Why people eat what they eat: 
the role of communication

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CRNH-Ile de France, Paris

Health Benefits of Foods, Prague 2011
Why do people eat what they eat?

In order to survive in a specific environment
(in order to cover their energy needs by selecting and ingesting substances that happen to be available in their natural/social environment)
Human groups have survived in all parts of the earth

- Cultures facilitate adaptation and survival in all kinds of situations
- Culture is about communication
The role of communication

- The human infant has to learn everything
- The influence of caretakers is essential
- Cultures develop to facilitate adaptation to a particular environment
- Cultures teach
  - What to eat, what to avoid
  - When to eat, when not to eat
  - Under what conditions eating is appropriate
  - Among many other things…
- Eating patterns have survival value: once established they are very difficult to change
Early life dispositions:

Never forget the biology!
Andrea Solario, LA VIERGE AU COUSSIN VERT (Fragment)
Beyond the first few hours of life
Learning food likes and dislikes: a potent mechanism

- Automatic and unconscious
- The sensory characteristics (taste, smell, visual aspect) of a food become associated to the metabolic consequences of ingesting the food
- Such learning allows the consumer to make food choices and adjust meal size as a function of the anticipated metabolic consequences of ingestion
Learned food aversion

- Most often, the association is established after one exposure (intake followed by digestive malaise, nausea)

- In humans, common experience, at times induced by chemo or radiotherapy for cancer.
Learned food likes and specific appetites

- Usually, several exposures are needed before a food like is acquired (intake followed by satiety)

- In children, as in animals, preferences are more easily acquired for energy-rich foods
A few “acquired tastes”

- Bitter tasting foods and drinks (coffee, beer)
- « Hot » spicy foods
- Alcohol
- Preferences for low sugar or sugar-free foods and drinks
- Etc.
The role of communication later in life

- Culture determines
  - Availability of food substances for adults and children
  - Meal patterns
  - Appropriateness of foods and behaviours:
    - societal norms and
    - peer pressure
A few potent drivers of food choices...
Availability

- Simply seeing and smelling foods triggers intake, even in satiated people (Cornell et al, 1989)
- Availability of fruit and veg is most important driver of intake in children (Cullen et al 2003)
- Conversely, limited availability in « food deserts » contributes to poor diet quality (Franco et al 2009)
Price

- Very potent in most consumers
- Price reductions influence selection of all types of foods: snacks as well as fruit and veg (French & Stables 2003; Horgen & Brownell 2002)
- High energy density but inexpensive foods selected on limited food budget (impact on obesity frequency in lower income households?) (Drewnowski 2007)
Individual factors: gender

- Men consume more meat, potatoes, bread, alcohol, but less fruit, vegetables, fish, chicken, cheese, sweets than women.
- Women are more motivated by health and weight concerns (could explain 50% of gender differences).
- Women shop and cook for families (more than men).
Individual factors: age

Aging is associated with

- metabolic changes (energy requirements)
- physiological changes (hormonal, etc.)
- sensory changes (olfactory, taste, vision, somesthesesia)

that can affect appetite and food choices
Individual factors: education

- Consumers with higher education (and income) levels ingest
  - less meat and

- They have a more diverse diet in accordance with recommendations.
Can communication change behaviour?
Numerous factors maintain established behaviours

- Sensory and metabolic factors reinforce palatability of high energy density foods
- The environment (family, school, work site, etc.) determines eating patterns and accessibility
- They constitute some of the numerous “barriers” to change
Communication: many origins and goals

- Recommendations from health authorities (local, national, international)
- Communication in the media: physicians, gurus, magazines, advertisements, etc.
- Information about risks
- Information about benefits
  - Short-term
  - Long-term
Communication about risks

- Major/minor risks
- Immediate/delayed effects
Spanish cucumbers may be E.coli source, Germans say

Cucumbers are displayed for sale on a farmer's market in the northern German town of Hamburg May 26, 2011.

Credit: Reuters/Morris Mac Matzen

By Sebastian Huld and Kate Kelland

HAMBURG/LONDON | Thu May 26, 2011 5:45pm EDT

(Reuters) - Cucumbers imported from Spain may be the source of an E. coli outbreak that Germany says has killed four people and affected at least 200 more, European health officials said Thursday.
Spain has accused Germany of "spreading alarm" and needlessly damaging trade after blaming a deadly E.coli outbreak on "killer cucumbers" imported from Spain.

Austria has banned all sales of cucumbers, tomatoes and aubergines grown in Spain. Photo: REUTERS
Germany detects illegal dioxin levels in poultry

January 9, 2011 By JUERGEN BAETZ, Associated Press

(AP) -- German investigators have found excessive levels of cancer-causing dioxin in chicken - the first such confirmation of tainted meat since the discovery that German farm animals had eaten contaminated feed, possibly for months.
Communication about major and immediate risk can change behaviour.
But often it does not!

- Many physicians smoke (and more and more young women)
- Sun bathing is very popular
- In diabetes-associated glaucoma, compliance with treatment recommendations is below 50%, even in patients at risk of major hazards, such as losing eyesight
Information about benefits

- Benefits from dietary changes are usually long-term.

- The benefits are delayed but the behaviour change has to start now and be continued for a long time.

- Often, little benefit is obtained even after weeks, months or years of efforts (for example: weight loss).
One example: calorie labelling

- Calories counts found on packaging and menu boards
- can affect food choices and decrease energy intake at out-of-home meals

CAVEATS

- Consumer’s characteristics modulate this effect (men vs women \( \text{Harnack et al 2008} \); low vs high income \( \text{Elbel et al 2009} \))
- Calorie information in restaurants makes parents order lower calorie meals for their children, but not for themselves \( \text{Tandon et al 2010} \)
Information is not enough to change behaviour

Why is that ????????
The important concept of Akrasia

- The incapacity of doing the right thing while knowing what the right behaviour is (in terms of health or weight control for example)
- Information alone is often not sufficient to induce the appropriate behaviour
- Barriers of different types (time, money, skills, social support, etc.) prevent information to exert a decisive influence
Long-term risks or benefits and Hyperbolic Discounting (Ainslie)

- Conflict between immediate benefit (in terms of pleasure, comfort, habit, etc.) and long-term benefit (for example weight loss)
- Hyperbolic discounting affects the delayed benefit: power to affect behaviour decreases in a hyperbolic fashion as a function of time.
- Small immediate rewards (a high calorie food or meal) control behaviour
- People vary in their capacity to “delay gratification”, but often prefer smaller rewards now over larger rewards later.
FIGURE 1B. Hyperbolic discount curves from an SS and an LL reward. The smaller reward is temporarily preferred for a period just before it's available, as shown by the portion of its curve that projects above that from the later, larger reward.
Is it hopeless?
Communication and the obesity epidemic

- Obesity in children and adults has increased to epidemic proportions in developing as well as developed countries (WHO Report)
- Numerous communication campaigns have been launched to counter the disease
- Little effect in spite of major local, national and international efforts
Anything new in the field?

- A worldwide unexpected observation: Many reports of levelling off of the obesity rates in children since 2000
  - Western Europe
  - Asia
  - Australia and New Zealand
  - America
  (Rokholm et al 2010, Olds et al 2011)

- Indications of a decrease in some groups (local effects)
  - Girls
  - Higher socio-economic categories
The “Intervention Hypothesis”

- Massive communication about child obesity has finally produced effects (for example: decrease in energy intake in French children from 1999 to 2006)
- The effect is novel, its future is unpredictable at present, its causes remain to be investigated
- Groups that are most responsive to health communication (parents of higher socio-economic strata) appear to have the clearest results
Conclusions  (1)

Why do people eat what they eat?

- People eat foods that are available in their environment and that they can afford
- Within this category, they select foods they have learned to accept and like on the basis of their life experiences of hunger satisfaction and social interactions
- Established eating patterns are reinforced by numerous individual and social influences
- They are extremely difficult to change
  - “Akrasia”
  - “Hyperbolic discounting” of long-term benefits
Conclusions (2)

The role of communication

- Information is not enough to change behaviour

- Communication interacts with individual and socio-economic factors (facilitators and barriers)

- Communication contributes to behaviour change in motivated individuals who can understand and implement recommendations,

- The mechanisms of behavioural change in individuals of limited means (money, time, education, etc.) deserve special attention.
How people choose foods

Cost
- Money
- Time
- Access
- Nutrient density
- Nutrition knowledge

Taste
- Energy density

Nutrition
- Food Selection
- Health
- Weight concerns

Eating behavior