

GLOBAL ECONOMIC AND HEALTH CHANGE *PROBLEMS AND SOLUTIONS*




Barry Popkin

Department Of Nutrition

School Of Public Health And Medicine

Department Of Economics

The University Of North Carolina At Chapel Hill

THE  WORLD IS FAT “Over 1.6 billion people in the world are overweight”

Prevention Better than Cure

- There has been a shift in the causes of morbidity and mortality globally
- Rapid increase in the incidence and prevalence of non-communicable diseases
- Underlying causes: smoking, drinking, diet and lack of activity
- Focus: Obesity and diet, also shifts in physical activity.
- How do we proceed? Do we emphasize prevention now or face medical care costs in the future?
- Discuss the prevention options being considered in various countries

“Over 1.6 billion people in the world are overweight”



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Global Estimates of Diabetes

Measure	2010	2020
Adult population 20-79	4.1-4.3 billion	5.4-5.7 billion
Diabetes among adults		
Global prevalence	6.6%	7.8%
Number of adults	≈285 million	≈438 million
Impaired glucose tolerance (IGT)		
Global prevalence	7.9%	8.4%
Number with IGT	344 million	472 million

Sources: World Diabetes Federation, WHO

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Top 10 Countries According to Number of People Aged 20-79 with Diabetes, 2010 and 2030

Country/Territory	2010 Millions	Country/Territory	2030 Millions
1 India	50.8	1 India	87.0
2 China	43.2	2 China	62.6
3 United states of America	26.8	3 United states of America	36.0
4 Russian Federation	9.6	4 Pakistan	13.8
5 Brazil	7.6	5 Brazil	12.7
6 Germany	7.5	6 Indonesia	12.0
7 Pakistan	7.1	7 Mexico	11.9
8 Japan	7.1	8 Bangladesh	10.4
9 Indonesia	7.0	9 Russian Federation	10.3
10 Mexico	6.8	10 Egypt	8.6

Sources: World Diabetes Federation, WHO

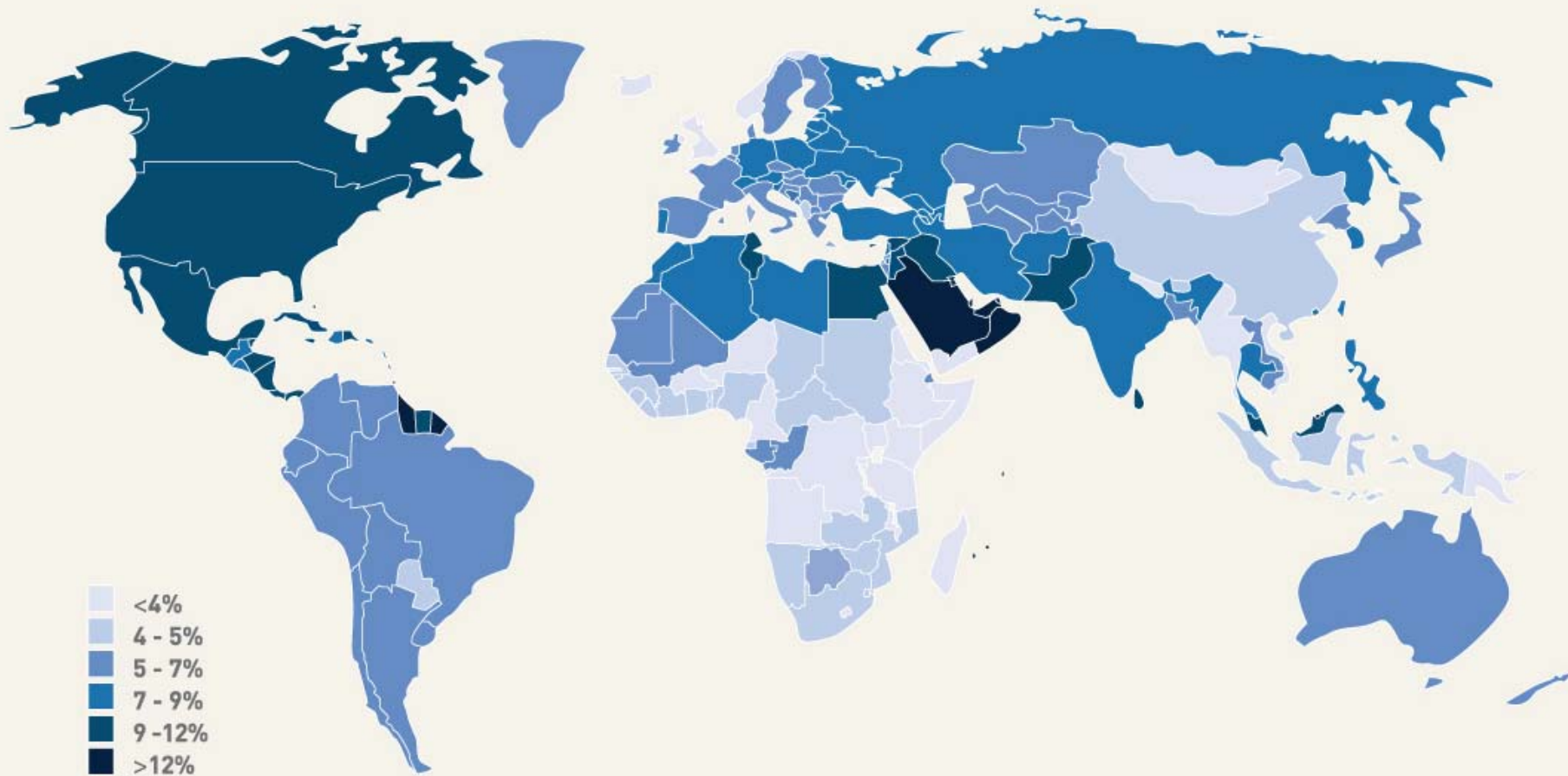
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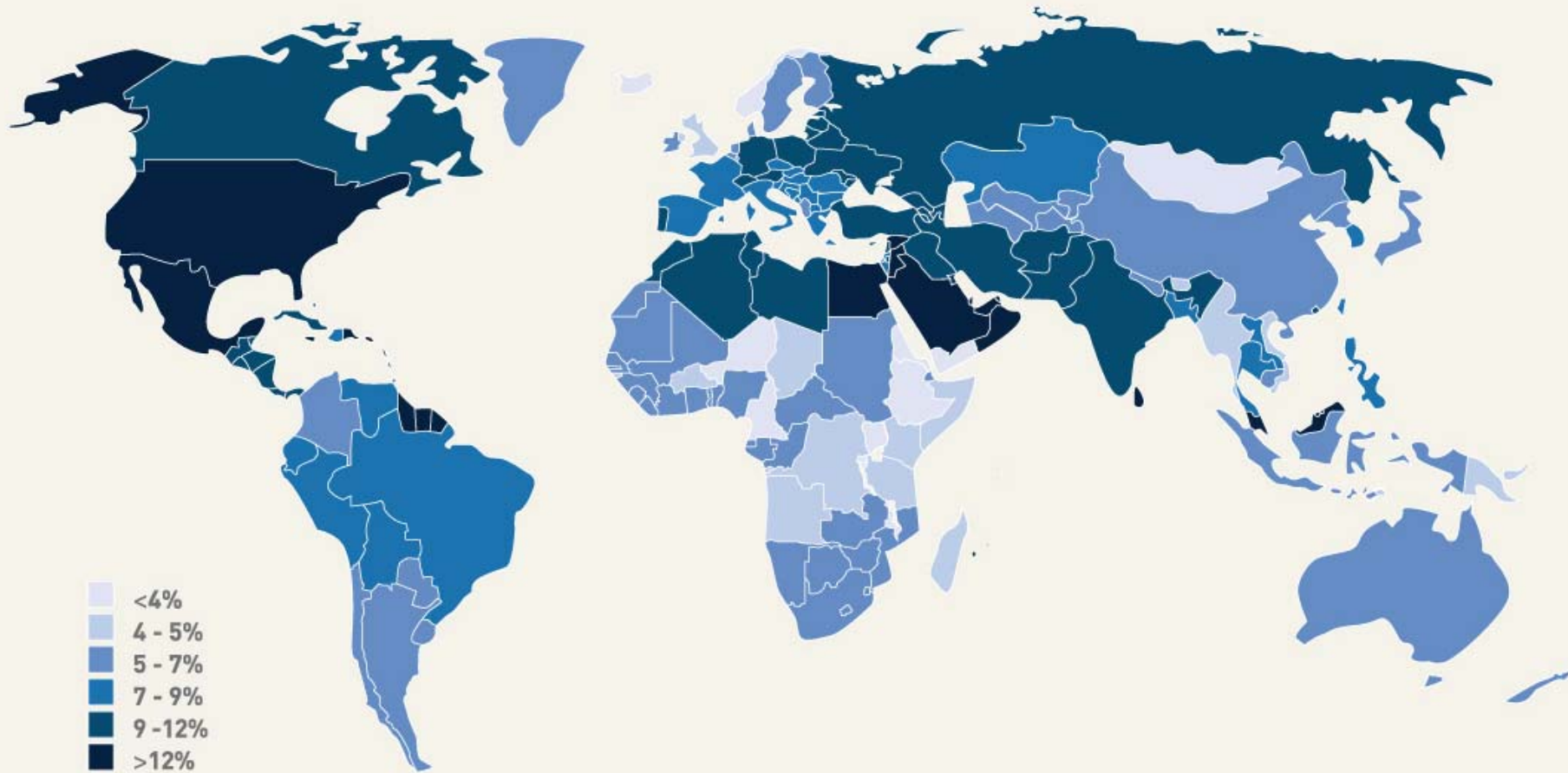
Prevalence of Diabetes among Persons Aged 20-79 in 2010 (percentage)



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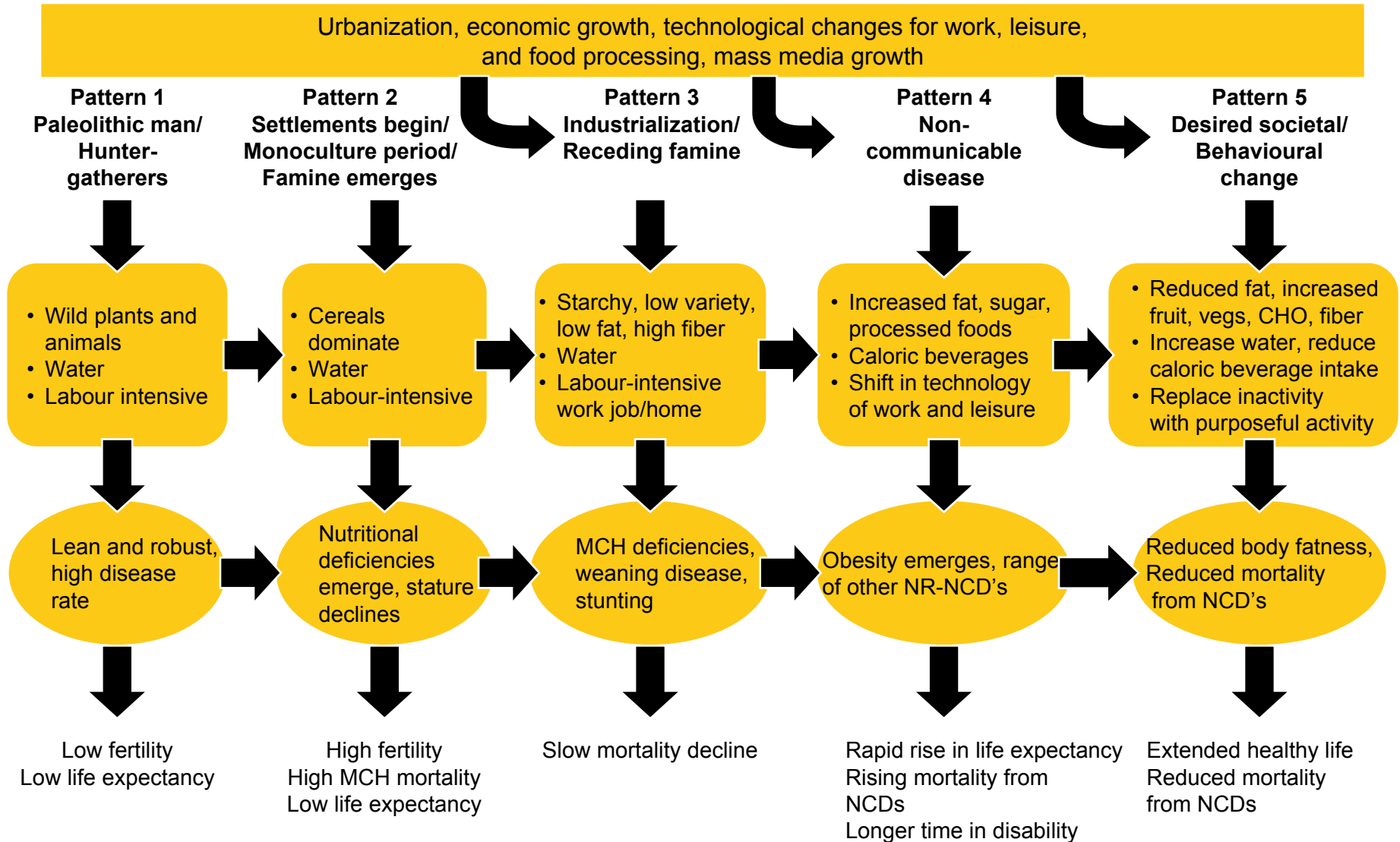


Prevalence of Diabetes among Persons Aged 20-79 in 2030 (Percentage)



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Figure 1. Stages of the Nutrition Transition



High-income vs. transitional and low-income countries

- In high-income countries, BMI has been increasing for a century, but the rise accelerated since the 1980s
- In most developing countries, there was minimal obesity until the late 1980's but rapid increases have occurred over the past 20 years
- Changes since the late 1980's have affected adults in all countries and regions: rich and poor, north and south, urban and rural
- Among children, the changes have universally occurred only in the past 10 to 14 years

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Mismatch: The biology that has evolved over millenia is ill adapted to modern technology and food supply

Biology	Technology
Sweet preferences	Cheap caloric sweeteners, benefits of food processing
Thirst, hunger and satiety mechanisms are not linked	Caloric beverage revolution
Fatty food preference	Edible oil revolution: High yielding oilseeds and cheap removal of oils
Desire to eliminate exertion	Technology reduces movement and exertion

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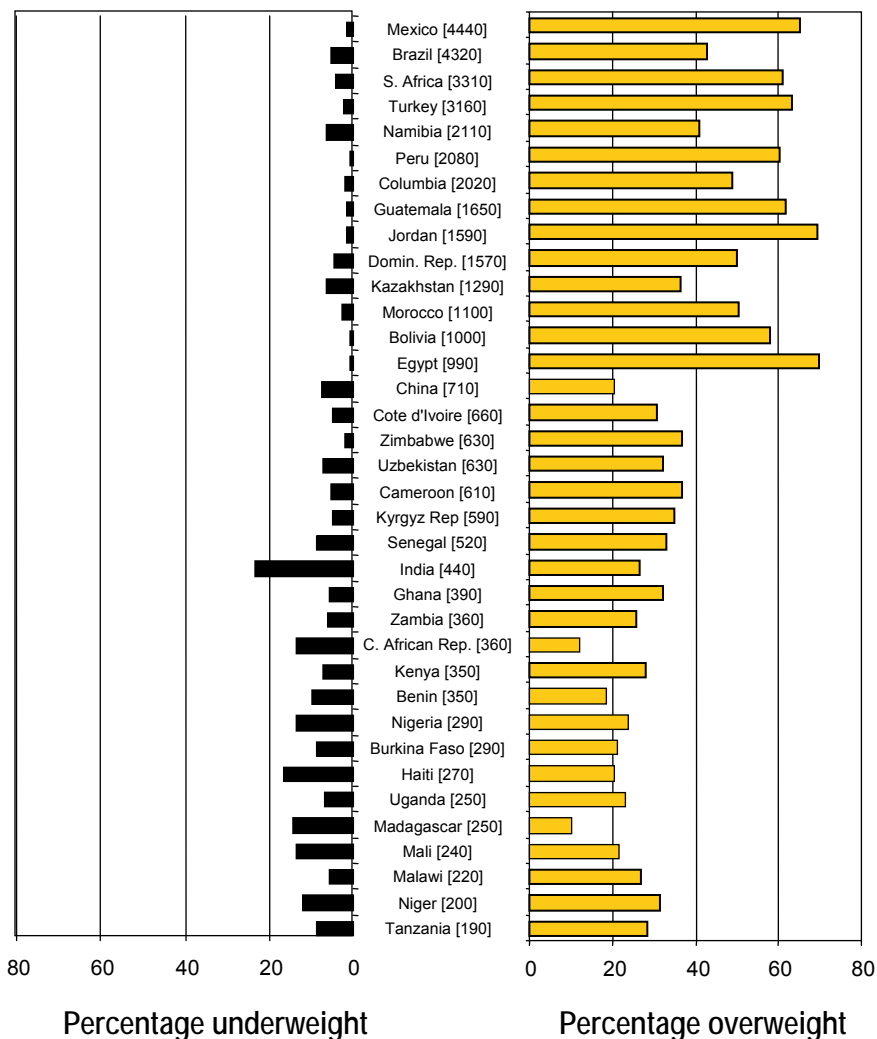
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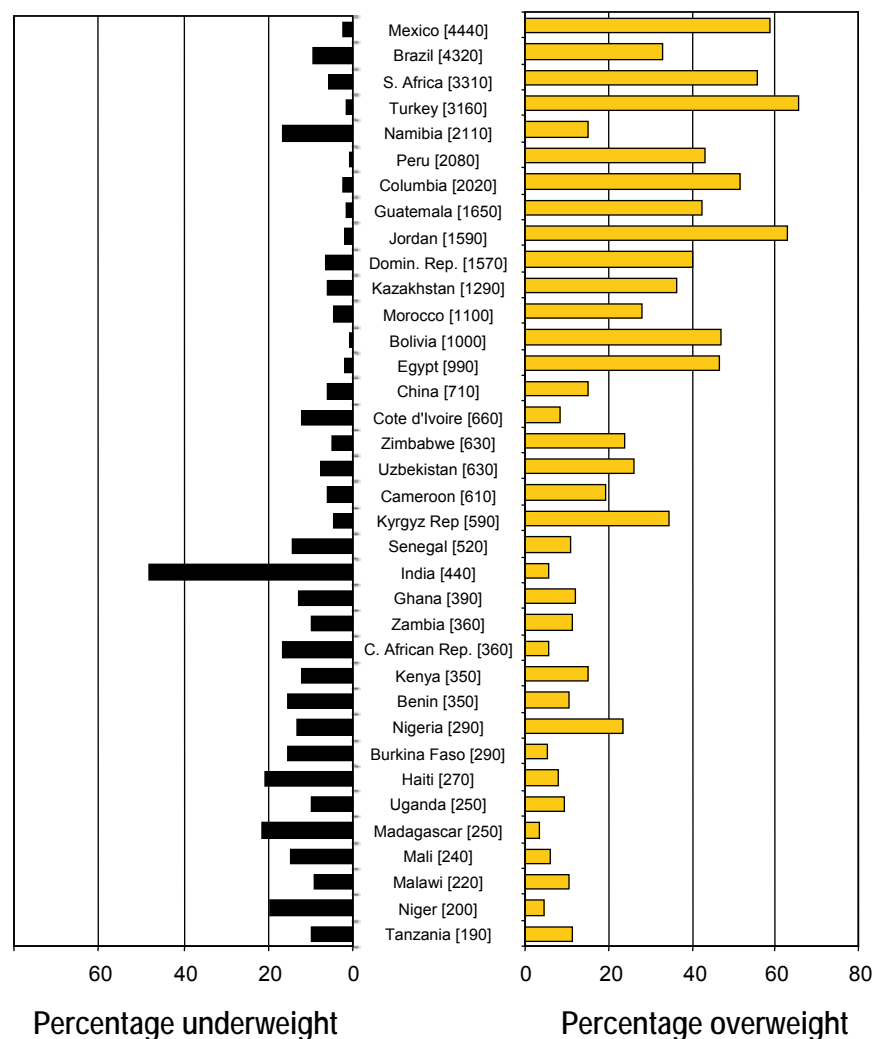
El 54% de los uruguayos tiene
sobrepeso u obesidad.

Prevalence of overweight and underweight in women aged 20-49 in 36 developing countries ranked by per capita Gross National Income around 2000

Urban Women



Rural Women

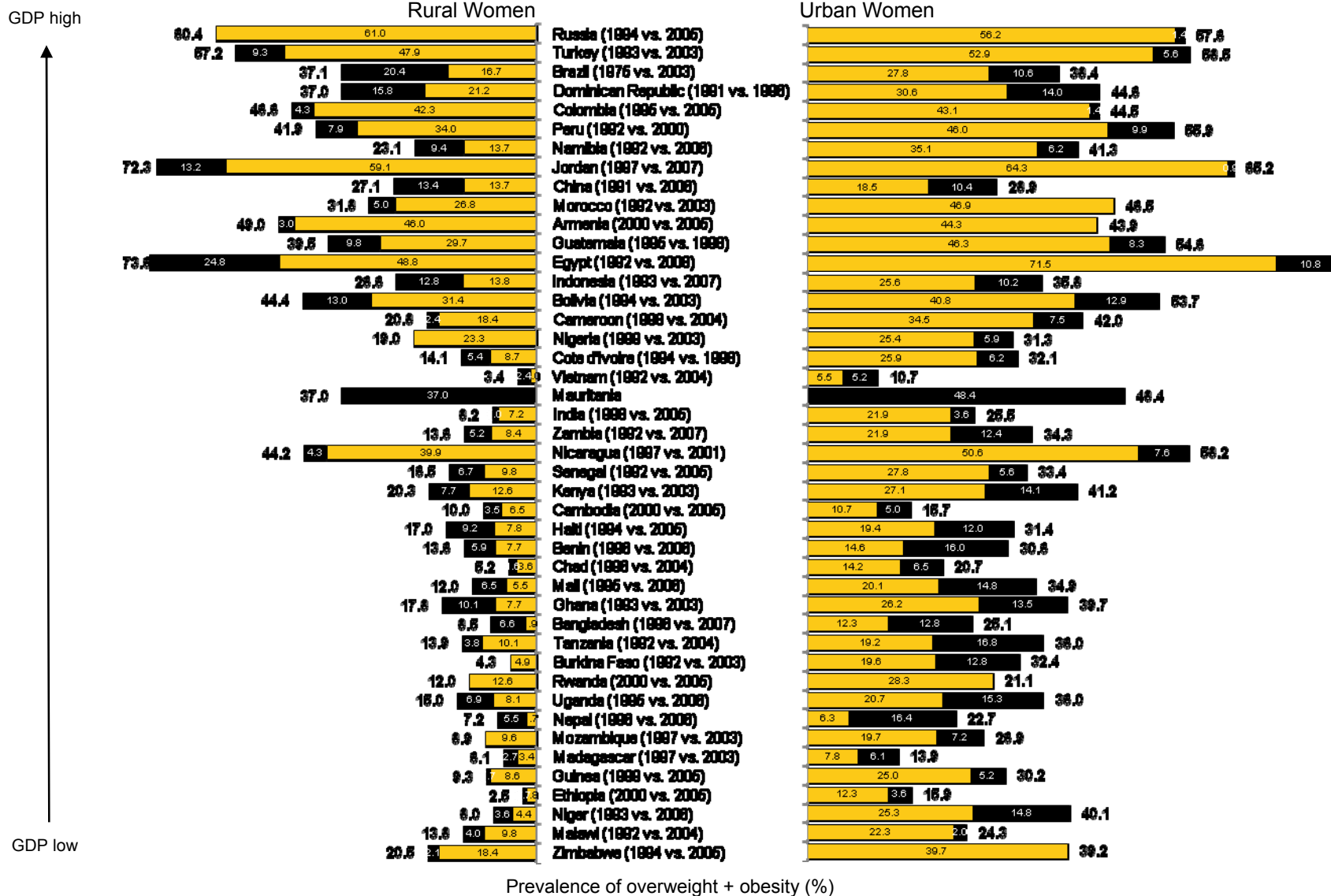


Overweight = BMI ≥ 25 ; underweight = BMI < 18.5 .

Mendez, Monteiro, Popkin (2005): AJCN

Current Prevalence and Changes in Obesity Prevalence Among Women in Middle and Low Income Countries Ranked by Gross Domestic Product (GDP)

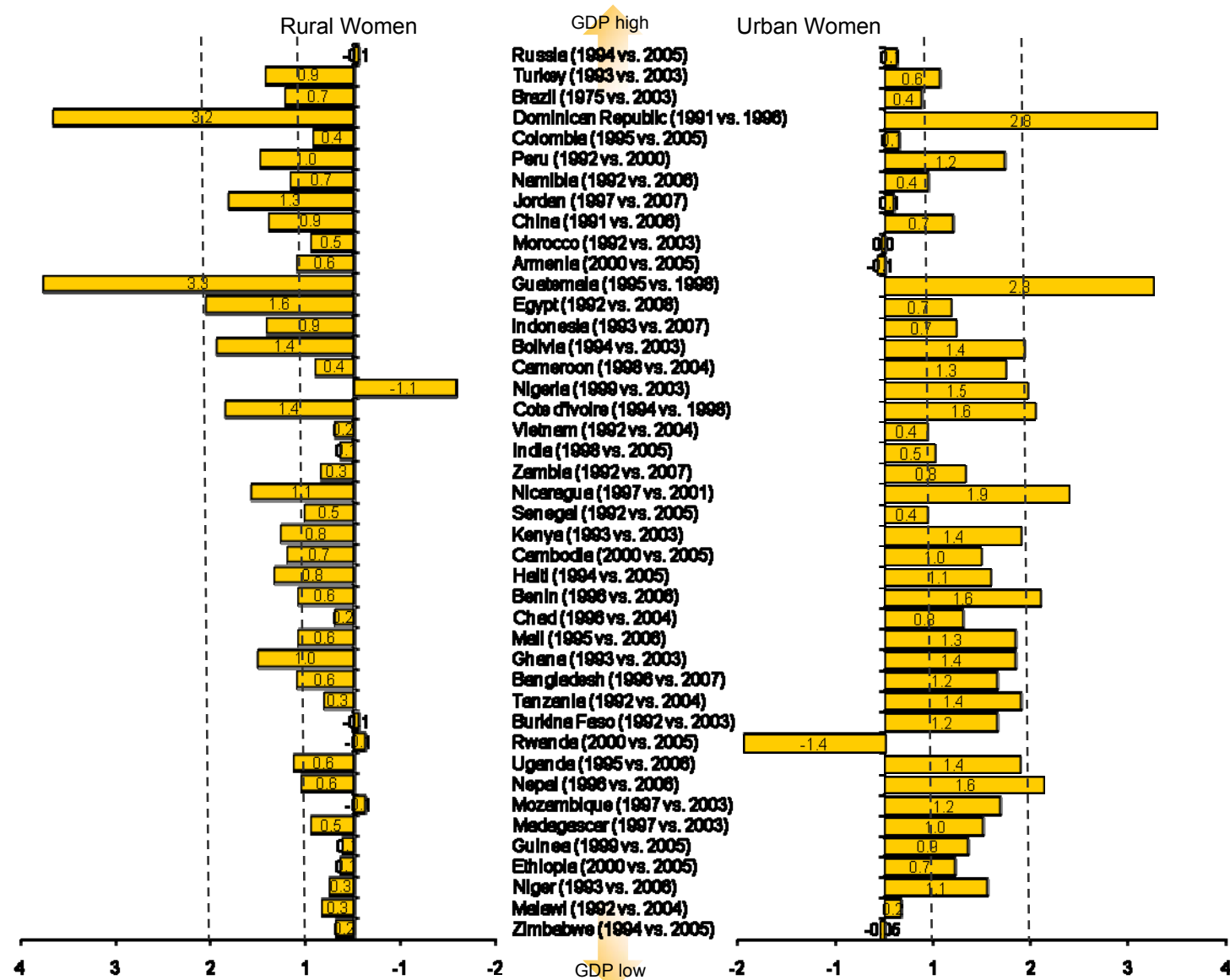
■ Baseline ■ Last Available Year



Ng, Jones-Smith and Popkin, unpublished not for us or quotation

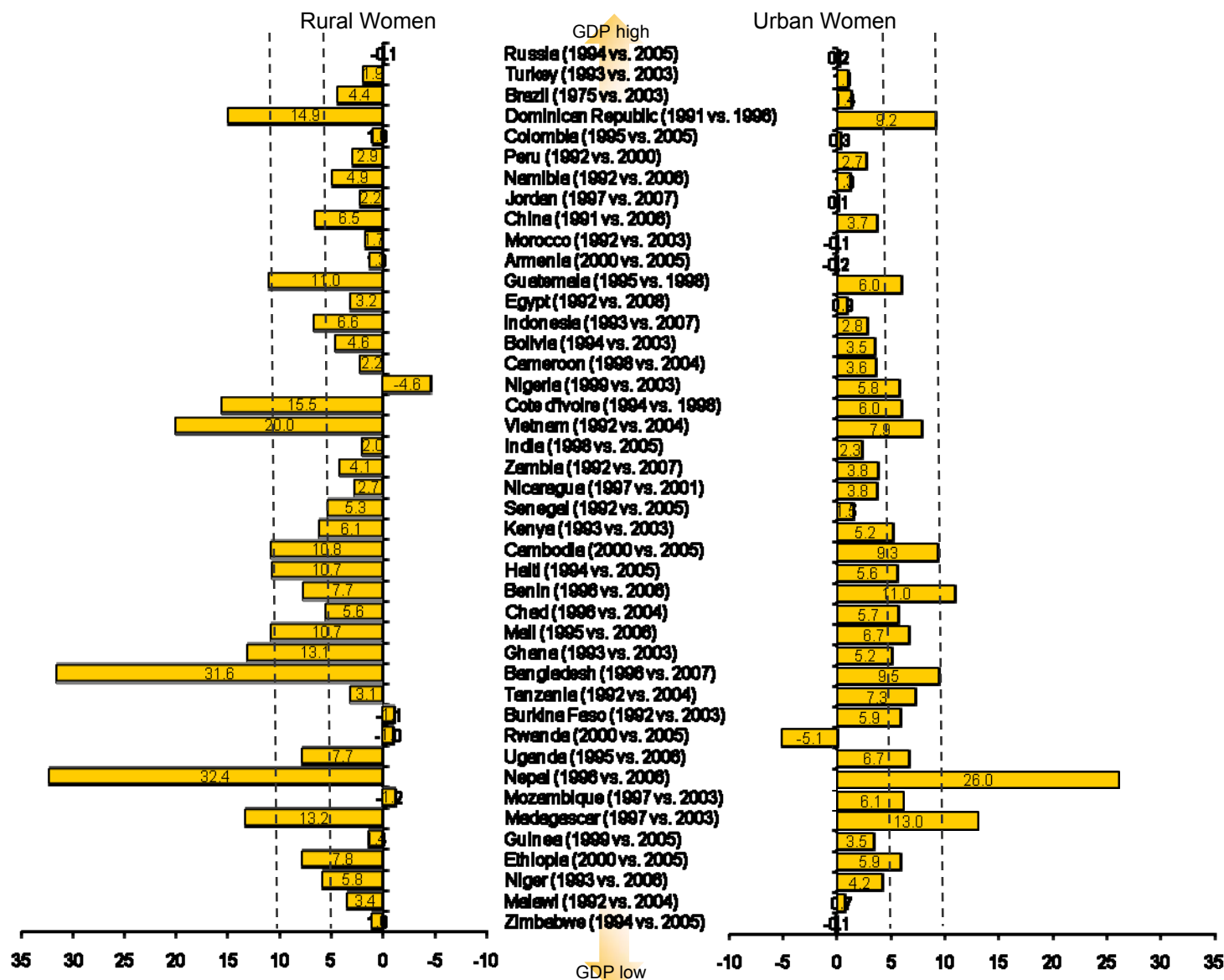


Absolute Annual % Point Change in Prevalence in Women in Developing Countries Ranked by Gross Domestic Product (GDP) Per Capita in 2009 Dollars

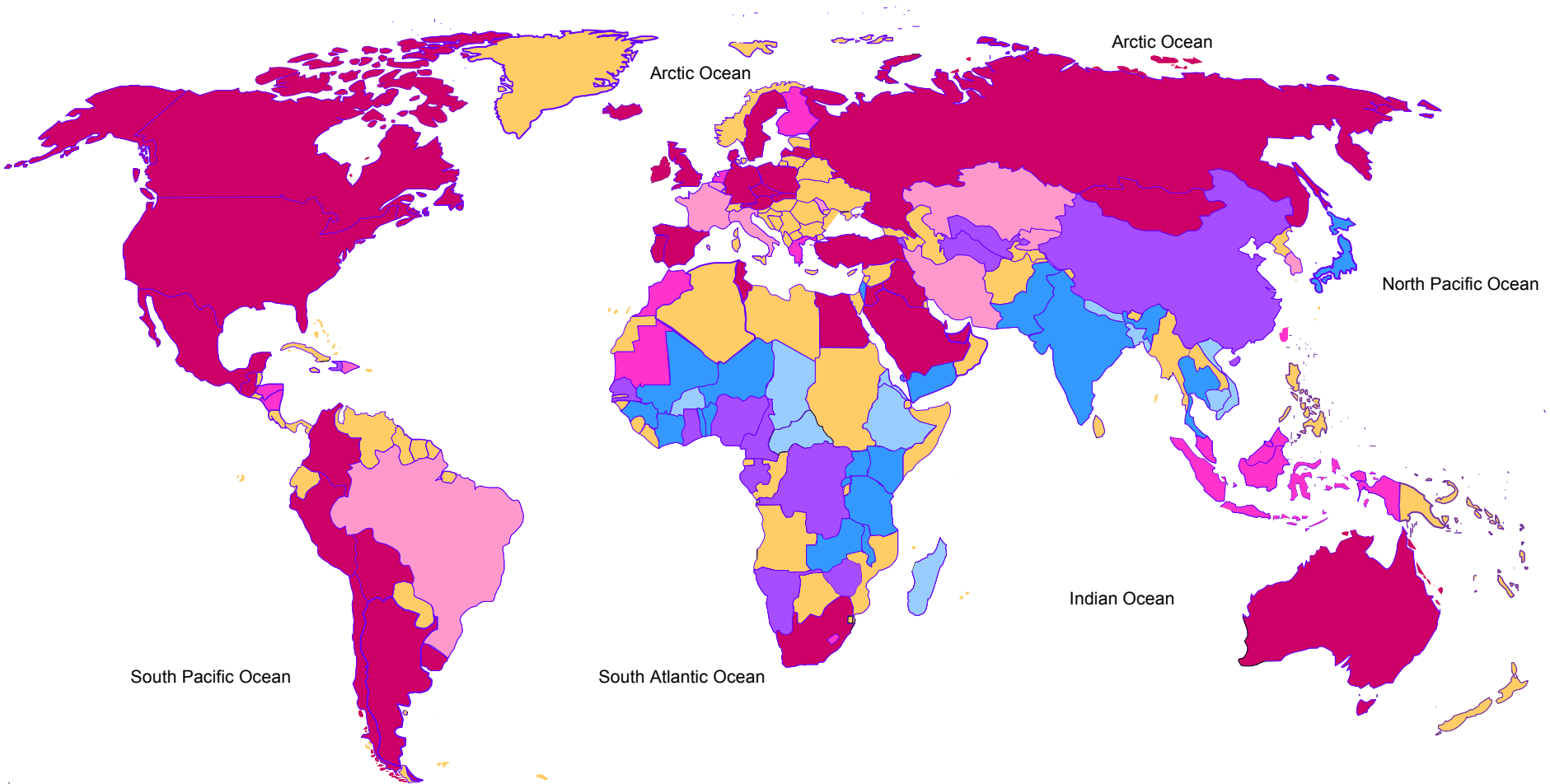




Relative Annual Rate of Change in Prevalence in Women in Developing Countries Ranked by Gross Domestic Product (GDP) Per Capita in 2009 Dollars



Percentage Overweight and Obese According to Nationally Representative Samples



What are the implications of eating food and drinking water on energy balance?

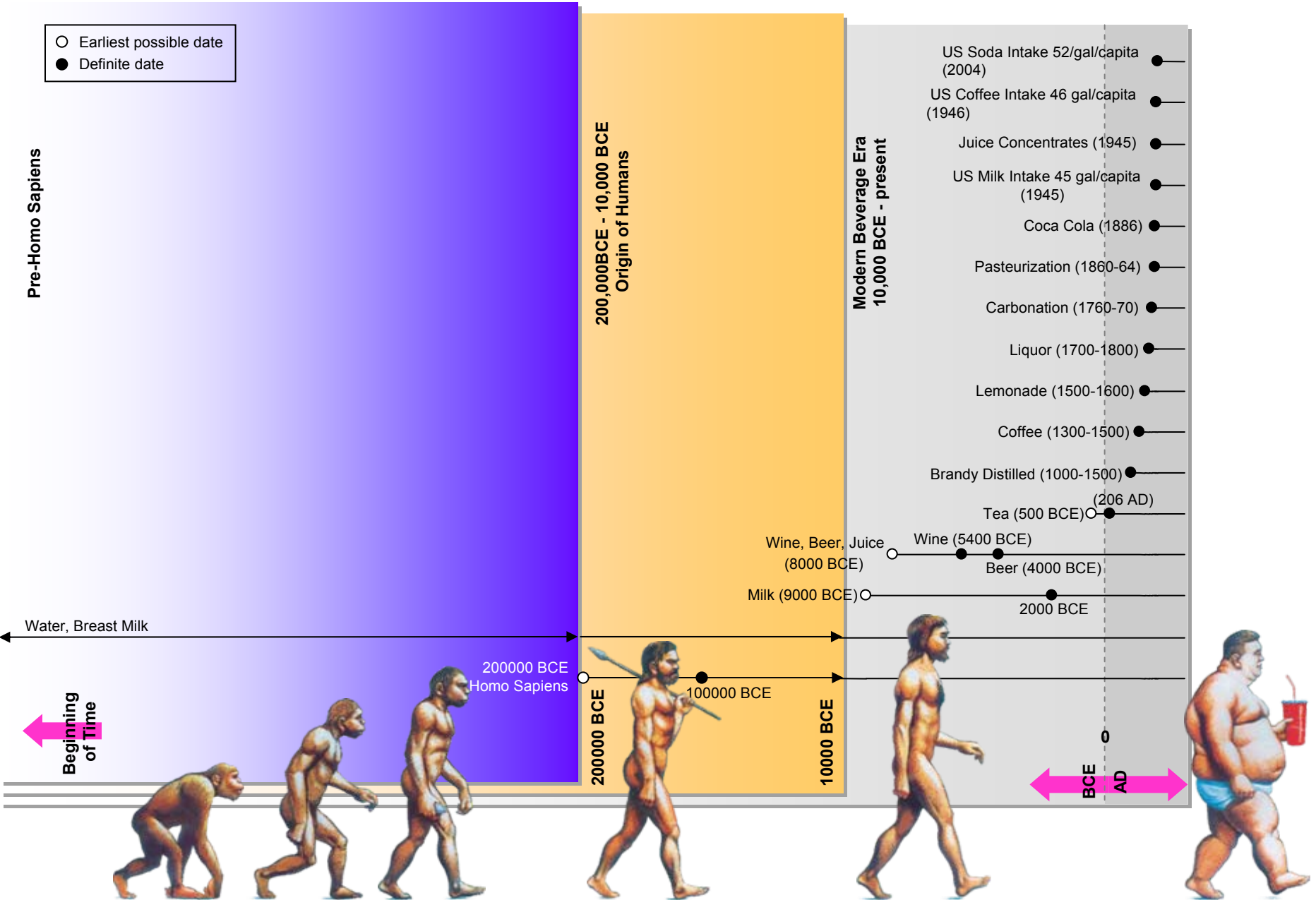
General Properties	
Food	Water
Hunger – Feeding Sensations that promote attainment of minimal food energy needs	Thirst – Drinking Sensations that promote attainment of minimal hydration needs
Energy Excess Stored	Water Excess Excreted
Energy Deficit: Die in 1-2 months	Water Deficit : Die in 3-7 days

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The history of caloric beverages is remarkably short: Might the absence of compensation relate to this historical evolution?



Global trends in beverage intake patterns

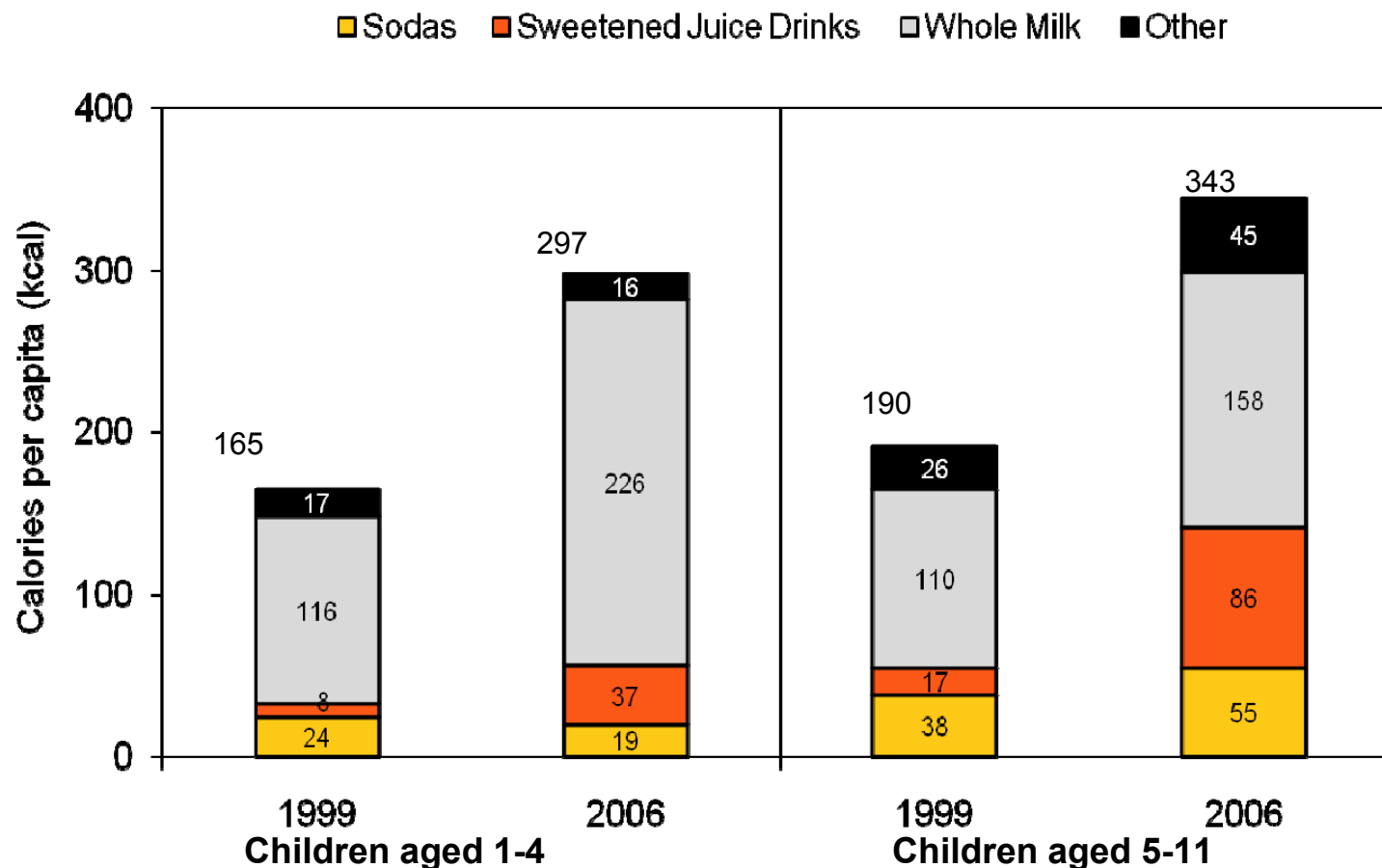
- The published data on the issue are minimal
- Increased caloric beverage intake is found in all countries having good data.
- Major increases in calories in all the Americas, Europe, North Africa and the Middle East, all of Asia. Great variability in the patterns exists

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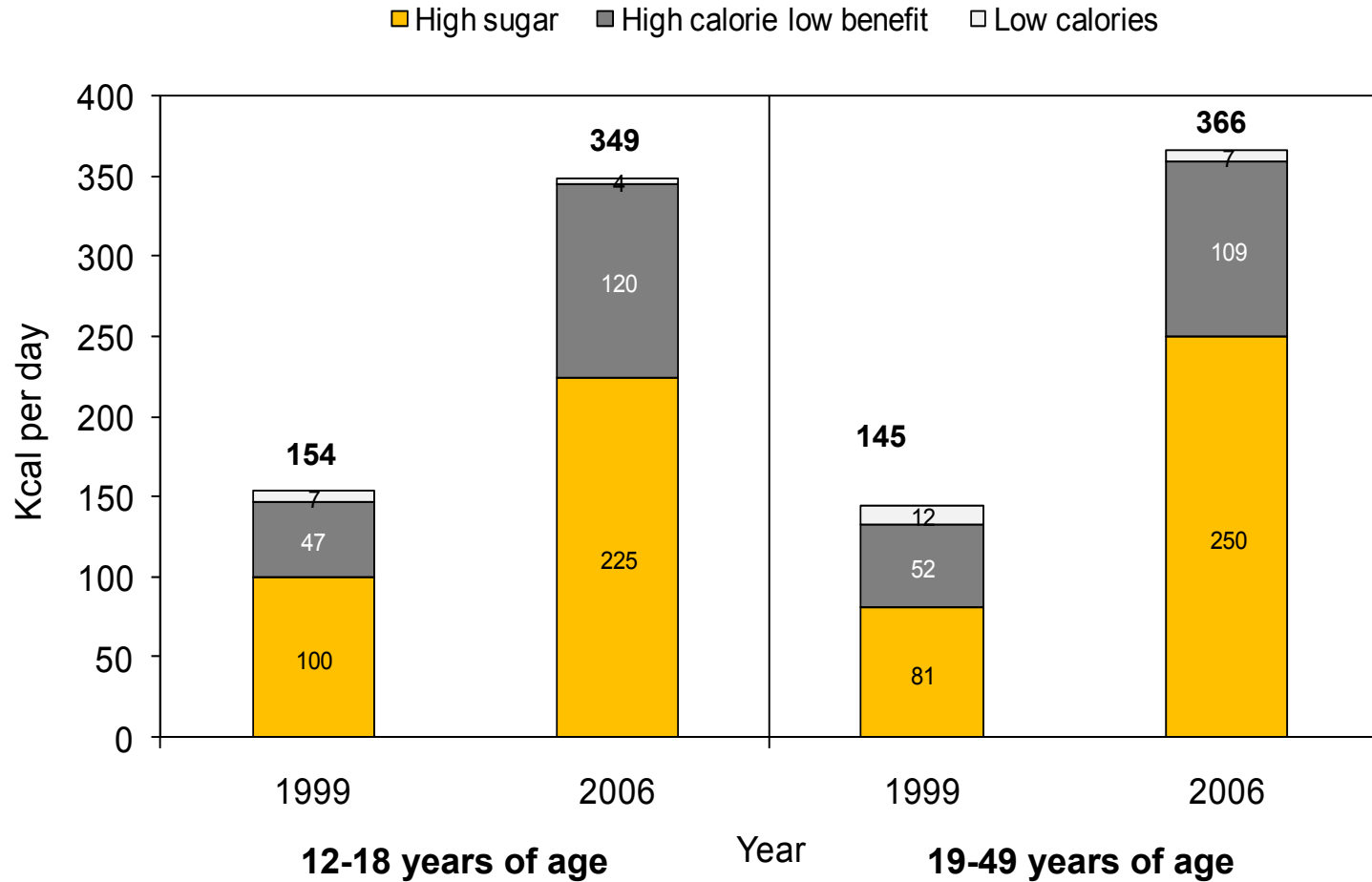
Daily Beverage Consumption Trends Among Mexican Children, 1999-2006



Note: Sweetened juice drinks include 100% fruit juice with sugar added and agua fresca (water, juice, sugar). Sodas include carbonated and noncarbonated sugar bottled beverages.

Source: Barquera et al (2008) J Nutr 138: 2454-61.

Beverage consumption trends among Mexican adolescents and adult women, 1999 and 2006



Note High sugar is composed of mainly soft drinks, sweetened juices, agua frescas and alcohol.

High calorie and low benefit is mainly whole milk. Low calories are slightly sweetened coffee and skim milk

Source: Barquera et al (2008)J Nutr 138: 2454-61.

Water and Health

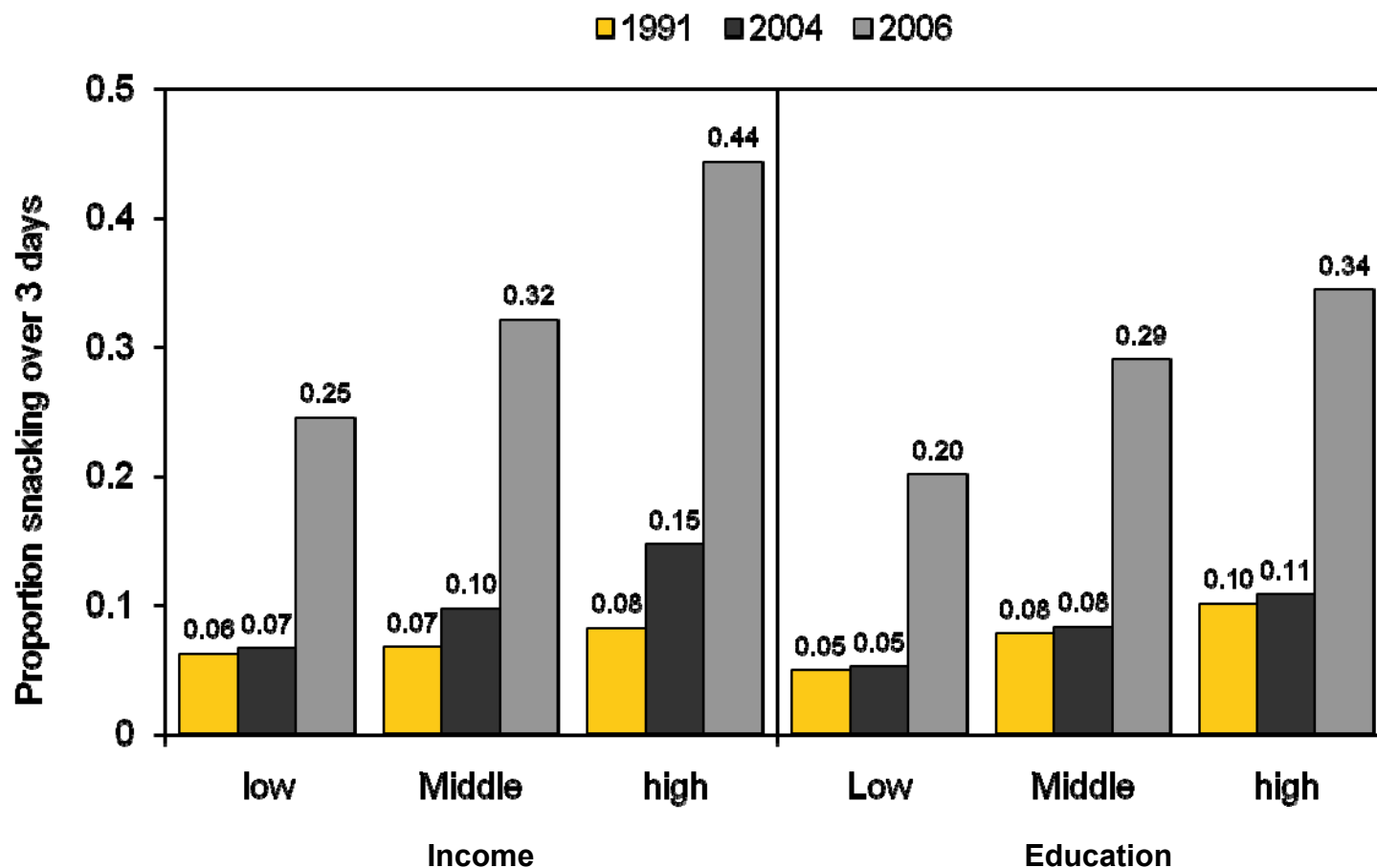
- Four epidemiological studies suggest that replacing caloric beverages with water would reduce over 200 kcals
- A controlled trial in Germany found that replacing vending machines for caloric beverages with filtered water fountains **and** water education reduced the risk of overweight by 31%
- A small study in Britain found that education alone reduced caloric beverage consumption and led to about an 8% difference in the prevalence of overweight
- One systematic review suggests water has unique benefits

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The Likelihood of Snacking Across All Individuals Aged 2 and Older, China 1991-2006



Source: CHNS 1991,2004 and 2006; Adjusted for income, education, urban, gender and age (2-18,19-59,60+) Zhihong Wang et al (2008) Asia Pac J Clin Nutr 17:123

Consumption of edible oil is still rising in China (daily grams per capita)

Year	1989	1997	2006
Poorest (lowest income tertile)	11.8	26.5	30.8
Middle income tertile	15	29.7	30.9
Richest (highest income tertile)	17.4	31.3	30.9
Average for total adult population	14.8	28.9	30.9
<i>Percentage of all calories from edible oil per capita</i>	4.9	11.2	12.4

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Price elasticities for demand of meat:

Price policies are a great option!

	Urban China 2000	All China 1990	Republic of Korea 1985	Republic of Korea 1962-1992	Morocco 1969-1985
Beef	-.90	-1.04	Livestock -.68	-.49	-1.63
Pork	-.21	-.98		-.57	NA
Poultry	-.75	-.53		-1.07	-1.26
Fish	-.37	-.81	NA	-.34	-.17

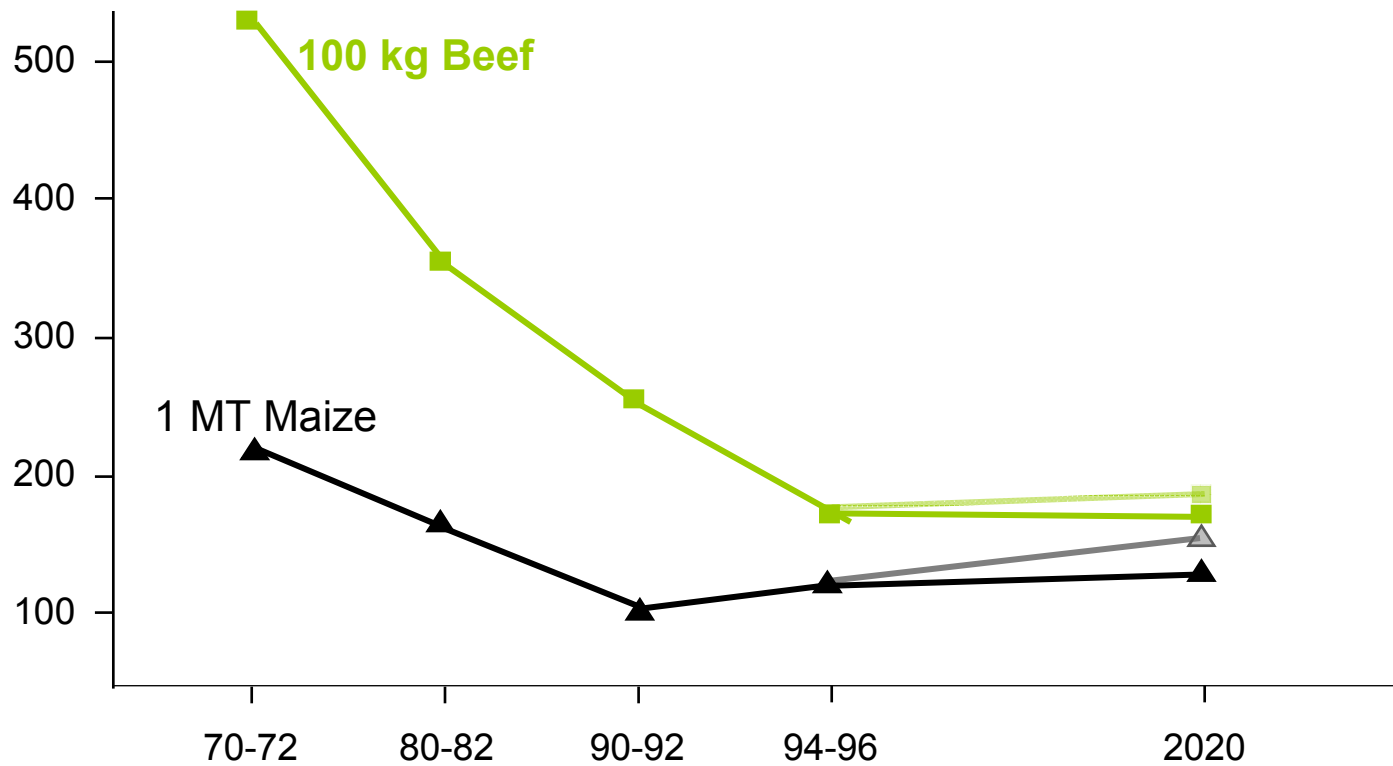
AIDS Demand Models Various Sources cited in Delgado & Courbois 1998; urban China 2000 figures from Yen, et al. 2004; S. Korea 1985 figures from Cranfield et al, 1998

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Real world prices in 1990 US Dollars



Increasing physical inactivity

- Shifts in the composition of occupations and the activity within each occupation
- Shifts in production at home: new assets, reduced time in all activities
- Shifts in the ways we travel
- Shifts in leisure



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From Traditional to Modern Household Production



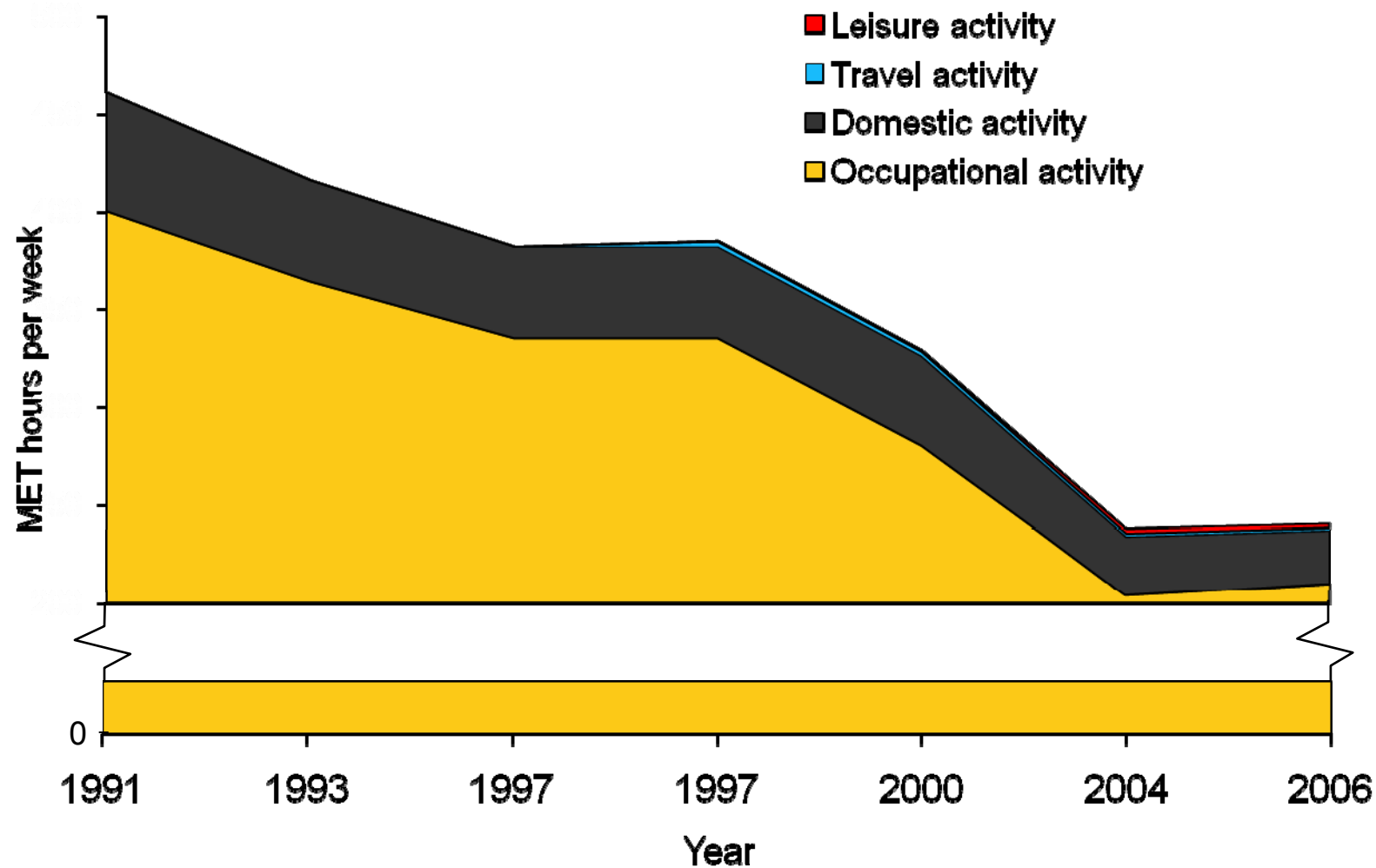
From Traditional to Modern Economic Work at Home



From Traditional to Modern Leisure



Shift in MET Hours per Week by Type of Activity Among Chinese Women Aged 18-55



Source: Ng, Norton, Popkin (2009) SSM 68: 1305-14.

The Diabetes Prevention Programme

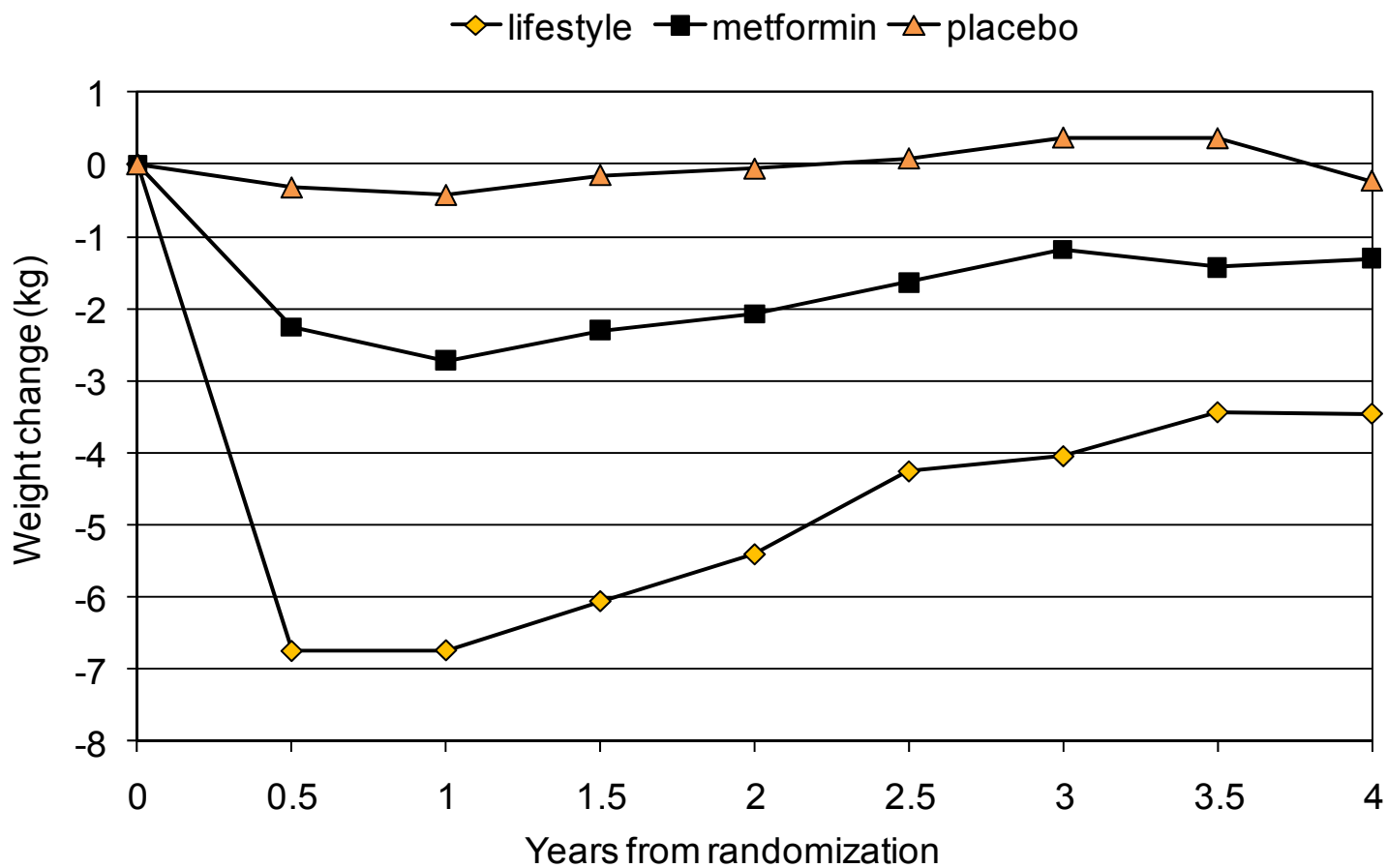
A randomized clinical trial testing several interventions to prevent type 2 diabetes in persons at high risk, which has been duplicated in four countries

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Mean Weight Change



Foresight Obesity Project

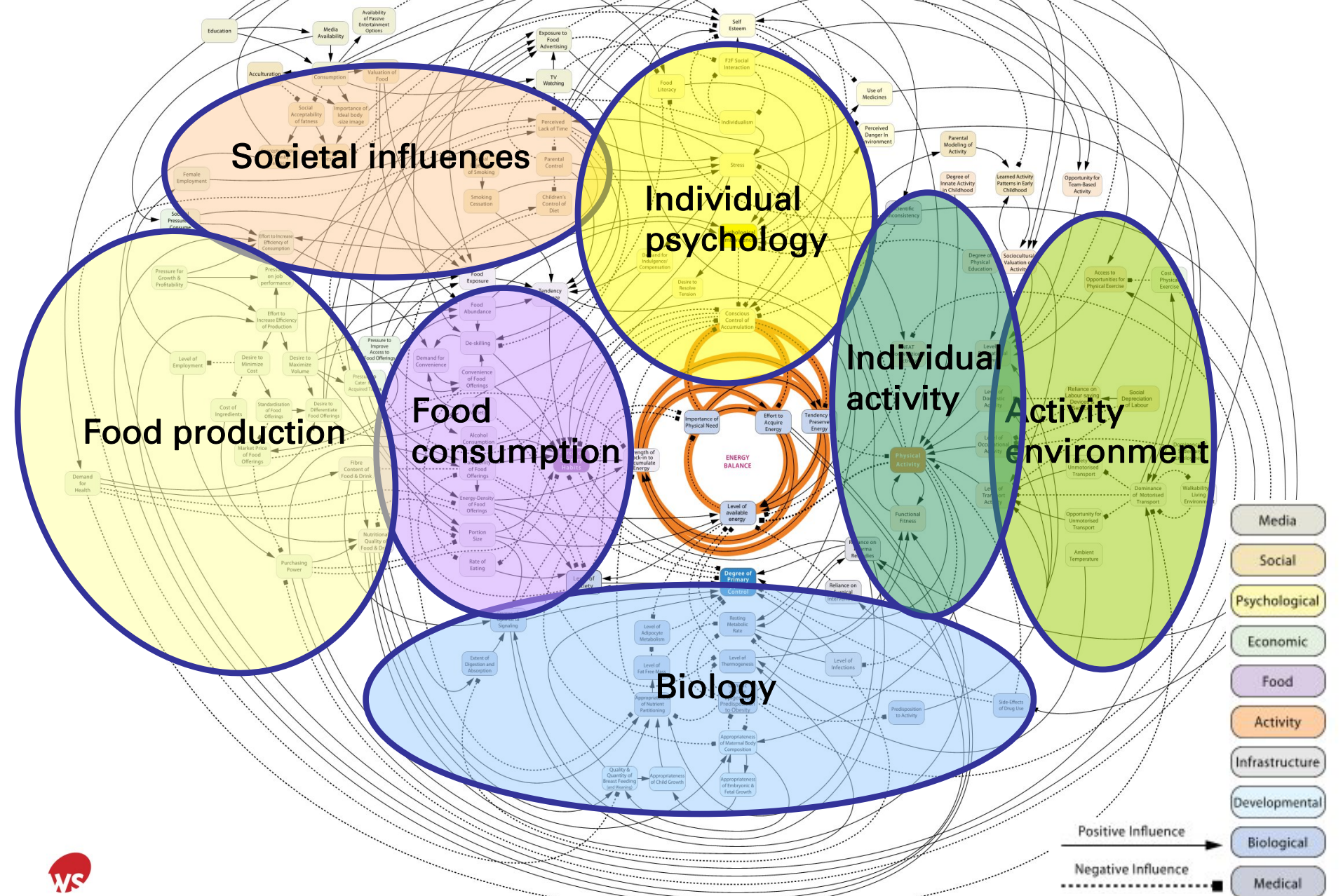
Tackling Obesity: Future Choices

Led by Prof Sir David King, Government Chief Scientist



To produce a long term vision of how we can deliver a sustainable response to obesity in the UK over the next 40 years

Full Generic Map



A £372m Investment in Tackling Obesity

Children

- National programme to **weigh and measure all 4 and 11 year olds**
- **Ads for unhealthy food banned** around children's TV and other media

Healthier Food

- Widespread **front of pack labelling** on food in stores
- Powers to **restrict proliferation of fast food restaurants** near schools and parks
- Project to supply **fresh fruit and vegetables in stores in deprived areas**

Physical Activity

- ***Be Active, Be Healthy* National Physical Activity Plan** setting the goal of increasing activity in 2 million more adults by 2012
- £30m invested in nine '**Healthy Towns**,' which lead the way in improving the built environment

Incentives & Workplace

- **Business HealthCheck Tool** to promote **boardroom reporting** of staff health and wellbeing; get 75% of large firms to sign up

Personal Advice & Care

- £66m in **local allocations** to support local action on overweight and obesity
- National contract of **child weight management** providers
- All **adults aged 40-74** to have **BMI assessed** as part of vascular risks

And by leveraging wider policies and funding on prevention e.g. for children

Schools

- All schools have a **legal duty to promote pupils wellbeing**, including health
- School **assessment** takes account of wellbeing indicators
- The voluntary **Healthy Schools Programme** is very popular with heads: 98% of schools participate, 75% have been accredited

Healthier Food

- £650m 2005-11 to support food and nutritional standards for **food in schools**
- Growing popularity of **breakfast clubs** as part of schools extended services
- **Cooking is compulsory** in primary schools

Physical Activity

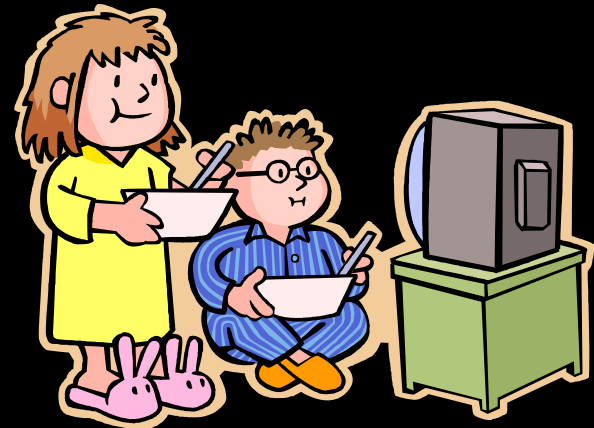
- £783m 08-11 to support **PE/Sports Strategy** – 5 hours per week
- £235m 08-11 to create/regenerate **3,500 play spaces** in parks/public spaces
- **Cycling/school transport**

Early Years

- New national **Sure Start Children's Centres** – one-stop shop for advice on parenting, health, childcare, employment (full network of 3,500 by spring 2010)
- Developing authoritative, evidence-based **messages on eating and active play for children under five**
- **Healthy Child Programme** for children under five

Existing Laws and Regulations

- The United Kingdom has banned TV commercials for less-healthy foods aimed at children under 16.
- France has a complete ban on such on less-healthy food commercials



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Existing Laws and Regulations

Epode anti-obesity campaigns in small towns in France



- Information disseminated through public meetings, media coverage, posters, pamphlets
- Training for health professionals and teachers
- School and town activities that promote healthier eating and physical activity

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Existing Laws, Regulations or Programmes

School bans on soft drinks, either by law or by agreement with companies, are in effect in some states of the United States and in Australia, France, UK, Greece, Iran, Japan, Malaysia, and New Zealand.

Diet and sports drinks are allowed in some countries

Juice is banned in a few countries, expansion expected

Whole milk is being replaced with reduced fat milk (nonfat or 1%) in many countries



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Existing Laws and Regulations

France requires that government nutrition messages are included in all food ads on TV



- Captions are used for food ads geared to adults and verbal announcement for ads aimed at children OR
- The company must pay the government 1.5% of the cost of advertising time, which the Government uses for educational messages on nutrition

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The orientation of the agricultural-food sector may be the key to food policy

- In the 1880's: First research stations on sugar were set up.
- Slow evolution of research, subsidies and funding but its underpinnings emerged over the 20th century
- In Japan, the Republic of Korea, Europe and the US, the big agricultural sector focused on basic staples and animal-source foods for economic well-being, nutrition, and employment. This approach continues across the globe
- Despite shifts and changes in trade and internal subsidies across the globe, the same orientation prevails

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Economic Policies Might Work

- Examples show the potential
- However, there are no examples where taxing unhealthy foods show an effect on diet or other measures of health
- Taxes have been shown to reduce the consumption of tobacco

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Mexico's Initiative on Beverages

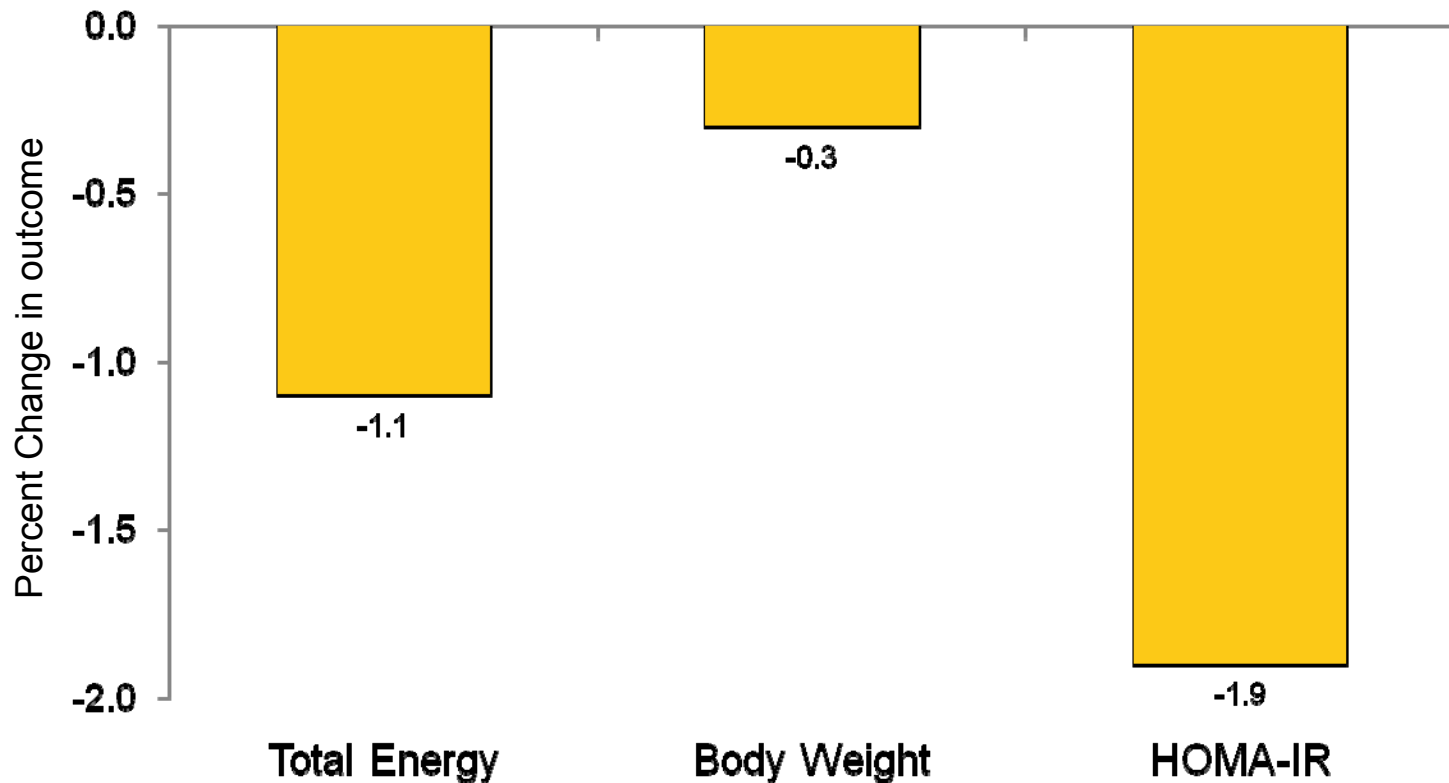
- In government programmes, Mexico has stopped using whole milk, uses only 1.5%-fat milk and will shift fully to skim milk
- In schools, sugar-sweetened beverages are banned, safe drinking water is provided and the sale of water and low-fat milk is allowed
- Mexico is considering taxing added sugars in beverages per gram and fat in milk
- Source: Rivera et al, *Salud Publica*, Mexico, 2008, 50:173-195

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US example: similar ones from Mexico and the UK now. Adult health significant improvement with a 10% change in the price of soda



Source: Duffey et al, Archives of Internal Medicine, 2010

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Consequences of China's Accession to WTO

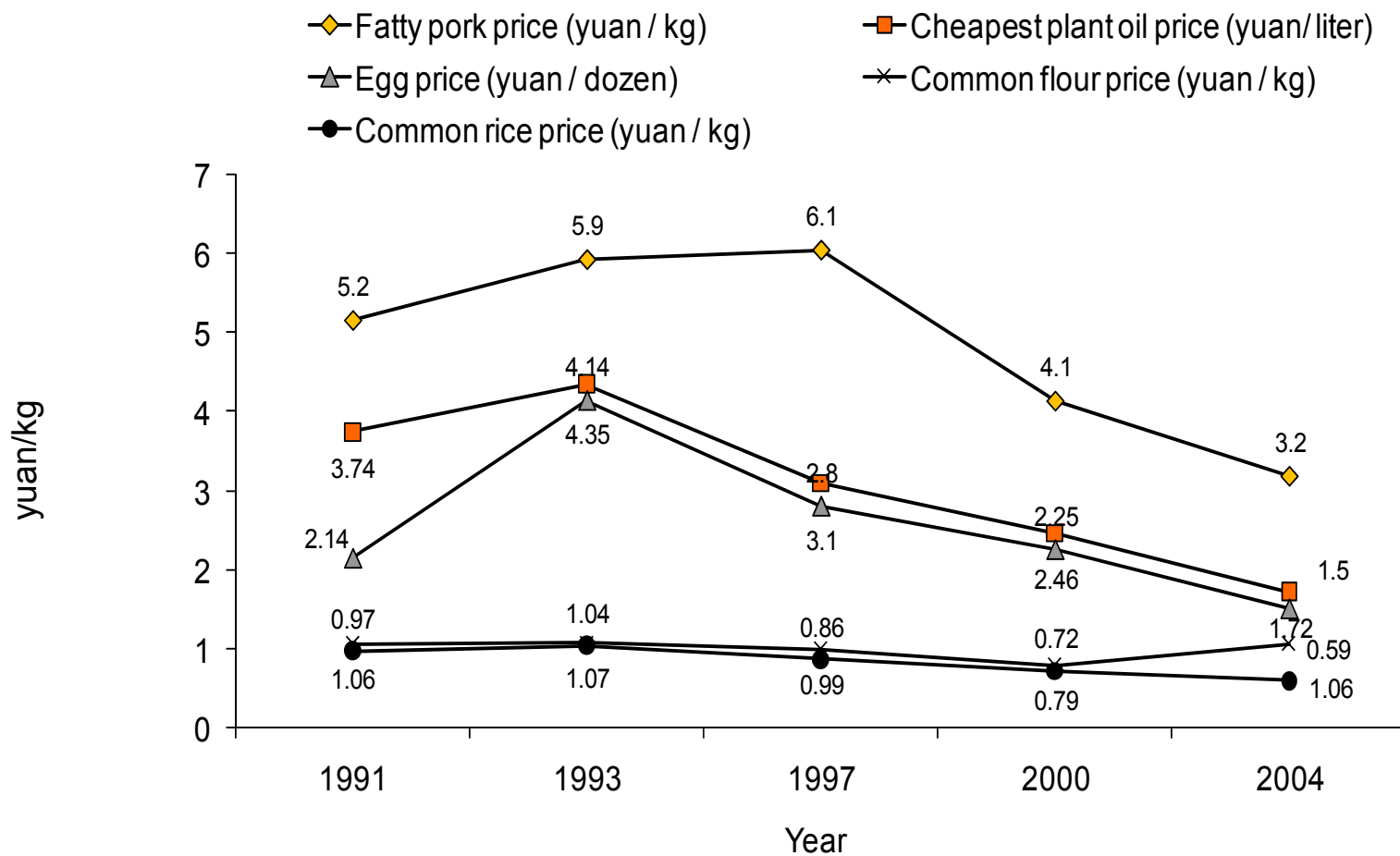
- China eliminated a quota and replaced it with a 10% tariff
- The production of edible oil began to compete with imports, the number of factories fell by half and a transition to modern huge factories is ongoing.
- Imports are still very important and expected to rise
- The decline in prices of edible oils will accelerate with imports
- These changes portend large increases in oil intake

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Real prices of selected food items, China, 1991-2004



Source: China Health and Nutrition Survey 1991 to 2004

The Global Food Industry

- The global food industry is **NOT** as omnipresent as believed. In almost all countries, at least 50-60% of all processed foods are locally produced.
- **The good:** Global produces have great technology, are willing to make changes and have the means to do so. But, there have not yet been major reductions of kcal.
- **The bad:** Without government regulations, truly meaningful agreements are not possible.
- **The ugly:** The multitude of local unfettered manufacturers or small regional distributors

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Label on the Front of the Package

- There are a number of initiatives across the globe
- UK: traffic likes Generally good but some confusion
- Mexico: Choices International type of front logo-- being worked out under scientific and government leadership
- Europe(several countries such as Netherlands, Poland), Israel, India, other countries: Choices International is implemented partially or fully

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Nutrition Criteria by Category

- ***Nutrients that should be limited:*** Total fat, saturated fat, trans-fat, added sugars and added sodium
- ***Nutrients that should be promoted:*** Whole grains (Europe, Mexico)
- ***Food groups to promote:*** Fruits, vegetables, whole grains, legumes, fat-free/low-fat dairy

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Summary

- Concern of major increases in potentially obesity-promoting eating and drinking behaviors
- Concern continued increase, even acceleration of obesity among the poor
- Government actions are spotty and selective in most countries and many ignore this issue
- Food policy. Many major concerns but food policy too often ignores health and development concerns
- Food industry: focus typically is on the global multinationals. Need more research and understanding of the vast array of domestic companies

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