Childhood obesity

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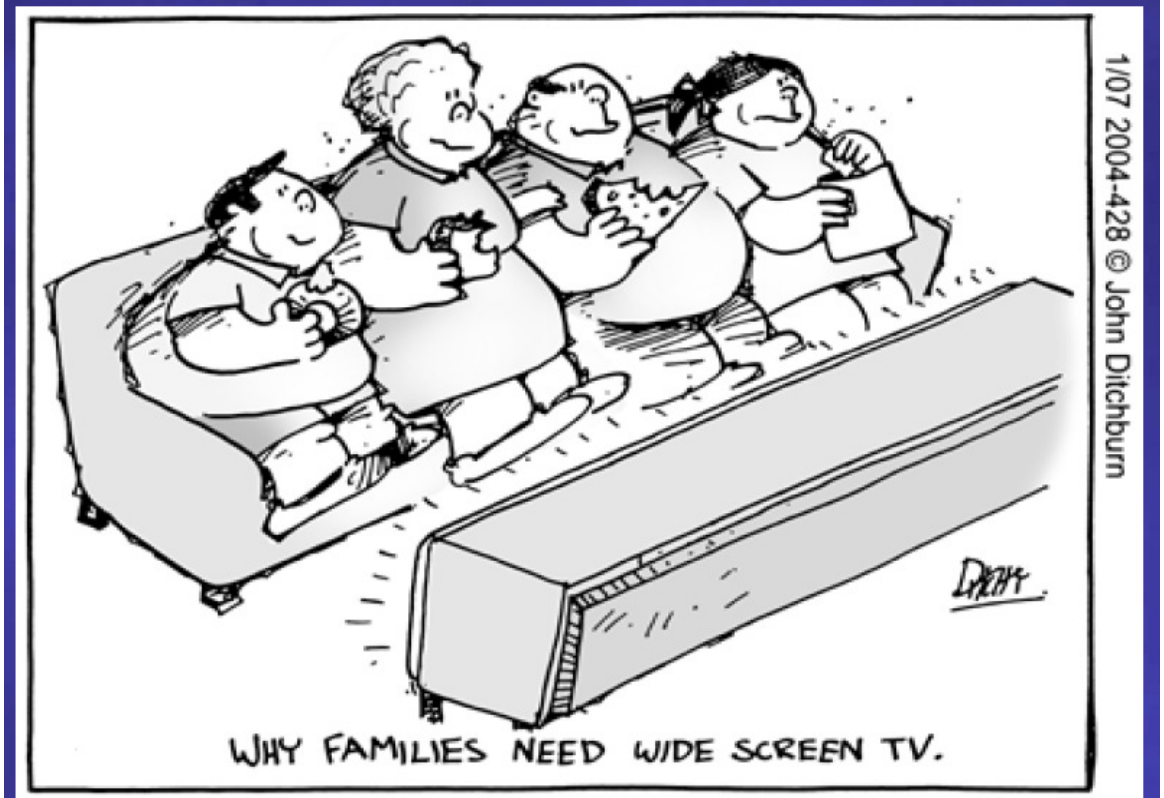
TV Viewing & Obesity



Overweight and obesity

- **Fifth leading global risk for mortality.**

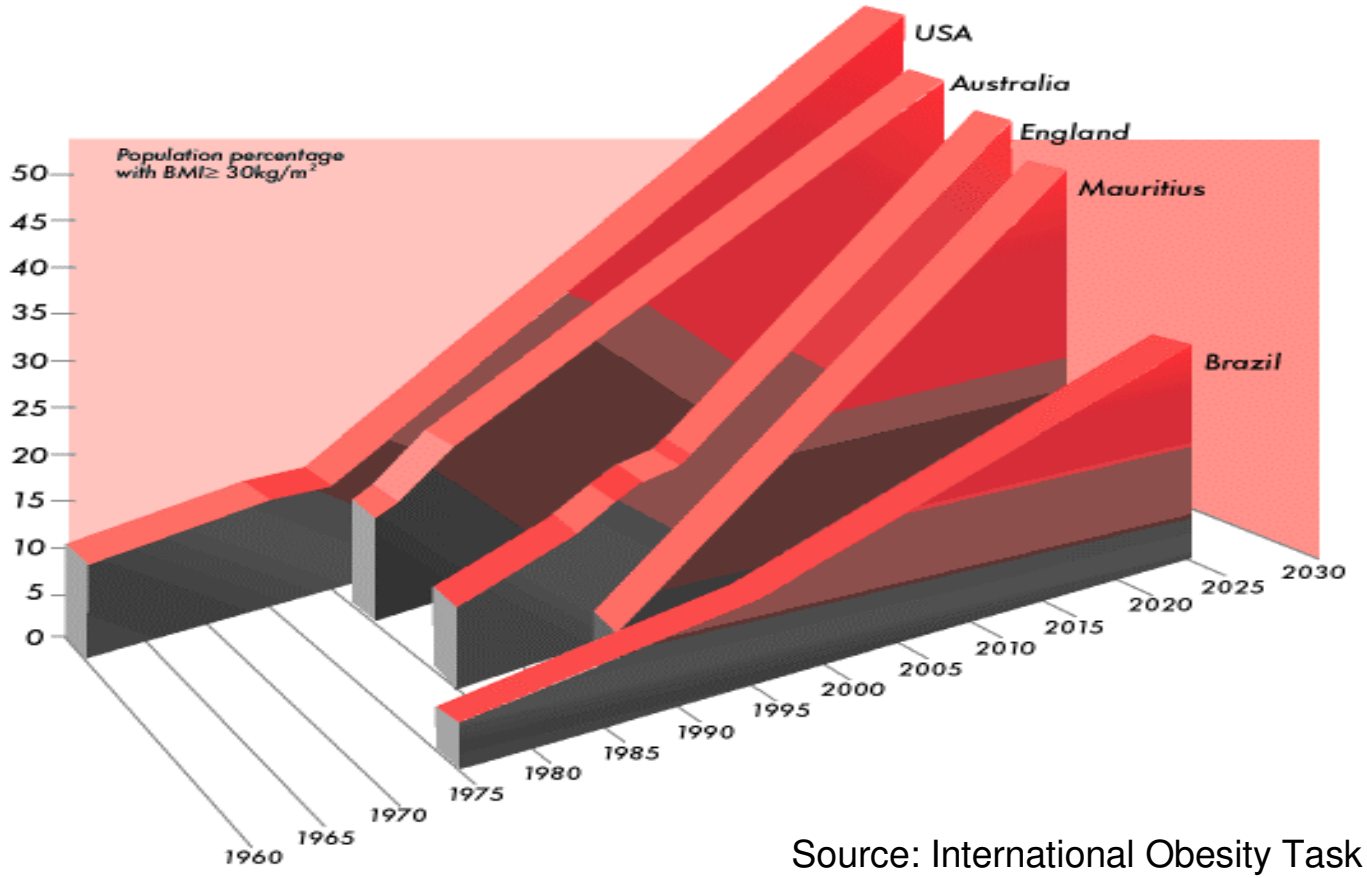
- **Responsible for :**
  44% of the diabetes burden,
  23% of the ischaemic heart disease burden
  7% to 41% of certain cancer burdens

- **Obesity has negative health impacts in childhood, as well as in the long term (a higher risk of obesity and NCDs later in life)**

- **Affected children experience adverse outcomes:**
  breathing difficulties,
  increased risk of fractures,
  hypertension, early markers of cardiovascular disease,
  insulin resistance and
  psychological effects.

Situation

Obesity is on the increase ….

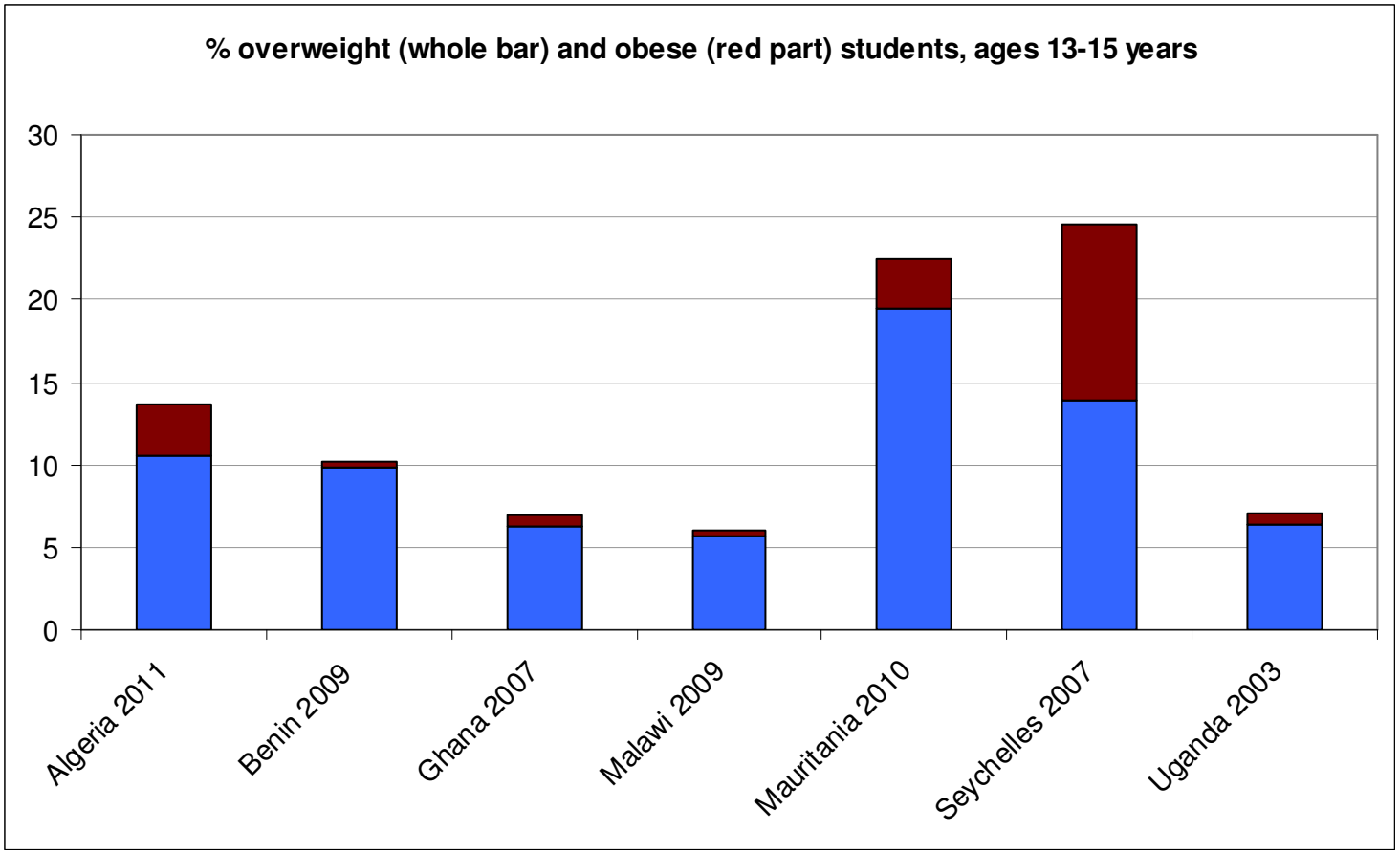


Source: International Obesity Task Force (IOTF)

Situation of childhood obesity

- **The rise in childhood obesity over the past decade has been dramatic.**
- **In 2010, 43 million children under the age of 5 years were overweight.**
- **Although the rate of obesity in developed countries is double that in developing countries,**
- **In absolute numbers, prevalence is much higher in developing countries.**
- **35 million overweight/obese children in developing countries, compared with 8 million in developed countries.**

GSHS


% overweight (whole bar) and obese (red part) students, ages 13-15 years
30
25
20
15
10
5
0
Algeria 2011
Benin 2009
Ghana 2007
Malawi 2009
Mauritania 2010
Seychelles 2007
Uganda 2003

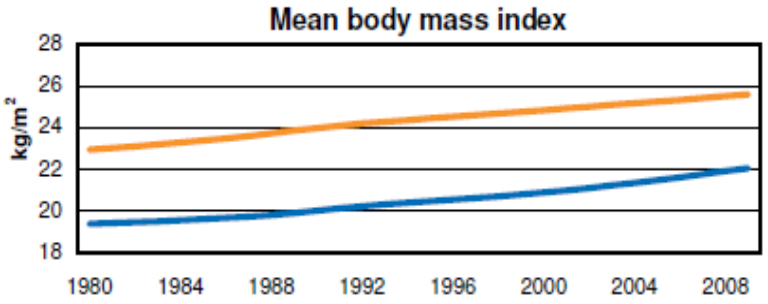
Lesson from Mauritius

Table 1: Body weight

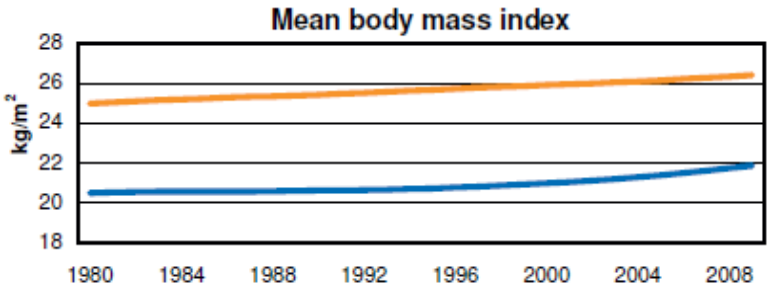
	5-11 yrs	12-19 yrs	20-49 yrs
Male			
Obese	8.5	8.2	13.2
Overweight	7.9	8.4	34.2
Normal weight	56.5	63.3	51.5
Underweight	27.2	20.1	1.1
Female			
Obese	7.8	6.5	28.3
Overweight	7.5	8.4	32.2
Normal weight	63.2	69.4	35.5
Underweight	21.6	15.7	4.0
Total			
Obese	8.1	7.3	22.9
Overweight	7.7	8.4	32.9
Normal weight	59.9	66.5	41.2
Underweight	24.3	17.8	3.0

Mauritius Nutrition survey 2004

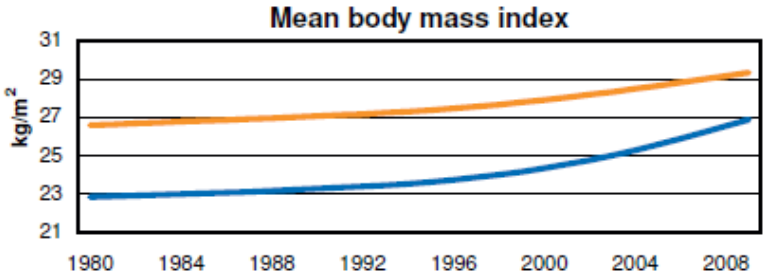
Trends in BMI



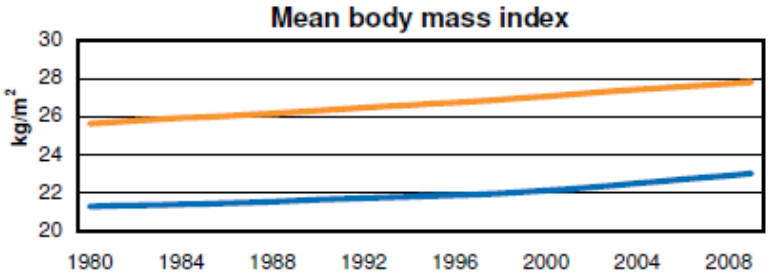
Botswana



Lesotho

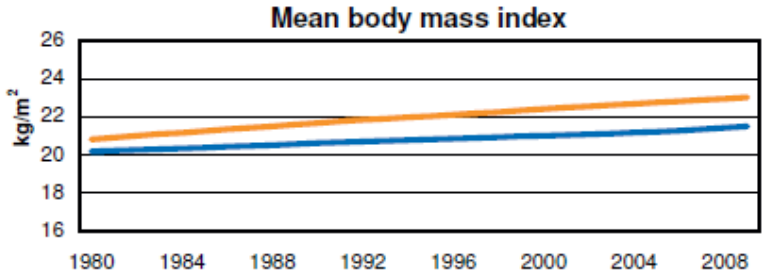


South Africa

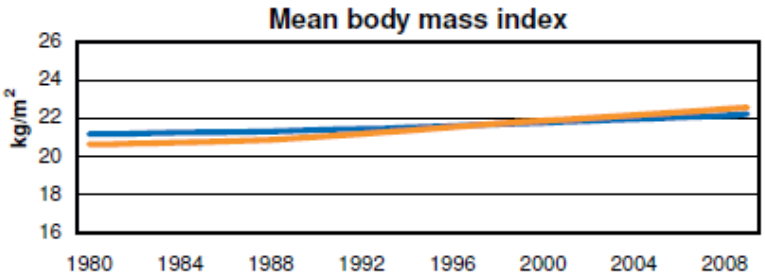


Swaziland

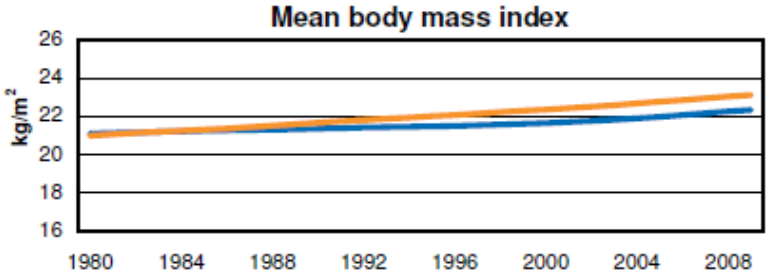
Trend in BMI



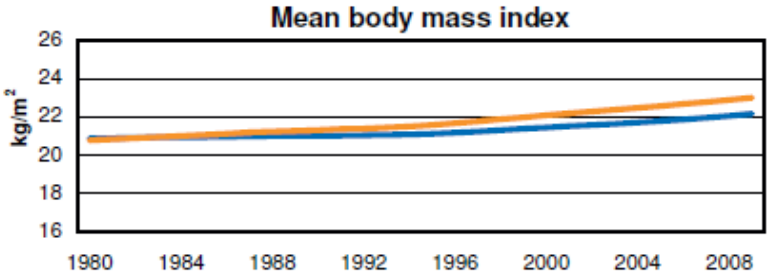
Kenya



Uganda

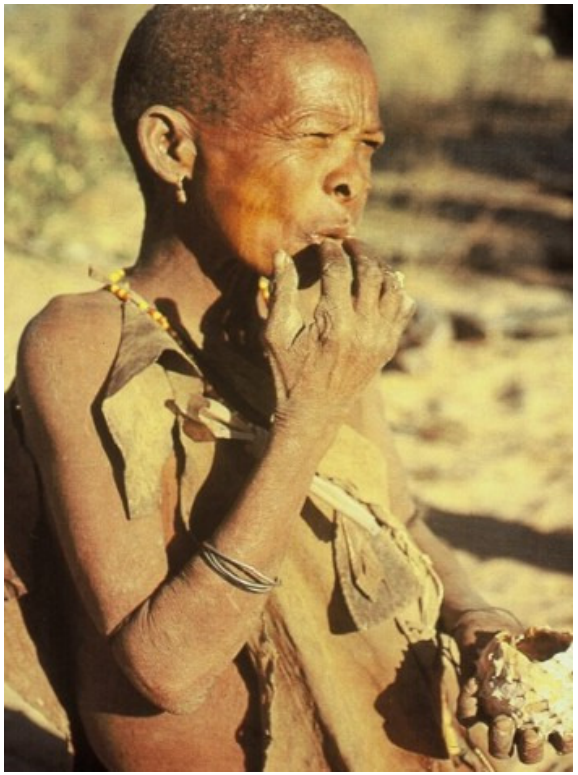


United Republic of Tanzania



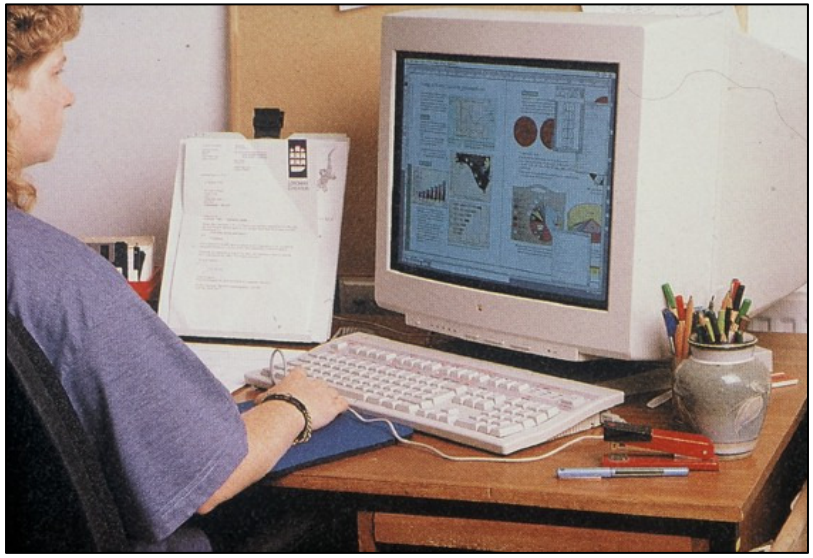
Malawi

From traditional to modern nutrition ....

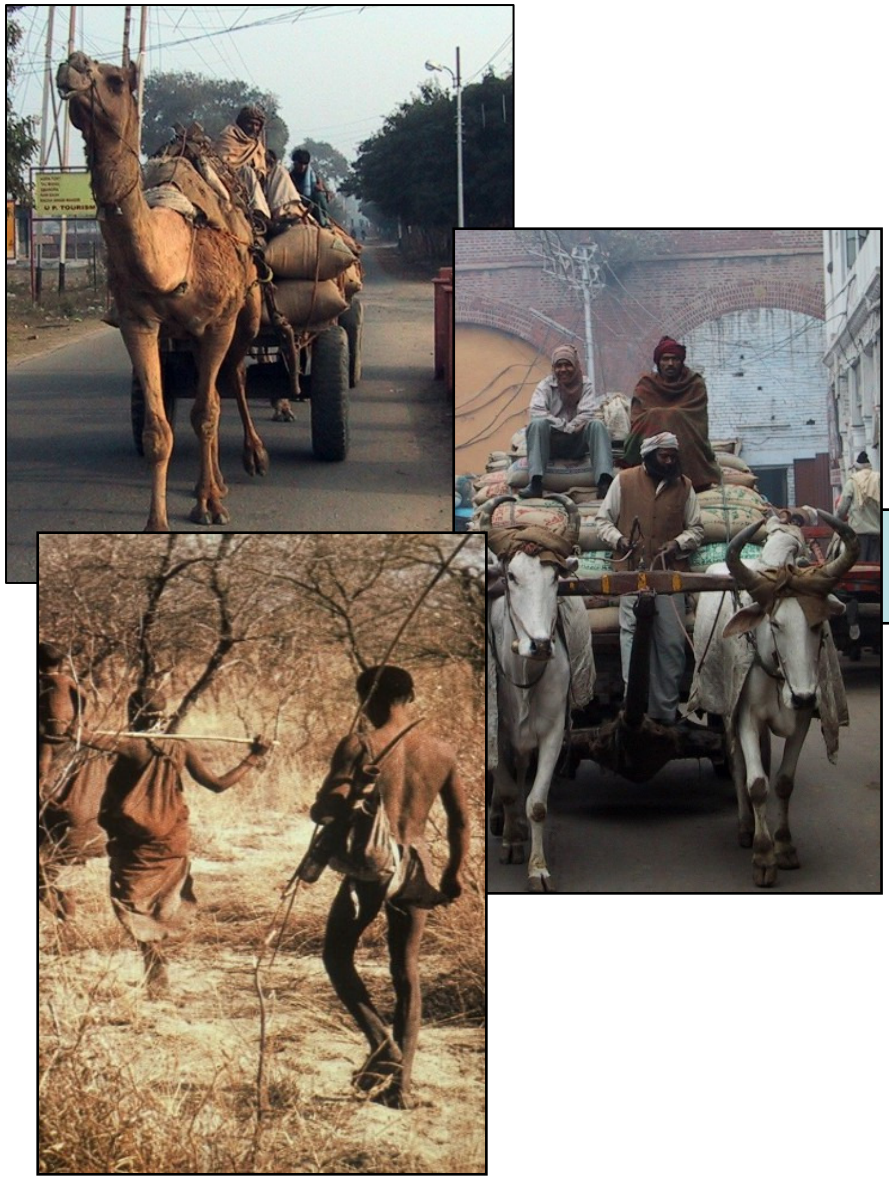


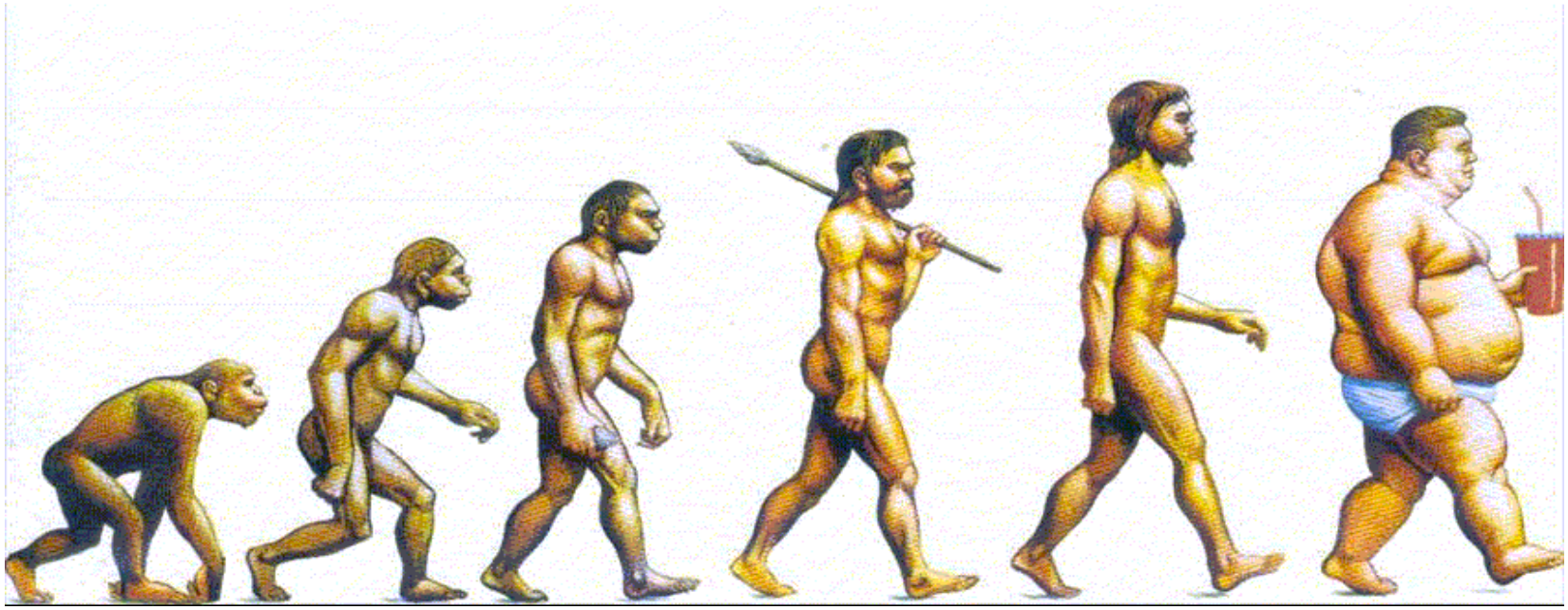
From traditional to modern food marketing ....

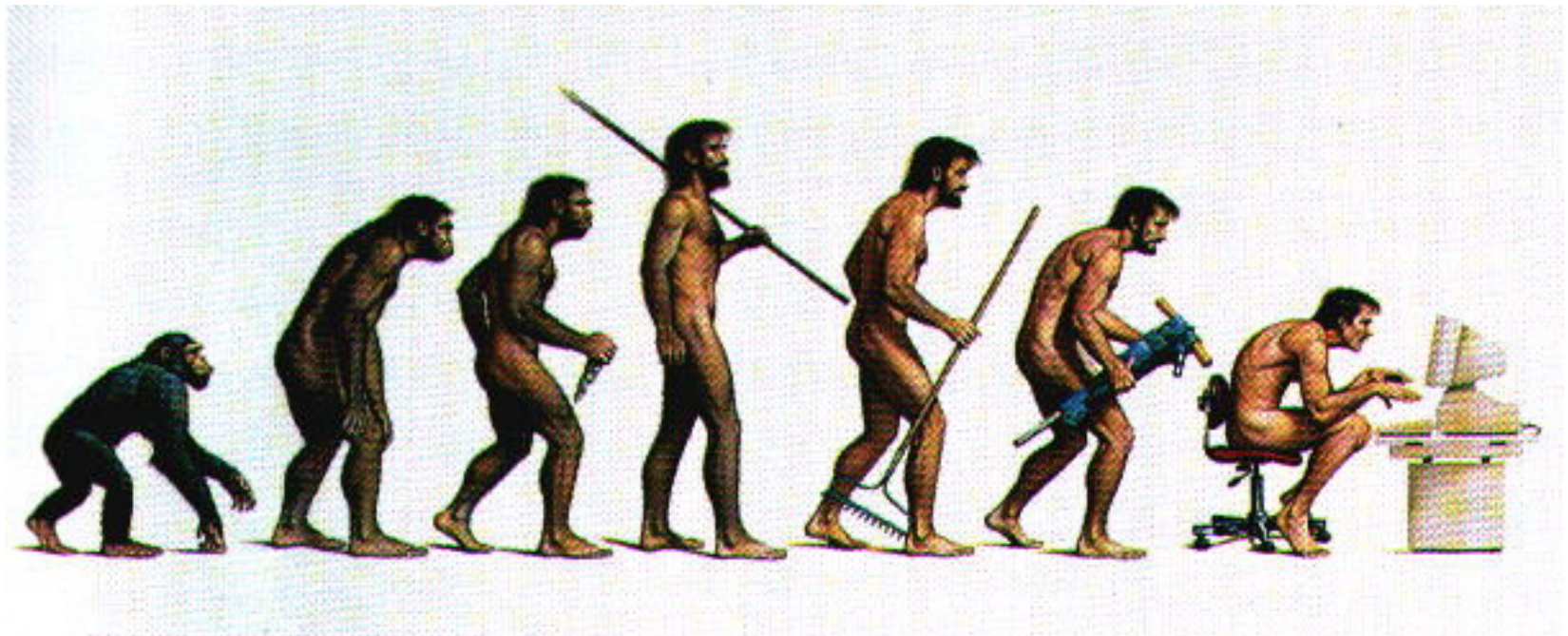
From ancient to modern work ….



From traditional to modern transportation ....







Globalization as a main engine for nutrition transition

Trade liberalization

- Expanded markets at intercontinental scale
- Concentration of the food production, favoring processed foods
- Threat to local production/distribution of local foods

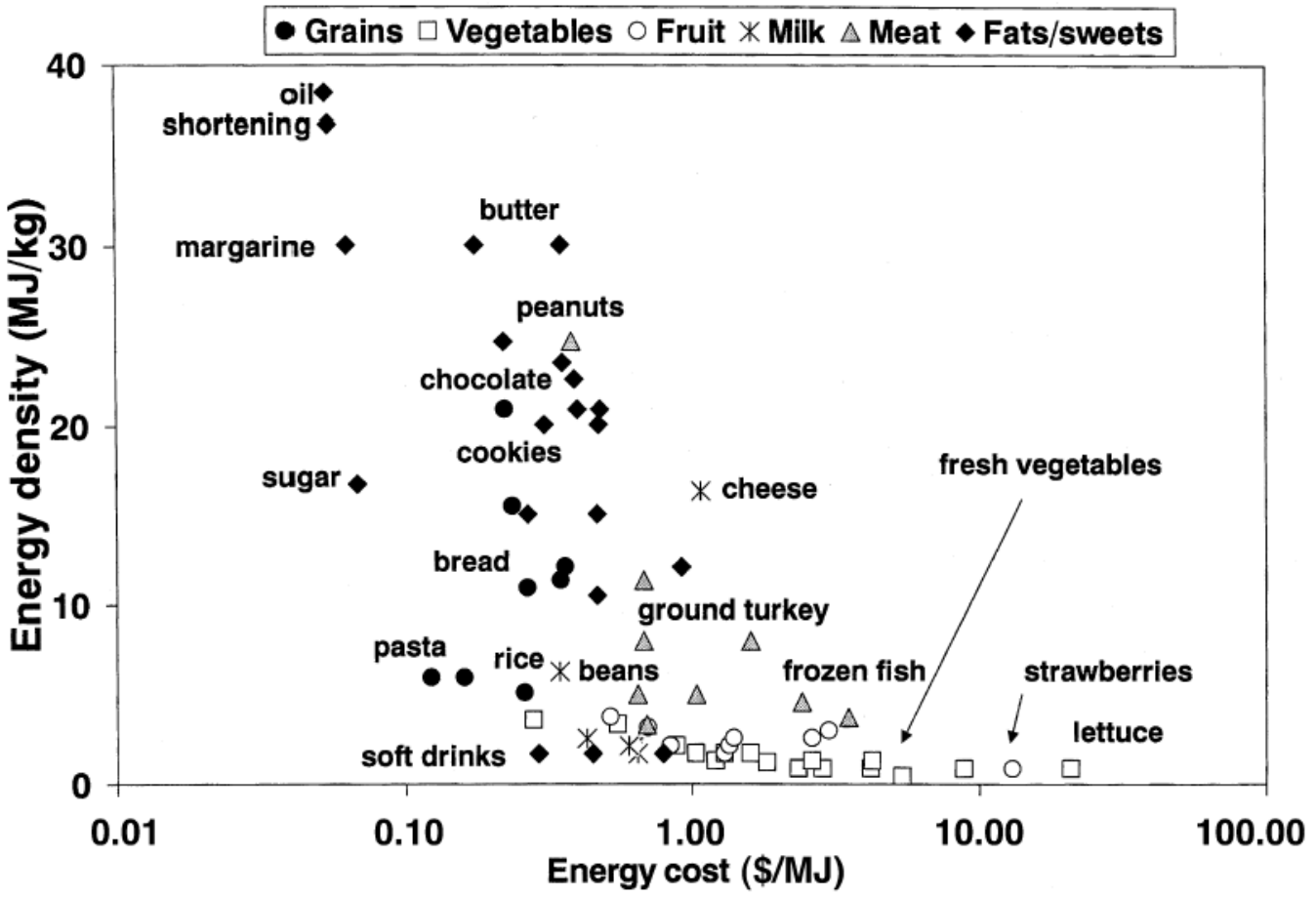
Communications revolution

- Global marketing campaigns through mass media, global advertising agencies, electronic channels
- Coca Cola: main sponsor of Football World Championship…

➢ **Profound changes in consumption patterns worldwide**

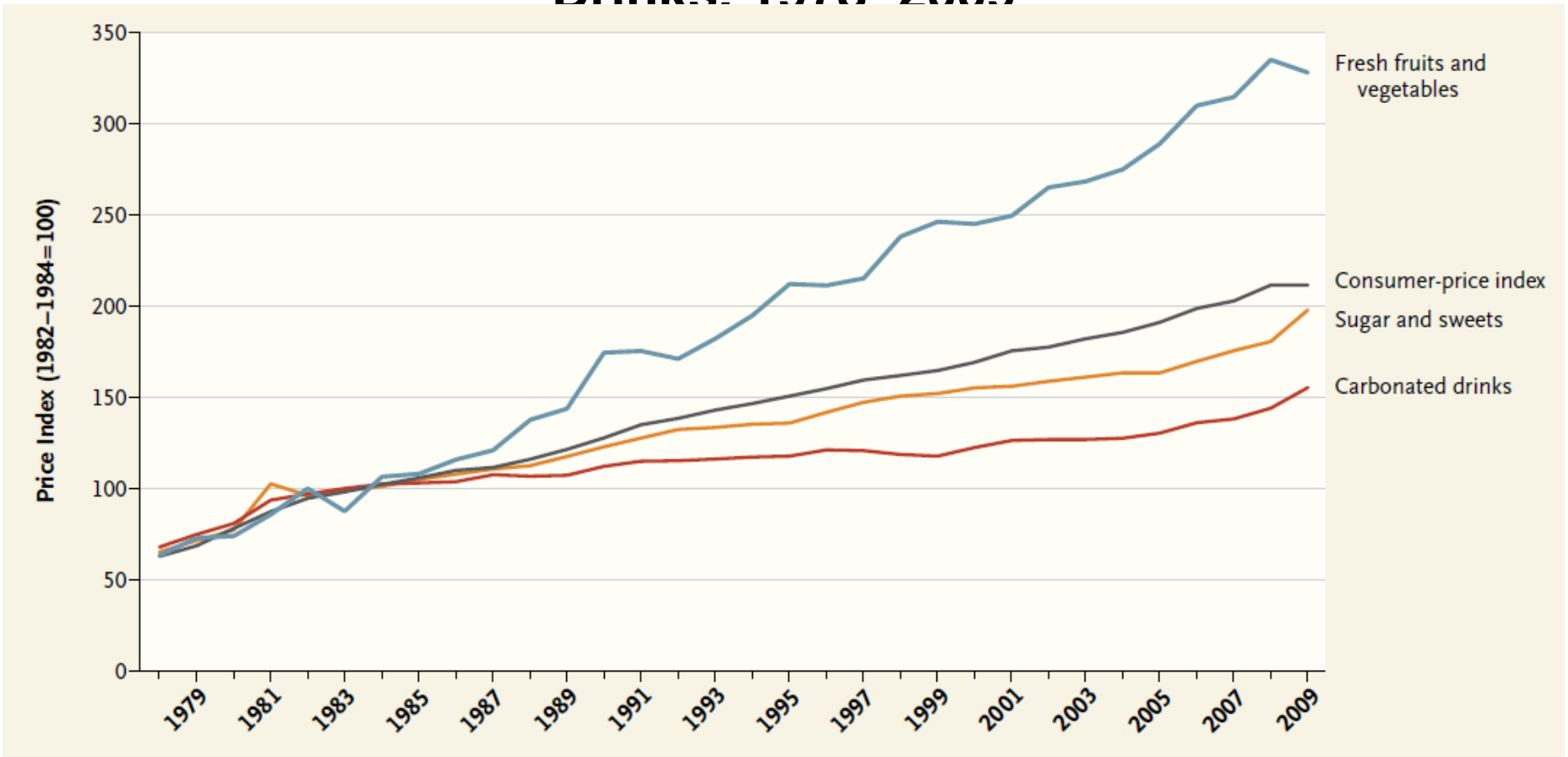
- Soft drinks ("coca-colonization"),
- Energy dense foods (replacing locally produced low-fat/fiber-rich foods)

Relationship between energy density and energy cost for selected foods



Drewnowski A. Obesity and the food environment Dietary energy density and diet costs. Am J Prev Med 2004;27(3S):154-62.

Relative Price Changes for Fresh Fruits and Vegetables, Sugars and Sweets, and Carbonated Drinks, 1978–2009



Cultural factors

Body weight

- Overweight as evidence of social status
- Westernized diet as symbol of social status
- Purported protection of overweight against infection (babies, HIV)

Avoidance of physical exercise

- Social status
- Cultural barriers
- Techno-urban chic: no sweat, no smell, button down clothes
- Focus on family vs. individual: less attention to leisure exercise and/or appearance

Can diabetes be prevented ?

Clinical trial of lifestyle modification over 3 years in pre-diabetes

Intervention	**Incidence** (/100/yr)	**Relative reduction** (%)	**NNP** (3 yrs)
1) Placebo	11.0		-
2) Metformin (850 mg twice daily)	7.8	**-29%**	31
3) **Lifestyle-modification program >7% weight loss & >150 min PE/w**	**4.8**	**-56%**	16

- 3234 non-diabetic persons with IFG (5.3-6.9) and IGT (7.8-11)
- mean age: 51 yrs, mean BMI: 34, follow-up: 2.8 yrs.

Knowler et al. Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. NEJM 2002;346:393-403.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FITNESS
Environnement physique
Emprunté à T. Lobstein

Individual vs. social response to the obesity epidemic (clinical vs. public health response)

There is little point in highlighting healthy messages/treatment in school if kids are exposed to junk foods at school or elsewhere and/or are bombarded with confusing messages on billboards when they go home or on TV when they get home

Selected interventions targeting entire population

1) Educational interventions

2) Transportation policies

3) Improve food supply

4) Economic policies: incentives and disincentives

5) Initiatives at the community level

Examples of societal measures that can improve the environment of food choices

- **Small taxes on junk foods and soft drinks**
  - reduces consumption & raise funds on anti-obesity campaigns
- **Restrictions on food marketing to children**
  - e.g. ban on vending machines in schools and on TV
- **Calorie labels on all foods** (including fast foods)
- **Changes in farm subsidies and trade taxes** to promote production / consumption of fruits and vegetables
- **Revisit sponsoring by food industry** (campaigns contributions)
- Advocate for a government agency -independent of food industry- with clear responsibility to food, nutrition and health

Nestle M. Science 2003;299:781
Nestle M. Food politics: How the food industry influences nutrition and health

Micro-level interventions

Family-based

- Healthy diet and baby care programs for new mothers
- Parent involvement in school-based interventions
- Home visits to monitor/promote nutrition behavior change
- Distribution of nutrition education material to families
- Home gardening projects

Individual-based

- Referral networks for high risk individuals
- Provision of nutrition counseling services
- Follow-up programs to monitor high risk individuals
- Development of effective patient education materials

Millen Posner B et al. Nutrition Reviews 1994;52:179-87

Intermediate-level interventions

Community-based

- Supermarket nutrition education programs
- Partnerships with restaurants and grocers
- Increased exercise facilities, transport policies (environment shaping)
- NCD-nutrition clinics at local health centers
- Screening

Worksite-based

- Cafeteria programs (healthy meals), screening

School-based

- Modification of school food services
- Nutrition education curricula & nutrition training to teachers
- Nutrition counseling programs for high risk children
- Increase exercise uptake in/out school, ‘safe-route’ programs

Health professionals

- Training, seminars, newsletters promoting preventive nutrition

Millen Posner B et al. Nutrition Reviews 1994;52:179-87

Macro-level interventions: increase availability and desirability of nutritious foods

Food supply

- Agricultural policies
- Food importation policies
- Price and tax legislation/regulations
- Partnership with food industry
- Increased marketing of desirable foods
- Food labeling policies

Mass media

- Programs in mass media, promotion of healthy eating & NCD
- Reduction of advertising on calorie dense foods

Millen Posner B et al. Nutrition Reviews 1994;52:179-87

Schools

- Food policies that limit foods high in sugar, saturated fats, and trans fats while encouraging consumption of fruits, vegetables, whole grain and low fat dairy (vending, a la carte, stores)
- Ensure availability daily of heart –healthy lunches offering non-fried items (fish) and at least one meal/d low in sat/trans fat
- Offer and require daily physical education at all grade levels
- Expand physical activity opportunities (sports, walk, dance, bike, use of facilities in week end for general public)
- Include nutrition and healthy lifestyle in school curriculum
- Training to teachers

Food industry

- Reduce sugar (and salt) content of processed foods
- Reduce saturated and trans fats in prepared foods with low saturated vegetable liquid oils
- Increase the proportion of whole grain foods available
- Package foods in smaller individual portion sizes
- Develop packaging that allows for greater stability, preservation and palatability of fresh fruits and vegetables (social marketing)
- Labeling of nutrients

Restaurants, canteens

- Display calorie content on menus or at point of decision
- Reduce portion sizes and provide options for reduced sizes
- Reformulate products to reduce calories, sodium, saturated & trans
- Provide more vegetable options and prepare with minimal fats/salt
- Provide more fruit options, and serve without added sugar
- Develop creative healthy menus to make them attractive
- Allow substitution of nonfried options and low-fat vegetables for usual side dishes

WHO Global Strategy on Diet, Physical Activity and Health (2003)

Dietary goals at individual level

- Limit saturated fats, trans fatty acids, salt (<5g) and sugars (<10% tot E)
- Increase fruit and vegetables (>400g/d)
- Increase physical activity (1 h of walking or similar / day)
- Specific recommendations for special subgroups (infants, children, etc)

Guiding principles

- Strong evidence for efficacy of policy (K on diet ~ NCD)
- Need for advocacy for policy change
- Role of stakeholders in implementing global strategy
- Strategic framework for action

ftp://ftp.fao.org/es/esn/nutrition/diet_prevention_disease.pdf

Conclusions

- Accelerated shift toward positive energy balance
  - Shift in dietary structure (energy dense) and physical exercise
  - Shift might be quicker in developing countries
- Obesity and related disease burden is shifting to the poor
- Co-existence of under-nutrition
- Expected major impact on health (diabetes, NCD)
- Need to understand and address cultural factors
- Need to understand underlying societal forces (economic)
- Treatment at individual level limited
- Need for a prompt public health response, mainly at public health level to respond to obesogenic environment

Thank you