

# Meat Consumption—Health, Environmental and Ethical considerations

Jay Hollman MD

Therefore, if what I eat causes my  
brother to fall into sin, I will never eat  
meat again, so that I will not cause him  
to fall. 1 Cor. 8:13

# Meat Consumption

**PROP 2 PASSES!**

It's an historic day for farm animals in California.



## **American Veterinary Medical Association on Proposition 2**

‘Proposition 2 would clearly provide greater freedom of movement, but would likely compromise several other factors necessary to ensure the overall welfare of the animals, especially with regard to protection from disease and injury.

...’

‘We are concerned that legislating isolated, arbitrary and emotion-based criteria to implement farm animal housing systems may actually do more harm than good for the well-being of animals while compromising the sustainability of production systems that are essential to ensure we continue to have the safest, most affordable, and abundant food supply in the world. ‘

Meat Consumption:

## Egregious examples of animal abuse





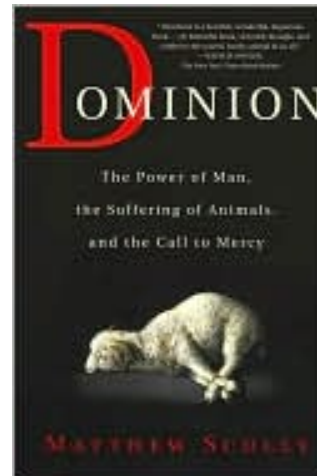
# Meat Consumption: Factory farming



# Arguments against Factory Farming

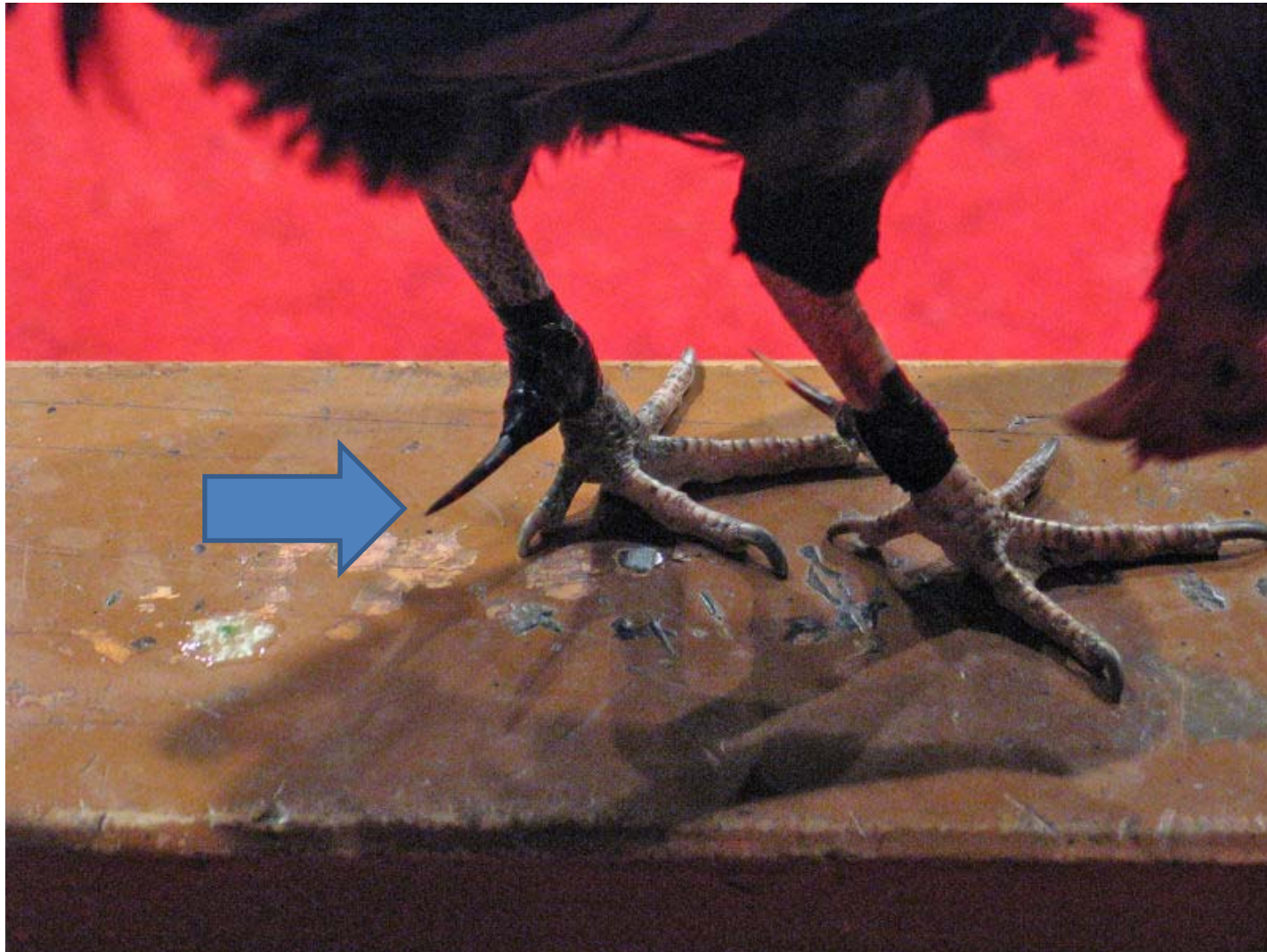
- **Justice: dogs and pigs are equally sentient**
- Cruelty to animals is a punishable offense
- A true sense of dominion and mutuality between species

Matthew Scully: *Dominion* 1992





# Cock Fighting



## *Scully Am Conservative May 23, 2005*

For the piglets, it's a regimen of teeth cutting, tail docking (performed with pliers, to heighten the pain of tail chewing and so deter this natural response to mass confinement), and other mutilations. After five or six months trapped in one of the grim warehouses that now pass for barns, they're trucked off, 355,000 pigs every day in the life of America, for processing at a furious pace of thousands per hour by migrants who use earplugs to muffle the screams. All of these creatures, and billions more across the earth, go to their deaths knowing nothing of life, and nothing of man, except the foul, tortured existence of the factory farm, having never even been outdoors.



# Arguments against Factory Farming

- Justice: dogs and pigs are equally sentient
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- **A true sense of dominion and mutuality between species**

# Cardinal Ratzinger

- While it is licit to use them for food, “we cannot just do whatever we want with them. ... Certainly, a sort of industrial use of creatures, so that geese are fed in such a way as to produce as large a liver as possible, or hens live so packed together that they become just caricatures of birds, this degrading of living creatures to a commodity seems to me in fact to contradict the relationship of mutuality that comes across in the Bible.”

## Proverbs 12:10

- **10 The godly are concerned for the welfare of their animals, but even the kindness of the wicked is cruel. NLB**

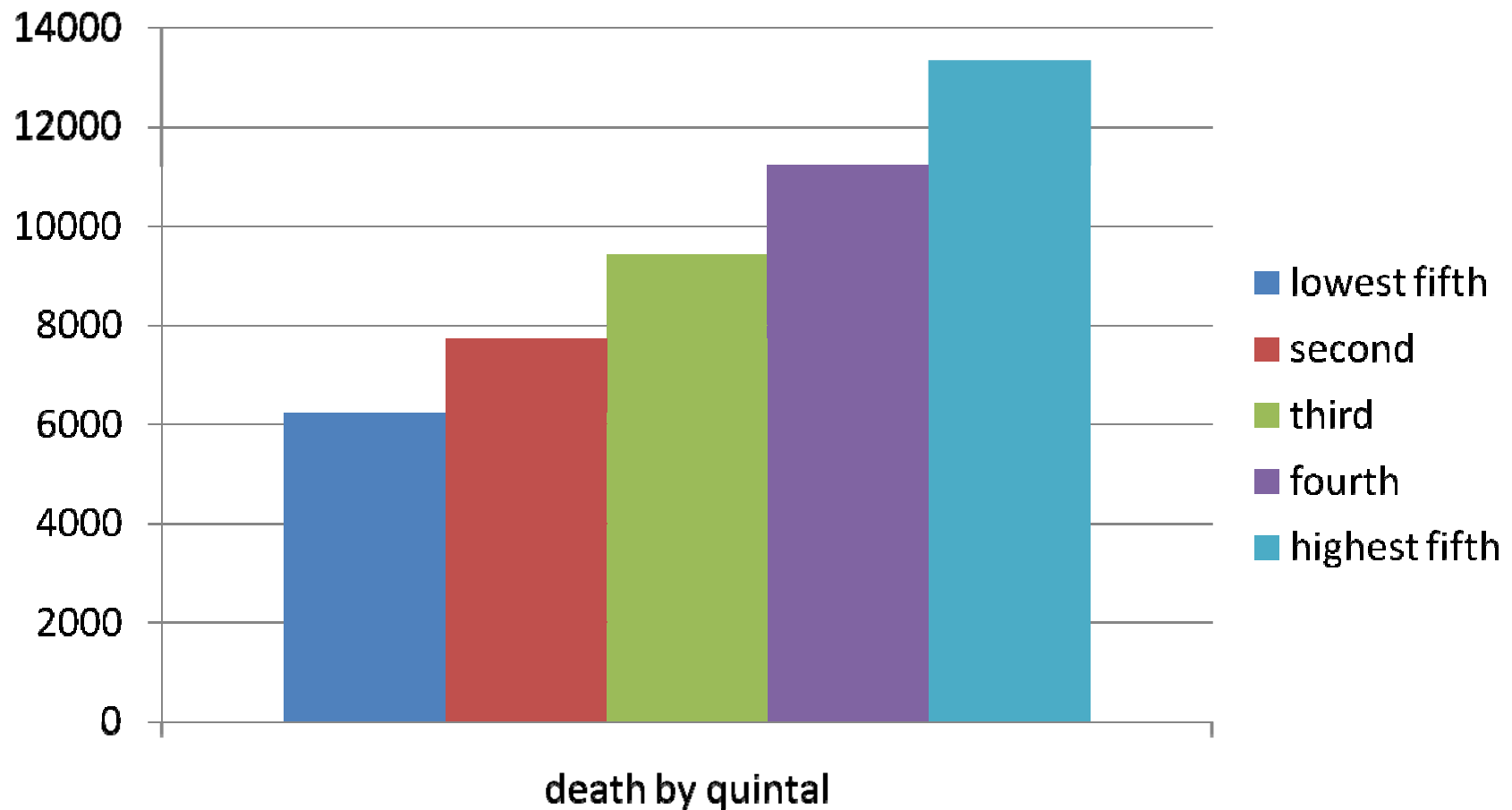
# Meat consumption and Health

- NIH-AARP study of over . 5 million people
- Age 50-71 at time of recruitment and followed for 10 years.
- California, Florida, Louisiana, New Jersey, North Carolina, Pennsylvania and the metro areas of Atlanta and Detroit.



# Mortality for Men based on Processed meat consumption

n = 322,263



# Confounding variables with heavy meat eaters

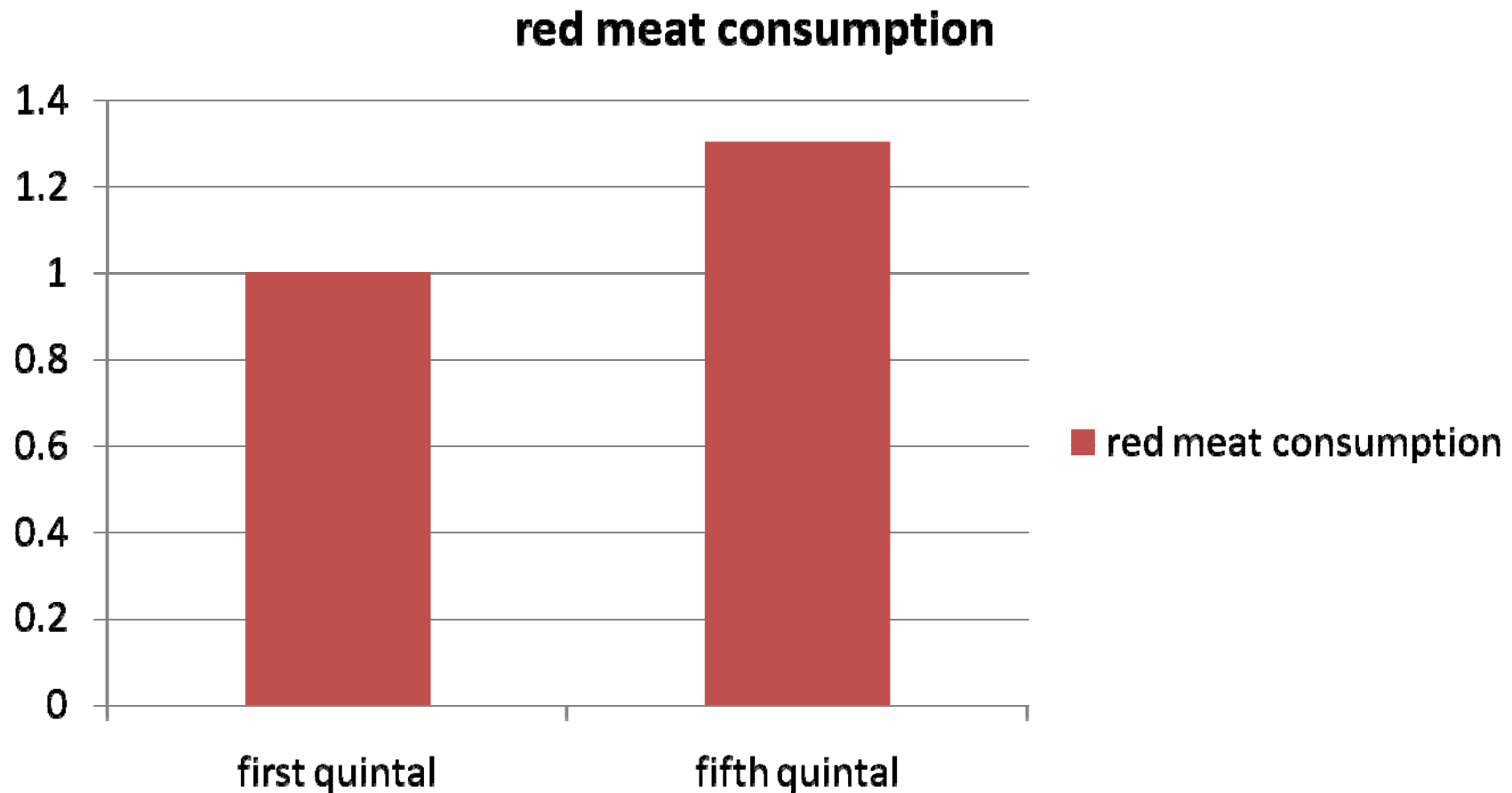
## **Negative effects on mortality**

- smokers
- have a higher body mass index
- higher daily intake of energy
- higher total fat and saturated fat intake
- lower education level
- less physical activity
- lower fruit, vegetable and fiber intake

## **Positive effects on mortality**

- Married
- White

# Mortality Risk for Red Meat consumption: first v fifth quintal



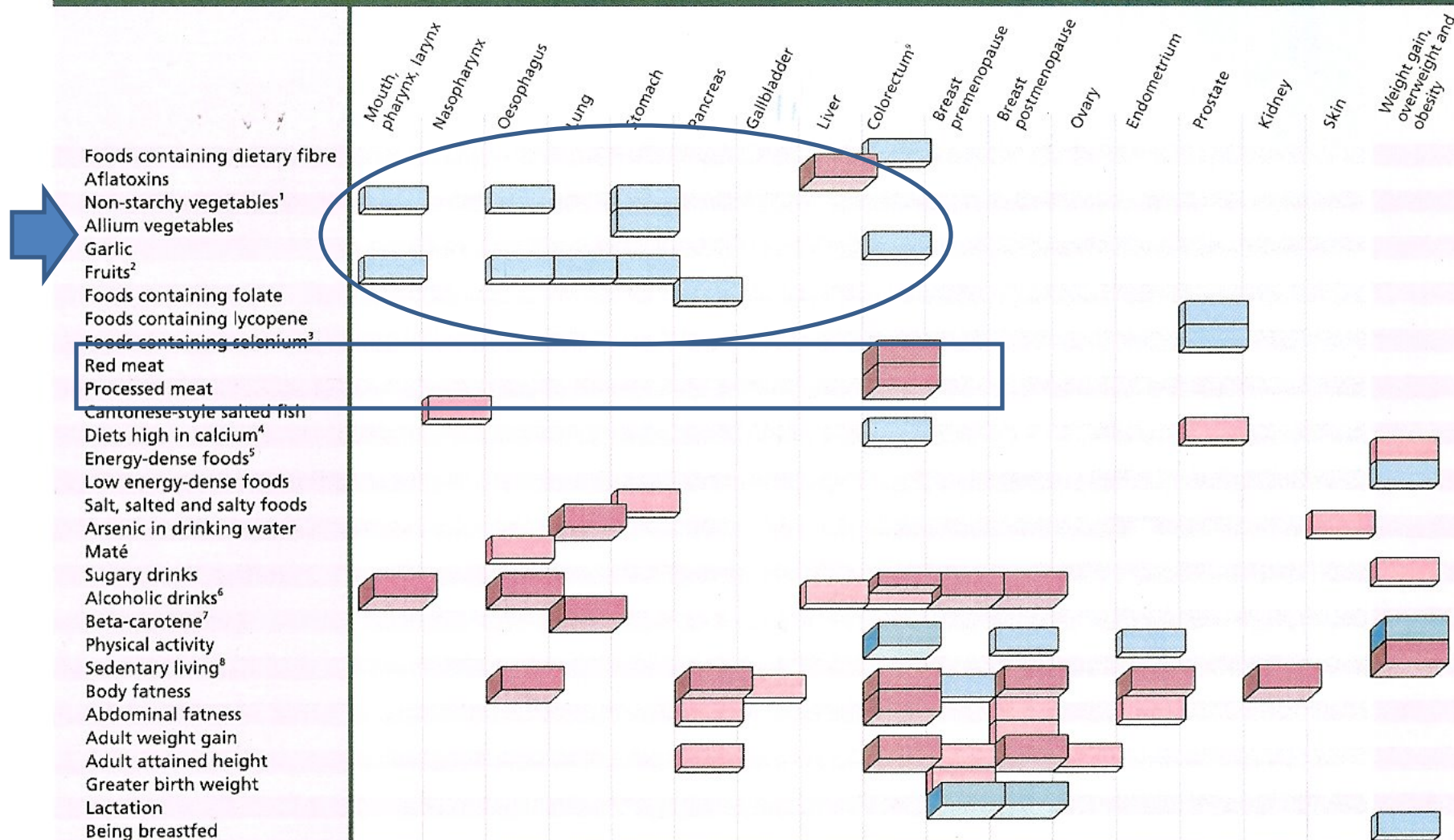
# Meat Intake and Mortality

n=545,653, Ratio of highest quintal to lowest, corrected for confounders

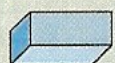
Type of Risk	Men's risk ratio	Women's risk ratio
Red meat—overall mortality	1.31 (1.27-1.35)	1.36 (1.30-1.43)
Processed Meat—overall mortality	1.16 (1.12-1.20)	1.25 (1.20-1.31)
Cancer risk—red meat	1.22 (1.16-1.29)	1.20 (1.12-1.39)
Cancer risk—processed meat	1.12 (1.06-1.19)	1.11 (1.04-1.19)
Cardiovascular Deaths—red meat	1.27 (1.20-1.35)	1.50 (1.37-1.65)
Cardiovascular Death—processed meat	1.09 (1.03-1.15)	1.38 (1.26-1.51)



## Summary of 'convincing' and 'probable' judgements



### KEY



Convincing decreased risk



Probable decreased risk



Probable increased risk



Convincing increased risk

<sup>1</sup> Includes evidence on foods containing carotenoids for mouth, pharynx, larynx; foods containing beta-carotene for oesophagus; foods containing vitamin C for oesophagus

<sup>2</sup> Includes evidence on foods containing carotenoids for mouth, pharynx, larynx and lung; foods containing beta-carotene for oesophagus; foods containing vitamin C for oesophagus

<sup>3</sup> Includes evidence from supplements for prostate

<sup>4</sup> Evidence is from milk and studies using supplements for colorectum

<sup>5</sup> Includes 'fast foods'

<sup>6</sup> Convincing harm for men and probable harm for women for colorectum

<sup>7</sup> The evidence is derived from studies using supplements for lung

<sup>8</sup> Includes evidence on television viewing

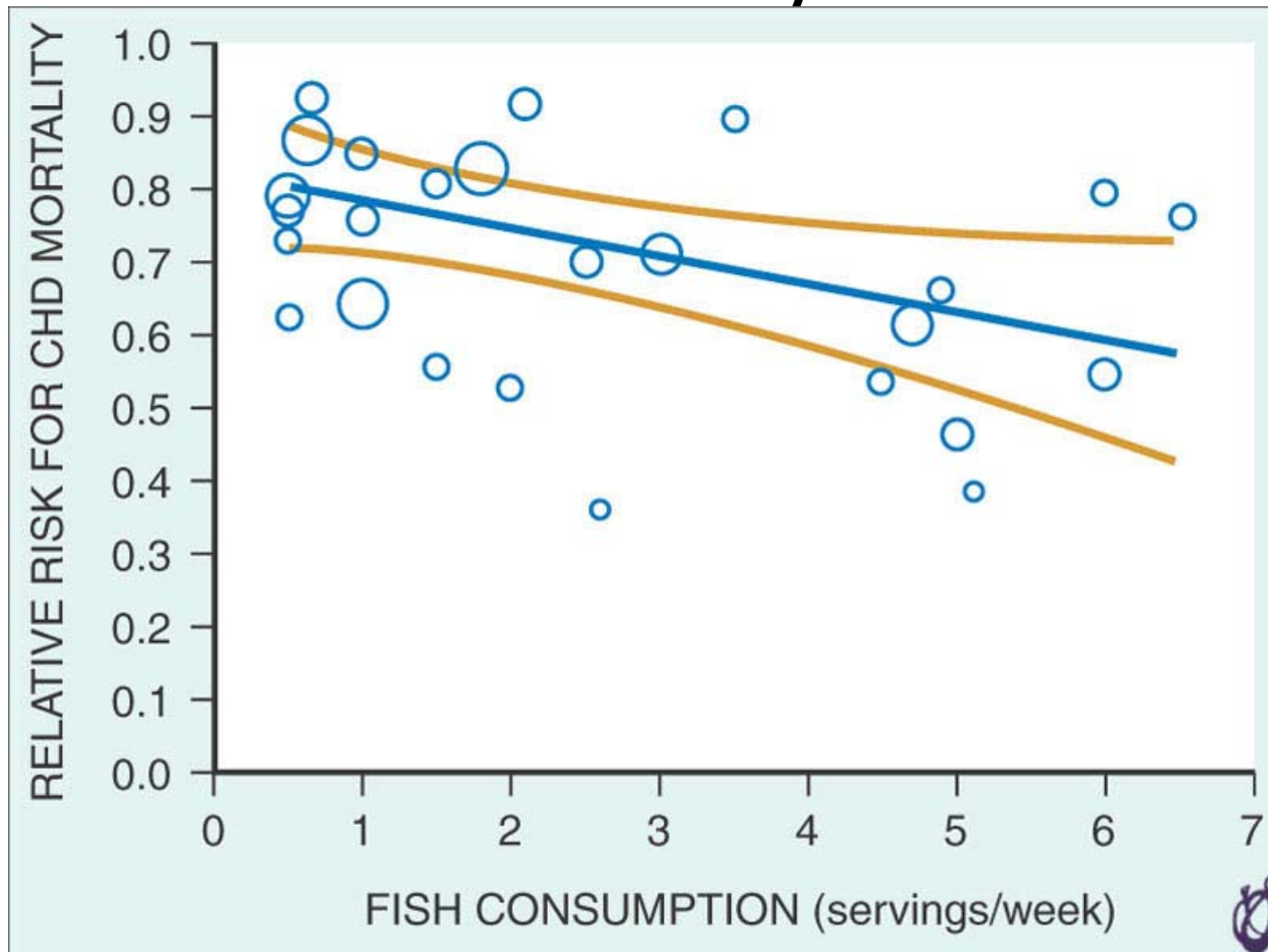
<sup>9</sup> Judgement for physical activity applies to colon and not rectum

# American Heart Association Prudent Diet

Circulation 2006; 114:82-96

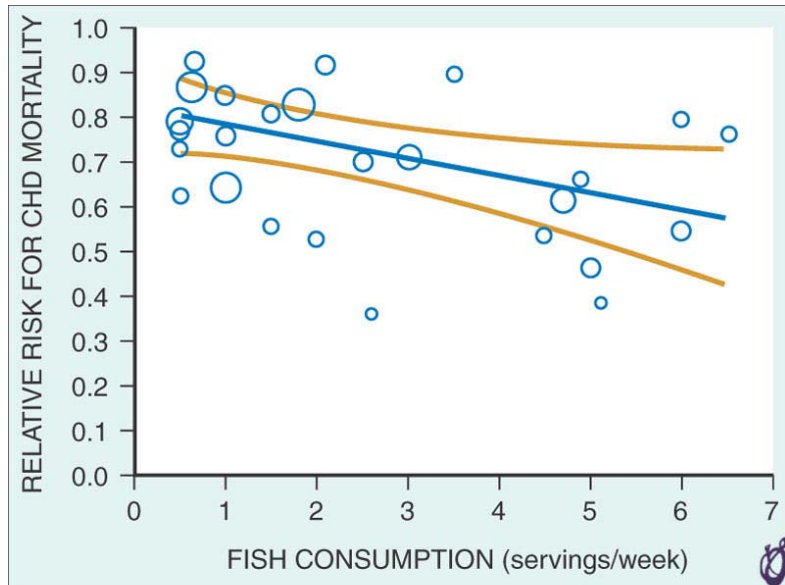
- Limit intake of saturated fat to <7% of energy, trans fat to <1% of energy and cholesterol to <300 mg/day
  - Replace meats with beans, soy, nuts or fish
- Minimize your intake of beverages and foods with added sugars
- Choose and prepare foods with little or no salt
- If you consume alcohol, do so in moderation
- Be careful on consuming food outside the home: order entrees with fish and chicken instead of beef.

# Fish Consumption and Cardiac Mortality



(From Konig A, Bousan C, Cohen JT, et al: A quantitative analysis of fish consumption and coronary heart disease mortality. *Am J Prev Med* 29:335, 2005.)

# Fish Consumption and Cardiac Mortality



(From Konig A, Boussan C, Cohen JT, et al: A quantitative analysis of fish consumption and coronary heart disease mortality. Am J Prev Med 29:335, 2005.)

- Omega-3 polyunsaturated fatty acid effect on platelets
- Replaces animal fats
- Reduces cardiac arrhythmias

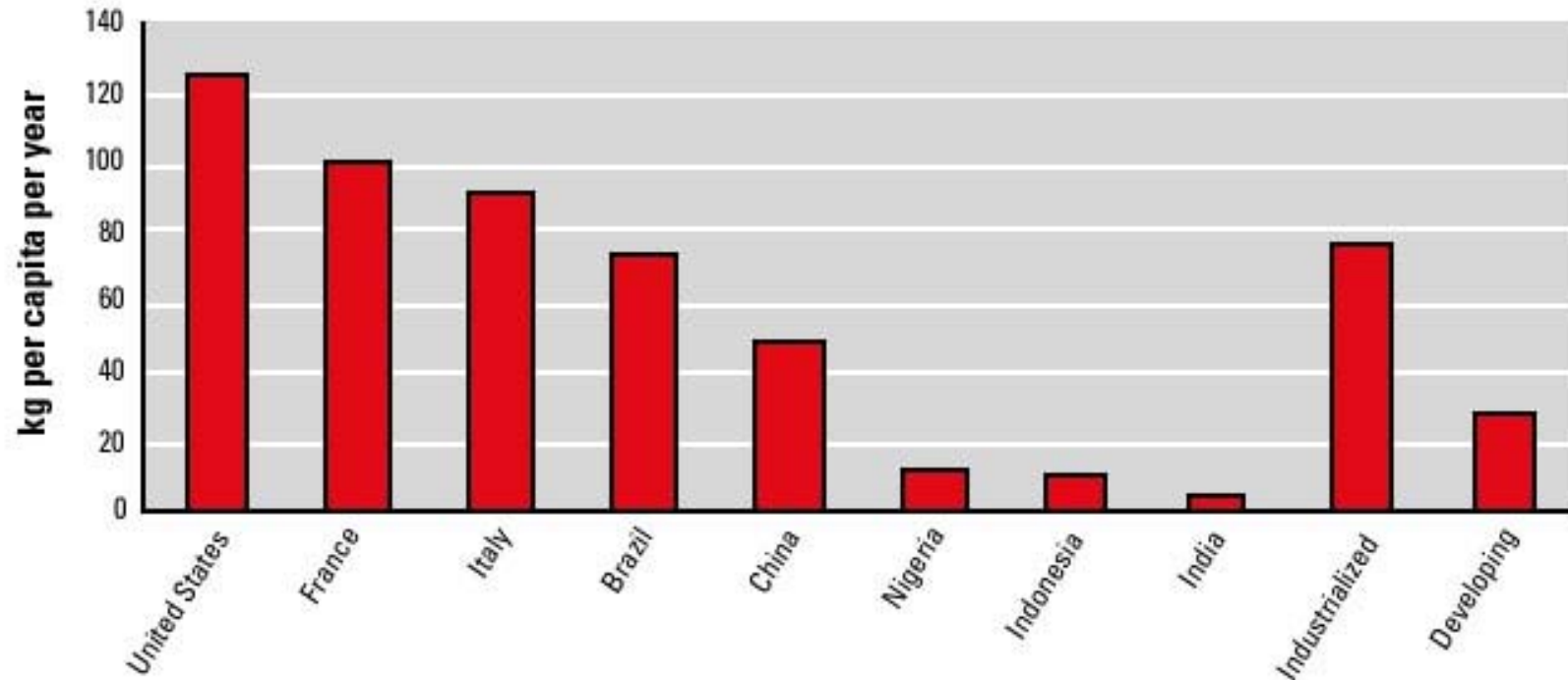


# Myths about environmental impact of meat on water

- 100,000 liters of water for at Kg of beef (widely cited based on beef production in Southern California)
- 900 liter for Kg of wheat
- 500 liters per kilogram of potatoes
- Actual average for kg of beef in the USA: 3,682 liters.

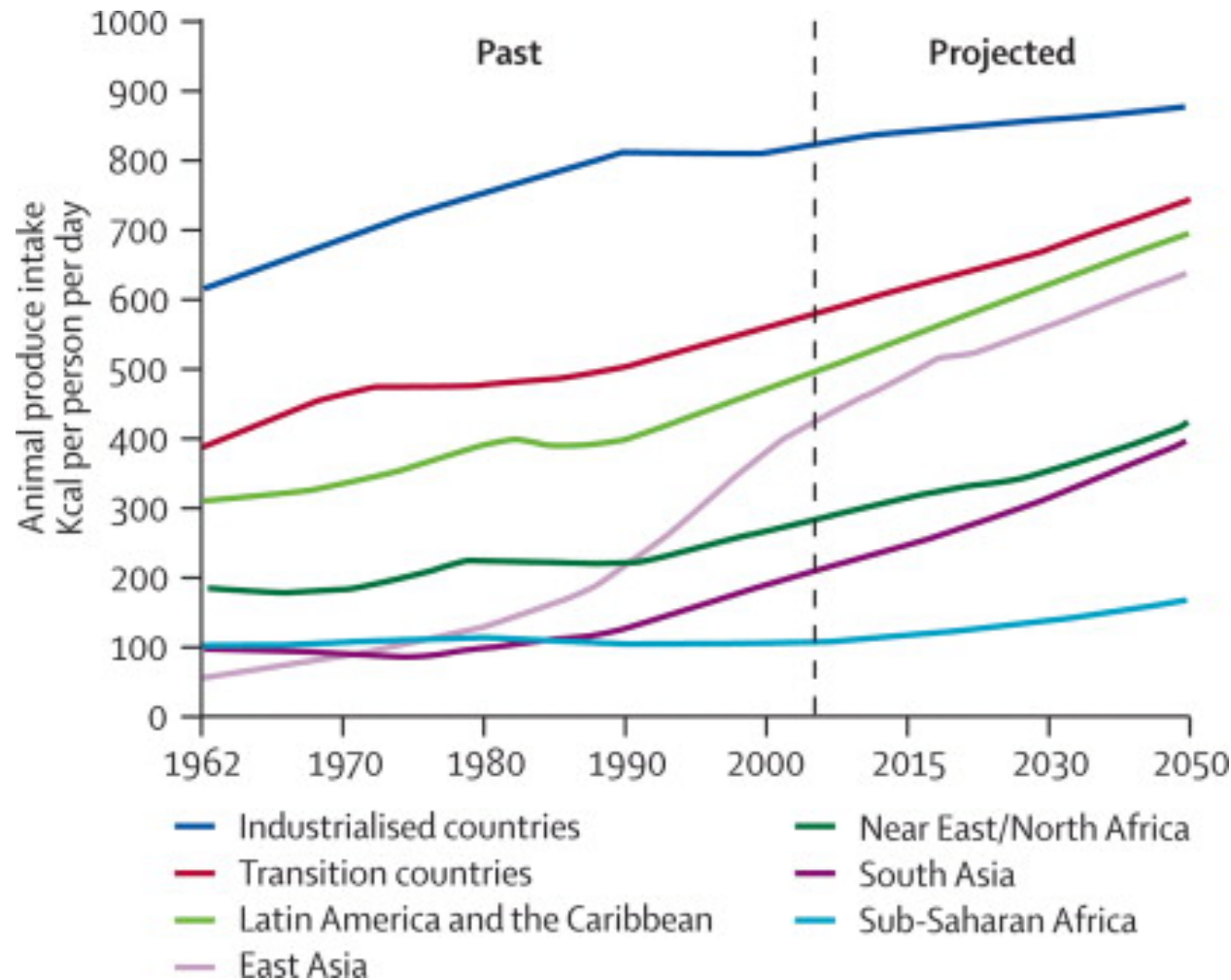
– Beckett JL, Oltjen JW: Estimates of the water requirement for beef production in the United States J Animal Sci 1993;71:818-26

# Inconvenient Facts about Meat



1. Since 1950, the average meat consumption in the USA has doubled.
2. China is increasing its meat consumption with an accompanying growth in Western disease.
3. More than 40% of children in poor countries are stunted by undernutrition.
4. American style of intense agriculture with feed lots and grain feeding etc. are replacing grazing especially in South America.

# Calories from animal production

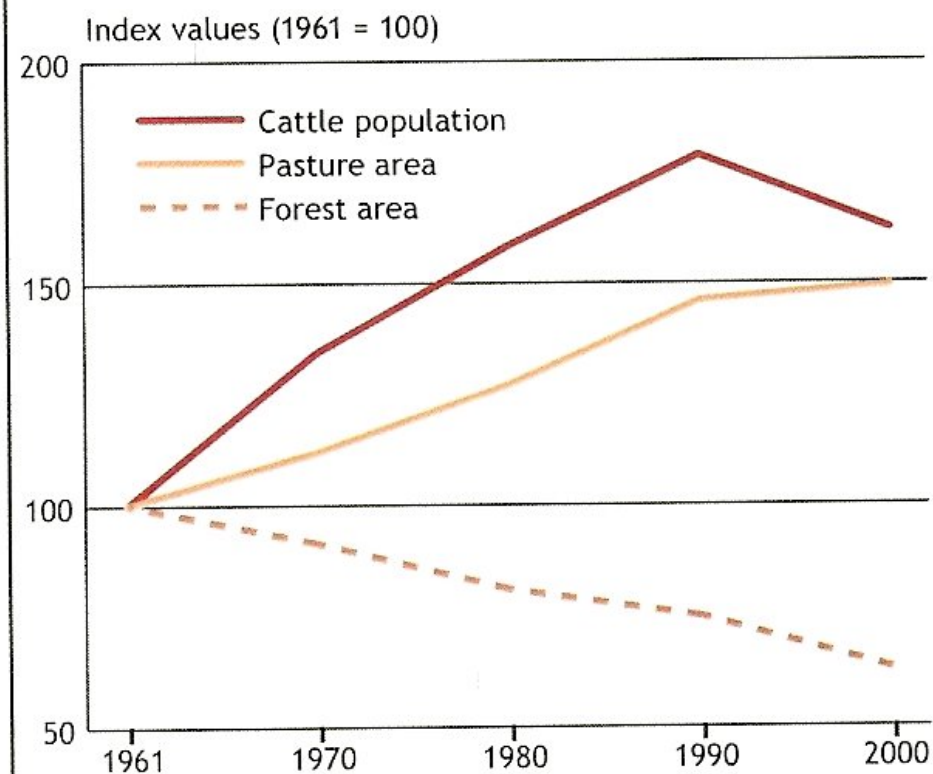


It takes 10 times as much farmland To produce a pound of animal protein compared to plant protein



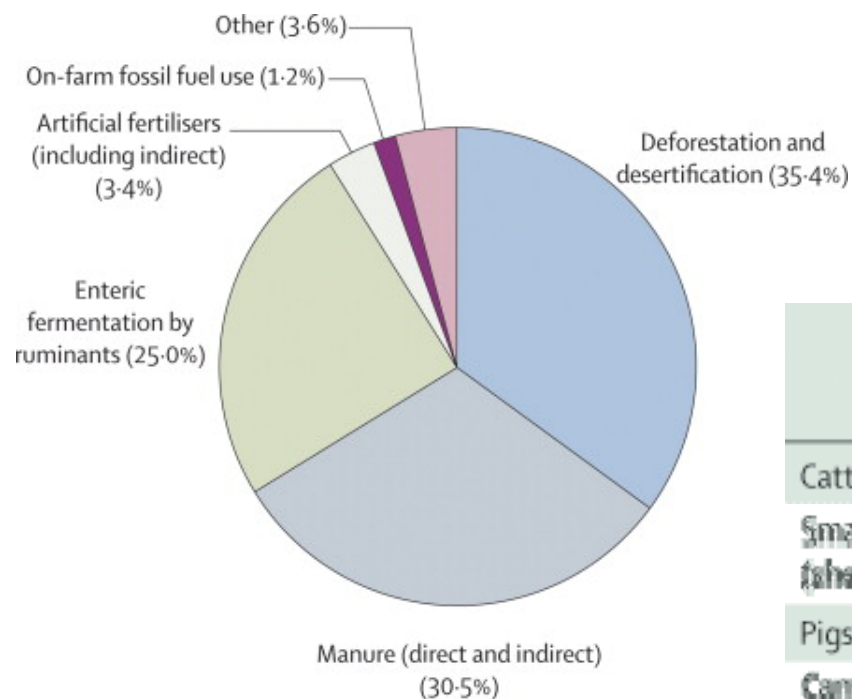
# Four decades of change in the forests of Central America

2 - Forest area, pasture area and cattle population in Central America, 1961-2000



Source: FAO

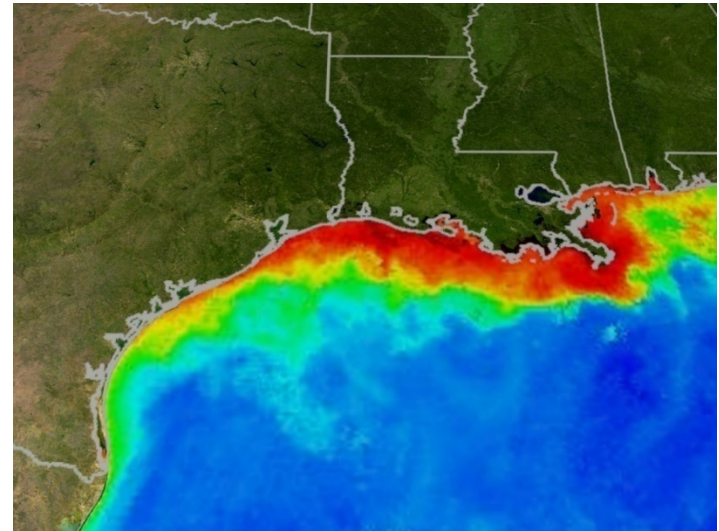
# Animal consumption and global warming



	Carbon dioxide (global, 2002)	Methane, enteric (global, 2004)	Methane, manure (global, 2004)
Cattle	1906	75 <sup>*†</sup>	8 <sup>‡</sup>
Small ruminants (sheep and goats)	514	9	0.3
Pigs	590	1	8
Camels	18	..	..
Horses	71	..	..
Poultry	61	..	1
Total	3161	86	18

# Factory Farms and Pollution

- Excess manure pollutes the Ground water
- Phosphorous and nitrogen in the waterways threatens aquatic life with the depletion of oxygen.





# Livestock in the USA

FAO: Livestock's Long Shadow, Rome, 2007

- 55% of erosion
- 37% of the pesticides applied
- 50% of the antibiotics used
- 32% of the nitrogen load and 33% of the phosphorous load into fresh water sources

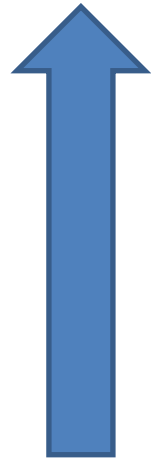
# Death attributable to anthropogenic climate change between 1970 and 2000, density equalizing cartoon

Lancet  
2008;372:1677



# Congruity of Science

1. Beef, cattle
2. Pigs, pork
3. Chicken
4. Fish



- Greater Health Risk
- Greater Environmental Damage
- More sentient

# Most environmentally Friendly?

**Range Feed beef in Mongolia**



**Feedlot in West Texas**



**More greenhouse gases**

# Choosing for animals might result in greater costs for the consumer



- Kleinpeter does not use rBGH and thus has a lower production per cow. Its milk costs more than \$1.50 per gallon compared to Borden

# Conclusions

## What to do?

Wilberforce and  
Broome:

III Treatment of  
Cattle Bill

1822

- **Personal** Eat more simply with smaller meat portion sizes: more fruits and vegetables
- **Cultural** Influence others by example and education
- **Legislative**
  - Human treatment laws
  - Just costs for meats impact