal fatness

Pancreas
Breast (postmenopause)
Endometrium

Adult weight gain

Breast (postmenopause)

Limited — suggestive

Body fatness

Liver

Low body fatness

Lung

Substantial effect on risk unlikely

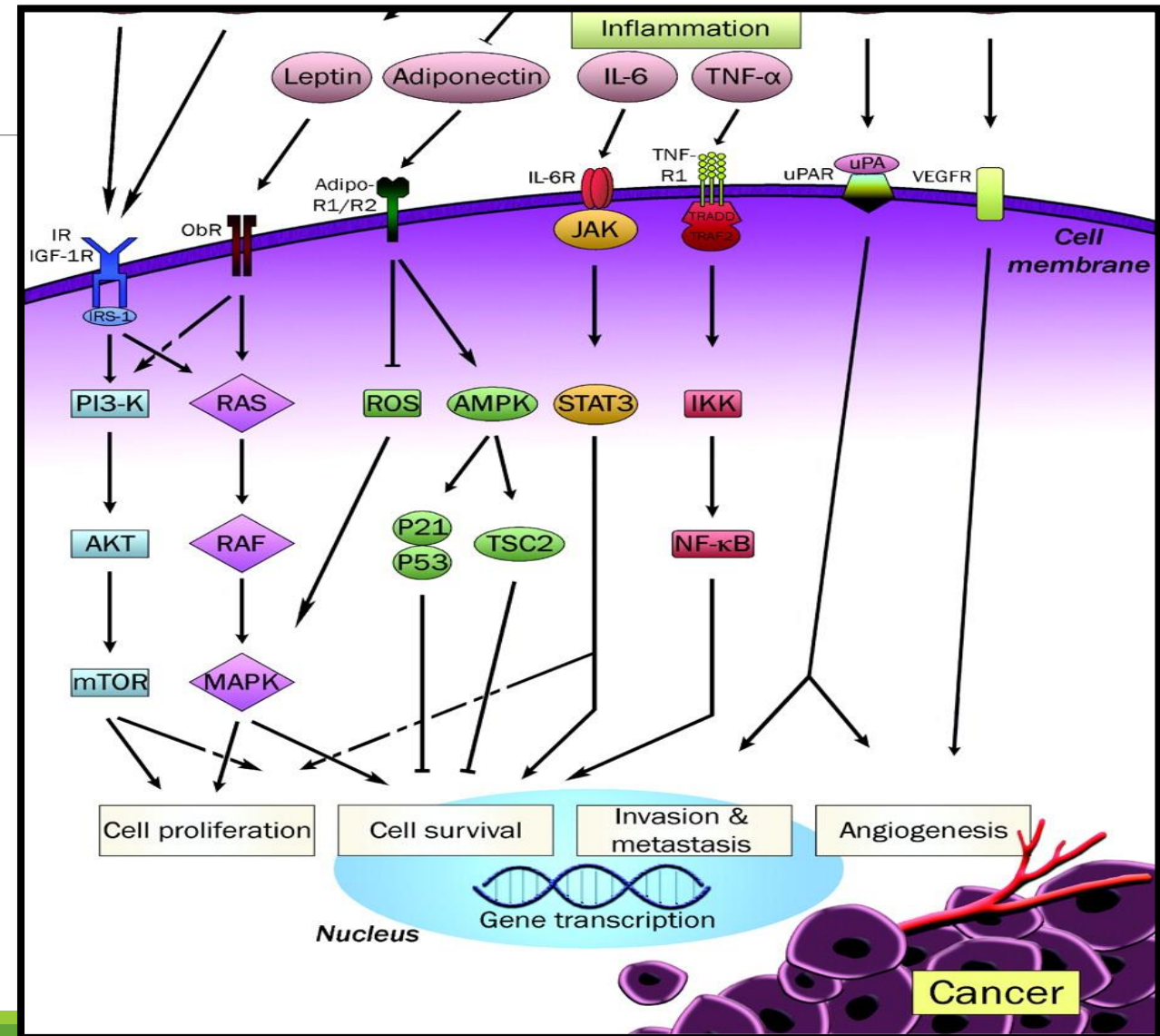
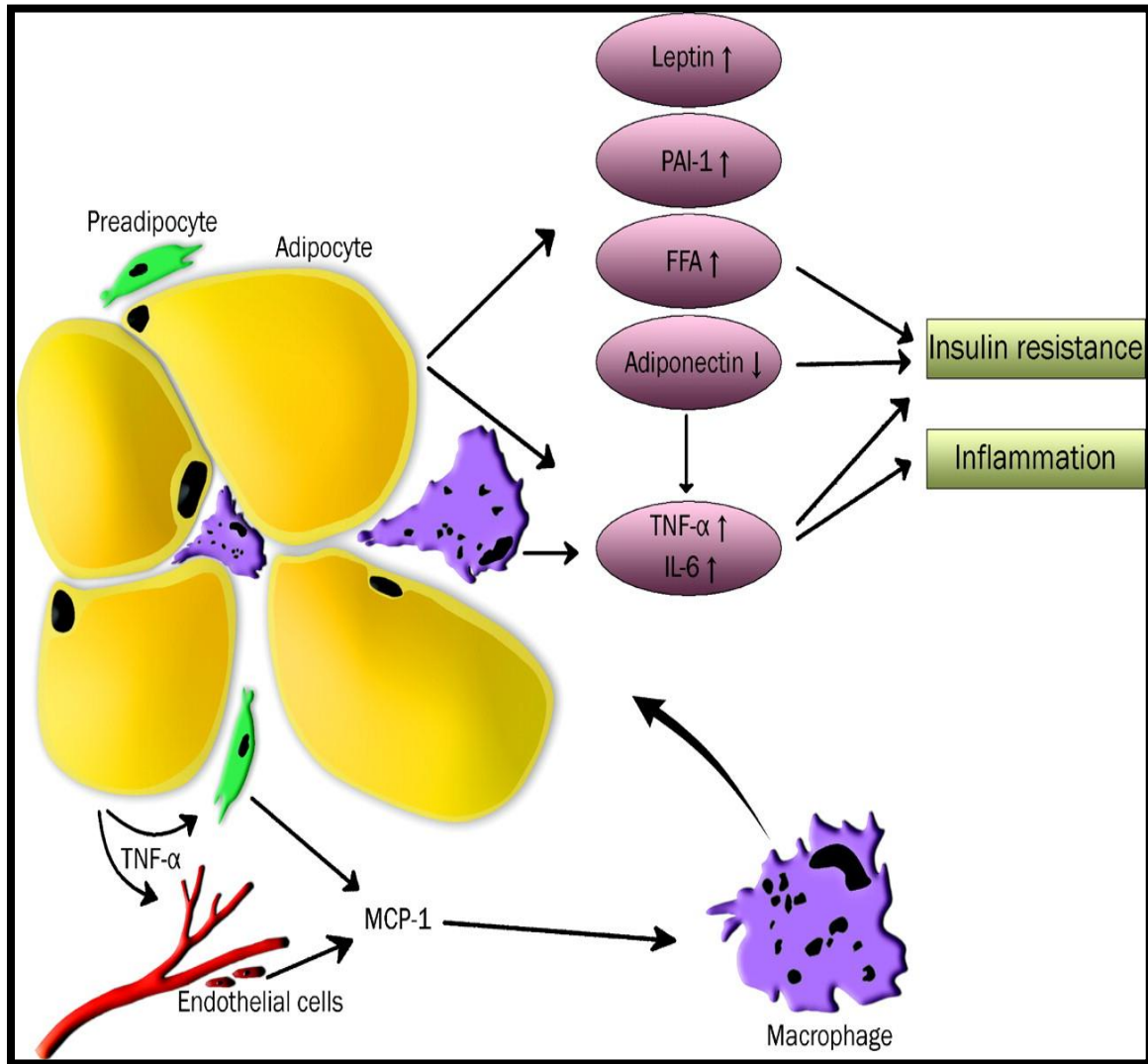
None identified

1 For oesophageal adenocarcinomas only.

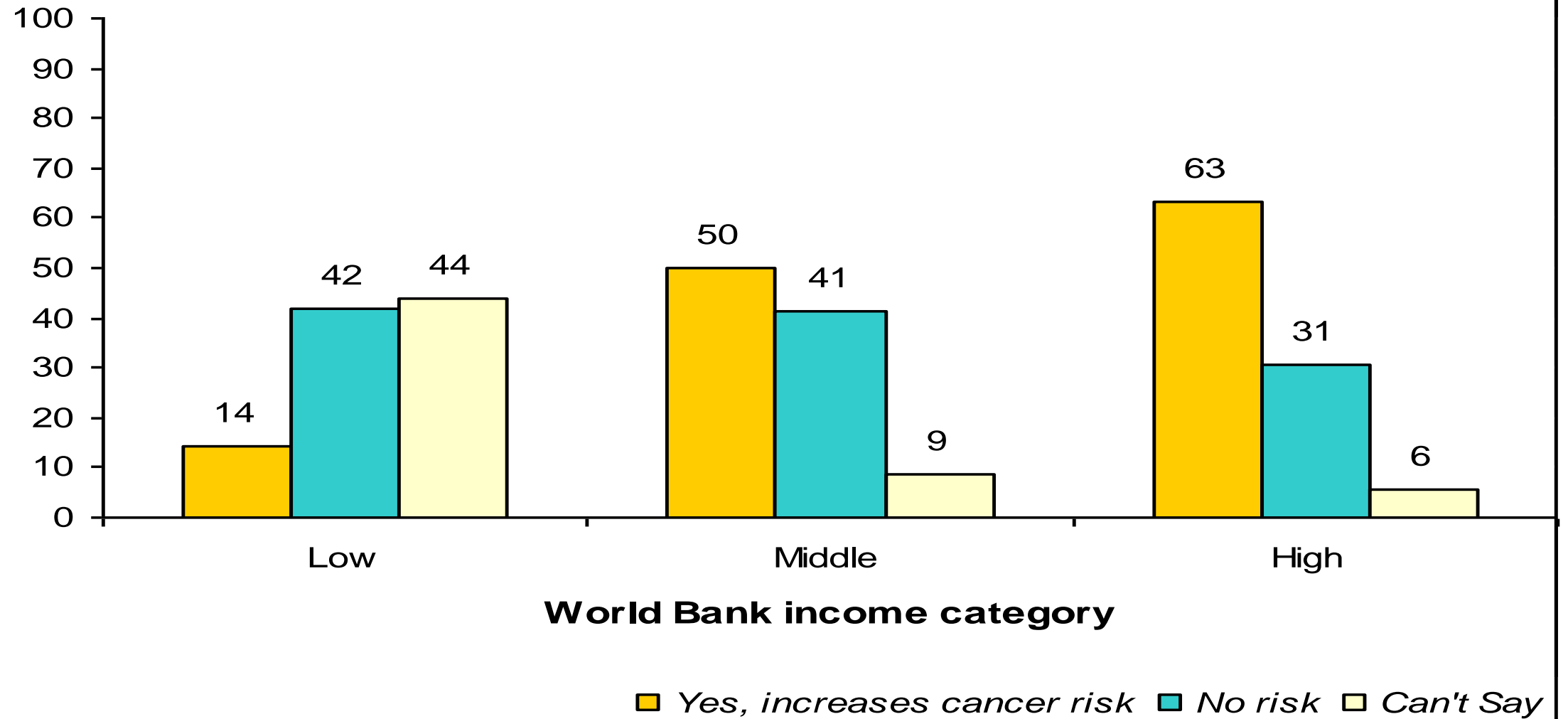
2 Directly and indirectly, through the formation of gallstones.



Why body fatness cause cancer?



Perceived cancer risk of being overweight



Obesity prevalence



Kira-kira 16.8 juta rakyat alami kegemukan

Lebih separuh orang Malaysia hidap obesiti

Oleh HISHAM IDRIS
hisham.idris@kosmo.com.my

KUALA LUMPUR – Seramai 16.8 juta atau 60 peratus daripada 28 juta penduduk Malaysia mengalami masalah kegemukan termasuk golongan kanak-kanak dan jumlah itu menunjukkan peningkatan membimbangkan sejak akhir-akhir ini.

Daripada jumlah tersebut, kira-kira 50 peratus atau sebanyak 8.4 juta orang mengalami masalah obesiti manakala baki 50 peratus lagi merupakan penduduk melebihi berat badan ideal.

Perkara tersebut didedahkan oleh Menteri Kesihatan, Datuk Seri Liow



Tiong Lai (gambar) yang melahirkan kebimbangan kerana ia merangkumi semua peringkat umur.

“Sekarang ini, selain orang dewasa, kita boleh lihat kanak-kanak turut terdedah kepada pelbagai penyakit kerana masalah kegemukan,” katanya selepas merasmikan Persidangan Ahli Lembaga Pelawat Hospital Tahun 2010 di sini semalam.

Turut hadir pada majlis tersebut ialah timbalan beliau, Datuk Rosnah Abdul Rashid Shirlin.

Menurut Tiong Lai, masalah kegemukan yang berpunca daripada cara pemakanan dan gaya hidup yang

rang sihat merupakan ‘pintu masuk’ kepada pelbagai penyakit kronik yang kian meningkat dalam kalangan masyarakat.

“Fenomena ini membimbangkan kerana ia secara langsung berkaitan dengan peningkatan risiko penyakit seperti diabetes, sakit jantung, buah pinggang, darah tinggi dan barah.

“Trend terkini menunjukkan orang ramai yang mengalami masalah kegemukan merupakan golongan yang berisiko terdedah kepada penyakit tersebut,” katanya.

Sehubungan itu, Tiong Lai menggesa rakyat supaya mengamalkan pemakanan yang seimbang serta gaya hidup sihat dengan melakukan aktiviti fizikal termasuk bersenam, jogging dan beriadah.

Balagi azam ubah diet untuk sihat



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Project

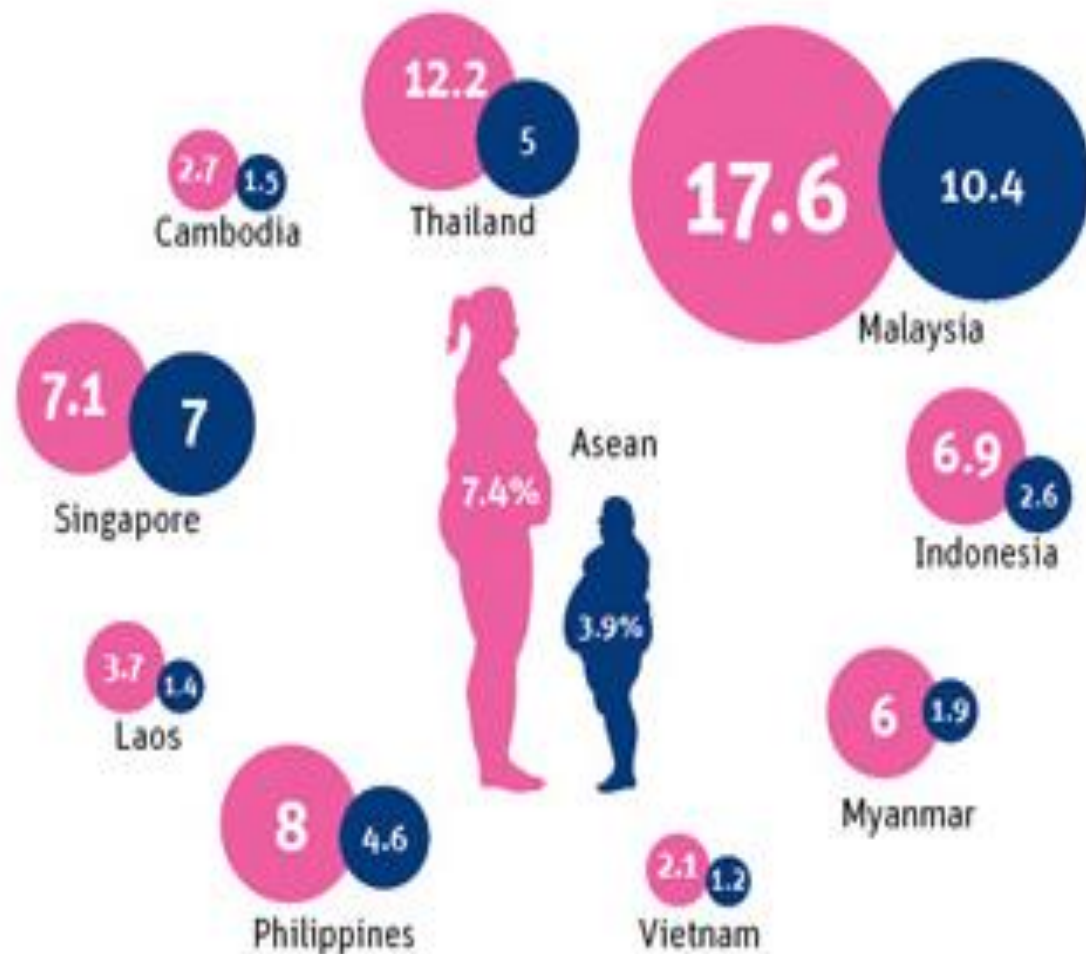
Reaching the height



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OBESITY: MEN VS. WOMEN

Adult obesity prevalence (%) per sex (BMI of > 30 kg/m²)



Source: WHO Global Report on Non-Communicable Diseases, 2010

Malaysia duduki tempat pertama di Asia Tenggara

Paling ramai obes



Sidang
Dewan Rakyat

KUALA LUMPUR – Malaysia menduduki tempat pertama dalam kalangan negara-negara di Asia Tenggara yang paling ramai rakyatnya mengalami obesiti dan tempat keenam di negara Asia Pasifik, Dewan Rakyat diberitahu semalam.

Timbalan Menteri Kesihatan, Datuk Rosnah Abdul Rashid Shirlin berkata, perkara itu perlu diberi perhatian semua pihak.



sampel makanan telah dianalisis pada tahun 2009 untuk bahan pemanis dengan 7.3 peratus atau 92 sampel didapati melanggar standard yang ditetapkan.

"Pada tahun 2010, sebanyak 2,004 sampel makanan telah dianalisis dengan 5.4 peratus bersamaan dengan 108 sampel didapati melanggar standard ditetapkan," katanya.

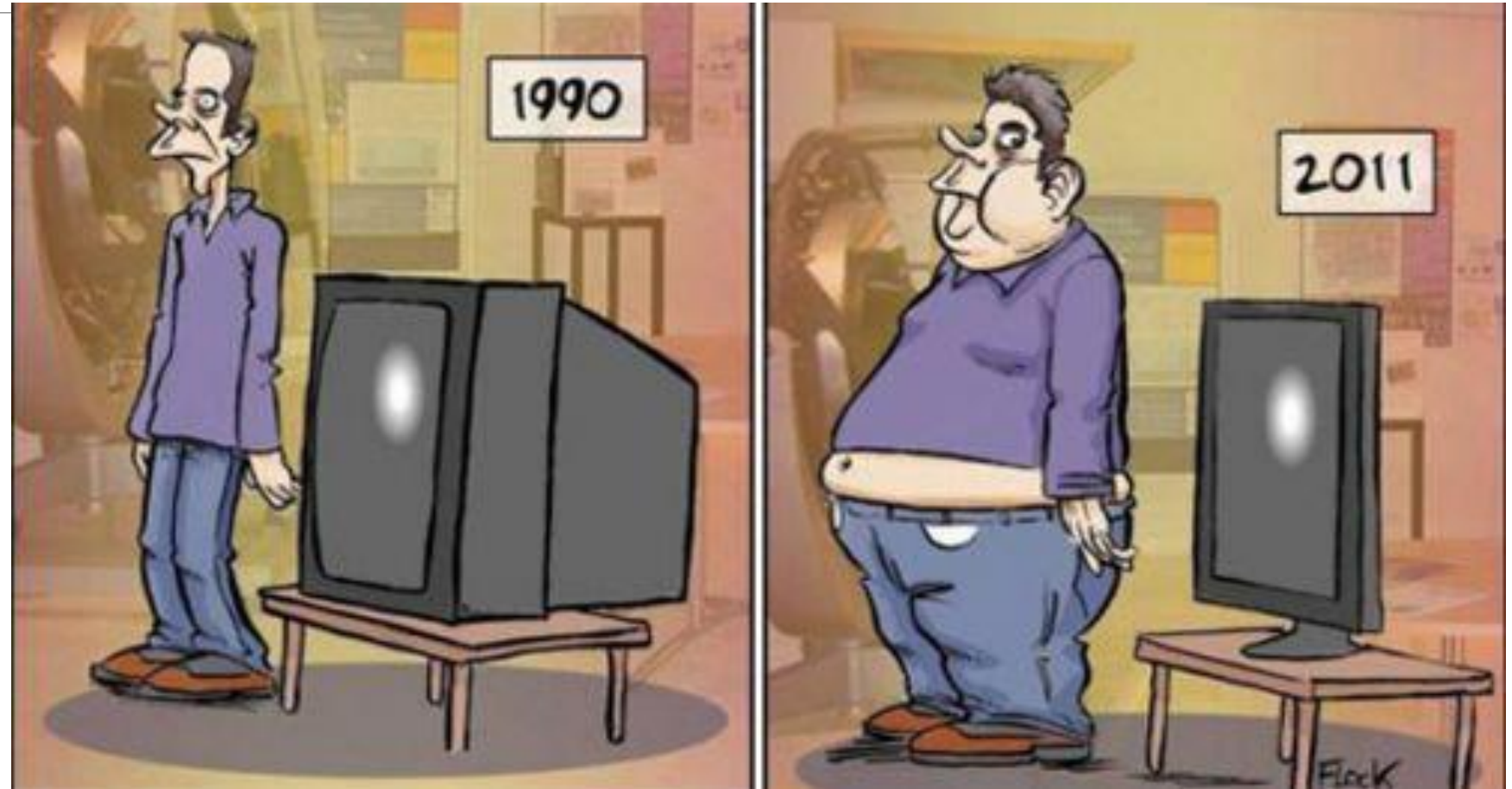
Beliau berkata, selain tindakan mahkamah yang diambil terhadap pihak industri, kerajaan juga mengamarkan kepada gara untuk produk yang mel



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Senyum Kambing



In Children

Masalah obesiti di kalangan kanak-kanak semakin serius

MASALAH obesiti atau kegemukan di kalangan kanak-kanak semakin serius apabila dianggarkan 40 peratus berlaku berikutan gaya hidup ibu bapa yang gemar membawa keluarga makan di luar terutama pada waktu malam.

Presiden Persatuan Pediatrik Malaysia (MPA), Prof Dr Zulkifli Ismail, berkata masalah itu lebih ketara terutama di kawasan Pantai Barat seperti di Lembah Klang yang sudah menjadi kebiasaan dengan cara hidup sedemikian.

"Gaya hidup yang lebih kepada bersenang-lenang seperti bermain komputer, menonton, bermain video, penurunan aktiviti fizikal dan peningkatan pengambilan makanan yang berlemak dan berkalori tinggi juga menyumbang kepada obesiti," katanya kepada pemberita selepas majlis perasmian Kongres Sains dan Teknologi MPA, di Kuala Terengganu, baru-baru ini.

Kongres berkenaan dilancarkan oleh Menteri Besar Datuk Seri Idris Jusoh. Turut hadir, Pengerusi Jawatankuasa Kesihatan, Perpaduan, Hal-Ehwal Pengguna dan Alam Sekitar Negeri, Toh Chin Yaw dan Ketua Jabatan Pediatrik Hospital Sultanah Nur Zahirah (HSNZ), Datuk Dr Jimmy Lee Kok Foo.

Prof Zulkifli berkata, kanak-kanak yang mengalami obesiti biasanya membesar sebagai orang dewasa yang gemuk dan terdedah kepada pelbagai jenis penyakit berbahaya seperti darah tinggi, kencing manis, masalah jantung serta barah.

Katanya, walaupun tiada kajian menyeluruh dilakukan, berdasarkan



MEMUDARATKAN: Obesiti di kalangan kanak-kanak boleh mengundang pelbagai masalah.

kepada gaya hidup yang diamalkan masyarakat kini, ia menyumbang kepada peningkatan kadar obesiti kanak-kanak.

Mengikut data rasmi Kementerian Kesihatan, kadar obesiti kanak-kanak negara ini adalah 15 peratus, tetapi jumlah itu dipercayai lebih tinggi sekarang terutama di Kuala Lumpur dan Selangor yang mencecah antara 30 hingga 40 peratus.

"Masalah itu perlu diberi perhatian serius kerana berat badan yang berlebihan boleh membawa risiko kesihatan berpanjangan."

"Obesiti pada kanak-kanak tidak boleh dipandang mudah dan apa yang boleh dilakukan ialah dengan

mengubah kepada gaya hidup yang lebih selamat," katanya.

Sementara itu, Idris berkata, Terengganu mencatatkan kadar kematian bayi baru lahir tertinggi di negara ini iaitu 6.8 kes bagi setiap 1,000 kelahiran.

Katanya, kekurangan perkhidmatan pediatrik di hospital dan pusat kesihatan di negeri itu menyebabkan kadar kematian bayi baru lahir di Terengganu tinggi.

Beliau berkata, ketika ini ada lima pakar, 20 doktor dan 160 jururawat pediatrik di HSNZ dan jumlah itu tidak mencukupi berbanding 400,000 kanak-kanak daripada sejuta populasi penduduk di Terengganu. - Bernama



“Gaya hidup yang lebih kepada bersenang-lenang seperti bermain komputer, menonton, bermain video, penurunan aktiviti fizikal dan peningkatan pengambilan makanan yang berlemak dan berkalori tinggi juga menyumbang kepada obesiti”

Dr Zulkifli Ismail
Presiden Persatuan Pediatrik Malaysia



OBESITY EPIDEMIC!

DON'T SUPERSIZED THEM

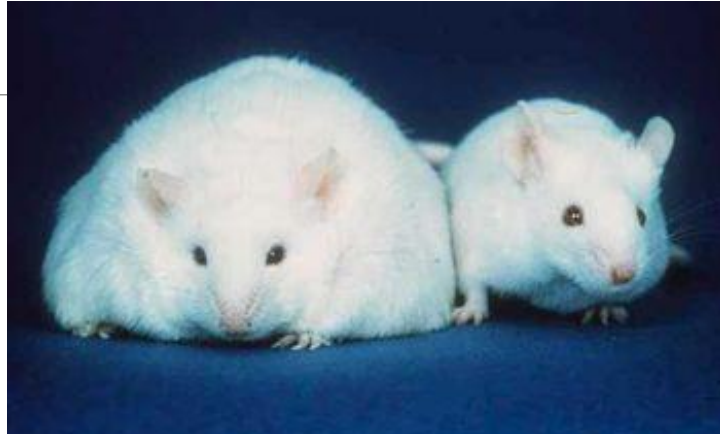


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In Pets..

OBESITY EPIDEMIC!



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In UPM

Mean BMI: 26.8 ± 5.7 kgm-2

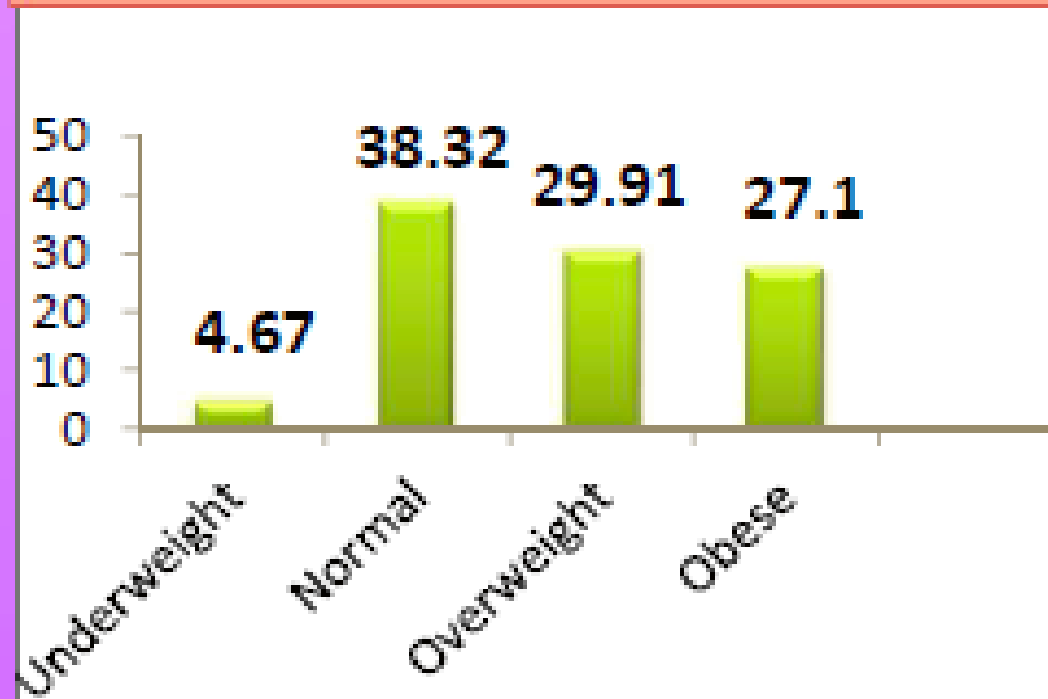


Figure 3 : Percentage of subjects according to BMI classification

Mean WC men = 89.1 ± 11.7 cm
Mean WC women = 82.3 ± 12.0 cm

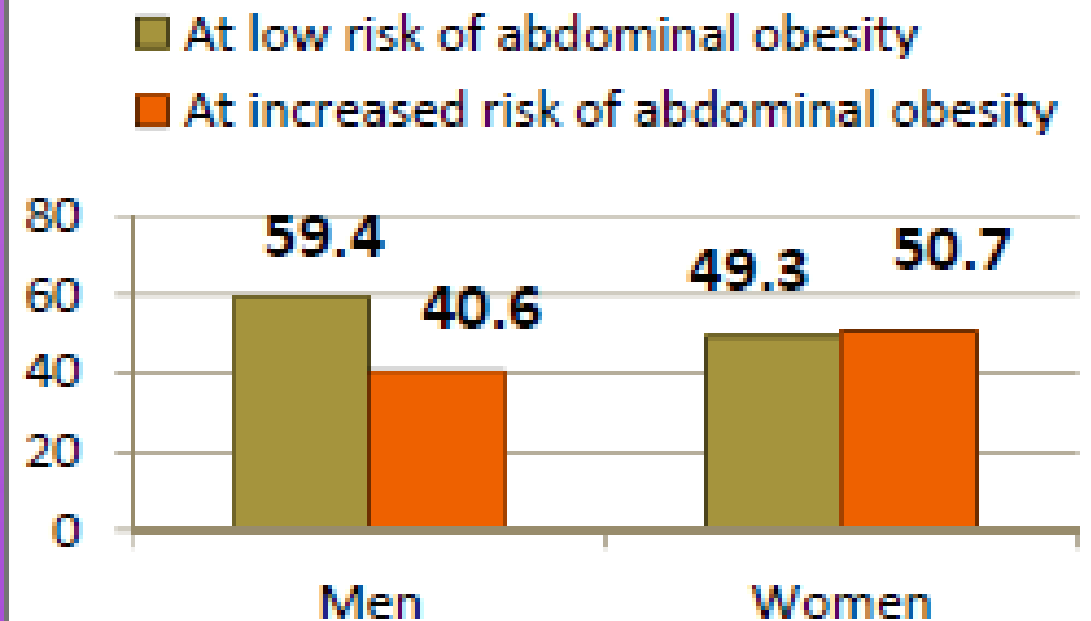
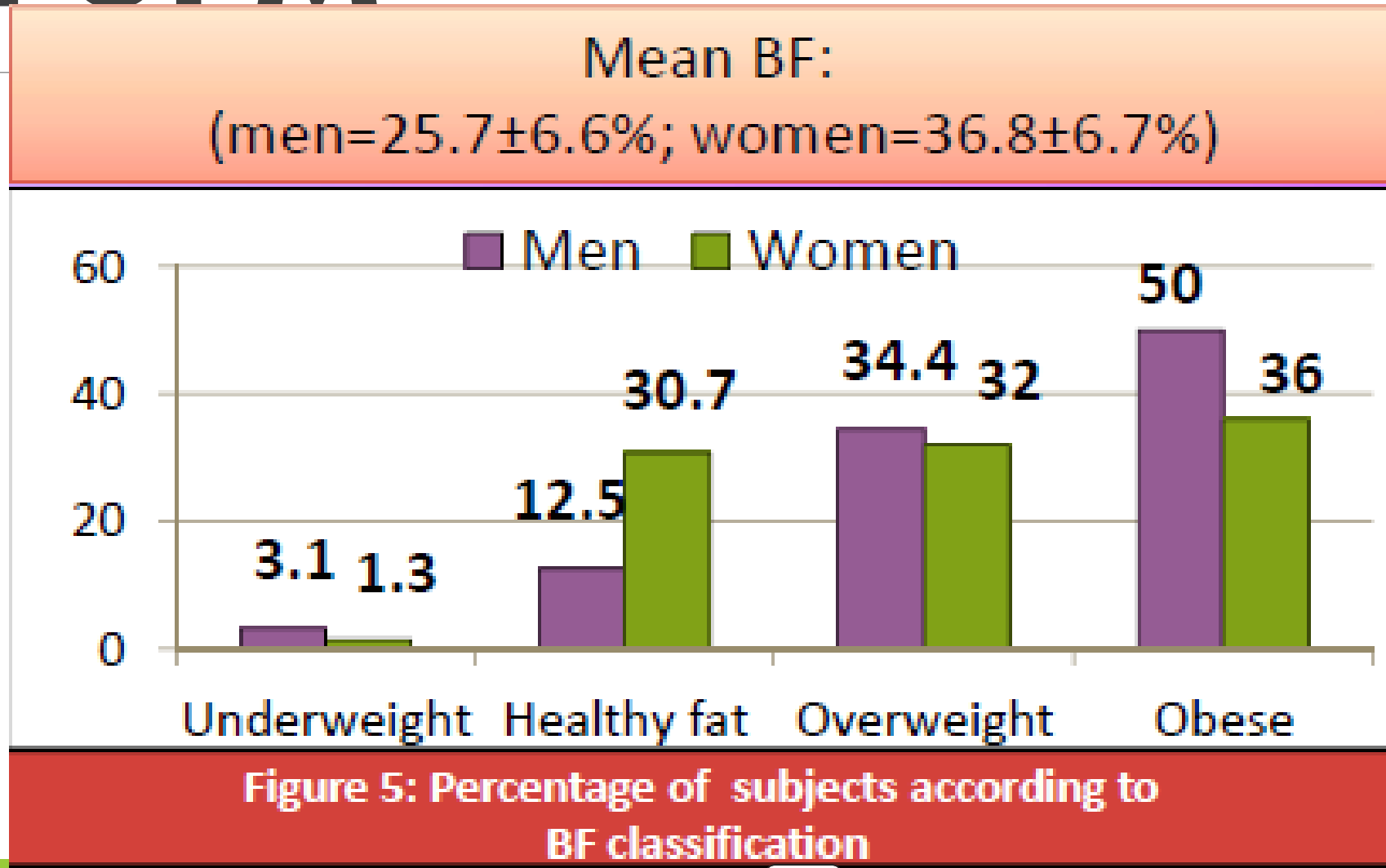


Figure 4: Percentage of subjects according to WC classification



In UPM



Malaysia – food heaven!



OBESITY IN MALAYSIA A BIG PROBLEM. an infographic. Part 2



CONTRIBUTING FACTORS TO MALAYSIA'S OBESITY PROBLEM:

1 LACK OF EXERCISE

Children these days prefer to play computer games rather than be out in the field playing around.



2 POOR EATING HABITS

(daily supper at 24-hour Mamak foodstalls)

Malaysians do eat around the clock. This is made worse with the blooming of 24-hours food joints such as mamak stalls, fast food restaurants etc.



3 TOO MUCH FOCUS ON DINING on mass-media and websites (foodies)



Sources:

Obesity Health Problem
<http://malaysianews.info/2011/12/malaysia-obesity-problem-2011-and-taking-out-bran.html>
1) Prevent Obesity
<http://www.preventobesity.org.uk/>

#fightobesity

- an Obesity Awareness Project by 2L.



Free for nothing

Exclusive for Pizza Hut's Facebook fans!



DINE-IN ONLY

**all day
FREE**

refills of soft drinks



Validity: 21st - 23rd Jan 2013

Terms & Conditions: ONE redemption PER customer PER transaction. Not valid with other promotions or discounts. Valid at all Pizza Hut restaurants on 21st till 23rd Jan 2013 only. Valid for Dine-in only. Subject to 6% government tax and 10% service charge where applicable. Present coupon upon redemption. Photocopied, black & white printouts is allowed.

Malaysia



**FREE
UNLIMITED
SALAD**

**WITH EVERY
MAIN COURSE**

UK



Eat Smart, Move More, Be Healthy - The **WIN®**

FOOD, NUTRITION, PHYSICAL ACTIVITY, AND WEIGHT GAIN, OVERWEIGHT, AND OBESITY

In the judgement of the Panel, the factors listed below modify the risk of weight gain, overweight, and obesity. Judgements are graded according to the strength of the evidence.

Factors that decrease risk promote appropriate energy intake, and those that increase risk promote excess energy intake, relative to the level of energy expenditure.

	DECREASES RISK	INCREASES RISK
Convincing	Physical activity	Sedentary living ¹
Probable	Low energy-dense foods ² Being breastfed ⁴	Energy-dense foods ^{2,3} Sugary drinks ⁵ 'Fast foods' ⁶ Television viewing ⁷
Limited — suggestive		
Limited — no conclusion	Refined cereals (grains) and their products; starchy roots, tubers, and plantains; fruits; meat; fish; milk and dairy products; fruit juices; coffee; alcoholic drinks; sweeteners	
Substantial effect on risk unlikely	None identified	

Special Report

Programming of Appetite Control during Breastfeeding as a Preventative Strategy against the Obesity Epidemic

Foteini Hassiotou, PhD¹ and Donna T. Geddes, PhD¹

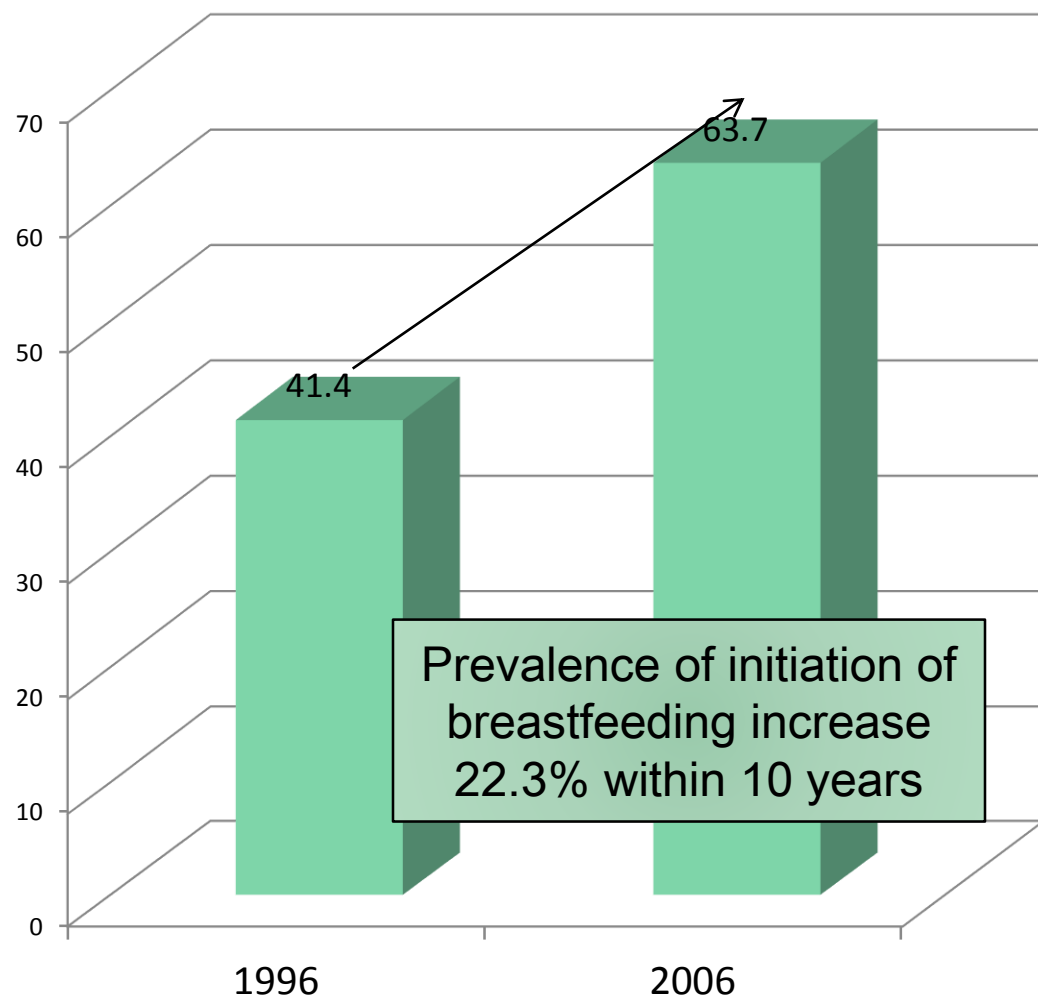
Keywords

appetite hormones, appetite regulation, breastfeeding, leptin, obesity

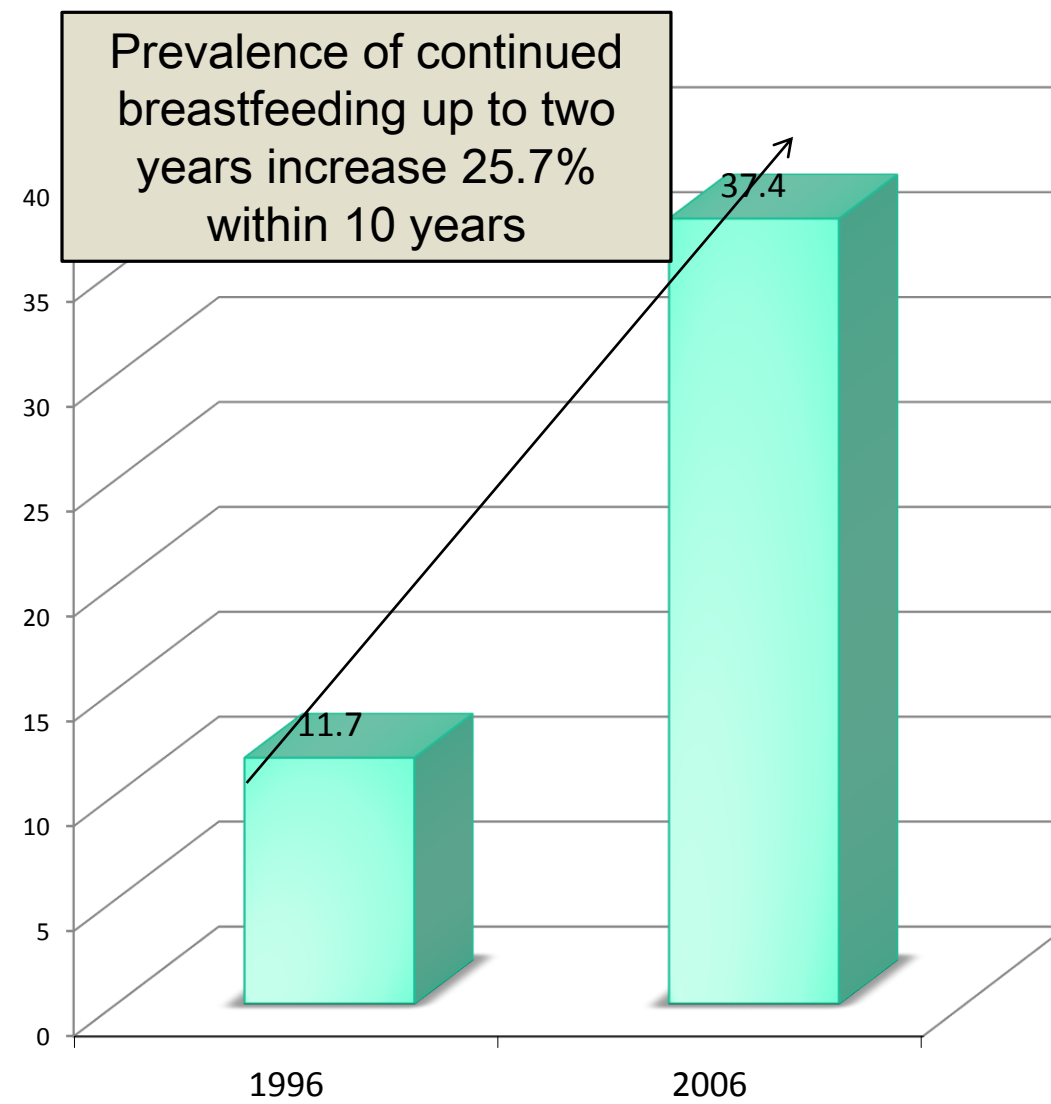


- ❖ Self regulate their nutrient intake – Know when to have and to stop!
- ❖ Different feeding pattern i.e SFMilk vs. Bulk Milk
- ❖ Breast milk contain appetite-controlling hormones- absent (nil) in formula milk
- ❖ Protein intake – amount and type (more whey protein in BM ` 50-60%) – easily digested and increase gastric emptying
 - ❖ Learnt from Bariatric Surgery –suggest that faster gastric emptying and earlier delivery of nutrients to the distal small intestine may improve appetite control

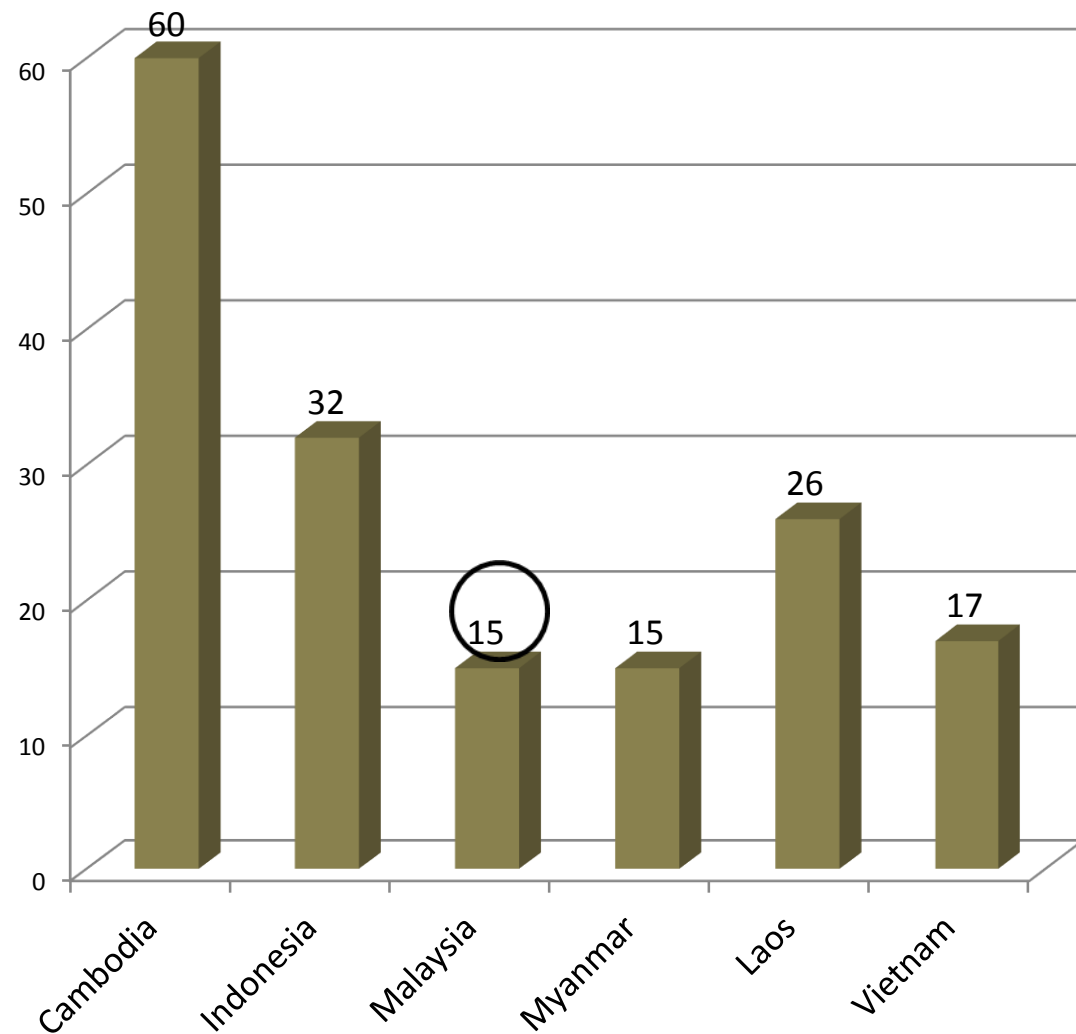
Prevalence of initiation of breastfeeding in Malaysia



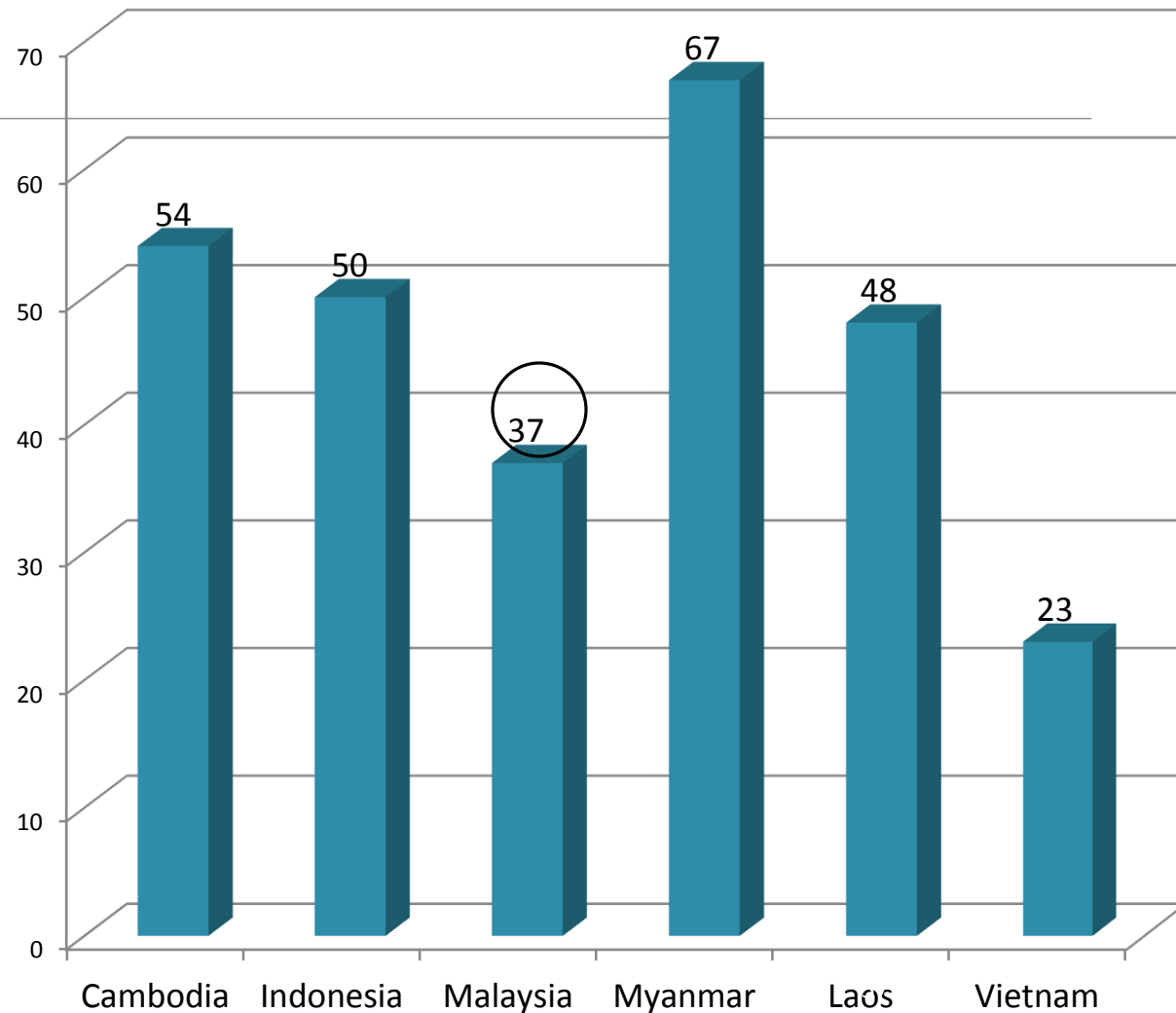
Prevalence of continued breastfeeding up to two years



Prevalence of exclusive breastfeeding below 6 month



Prevalence of continued breastfeeding up to two years among Southeast Asian countries



Recommendation 2





2. Physical Activity

Be physically active as part of everyday life

Recommendations

- Physically active, equivalent to brisk walking, for at least 30 minutes every day
- As fitness improves, aim for 60 minutes or more of moderate, or for 30 minutes or more of vigorous, physical activity every day
- Limit sedentary habits such as watching television

60% of Malaysian are very sedentary



PHYSICAL ACTIVITY, AND THE RISK OF CANCER

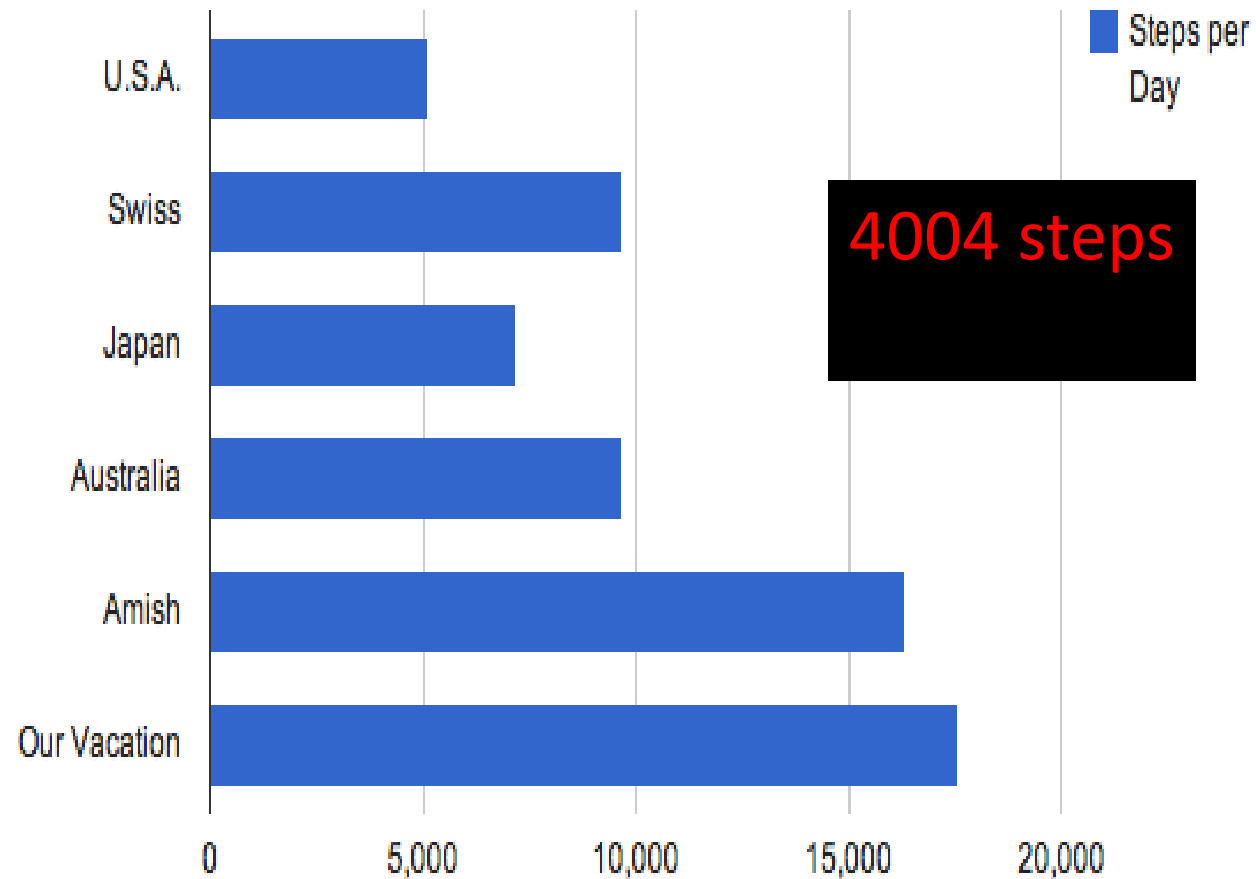
In the judgement of the Panel, physical activity¹ modifies the risk of the following cancers. Judgements are graded according to the strength of the evidence.

	DECREASES RISK	INCREASES RISK
Convincing	Colon ²	
Probable	Breast (postmenopause) Endometrium	
Limited — suggestive	Lung Pancreas Breast (premenopause)	
Substantial effect on risk unlikely	None identified	

- 1 Physical activity of all types: occupational, household, transport, and recreational.
- 2 Much of the evidence reviewed grouped colon cancer and rectal cancer together as 'colorectal' cancer. *The Panel judges* that the evidence is stronger for colon than for rectum.

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

Average Steps Per Day



Steps per Day	Category
< 5000 steps/day	Sedentary
5000 – 7499	Somewhat Active
7500 – 9999	Somewhat Active
10,000 – 12,499	Active
> 12,500	Highly Active





Benefit of exercise

- Critical for weight control
- Growth hormone regulation
- Stress management
- Counteract fatigue
- Support immune system – ‘Bersenam tidurkan sel kanser’
- Bla, Bla, Bla- Listless

Recommendation 3



3. Limit foods and drinks that promote weight gain

Limit consumption of energy-dense foods and Avoid sugary drinks

Recommendations

- Consume energy-dense foods, sparingly
- Avoid sugary drinks
- Consume fast foods sparingly if at all



**WHO recommends sugar no more than
10 tsp /day (50g/day)**



**Malaysian takes 7
tsp/d sugars (35g/day)**



BUT...



**WHO recommends sugar no more
than 10 tsp /day (50g/day)**



**Malaysian takes 7
tsp/d sugars (35g/day)**



Recommendation 4



4. Eat Mostly of Plant Origin Foods

- Eat at least **5 portions/servings** (at least 400g) of a variety of non-starch vegetables and of fruits every day
- Eat relatedly unprocessed cereals (grains) and/ or pulses (legumes) with every meals
- Limit refined starchy foods





What is **1** serve of vegetables?



1/2 CUP
cooked vegies
or legumes

=



=



1 CUP
salad vegies



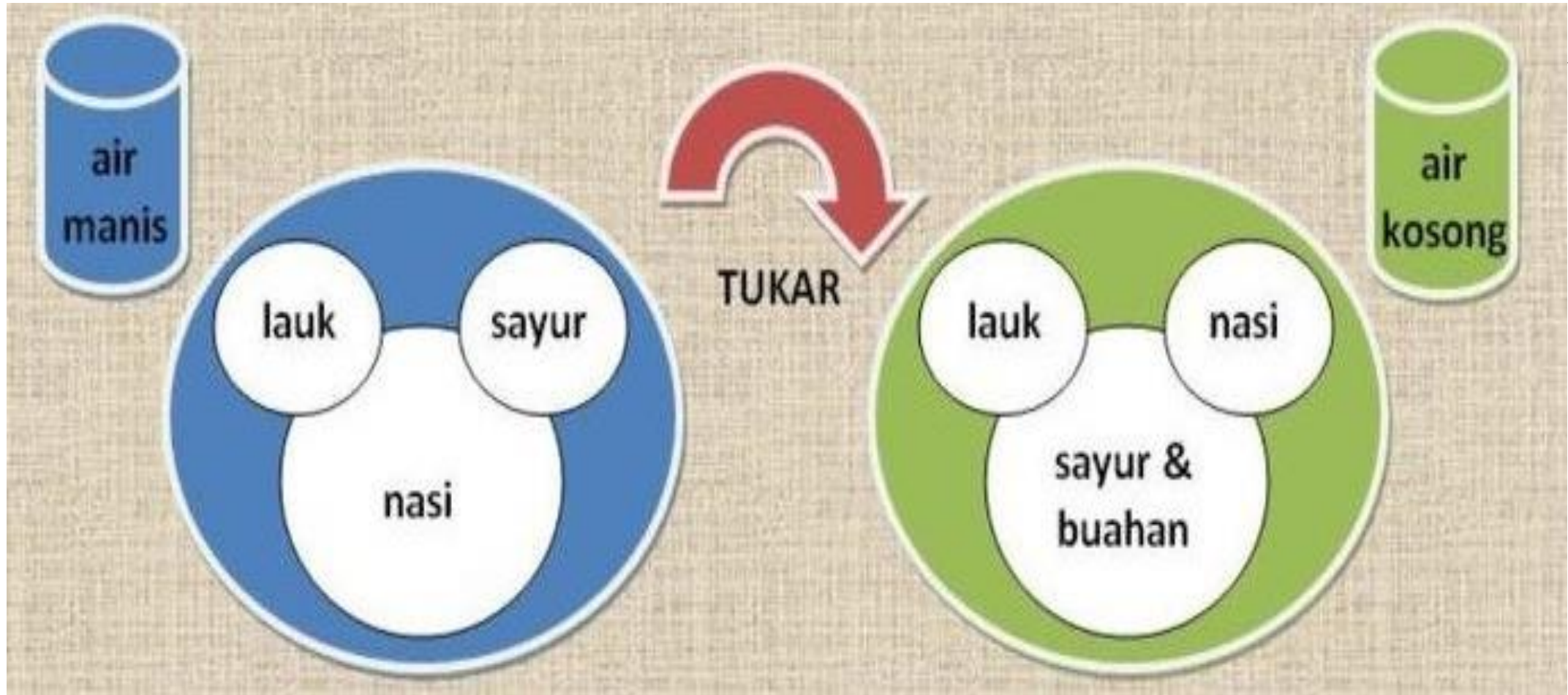
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Change



Common food?

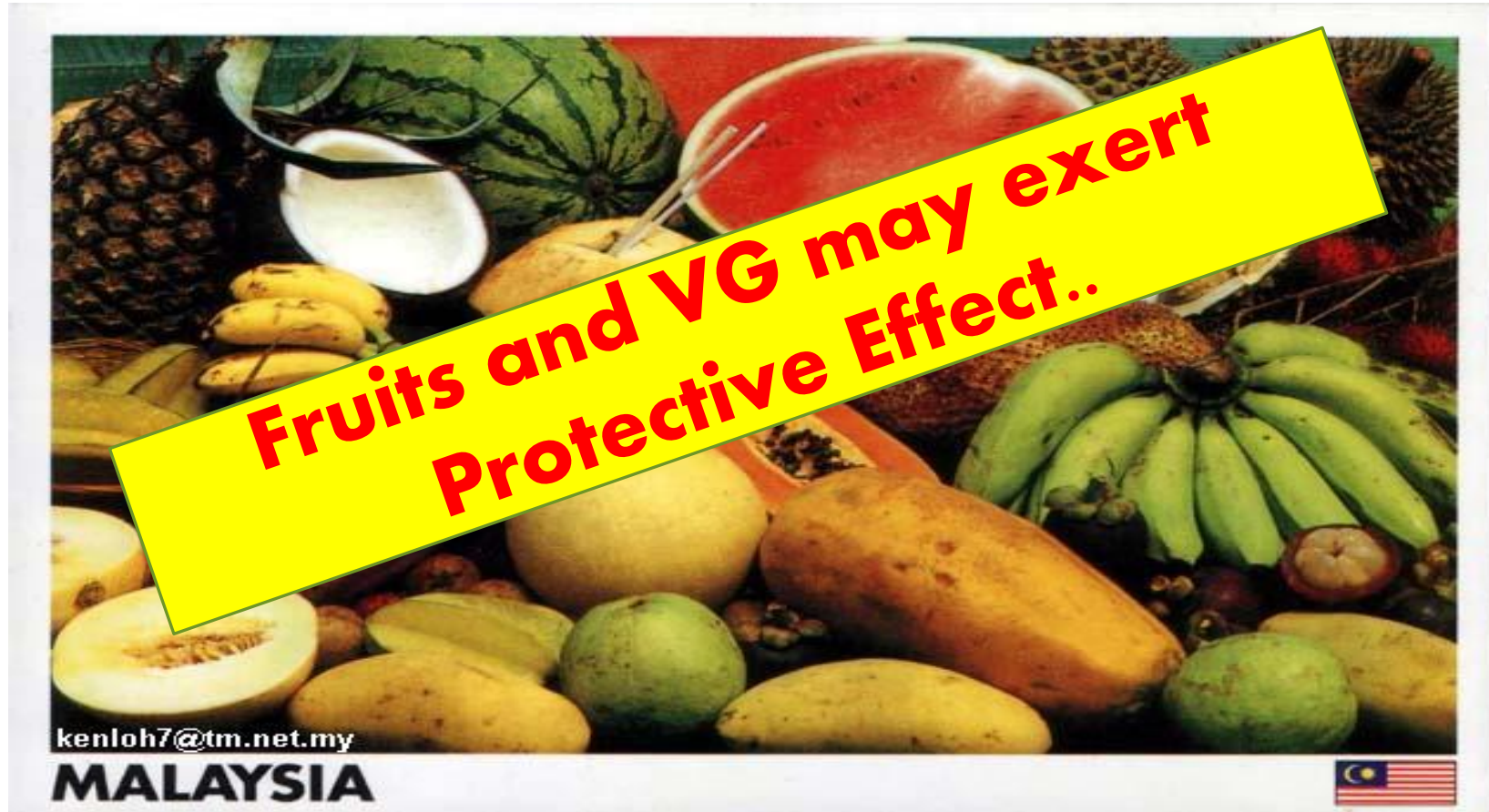


VEGETABLES,¹ FRUITS,¹ PULSES (LEGUMES), NUTS, SEEDS, HERBS, SPICES,
AND THE RISK OF CANCER

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

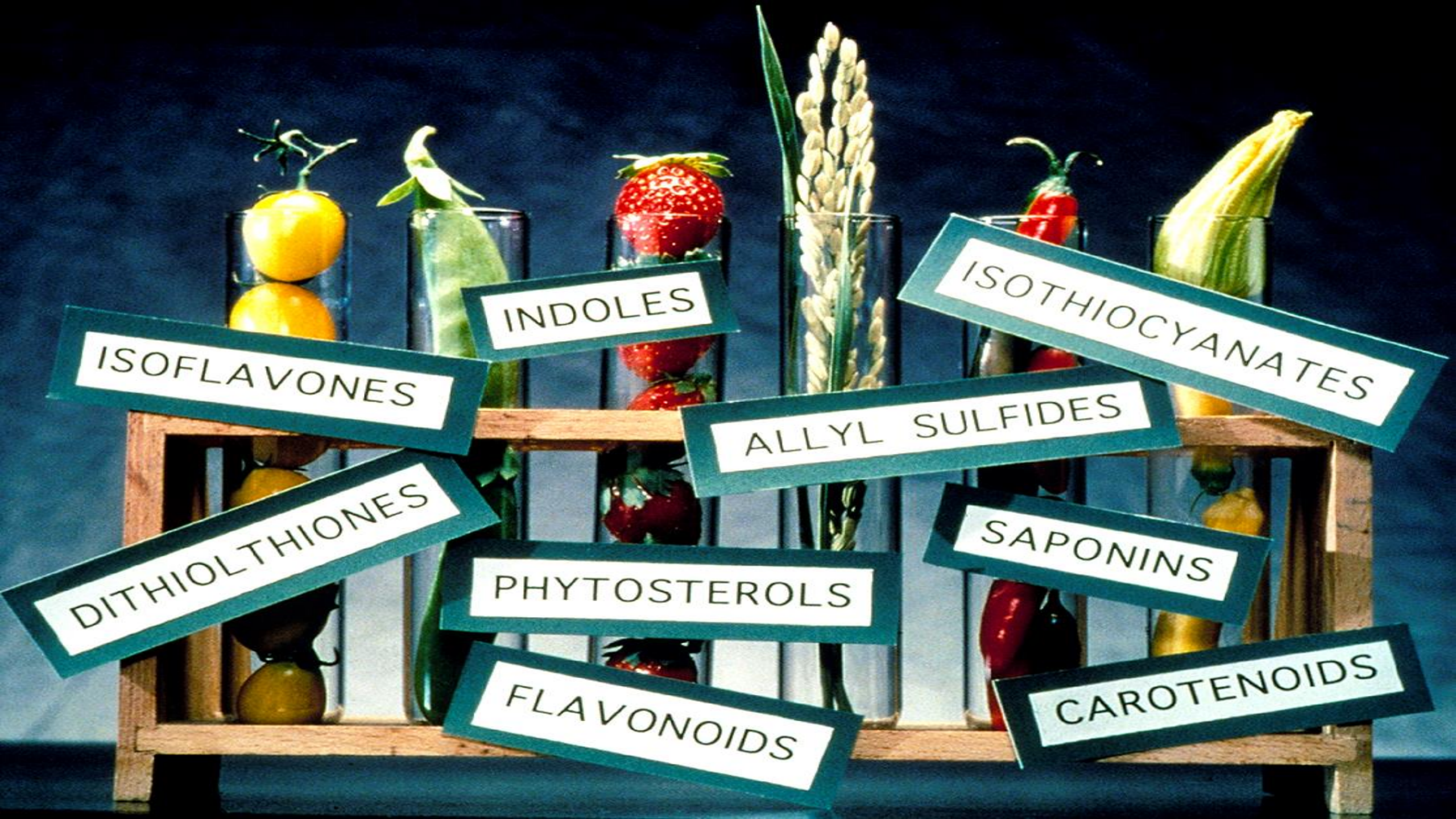
	DECREASES RISK		INCREASES RISK	
	Exposure	Cancer site	Exposure	Cancer site
Convincing				
Probable	Non-starchy vegetables ¹	Mouth, pharynx, larynx Oesophagus Stomach		
	Allium vegetables ¹	Stomach		
	Garlic ¹	Colorectum		
	Fruits ¹	Mouth, pharynx, larynx Oesophagus Lung Stomach		
	Foods containing folate ²	Pancreas		
	Foods containing carotenoids ²	Mouth, pharynx, larynx Lung		
	Foods containing beta-carotene ²	Oesophagus		
	Foods containing lycopene ^{2 3}	Prostate		
	Foods containing vitamin C ^{2 4}	Oesophagus		
	Foods containing selenium ^{2 5}	Prostate		

It's beyond fibre – satiety – weight control!



Phytonutrients

- Beyond vitamins, minerals and fiber, natural compounds found in plants may exert profound disease preventive effects
- Contain high levels of powerful antioxidants
- The “immune system” of a plant – many also represent the pigment that gives the plant its color
- Not only in fruits and VG- Whole grains, Beans and Tea have it too!



ISOFLAVONES

INDOLLES

ISOTHIOCYANATES

ALLYL SULFIDES

DITHIOLTHIONES

PHYTOSTEROLS

SAPONINS

FLAVONOIDS

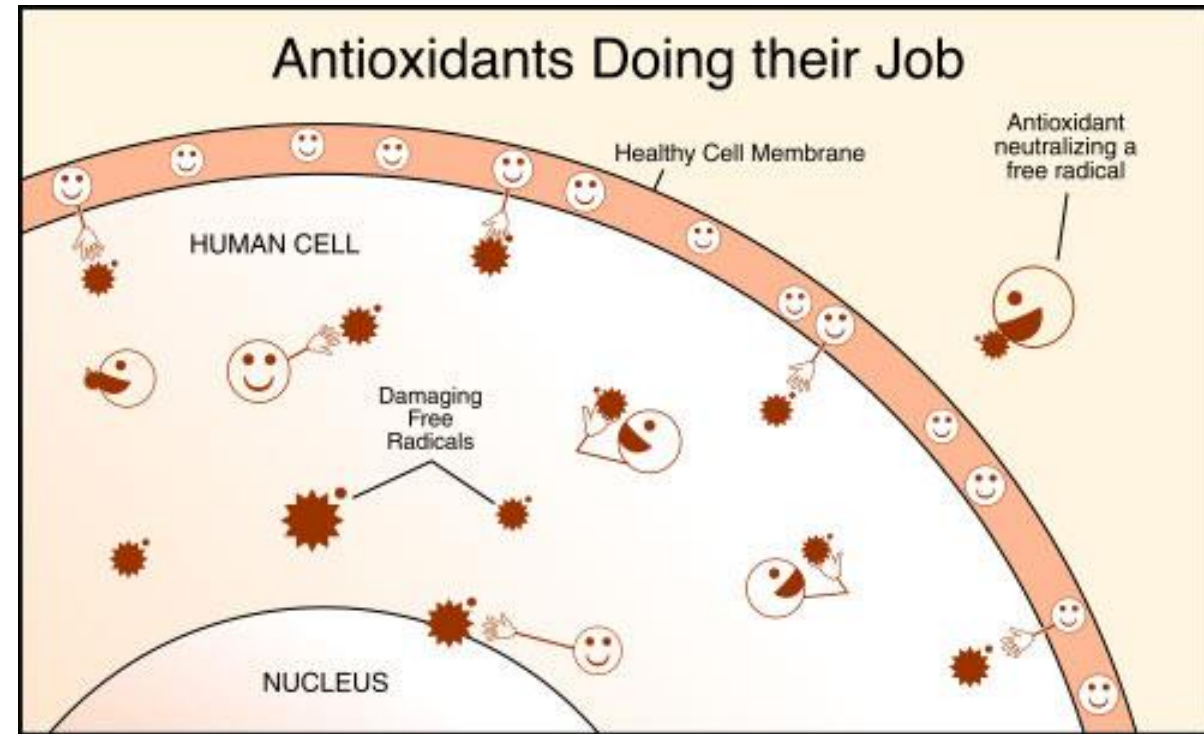
CAROTENOIDS

Phytonutrients: How does it works?

- Stimulate enzymes that help the body detoxify
- Reduce the genetic damage from cancer causing agents
- May interfere with growth and multiplication of cancer cells
- Decrease inflammation

Antioxidants

- Vitamin A, C, E, Selenium, phytonutrients from plants
- Help prevent damage to cells from the attack of free radicals



CEREALS (GRAINS), STARCHY ROOTS AND TUBERS, PLANTAINS, AND THE RISK OF CANCER

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

	DECREASES RISK		INCREASES RISK	
	Exposure	Cancer site	Exposure	Cancer site
Convincing			Aflatoxins¹	Liver
Probable	Foods containing dietary fibre²	Colorectum		
Limited — suggestive	Foods containing dietary fibre ²	Oesophagus		
Substantial effect on risk unlikely	None identified			

- 1 Foods that may be contaminated with aflatoxins include cereals (grains), and also pulses (legumes), seeds, nuts, and some vegetables and fruits (see chapter 4.2).
- 2 Includes both foods naturally containing the constituent and foods which have the constituent added (see chapter 3.5.3). Dietary fibre is contained in plant foods (see chapter 4.2 and box 4.1.2).

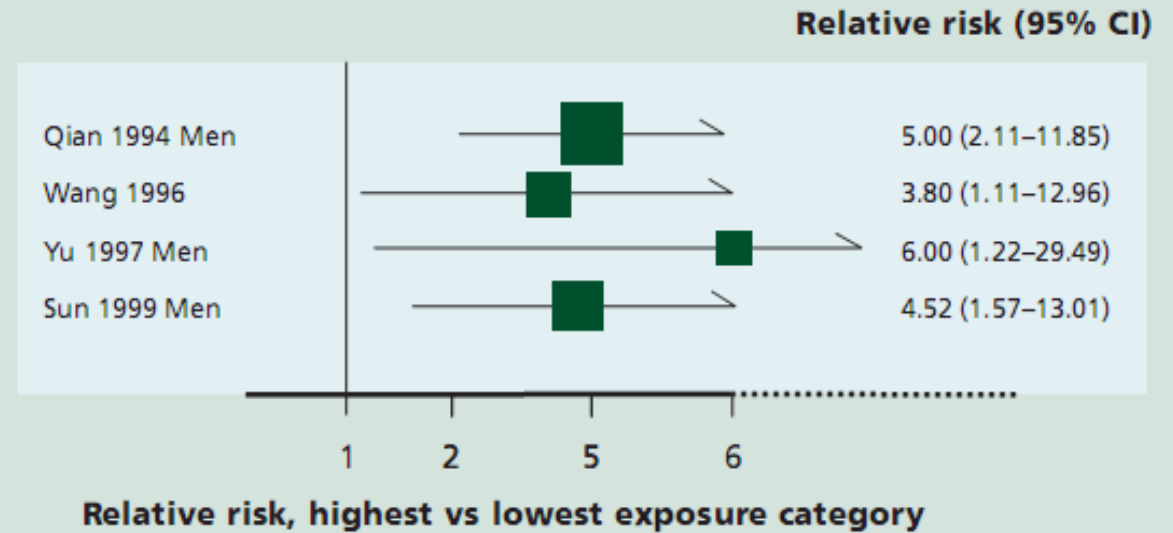
For an explanation of all the terms used in the matrix, please see chapter 3.5.1, the text of this section, and the glossary.

Who is Aflatoxins?

- Aflatoxins are naturally occurring mycotoxins that are produced by *Aspergillus flavus* and *Aspergillus parasiticus*, species of fungi
- Commonly present in cereals, peanuts, herbs spices
- Preventive measure?
 - Agriculture, dietary and clinical

Figure 4.1.3

Aflatoxins and liver cancer; cohort studies



Socio-demographic and socio-economic determinants of adults' knowledge on fungal and aflatoxin contamination in the diets.

Sabran, Mohd Redzwan; Jamaluddin, Rosita*; Abdul Mutalib, Mohd Sokhini; Abdul Rahman, Nurul 'Aqilah

Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

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ABSTRACT

Objective: The occurrence of food contaminants such as aflatoxin in the foods reported widely. Unfortunately, only a few know about the impact of aflatoxin to health and this phenomenon let us to question the extent of public's knowledge on fungal and aflatoxin contamination in the diets. Thus, this study aimed to investigate determinants of knowledge on fungal and aflatoxin contamination in the diets based on two dimensions: demographic and socio-economic factors. **Method:** A questionnaire was self-administered to 160 respondents from a faculty in Universiti Putra Malaysia. **Results:** Most of respondents had low level of knowledge in regard to fungal and aflatoxin contamination. Besides, the total score of knowledge on fungal and aflatoxin contamination was significantly and positively correlated ($r=0.340$, $P<0.0001$). The multivariate analysis indicated that personal income (below US \$487) was the only predictor of respondent's knowledge ($\beta = -0.288$, $P<0.001$) [Odds ratio (OR)=4.996]. Nonetheless, being male and single, divorced or widowed had significant OR of 2.040 and 0.313 respectively as predictors of low level of knowledge. **Conclusions:** Income inequalities may have impact to the respondents in acquiring knowledge on fungal and aflatoxin contamination in the diets. Additionally, an extensive survey on aflatoxin should be warranted in order to assess the public awareness and knowledge about this food contaminant.

53% had low level
of Fungal and
Aflatoxin
contamination
(53%)

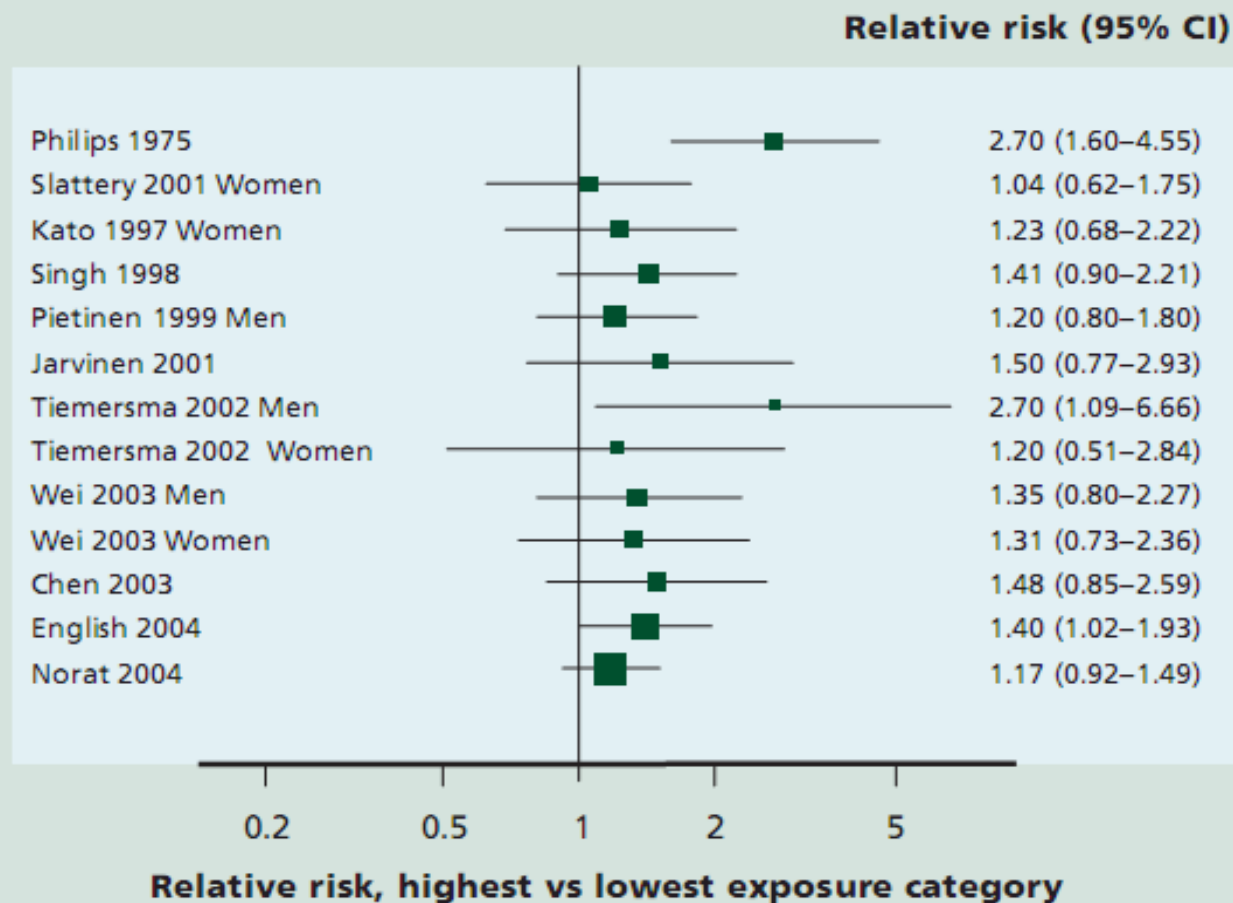
Recommendation 5



5. Limit Intake of Red Meat and Avoid Processed Meat

- To consume less than 500g a week red meat
- Avoid processed foods



Figure 4.3.1**Red meat and colorectal cancer;
cohort studies****ER**

ments are graded according to the strength of the evidence.

INCREASES RISK**Exposure****Cancer site****Red meat¹****Colorectum****Processed meat²****Colorectum****Cantonese-style
salted fish³****Nasopharynx**Red meat¹

Oesophagus

Lung

Pancreas

Endometrium

Processed meat²

Oesophagus

Lung

Stomach

Prostate

Foods containing iron^{4 5}

Colorectum

Smoked foods⁶

Stomach

Grilled (broiled) or
barbecued (charbroiled)
animal foods⁶

Stomach

identified

Meta-analysis of prospective studies of red meat consumption and colorectal cancer

Alexander, Dominik D.^a; Weed, Douglas G.^b; Shing, Colleen A.^a; Lowe, Kimberly A.^c

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Abstract

The relationship between red meat consumption and colorectal cancer (CRC) is a subject of scientific debate. To estimate the summary association between red meat intake and CRC and to examine sources of heterogeneity, a meta-analysis was conducted. Thirty-four prospective studies of red meat and CRC were identified. 25 represented independent nonoverlapping study populations. Summary estimates (SRREs) for high versus low intake and dose-response were calculated. In the high versus low intake meta-analysis, the SRRE was 1.21 (95% CI: 1.04–1.42) with significant heterogeneity ($P=0.014$). Summary associations by site and sex. The SRREs for colon cancer and rectal cancer were 1.19 (95% CI: 0.97–1.46), respectively. The SRREs among processed meat were 1.01 (95% CI: 0.87–1.17), respectively. The data are not sufficient to support an independent and unequivocal association between red meat intake and CRC. This conclusion is based on summary estimates that are weak in magnitude, heterogeneity across studies, inconsistent patterns across the subgroup analyses, and the likely influence of confounding by lifestyle factors.

A meta-analysis of 29 studies of meat consumption and colon cancer concluded that a high consumption of red meat increases risk by 28%, and a high consumption of processed meat increases risk by 20%.

Why Red Meat?

Theory I

Blames *heterocyclic amines* (HCAs), chemicals produced when meat is cooked at high temperatures

BUT can also be present in cooked chicken

Hence, they are unlikely to be the whole explanation



Barbecuing



Frying



Grilling



Baking and
roasting



Theory II

Cancer Research

ACR

Red Meat Enhances the Colonic Formation of the DNA Adduct O^6 -Carboxymethyl Guanine: Implications for Colorectal Cancer Risk

Michelle H. Lewin, Nina Bailey, Tanya Bandaletova, et al.

Cancer Res 2006;66:1859-1865.



Findings

- ❑ High level of N-nitroso compounds (NOCs) - highly carcinogenic
- ❑ **BUT** the cells from people eating the high-meat diet contained a large number of cells that had **NOC-induced DNA changes**

Cancer Research



Red Meat Enhances the Colonic Formation of the DNA Adduct O⁶-Carboxymethyl Guanine: Implications for Colorectal Cancer Risk

Michelle H. Lewin, Nina Bailey, Tanya Bandaletova, et al.

Cancer Res 2006;66:1859-1865.



1



3



2



Satay



heterocyclic amines (HCAs),



How about processed meat?

Preservatives have also been implicated in the case of processed meats;

nitrites are a particular worry, since the body converts them to *nitrosamines*, which are carcinogenic.



Recommendation 6



6. Preservation, processing and preparation

- Limit consumption of salt and avoid mouldy cereals (grains) or pulses (legumes)

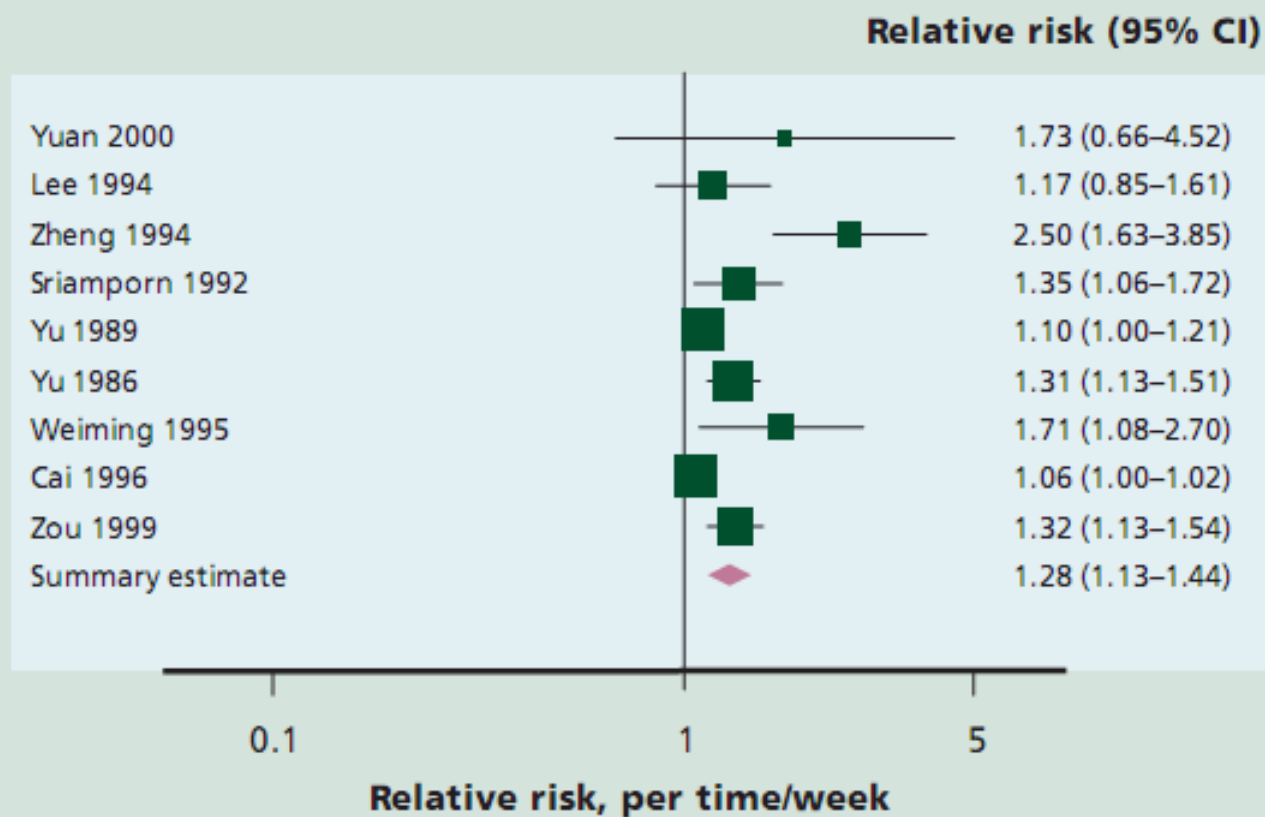
Recommendations

- Avoid salt-preserved, salted or salty foods,
Hence, preserve foods without salt
- Limit consumption of processed foods with added salt to ensure an intake of less than 6g a day (1 tsp)



Figure 4.3.9

**Salted fish and nasopharyngeal cancer;
case control**



MILK, DAIRY PRODUCTS, AND THE RISK OF CANCER

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

	DECREASES RISK		INCREASES RISK	
	Exposure	Cancer site	Exposure	Cancer site
Convincing				
Probable	Milk ^{1 4}	Colorectum	Diets high in calcium ^{2 3}	Prostate
Limited — suggestive	Milk ¹	Bladder	Milk and dairy products ² Cheese ⁴	Prostate Colorectum
Substantial effect on risk unlikely	None identified			

- 1 Milk from cows. Most data are from high-income populations, where calcium can be taken to be a marker for milk/dairy consumption. *The Panel judges* that a higher intake of dietary calcium is one way in which milk could have a protective effect.
- 2 Effect only apparent at high calcium intakes (around 1.5 g/day or more). Evidence for milk and dairy products (but not calcium) was derived only from data for countries with populations that have high calcium and dairy consumption.
- 3 Includes diets that naturally contain calcium and that contain foods fortified with calcium. See box 4.10.1.
- 4 Although both milk and cheese are included in the general category of dairy products, their different nutritional composition and consumption patterns may result in different findings.

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.

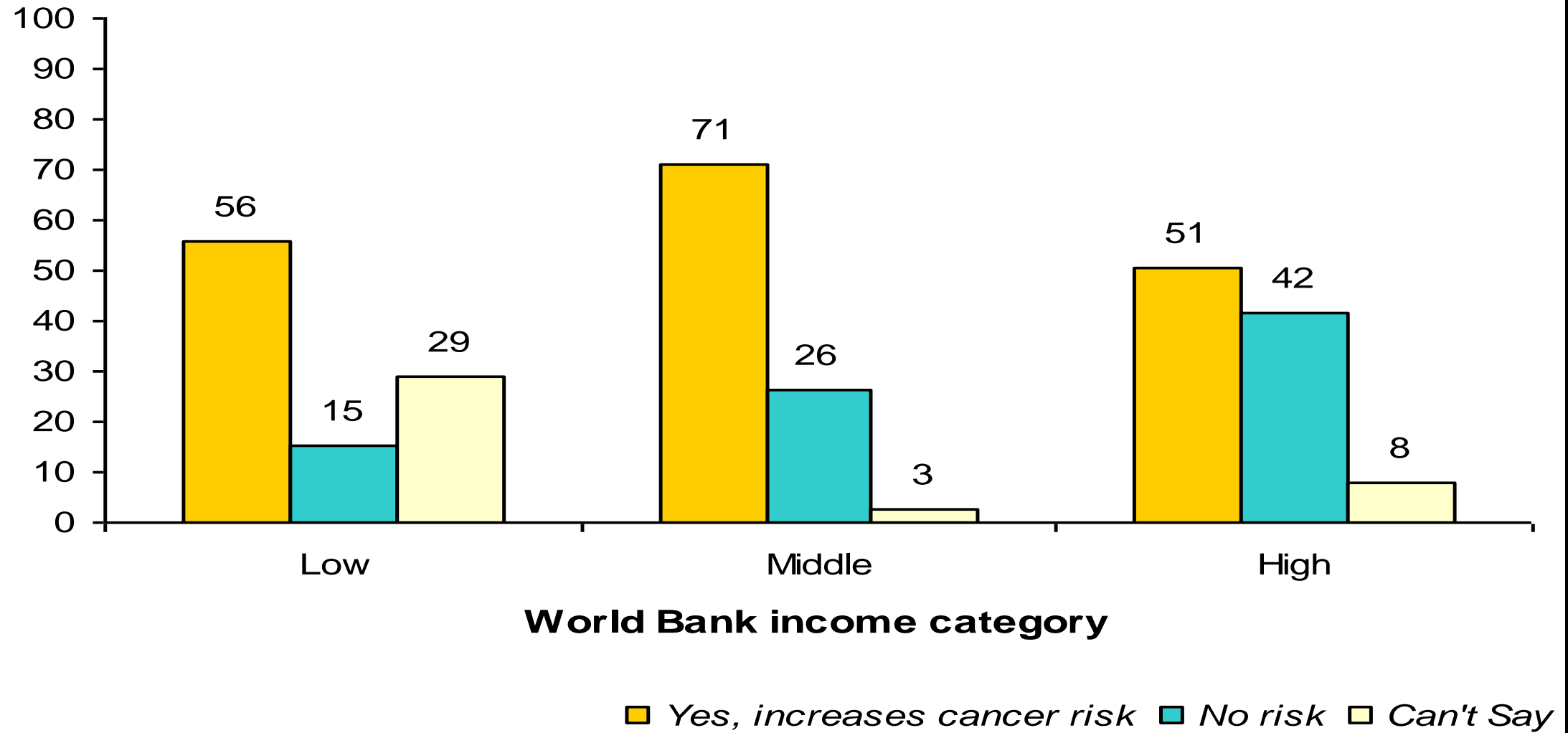
Recommendation 7



7. Limit alcoholic drinks

- If alcoholic drinks are consumed limit consumption to no more than 2 drinks a day for men and one drink a day for women

Perceived cancer risk of drinking alcohol



Recommendation 8

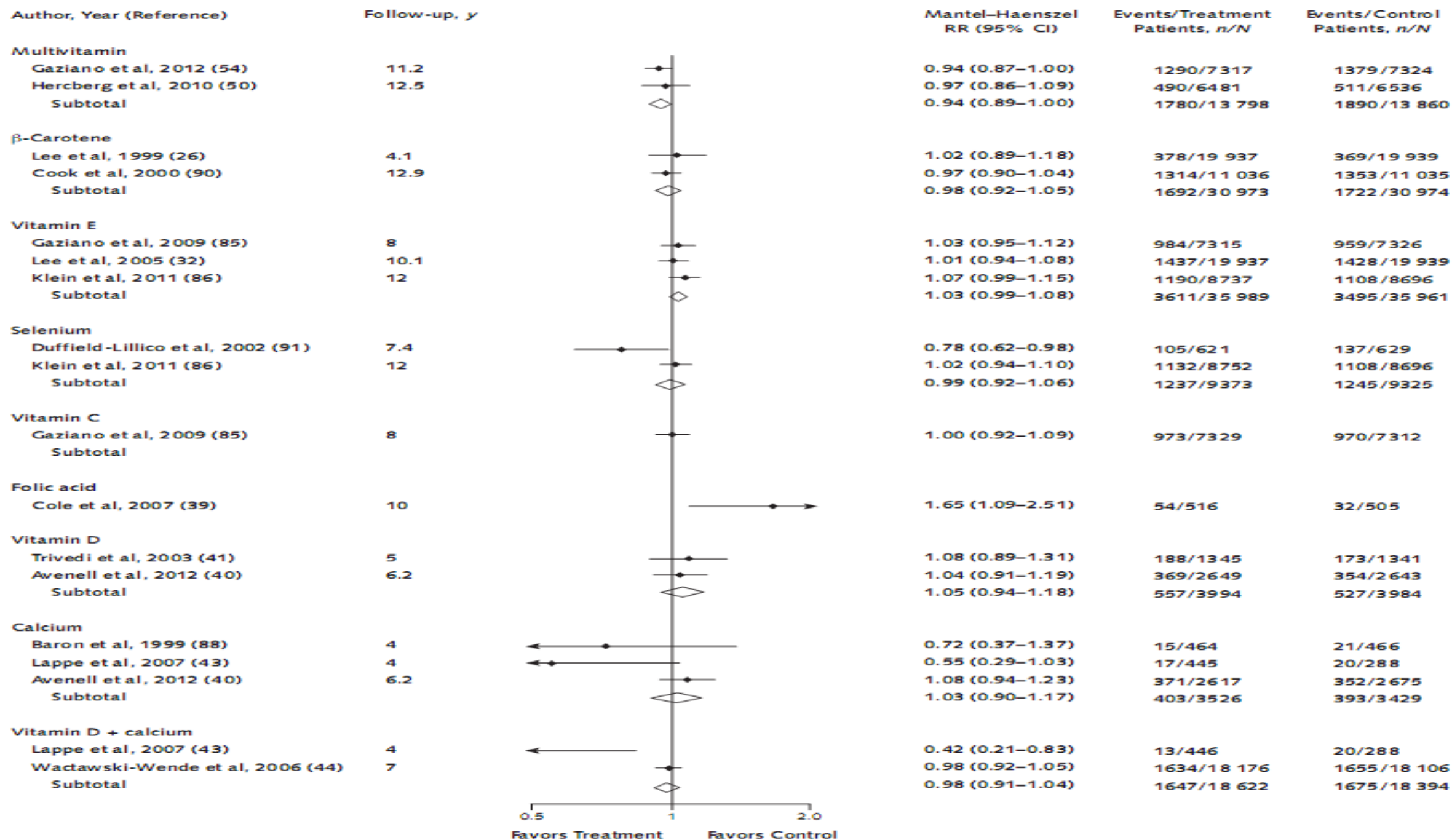


8. Dietary Supplements

Aim to meet nutritional needs through diet alone

Recommendation

- Dietary supplements are not recommended for CA prevention



Vitamin and Mineral Supplements in the Primary Prevention of Cardiovascular Disease and Cancer: An Updated Systematic Evidence Review for the U.S. Preventive Services Task Force

Stephen P. Fortmann, MD; Brittany U. Burda, MPH; Caitlyn A. Senger, MPH; Jennifer S. Lin, MD, MCR; and Evelyn P. Whitlock, MD, MPH

Background: Vitamin and mineral supplements are commonly used to prevent chronic diseases.

Purpose: To systematically review evidence for the benefit and harms of vitamin and mineral supplements in community-dwelling, nutrient-sufficient adults for the primary prevention of cardiovascular disease (CVD) and cancer.

Data Sources: MEDLINE, Embase, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and Database of Abstracts of Reviews of Effects were searched from January 2005 to 29 January 2013, with manual searches of reference lists and gray literature.

Study Selection: Two investigators independently selected and reviewed fair- and good-quality trials for benefit and fair- and good-quality trials and observational studies for harms.

Data Extraction: Dual quality assessments and data abstraction.

Data Synthesis: Two large trials ($n = 27\,658$) reported lower cancer incidence in men taking a multivitamin for more than 10 years (pooled unadjusted relative risk, 0.93 [95% CI, 0.87 to 0.99]). The study that included women showed no effect in that group. High-

quality studies ($k = 24$; $n = 324\,653$) of single and paired nutrients (such as vitamins A, C, or D; folic acid; selenium; or calcium) were scant and heterogeneous and showed no clear evidence of benefit or harm. Neither vitamin E nor β -carotene prevented CVD or cancer, and β -carotene increased lung cancer risk in smokers.

Limitations: The analysis included only primary prevention studies in adults without known nutritional deficiencies. Studies were conducted in older individuals and included various supplements and doses under the set upper tolerable limits. Duration of most studies was less than 10 years.

Conclusion: Limited evidence supports any benefit from vitamin and mineral supplementation for the prevention of cancer or CVD. Two trials found a small, borderline-significant benefit from multivitamin supplements on cancer in men only and no effect on CVD.

Primary Funding Source: Agency for Healthcare Research and Quality.

Ann Intern Med. 2013;159:824-834.

For author affiliations, see end of text.

This article was published online first at www.annals.org on 12 November 2013.

www.annals.org

A close-up photograph of a newborn baby sleeping peacefully on a white, textured blanket. The baby's face is the central focus, with its eyes closed and a slight smile. The baby's hands are near its face, and its feet are visible in the foreground. The background is a soft, out-of-focus white.

9. Special Recommendation 1

9. Special Recommendation 1: Breastfeeding

- Mother to breastfeed;
Children to be breastfed
- Aim to breastfeed infants exclusively up to six months and continue with complementary feeding thereafter



A close-up photograph of a newborn baby sleeping peacefully on a white, textured blanket. The baby's face is the central focus, with its eyes closed and a calm expression. The baby's hands are visible near its face, and its feet are also visible. The background is a soft, out-of-focus white. Overlaid on the image is the text "10. Special Recommendation 2" in a large, bold, black font.

10. Special Recommendation 2

10. Special Recommendation 2: CA Survivors

Follow the recommendations for CA prevention

Recommendations

- All CA survivors to receive nutritional care from an appropriately trained professional
- If able to do so, and unless otherwise advised, aim to follow the recommendations for diet, healthy weight and PA

¹ Cancer survivors are people who are living with a diagnosis of cancer, including those who have recovered from the disease

² This recommendation does not apply to those who are undergoing active treatment, subject to the qualifications in the text

³ This includes all cancer survivors, before, during, and after active treatment

Outline of Presentation:

SMART Nutrition to fight the *Big-C*

- ✓ What is *Big-C*?
- ✓ How much the size of the problem?
- ✓ Role of nutrition in *Big-C*
- ✓ How do we Figure out What May Affect *Big-C* Risk and Survivorship?
- ✓ Nutrition in *Big-C*: Separating myths from facts



Myths or Facts 1

I take antioxidant supplements in pill form, so I'm getting all the antioxidant benefits to prevent CA



Dietary Supplements That May Help Cancer Survivors

Vitamin D

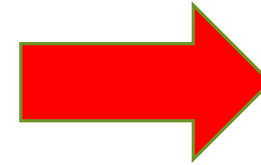
Omega-3's

Probiotics and calcium
(based on individual
circumstances)

**24,000 Dietary Supplements
marketed to Cancer Survivors!**



“I take antioxidant supplements in pill form, so I’m getting all the antioxidant benefits”



Food First!



Phytonutrients work together to provide a synergistic benefit

8. Dietary Supplements

Aim to meet nutritional needs through diet alone

Recommendation

- Dietary supplements are not recommended for CA prevention

Some studies show high dose nutrient supplementation can be detrimental:

Beta carotene supplementation in smokers

N Engl J Med. 1994 Apr 14;330(15):1029-35. (ATBC)

The effect of vitamin E and beta carotene on the incidence of lung cancer and other cancers in male smokers. The Alpha-Tocopherol, Beta Carotene Cancer Prevention Study Group.

N Engl J Med. 1996 May 2;334(18):1150-5. (CARET)

Effects of a combination of beta carotene and vitamin A on lung cancer and cardiovascular disease.

Myths or Facts 2

Go for organic foods



Organic vs. Conventional

- ❑ No scientific evidence to date that organic offers anti-cancer advantage at this point
- ❑ Thousands of studies support the health benefits of diets high in fruits & vegetables and none done exclusively on organics
- ❑ More than ½ of dietary pesticide exposure comes from 12 foods – EWG “Dirty Dozen”
- ❑ Bottom line: wash things thoroughly and don't let this decrease of fruits/vegetables you eat!



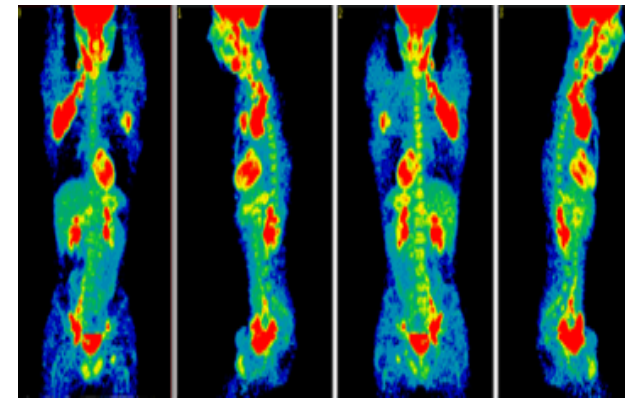
Myths or Facts 3

Does Sugar Feed Cancer?



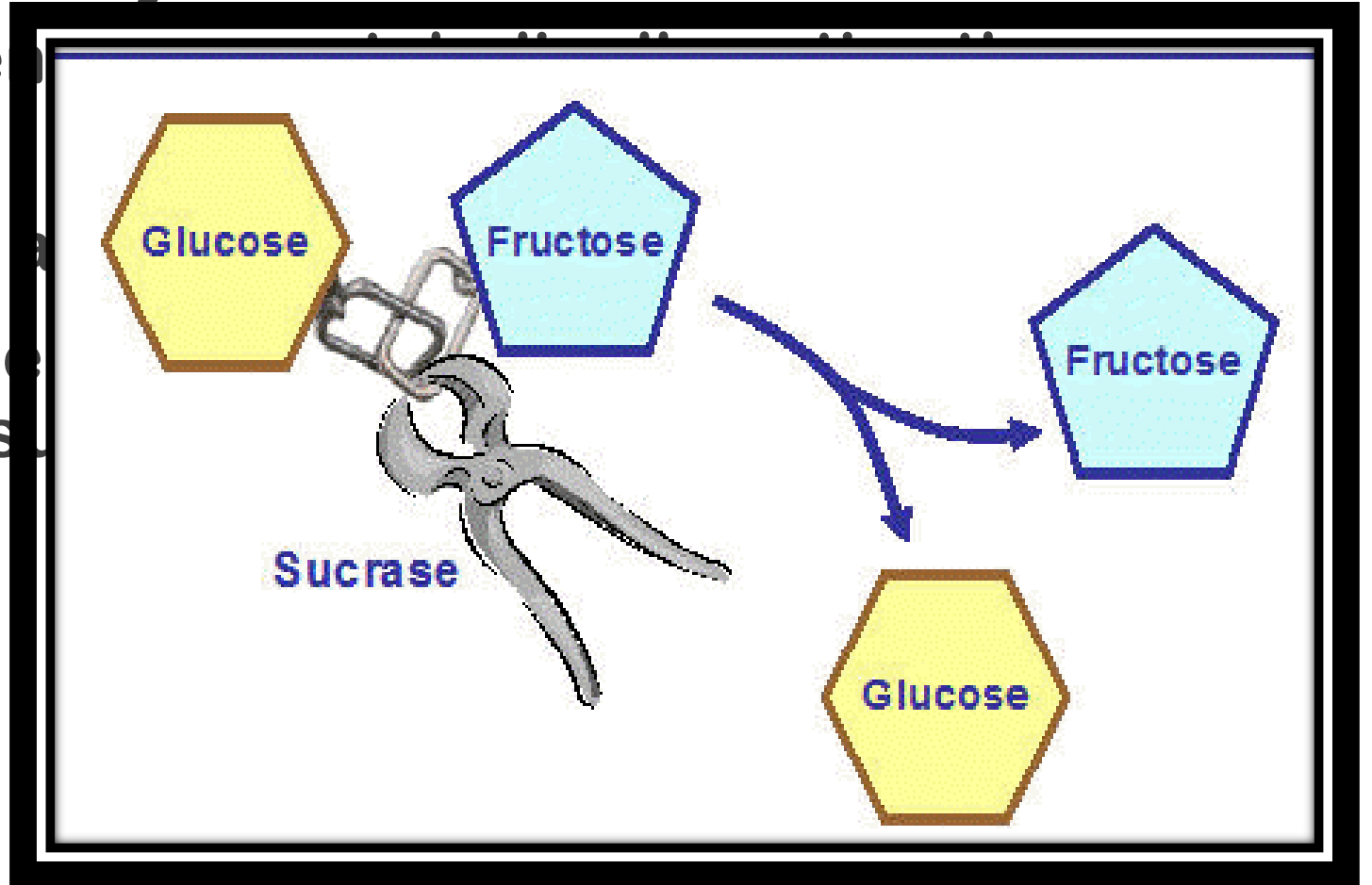
Does Sugar Feed Cancer?

- Popular myth
- Unknown root of myth
- This is could be due to the misunderstanding of PET scan –
 - PET scans to help determine the location of a tumor and see if it has spread
 - During a PET scan, a small amount of radioactive tracer is injected (typically glucose)
 - Found that tissues that are using more energy — exhibiting increased metabolic activity — absorb greater amounts.



Debunked the Myths?

- Yes, tumors are often found in healthy tissues.
- May absorb greater amount of glucose.
- For this reason, some cancer cells grow faster on sugar.
- Glucose vs. Sugar?



The diagram shows a silhouette of a human torso with internal organs highlighted. The liver is shown in red, and the skeletal muscles are shown in brown. A large green arrow points from the liver towards the muscles, indicating the transport of glucose or glycogen. A smaller red arrow points from the muscles back towards the liver, indicating feedback or return pathways. Text labels include "Glycogen" in red, "Storage Glycogen" in green, and "Di..." in blue.




Intake:



The chemical structure of Starc is a complex, branched molecule. It features a central core with multiple fused and linked rings, including cyclohexane and cyclopentane rings. The structure is highly symmetrical and complex, with various functional groups and substituents. The word "Starc" is written in red text to the right of the structure.



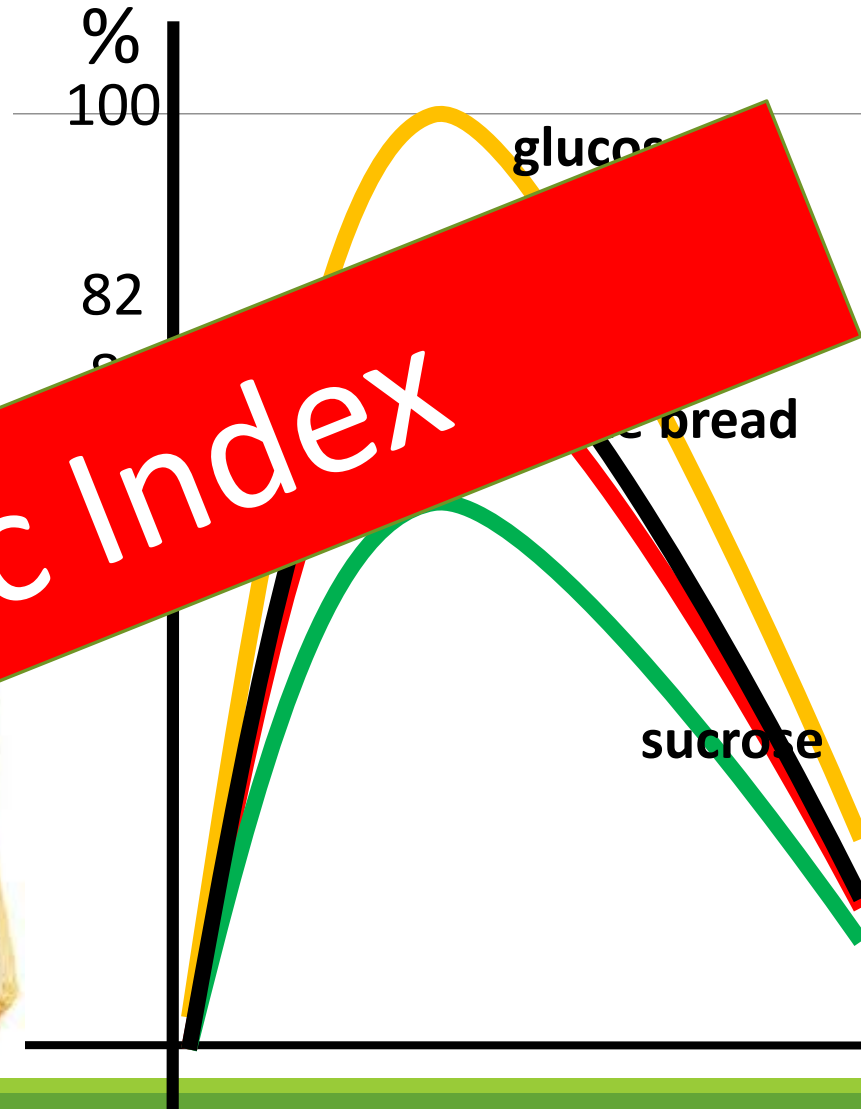
A chemical structure diagram of a starch molecule, showing a long chain of glucose units linked by alpha-1,4 glycosidic bonds, with a branch point indicated by an alpha-1,6 glycosidic bond. The word "Starch" is written in red cursive script to the right of the structure.



Glucose vs Sugar vs Rice vs. Bread



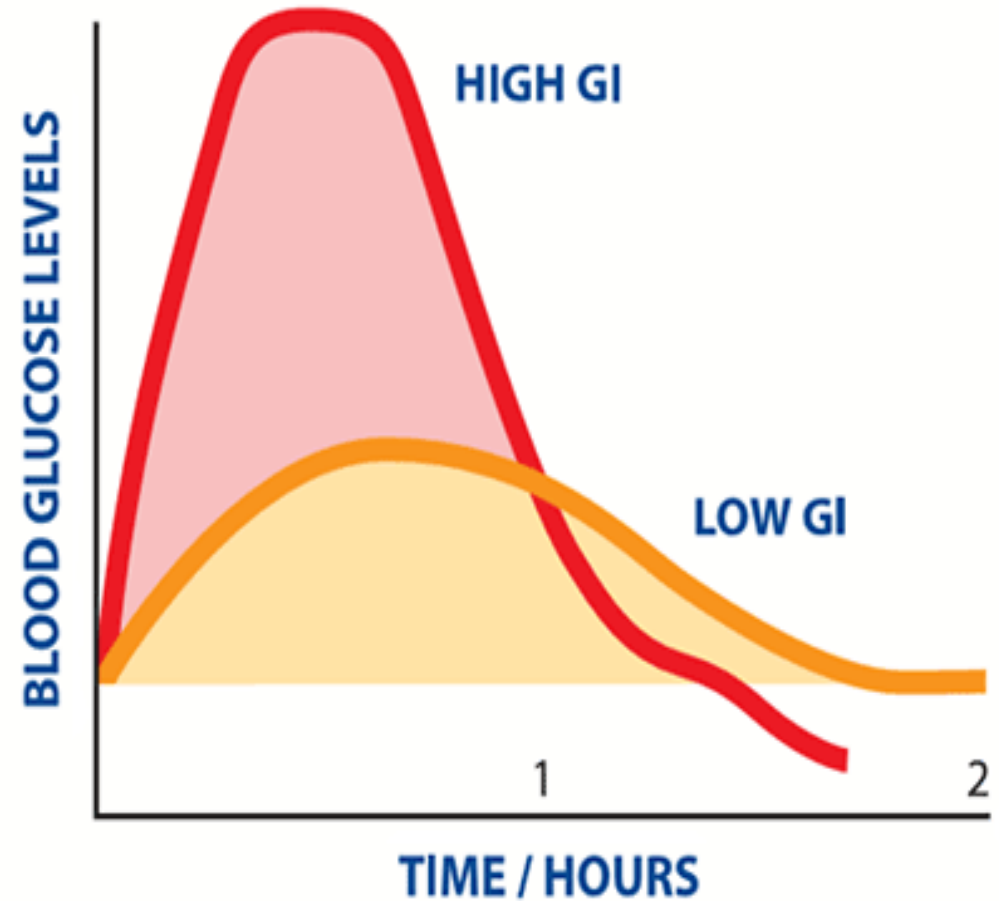
50g available
carbohydrate



Glycemic Index

What is Glycemic Index?

Glycemic Index Classification





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Glycemic index, glycemic load, and chronic disease risk—a meta-analysis of observational studies^{1,2}

Alan W Barclay, Peter Petocz, Joanna McMillan-Price, Victoria M Flood, Tania Prvan, Paul Mitchell, and Jennie C Brand-Miller

This Article

Am J Clin Nutr **March 2008**
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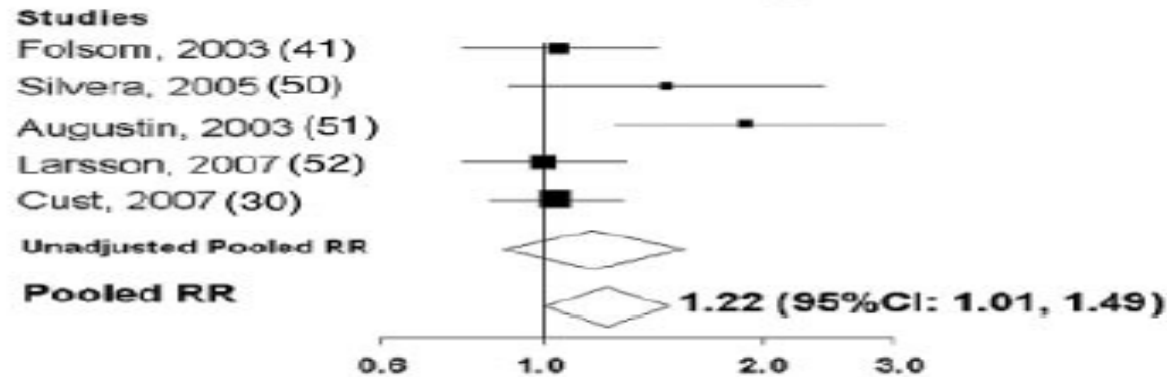
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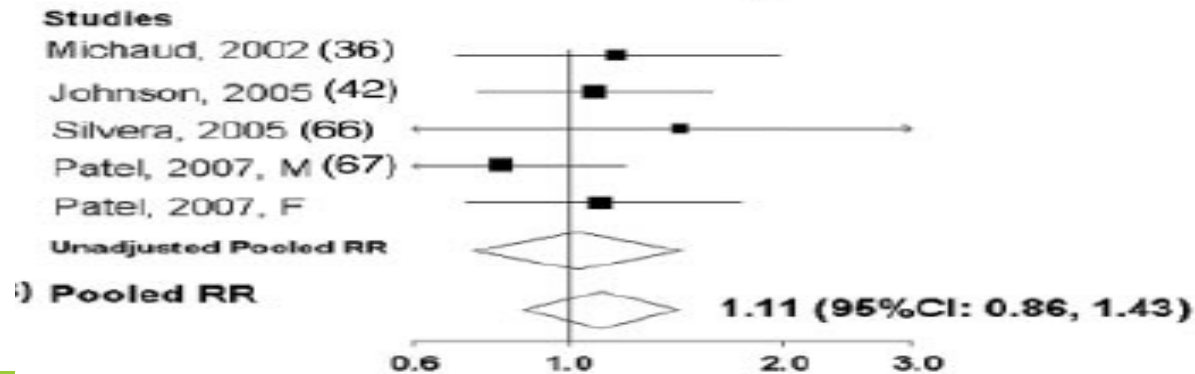
Glycemic index, glycemic load, and cancer risk: a meta-analysis¹⁻³

Patrizia Gnagnarella, Sara Gandini, Carlo La Vecchia, and Patrick Maisonneuve

Endometrial Cancer and Glycemic Index



Pancreatic cancer and Glycemic Index



ial and pancreatic cancer. M, male; F, female.



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Glycemic load, and risk of digestive tract neoplasms: a systematic review and meta-analysis

Helen G Mulholland^{1,2,3}, Liam J Murray^{1,2,3}, Chris R Cardwell^{1,2,3}, and
Marie M Cantwell^{1,2,3}

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This Article

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Am J Clin Nutr February
2009 vol. 89 no. 2 568–576

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Chronic, excess intake of **simple sugar or refined CHO** leads to excess production of hormones like insulin, IGF that encourage cellular growth.

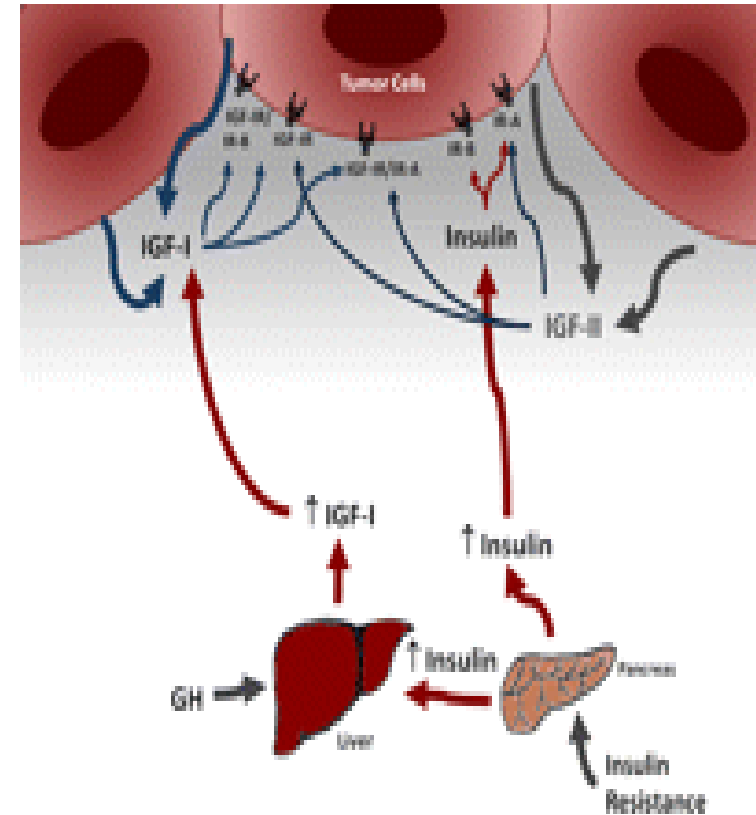
Insulin is a growth hormones

Behaviors that increase insulin levels

- Consumption of refined sugar and flour
- Overeating
- Weight gain
- Sedentary lifestyle

Behavior that reduces insulin levels

- Physical activity, weight loss, whole grains intake



3. Limit foods and drinks that promote weight gain

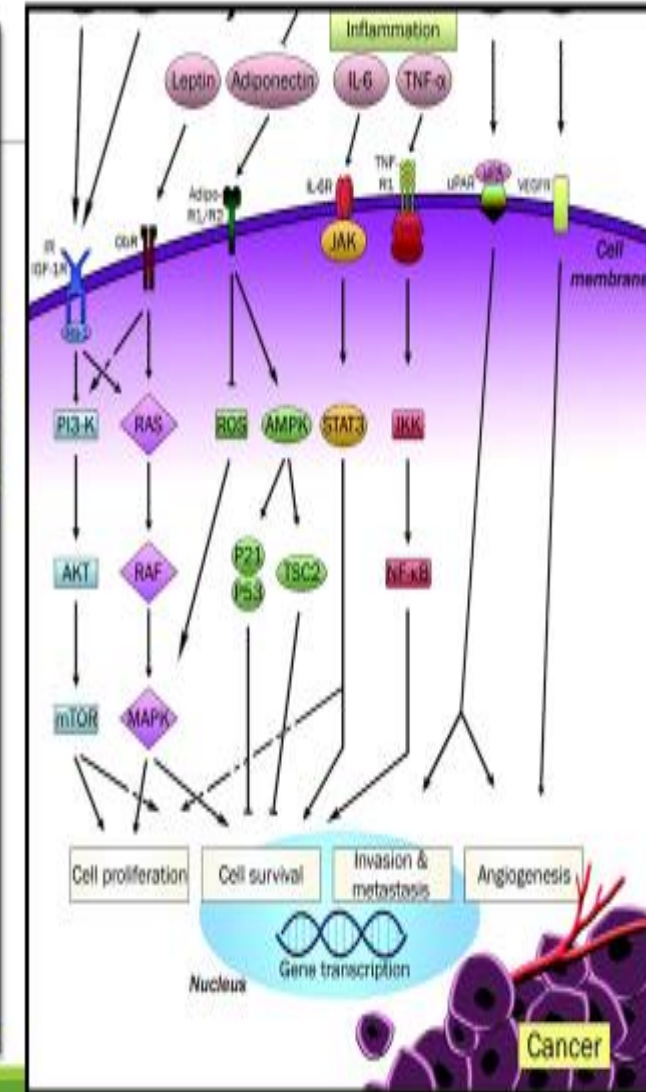
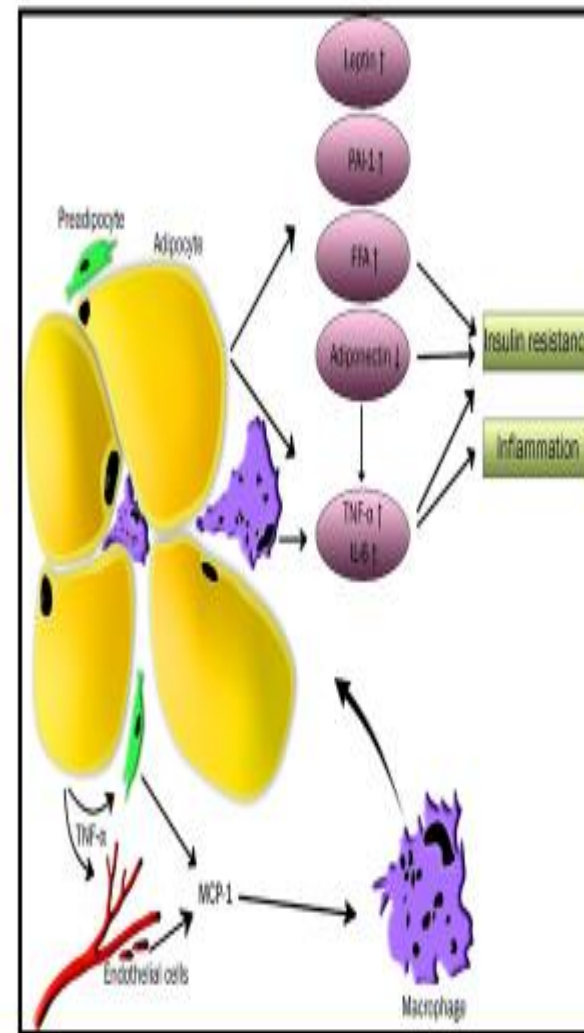
Limit consumption of energy-dense foods and Avoid sugary drinks

Recommendations

- Consume energy-dense foods, sparingly
- Avoid sugary drinks
- Consume fast foods sparingly if at all

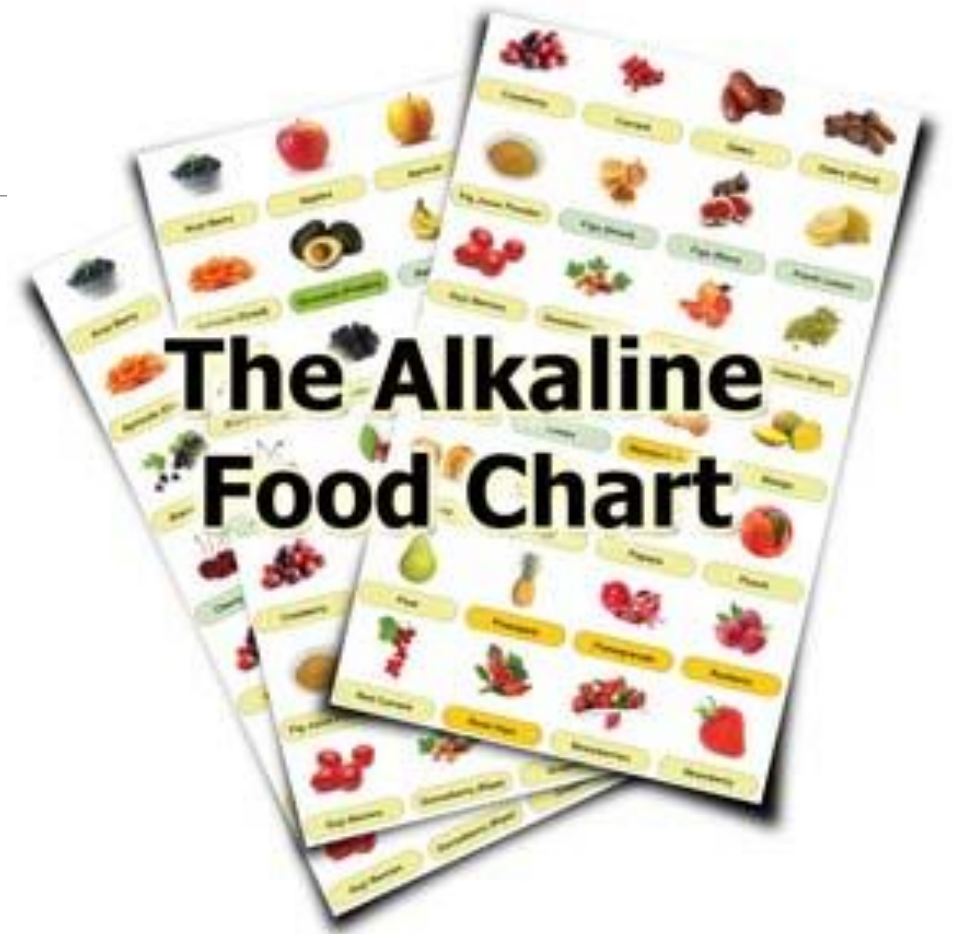


Why body fatness cause cancer?



Myths or Facts 4

Go for Alkaline Diet?



ACID / ALKALINE FOOD COMPARISON CHART



◀◀◀◀ MORE ACIDIC - EAT LESS

NEUTRAL

MORE ALKALINE - EAT MORE ▶▶▶▶

<p>⊖⊖⊖⊖</p> <p>Soft Drinks Energy Drink Carbonated Drinks</p> <p>*Processed & Refined Food</p>	<p>⊖⊖⊖</p> <p>Popcorn Cream Cheese Buttermilk Pastries Pasta Cheese Pork Beef Beer, Wine Black Tea Pickles Roasted Nuts Vinegar Sweet & Low Equal, Nutra Sweet</p>	<p>⊖⊖</p> <p>Most Purified Water Distilled Water Coffee Chocolate Sweetened Fruit Juice Pistachios White Bread Peanuts Nuts Wheat</p>	<p>⊖</p> <p>Fruit Juices Most Grains Eggs Fish Tea Soy Milk Coconut Lima Beans Plums Brown Rice Cocoa Oats Oysters Salmon</p>	<p>NEUTRAL</p> <p>Most Tap Water Most Spring Water River Water</p>	<p>+</p> <p>Apples Almonds Tomatoes Grapefruit Corn Mushrooms Turnip Olives Peaches Bell Pepper Radish Pineapple Cherries Wild Rice Apricot Strawberries Bananas</p>	<p>++</p> <p>Avocados Green Tea Lettuce Celery Peas Sweet Potatoes Egg Plant Green Beans Beets Blueberries Pears Grapes Kiwi Melons Tangerines Figs Dates Mangoes Papayas</p>	<p>+++</p> <p>pHresh greens® Spinach Broccoli Artichoke Brussel Sprouts Cabbage Cauliflower Carrots Cucumbers Lemons Limes Seaweed Asparagus Kale Radish Collard Greens Onion</p> <p>*Raw / Uncooked</p>

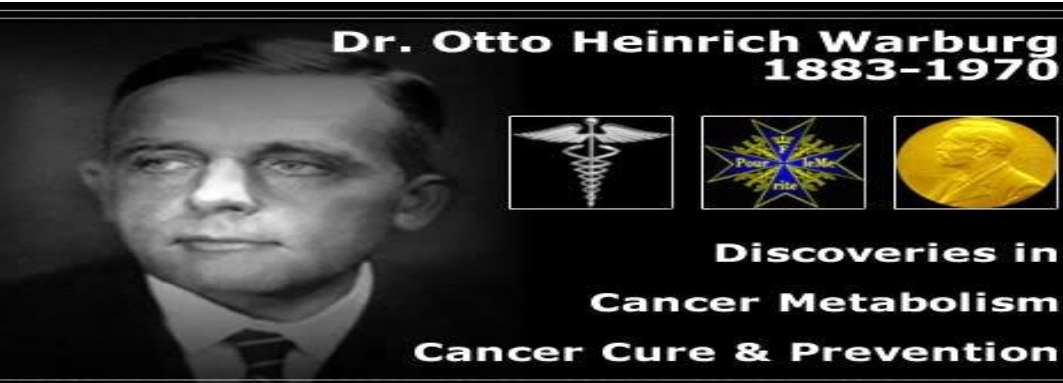
Note that a food's acid or alkaline-forming tendency in the body has nothing to do with the actual pH of the food itself. For example, lemons are very acidic, however the end-products they produce after digestion and assimilation are very alkaline so lemons are alkaline-forming in the body. Likewise, meat will test alkaline before digestion but it leaves very acidic residue in the body so, like nearly all animal products, meat is very acid-forming.

***Eat less processed and refined foods and more raw and uncooked greens and fruits.**

Proponents claim

- Cancer grows in an acidic environment
- Chemotherapy is more effective the more alkaline the environment
- pH of 8.5 “kills” cancer cells

Dr. Otto Heinrich Warburg
1883-1970



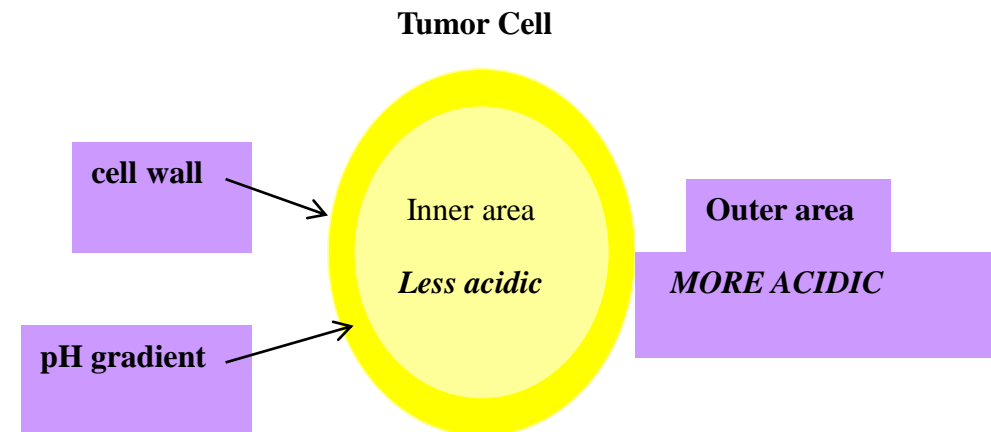
**Discoveries in
Cancer Metabolism
Cancer Cure & Prevention**

Dr. Warburg understood the relationship between oxygen and the pH of cancer cells and reported that cancer has a low pH (as low as 6.0) and therefore thrives when acid levels are high.

His research proves that cancer cannot live in an oxygen rich and an alkaline rich environment (a pH value greater than 7.0).

The Cure costs pennies and is probably already in your home... Baking Soda. Please read/share the reports at:

<http://TheNaturalCancerCure.com>



To eat or not to eat...

ACID FOODS

beef, chicken, duck, eggs,
farmed fish, lobster, organ
meat, pork, seafood,
turkey, veal, venison

Cheese, cottage cheese,
whey protein

mushrooms, potatoes

apple, apricot, banana,
berries, dried fruit,
papaya, peach, pineapple,
tangerine

ALKALINE FOODS

lima beans, soy beans,
white beans, pumpkin
seeds

wheat grass, barley grass,
alfalfa sprouts, broccoli
sprouts, kale, parsley, sea
vegetable

buckwheat, quinoa, spelt

coconut, grapefruit,
lemon, lime

The Facts..

- The body's pH levels may change slightly as a result of eating some foods, but will remain in the tightly held range of 7.35-7.45.
- Eating certain foods may change *urinary* pH levels, however, this does not necessarily mean that your blood pH will change.

Bottom Line on Alkaline Diets for Cancer Survivors

- Studies on the effects of acid/alkaline diets on tumor growth and proliferation are limited only to animal and test tube trials.
- Scientific research has not proven a beneficial effect of an alkalinizing diet for prevention or treatment of cancer.

ALKALINE FOODS

lima beans, soy beans,
white beans, pumpkin
seeds

wheat grass, barley
grass, alfalfa sprouts,
broccoli sprouts, kale,
parsley, sea vegetable

buckwheat, quinoa, spelt

coconut, grapefruit,
lemon, lime

4. Eat Mostly of Plant Origin Foods

- Eat at least **5 portions/servings** (at least 400g) of a variety of non-starch vegetables and of fruits every day
- Eat relatedly unprocessed pulses (legumes) with every meal
- Limit refined starchy foods

Phytonutrients

- Beyond vitamins, minerals and fiber, natural compounds found in plants may exert profound disease preventive effects
- Contain high levels of powerful antioxidants
- The “immune system” of a plant – many also represent the pigment that gives the plant its color
- Not only in fruits and VG- Whole grains, Beans and Tea have it too!

Antioxidant –
It



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Myths or Facts 5

Soy and Cancer



Soy can act like estrogen?

Soy foods (such as tofu, tempeh, miso, many veggie burgers, and other products made with soy flour) contain isoflavones, which are chemically similar to estrogens.

It is true?



Why?

- Concern raised - rodent models of cancer
- Tend to use isolated soy compounds like soy protein isolate or high doses of isoflavones (compounds found in soy)
- However, soy is metabolized differently in humans than it is in mice and rats, so findings in rodents may not apply to people

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Metabolic Phenotype of Isoflavones Differ among Female Rats, Pigs, Monkeys, and Women¹

Liwei Gu^{*,†}, Suzanne E. House^{*}, Ronald L. Prior^{*}, Nianbai Fang^{***},
Martin J. J. Ronis^{*,‡}, Thomas B. Clarkson^{††}, Mark E. Wilson^{‡‡}, and
Thomas M. Badger^{*,†,2}

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Abstract

This Article

J. Nutr. May 2006 vol. 136
no. 5 1215-1221

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Classifications

Nutrient Physiology,
Metabolism, and Nutrient-
Nutrient Interactions

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The facts



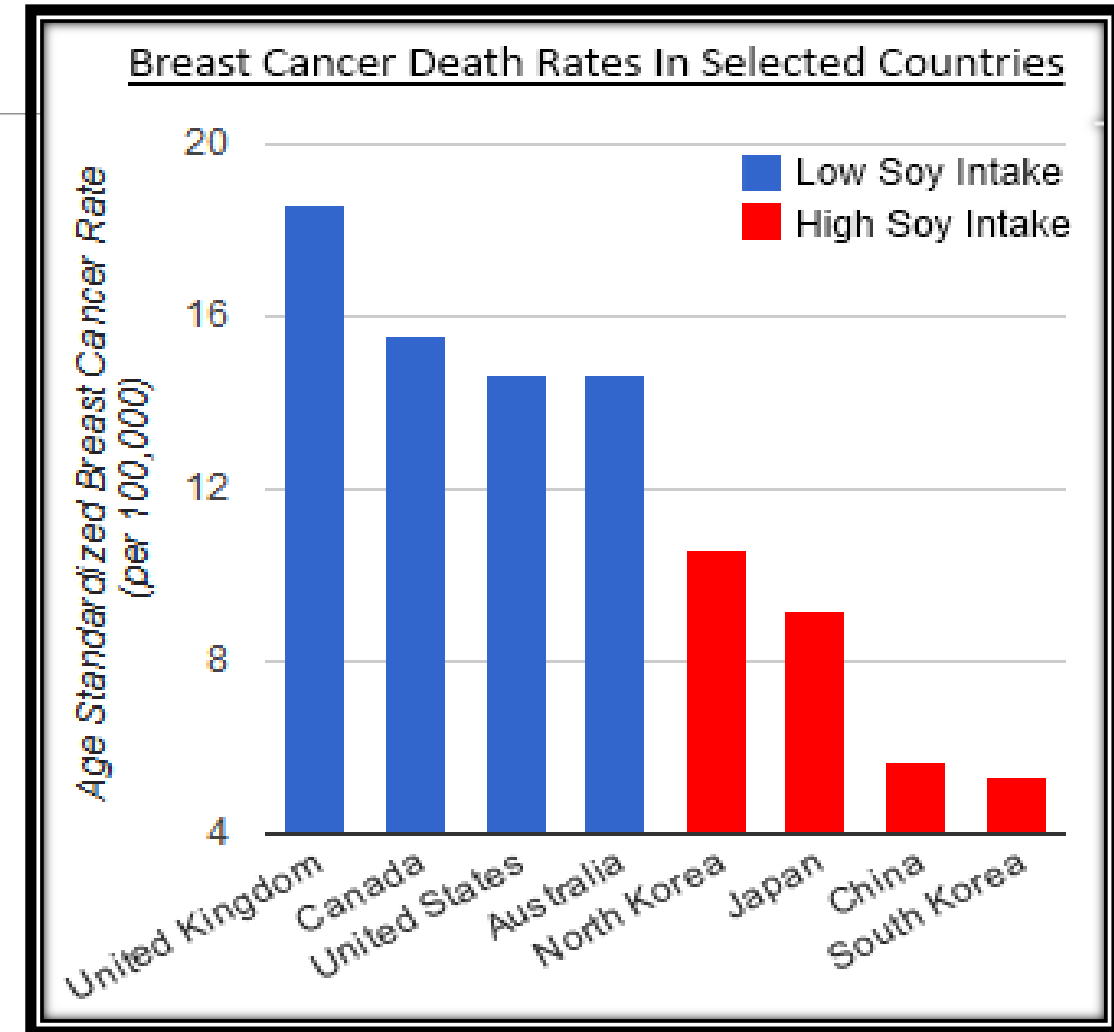
- Soybeans contain large amounts of the isoflavones genistin and daidzin, which are metabolized to genistein and daidzein
- Genistein has many biologic effects that could potentially reduce breast cancer risk
- Whole soy foods may help prevent (Park et al., 2004):
 - Breast cancer
 - Colon cancer
 - Prostate cancer
 - Bladder cancer
 - Heart disease
 - Osteoporosis

What about women who have had breast cancer?

Breast cancer risk for the average woman is much higher in Western women (133 per 100 000) (Weir et al., 2003) than in Asian women (39 per 100 000) (Fukuda et al., 2002)

Two recent studies of Asian women showed reduced risk of recurrence with higher dietary intake of soy foods/isoflavones:

1. Effect of soy isoflavones on breast cancer recurrence and death for patients receiving adjuvant endocrine therapy, (Shu XO et al, JAMA. 2009 Dec 9; 302(22):2483-4)
 - 5042 women with median follow up 3.9 years
2. Soy food intake and breast cancer survival, (Kang X et al, CMAJ. 2010 Oct 18)
 - 534 women with medium follow up of 5.1 years



The bottom line..

Even though animal studies have shown mixed effects on breast cancer with soy supplements, studies in humans have not shown harm from eating soy foods

Moderate consumption of soy *foods* appears safe for both breast cancer survivors and the general population, and may even lower breast cancer risk. Avoid soy *supplements* until more research is done

Myths or Facts 6

Not to reuse
cooking oil more
than 3 times



Tuesday 13 December 2011 PP1641/03/2012 (No. 19120) (029283) Peninsula R

The people's paper

Star

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ELECTRIFYING FUTURE

Electric vehicles are another option for those seeking a greener drive.



Cooking oil hazard

Exclusive

Cheap recycled commodity unsafe for human consumption

PETALING JAYA: The oil in the food you eat may well have been recycled and meant for diesel engines or some other industrial use. Unscrupulous manufacturers buy repeatedly used cooking oil from restaurants and process it for sale in 1kg packets. As it is cheap, it is popular not just among the public. Many food outlets buy the used oil in new packaging while livestock farmers use it for animal feed. Thus, the meat they sell, cooked with the oil, is doubly hazardous to your health. Tests on 19 brands sold at grocery stores and supermarkets nationwide showed the oil to be unsafe for human consumption, according to the Malaysian Association of Standards Users.

Association CEO Ratna Devi Nadarajan said: "Changes in properties occur when the oil is subjected to repeated frying." Although their product fails international standards, the manufacturers are doing nothing illegal since Malaysia does not have a minimum quality mark for cooking oil. While the Health Ministry says it is looking into the situation, the National Poison Centre is advising Malaysians against using cooking oil even twice. Centre consultant Dr T. Jayabalan warned: "If used repeatedly, the oil can cause hypertension, affect the liver and may in the long run lead to cancer."

> REPORTS ON PAGE 4

Myths or Facts 6

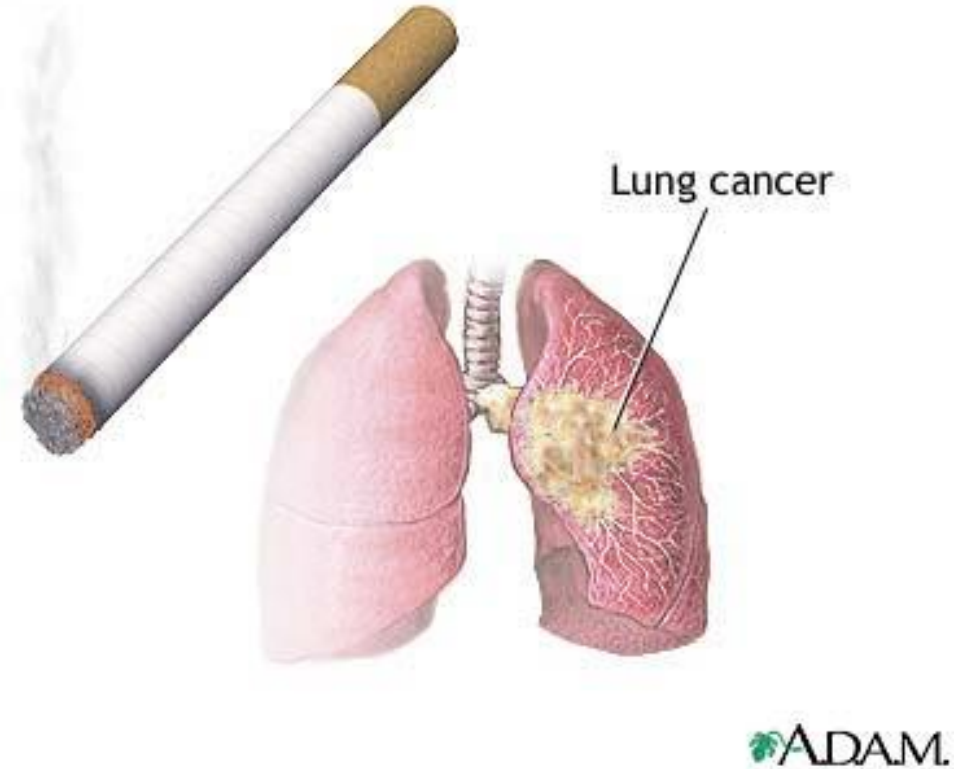
**Not to reuse
cooking oil more
than 3 times**



Acrolein

Acrolein and Cancer

- Acrolein (Acr) is present abundantly in cigarette
- A major cigarette-related lung cancer agent
- Polycyclic aromatic hydrocarbon (PAH) – cigarette smoke – DNA mutation
- Acr- carcinogenic – to lung as
 - DNA damage
 - Inhibit DNA repair



Acrolein and Cooking Oil

Can be produced from glycerol (animal or vegetable fats) when the glycerol is heated to high temperature exceeding the smoke points

No evidence acr in used cooking oil can cause CA

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No evidence acrolein in used cooking oil can cause cancer

Posted on 16 December 2013 - 03:54pm
Last updated on 16 December 2013 - 04:53pm

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KUALA LUMPUR (Dec 16, 2013): The allegation that acrolein formed during heating of used cooking oil can cause cancer has yet to be proven, according to the Health Ministry.

Director-General of Health Datuk Dr Noor Hisham Abdullah said based on the study carried out by the International Agency for Research on Cancer (IARC), acrolein could not be classified as carcinogen (cancer-causing substance or agent) as there was no solid evidence that it was carcinogenic.

He said this in response to the local news report that advised the public not to reuse cooking oil more than three times for fear that it would turn into toxic acrolein that could cause cancer.

"The ministry is seriously concerned about the safety of food that can threaten public health," he said in a statement here today.

Acrolein is a colourless liquid with a piercing, disagreeable, acrid smell. It is produced industrially from propylene and mainly used as a biocide to control weeds, algae and bacteria, as well as a

Acrolein and Cooking Oil



- ❑ But any oil when heated above the smoke points – undergoes chemical reaction such as oxidation
- ❑ Change in character – colour will grow darker, rancidity (tengit), become sticky or thicker and produce smoke when heated
- ❑ This character – accelerate fat oxidation – forms free radicals
- ❑ Free radicals formed by fatty acids react with oxygen to generate peroxides that enter into a multitude of reactions, producing numerous compounds such as aldehydes, ketones, acids, esters, and polymerized fats

Why Red Meat?

Theory I

Blames *heterocyclic amines* (HCAs), chemicals produced when meat is cooked at high temperatures

BUT can also be present in cooked chicken

Hence, they are unlikely to be the whole explanation



Recap



Palm oil vs. VG oil?

Bottom Line

**Not to reuse
cooking oil more
than 3 times**

Go for less oil cooking
method with no direct fire

Check your cooking oil
quality- turning black,
become rancid and produce
smoke- **CHANGE IT**





Evidence – based recommendation- BE smart

TAKE HOME MESSAGE

A solid green horizontal bar at the bottom of the slide.

AICR Global Report Recommendations:

1. Be as lean as possible without becoming underweight – **Maintain body weight**
2. Be physically active for at least 30 minutes every day.
3. Avoid sugary drinks. Limit consumption of energy-dense foods. → **due to correlation with obesity**
4. Eat more of a variety of vegetables, fruits, whole grains and legumes such as beans.
5. Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats. → **500 g max**

6. If consumed at all, limit alcoholic drinks to 2 for men and 1 for women a day. → 12 oz beer, 5 oz wine, 1.5 oz spirits

7. Limit consumption of salty foods and foods processed with salt (sodium). → stomach cancer (also moldy foods due to liver cancer in developing countries)

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

9. * It is best for mothers to breastfeed exclusively for up to 6 months and then add other liquids and foods. → reduce breast cancer in mom and obesity in child

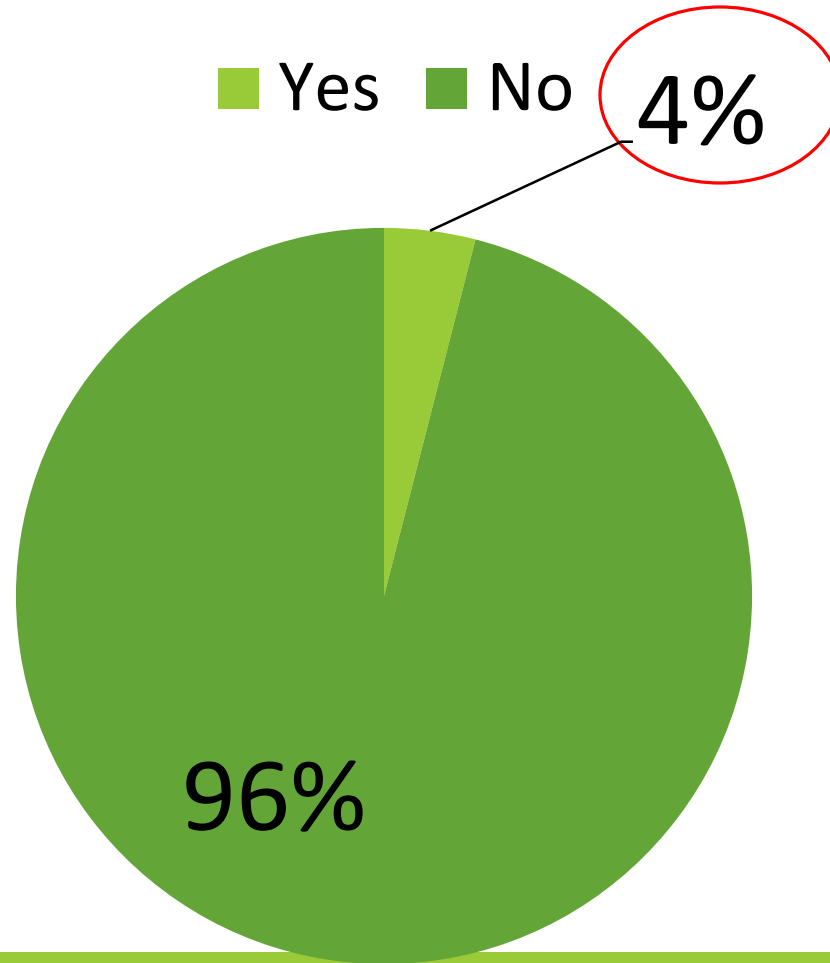
10. * After treatment, cancer survivors should follow the recommendations for cancer prevention.

***Special Population Recommendations**

Screening and Self examined



Practice Breast self-examination (n=59)



**It found that
only 4% (n=2) of
the female
respondents
were practiced
BSE.**

TLC

Conclusions

Advising weight maintenance and exercise after breast & colon cancer may help our patients as much as standard treatments.

Important in our sedentary & obesigenic environment.

Thank you

