



World Cancer  
Research Fund  
International

CANADIAN PARTNERSHIP  
AGAINST CANCER



PARTENARIAT CANADIEN  
CONTRE LE CANCER

# Policy and Action for Cancer Prevention: Food, Nutrition, and Physical Activity: a global perspective



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## GLOBAL DISTRIBUTION OF CANCER INCIDENCE



## COMPARISON OF THE INCIDENCE OF CANCER AS A FUNCTION OF PRIMARY LOCATION IN NATIVE-BORN JAPANESE LIVING IN JAPAN AND IMMIGRANT CAUCASIANS AND JAPANESE LIVING IN HAWAII

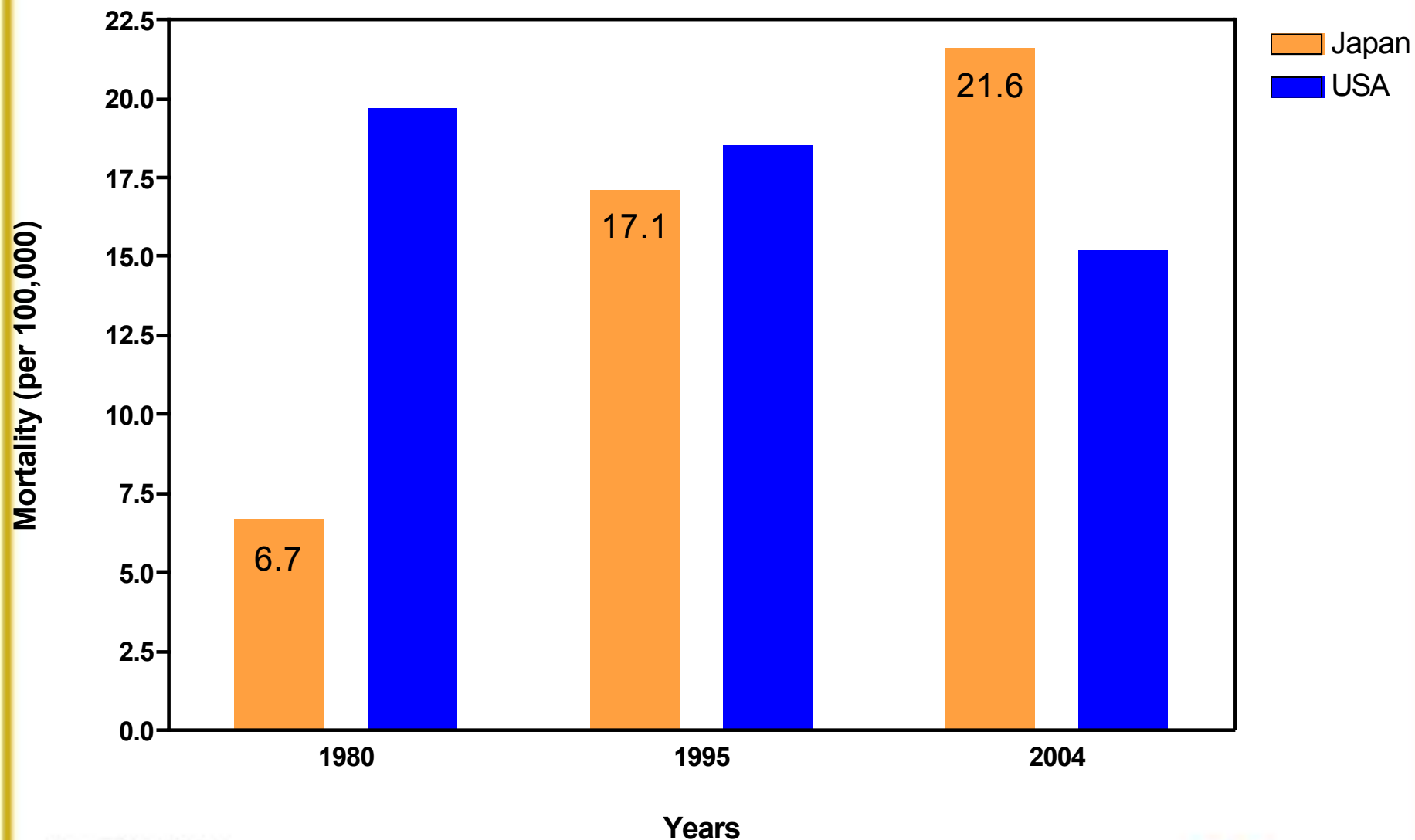
Table 1

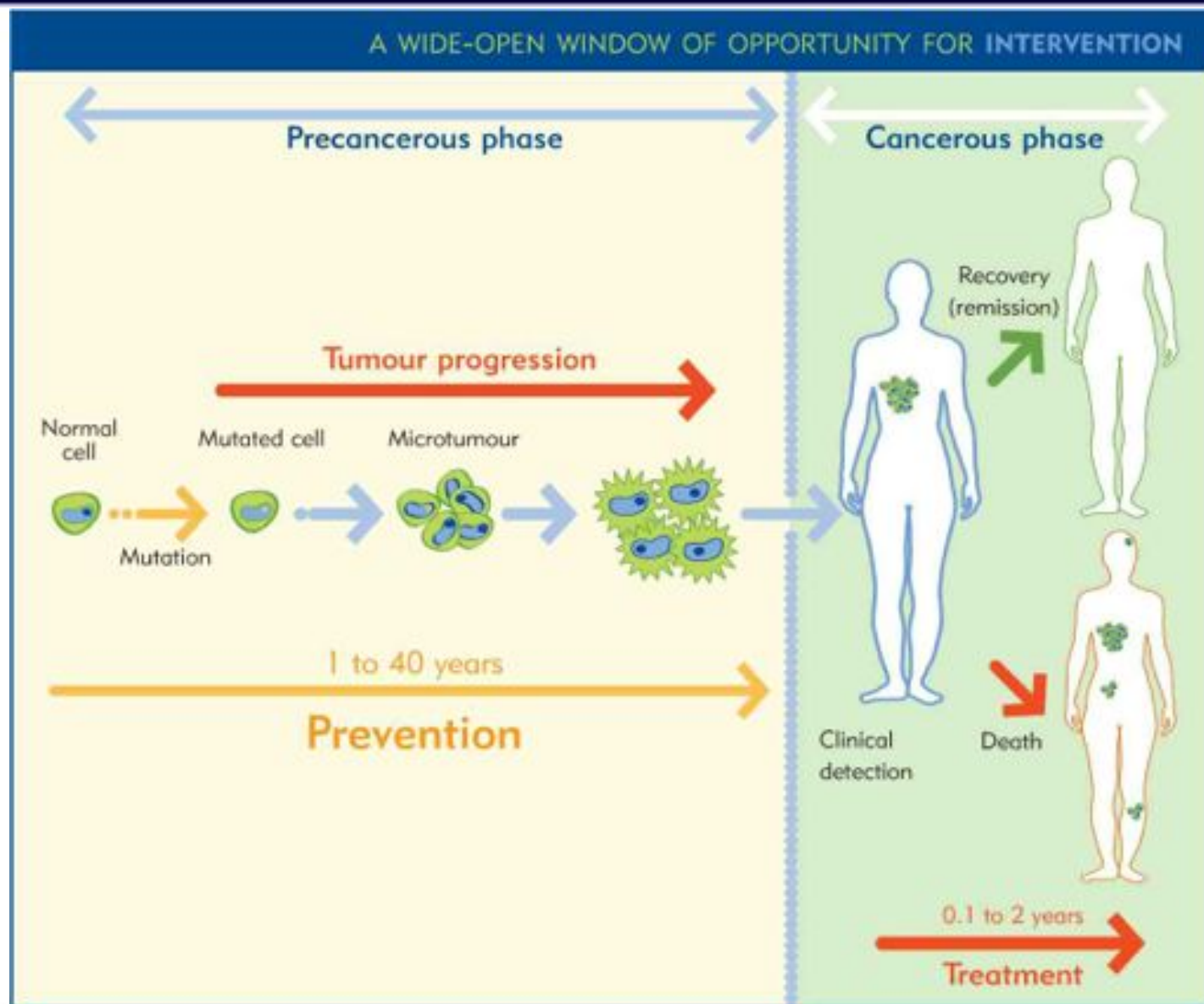
Primary cancer location	Annual incidence/million individuals		
	Japan	Hawaii	
		Japanese	Caucasians
Colon	83	371	368
Rectum	93	297	204
Lung	268	379	962
Prostate	14	154	343
Breast	315	1,221	1,869
Cervix	364	149	243
Uterus	26	407	714
Ovary	53	160	274

25 x  
6 x

Source: Doll, R. and Peto, R. (1981) J. Natl. Cancer Inst. 66, 1196-1305

## Colon cancer mortality through the years







## The 5 golden rules of chronic disease prevention



1

Do not smoke.



2

Maintain a normal weight  
(BMI between 19 and 24).



3

Eat an abundance of plant  
products such as fruits,  
vegetables and whole grains.



4

Exercise regularly at least  
30 minutes a day.



5

Reduce consumption of sugary and fatty foods,  
particularly those from the fast food industry.

Percentage of chronic diseases  
that can be prevented by  
the 5 lifestyle changes

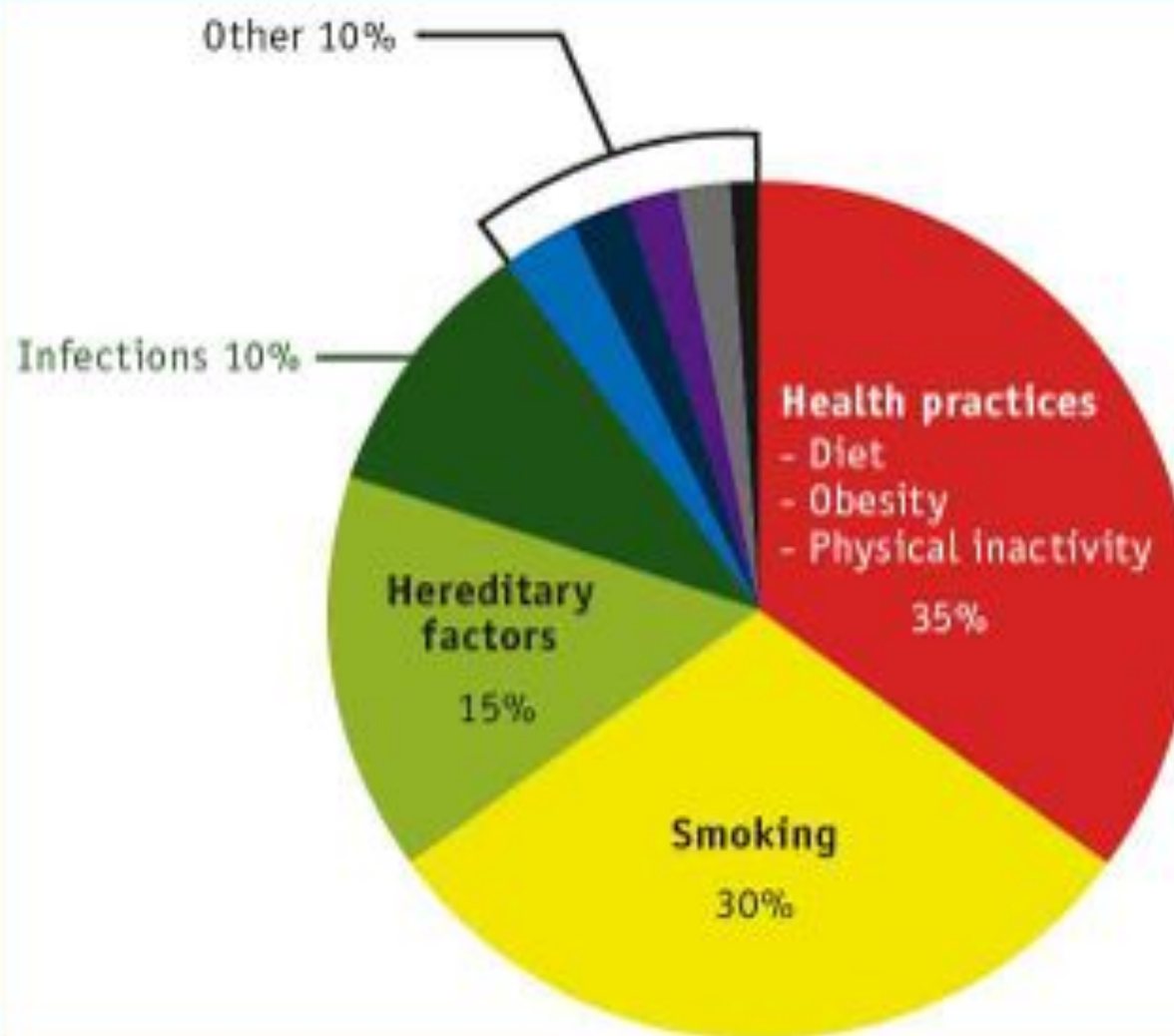
Type-2  
diabetes 90%

Heart  
disease 82%

Cancer 70%

Stroke 70%

## Causes of cancer





## WCRF Recommendations

- 1 Stay as slim as possible, with a BMI between 21 and 23.
- 2 Be physically active for at least 30 minutes a day.
- 3 Avoid soft drinks and reduce to a minimum the consumption of calorie-rich foods.
- 4 Eat generous amounts of a variety of fruits, vegetables, legumes and whole grain foods.
- 5 Reduce consumption of red meat (beef, lamb, pork) to about 500 g a week.
- 6 Limit daily consumption of alcohol to two glasses for men and one glass for women.
- 7 Limit consumption of salty pickled products.
- 8 Don't use cancer-preventing supplements.
- 9 Mothers should breast feed their children for 6 months.
- 10 Cancer survivors should follow the recommendations given above.

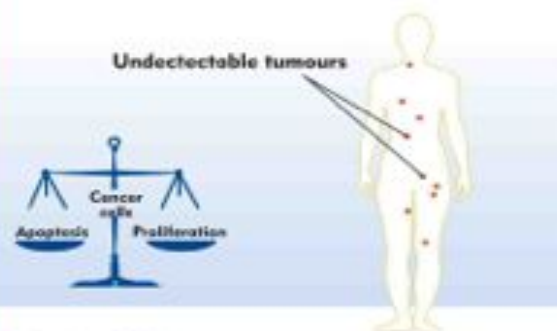


## Harmful effects of industrial foods



## THE PREVENTION OF CANCER THROUGH DIET

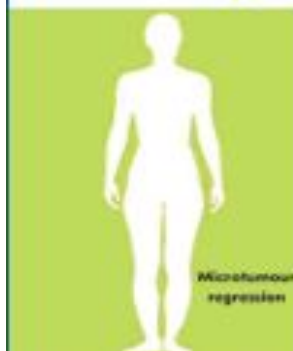
### SPONTANEOUS FORMATION OF MICROTUMOURS



Good eating habits –  
Anti-cancer  
nutrients

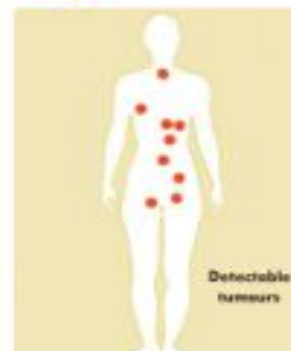


Poor eating habits –  
Carcinogenic foods



Microtumour  
regression

Unfavorable conditions  
for tumour formation



Detectable  
tumours

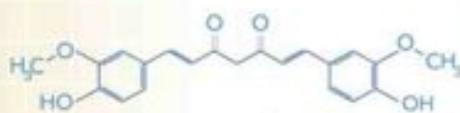
Favorable conditions  
for tumour formation



SOME NATURALLY OCCURRING ANTI-CANCER PHYTOCHEMICAL



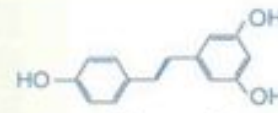
Turmeric



Curcumin



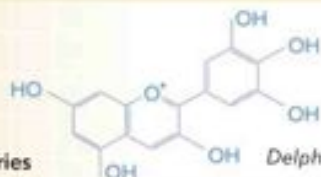
Grapes



Resveratrol



Blueberries



Delphinidin



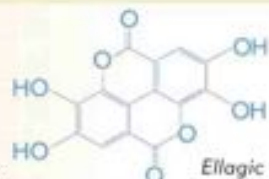
Citrus



Limonene



Strawberries



Ellagic acid



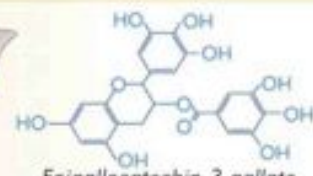
Garlic



Diallyl sulfide



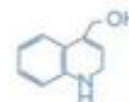
Green tea



Epigallocatechin-3-gallate



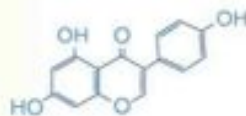
Cabbage



Indole-3-carbinol



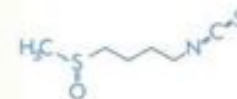
Soybeans



Genistein



Broccoli



Sulforaphane



Tomatoes

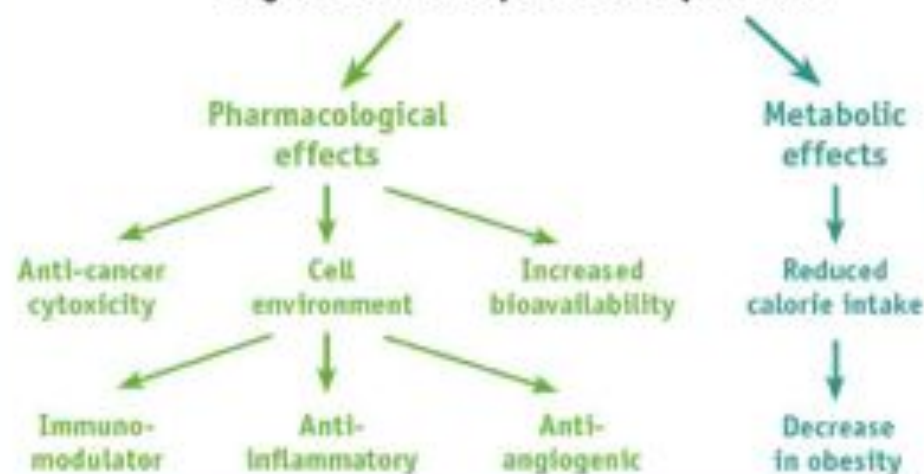


Lycopene

After Surh, Y-J (2003) Nature Review on Cancer 3, 768-780

## Compounds with multiple effects

### Phytochemical plant compounds

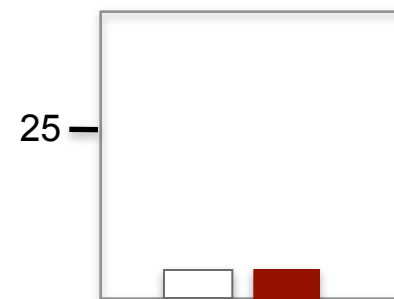
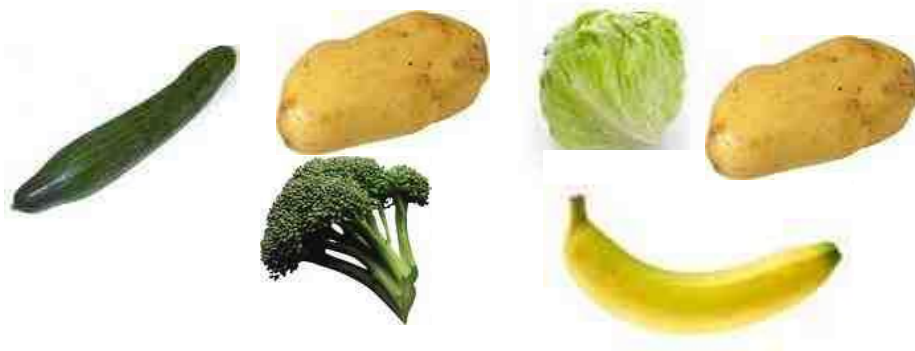




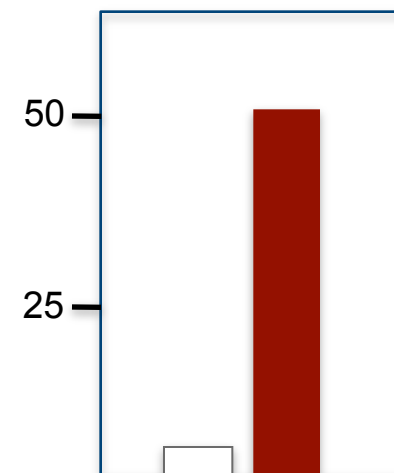
### Prospective studies showing the link between consumption of specific foods and incidence of cancer in human populations

Foods	Number of participants	Type of cancer	Reduced risk (%)
Cruciferous vegetables	47,909	Bladder	50%
	4,309	Lung	30%
	29,361	Prostate	50%
Tomatoes	47,365	Prostate	25%
Citrus fruits	521,457	Stomach, esophagus	25%
Green vegetables (dietary folate)	81,922	Pancreas	75%
	11,699	Breast (post-menopause)	44%
Lignans	58,049	Breast (post-menopause ER+)	28%
Carrots	490,802	Head and neck	46%
Apples, pears, plums	490,802	Head and neck	38%
Green tea	69,710	Colorectal	57%
Vegetable oils and nuts (dietary tocopherol)	295,344	Prostate	32%
Vitamin D/Calcium	10,578	Breast (premenopause)	35%

# Cancer prevention: The quality, not the quantity



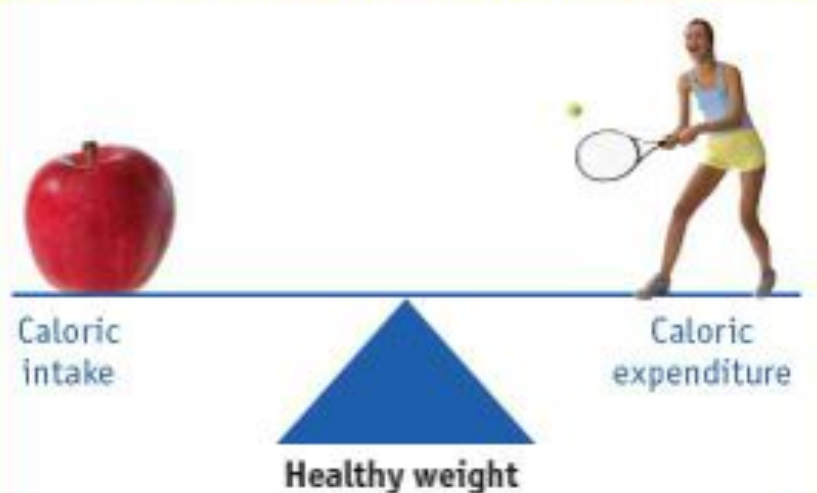
Control F&V



Control F&V

Cancer risk reduction (%)

## A balanced intake/expenditure of calories







# A Strange Evolution

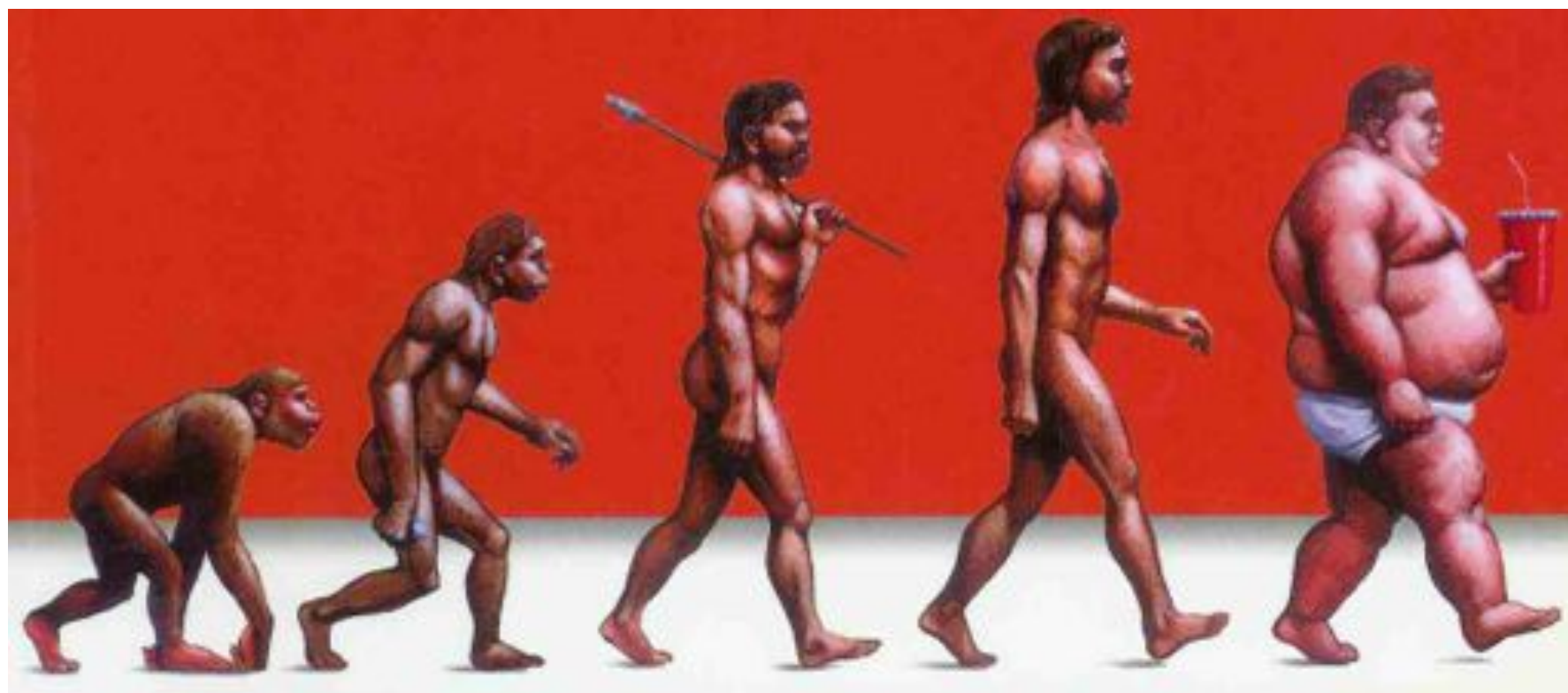
Paranthropus

Australopithecus

Homo habilis

Homo sapiens

*Homo obesus*



10,000,000

3,500,000

400,000

150,000

50

Years



### An explosion of diabetes in Mexico

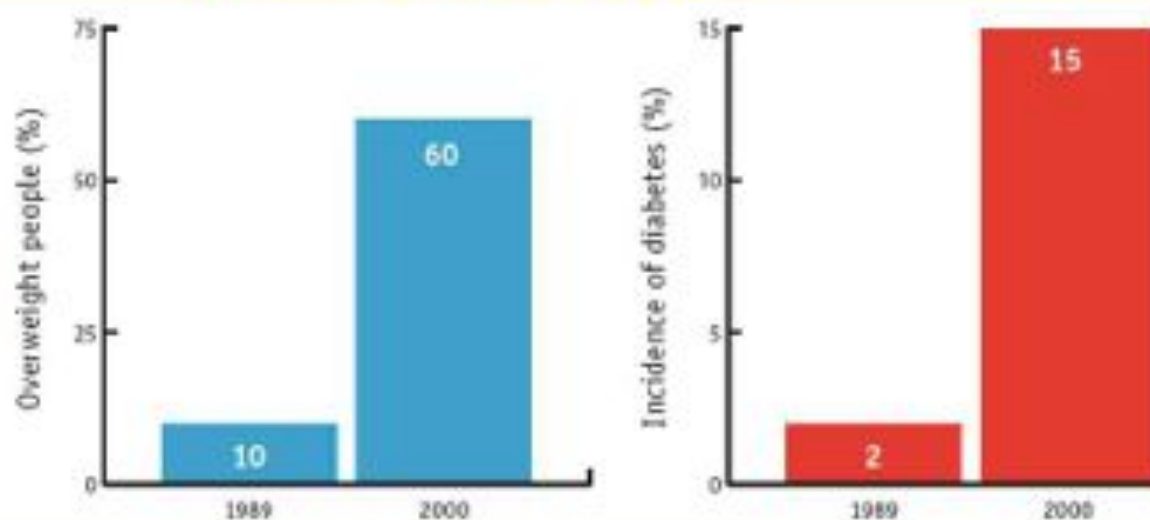
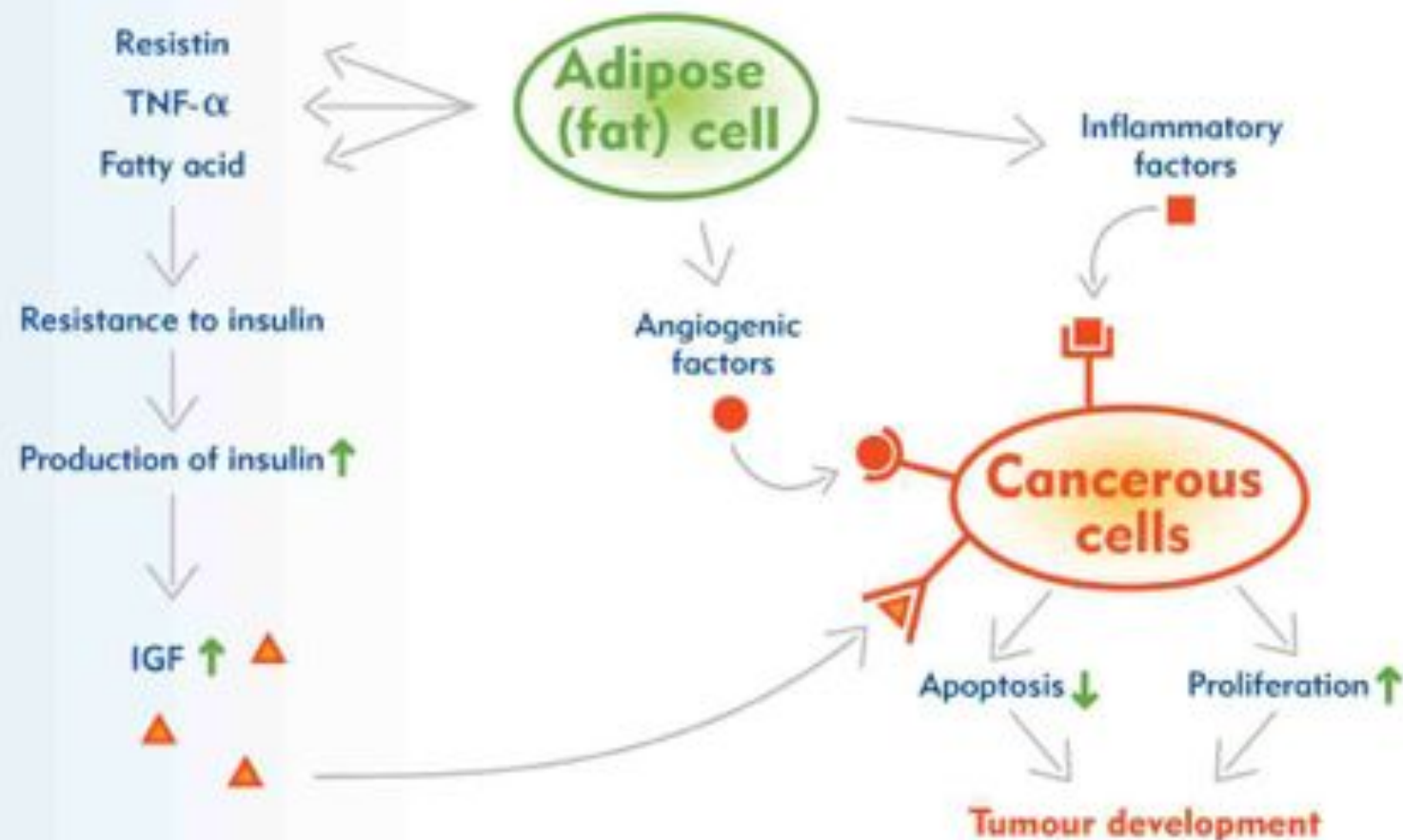


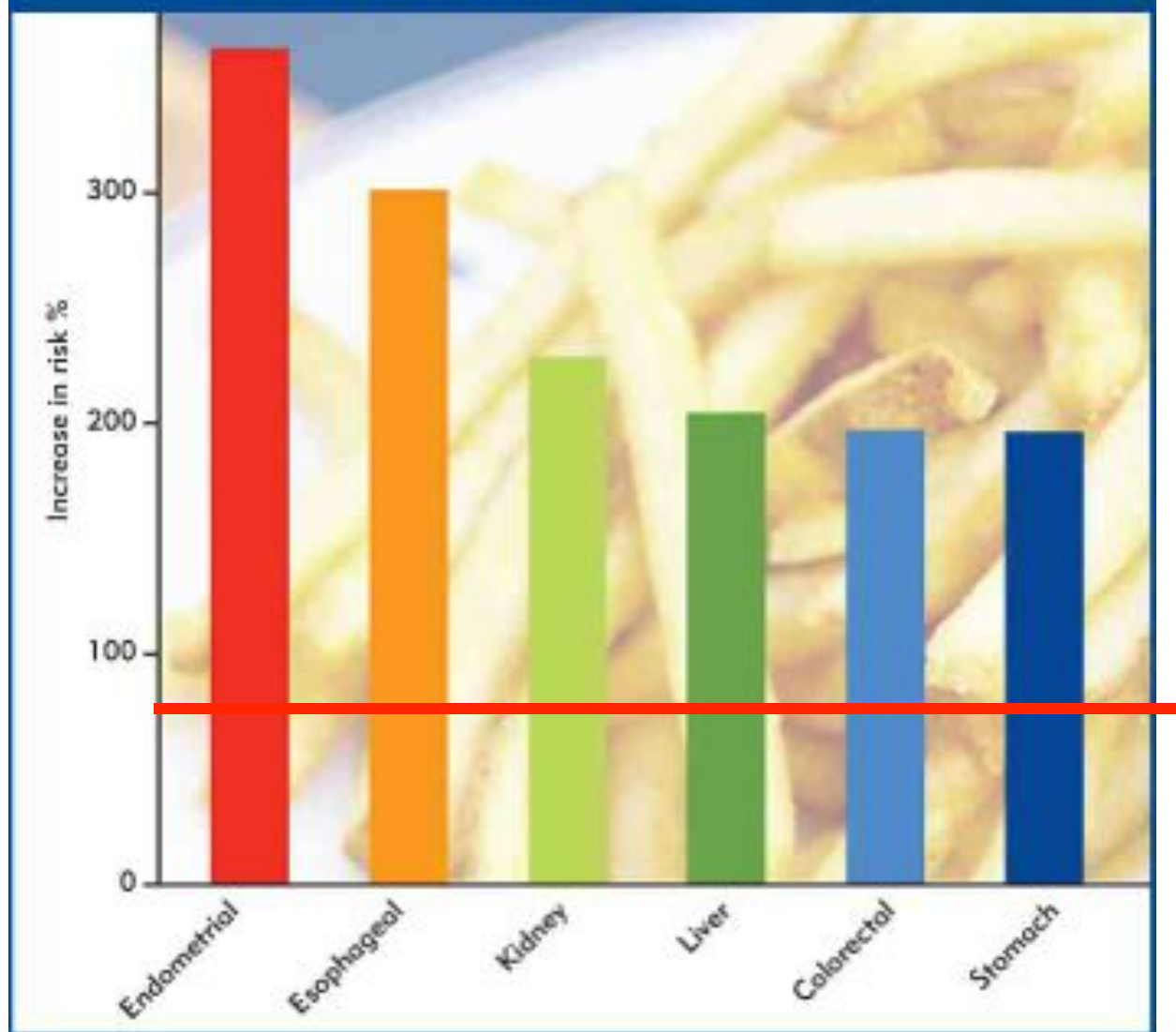
Figure 8

Source: Sci. Am. 2007; 297: 88-95

## MECHANISMS LINKING OBESITY AND CANCER

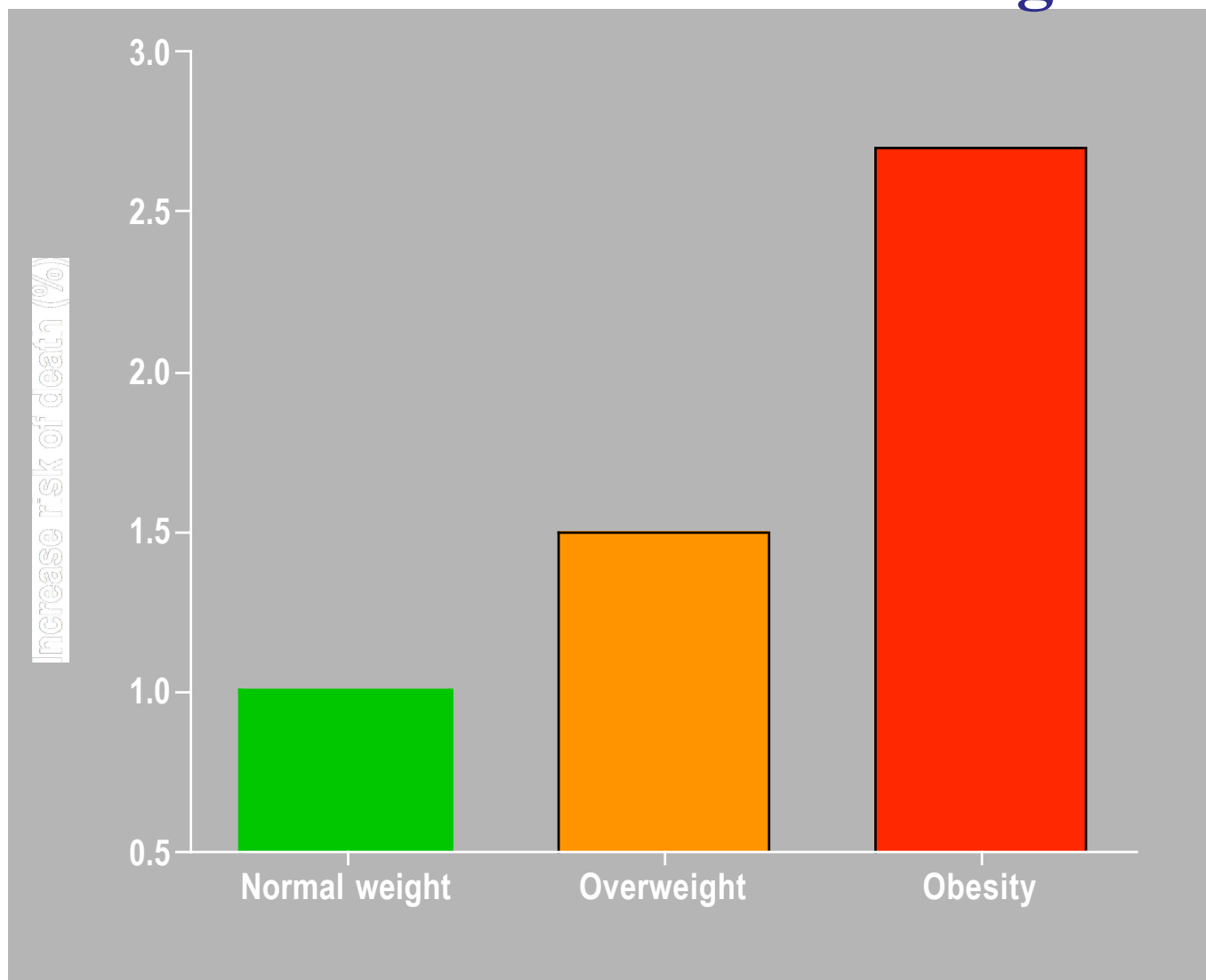


## PRINCIPAL CANCERS LINKED TO OBESITY

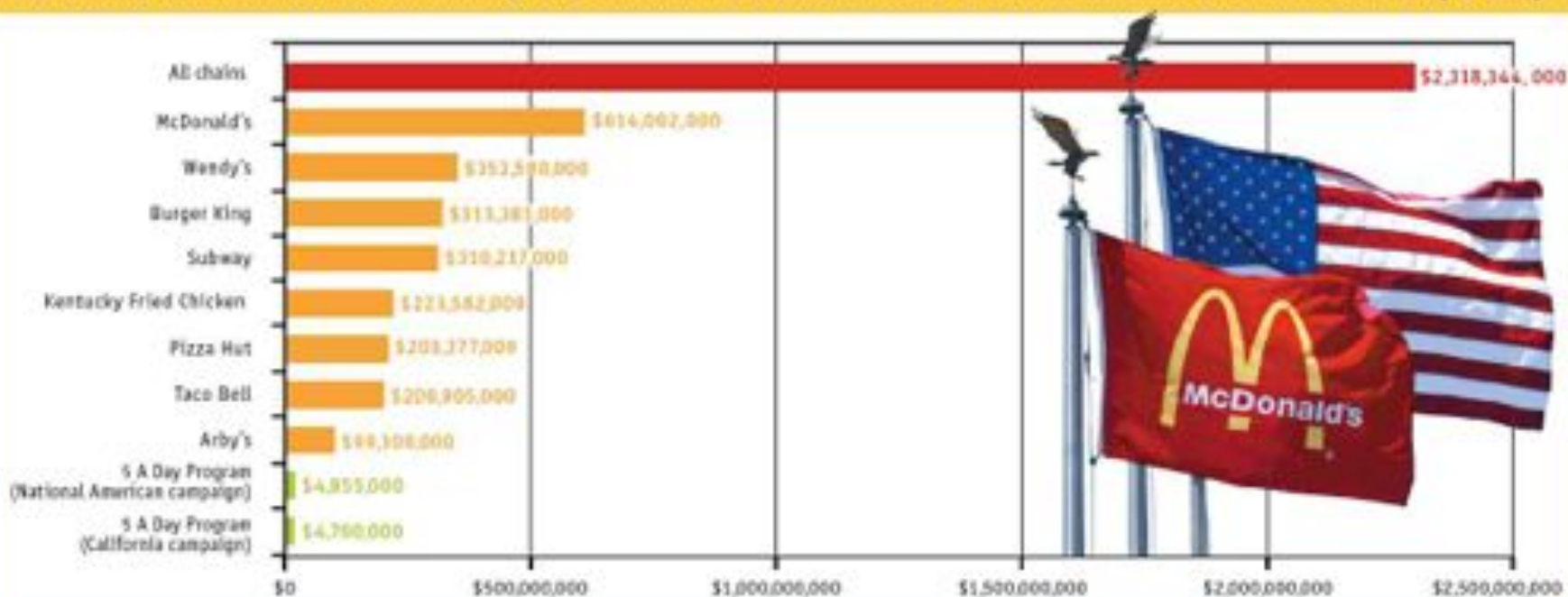




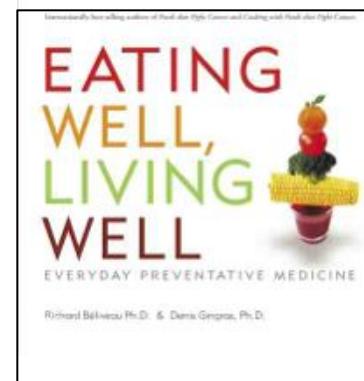
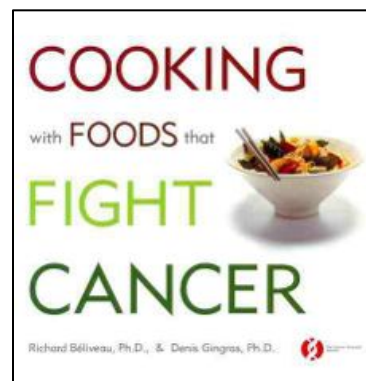
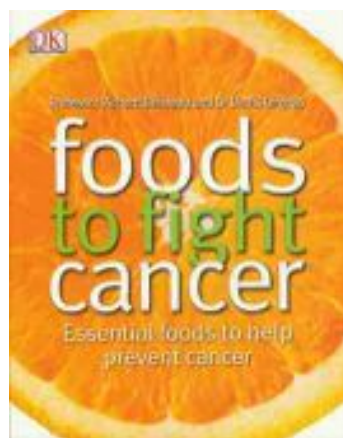
# Prostate Cancer Survival Prognosis



## An unequal battle: advertising expenditures of fast-food chains in the United States (2004)



## Our modest contribution to population education



# WCRF/AICR Policy Report Recommendations Regional/National Executive Summaries

