Health and Nutrition Implications of Econutrition: Why Sustainable Diets are Important

Richard J. Deckelbaum MD, CM, FRCP(C)
Departments of Pediatrics and Epidemiology
Institute of Human Nutrition, Columbia University
The Medical School for International Health

Roundtable on:
Metrics of Sustainable Diets and Food Systems
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Econutrition?

Ecology – the interrelationship of organisms and their environments (Google – 112,000,000)

Nutrition – the act or process of being nourished (Google – 407,000,000x)

Econutrition - ...................... (Google – 9400x)
Econutrition

• Human nutrition
• Ecological and environmental control
• Agriculture
• Economic development

Health

Human behavior, lifestyle, physical activity, work, livestock, ................., .................
How does econutrition fit into diet sustainability?
NUTRITION

“The Double Burden”

Undernutrition

Overnutrition
**Namibia, The Pastoralist**

Name: Viahondjera Musutua, a Himba tribeswoman  
Age: 23; Height: 5' 8"; Weight: 160 pounds  
The caloric value of her food this day: **1500**

Peter Menzel / *What I Eat: Around the World in 80 Diets*

[Read more: http://www.time.com/time/photogallery/0,29307,2037749,00.html#ixzz2EvLhvbT]
Mexico: The Casales family of Cuernavaca
Food expenditure for one week: 1,862.78 Mexican Pesos or $189.09
Favorite foods: pizza, crab, pasta, chicken

http://www.time.com/time/photogallery/0,29307,1626519,00.html
NUTRITION

“The Double Burden”

Undernutrition

Overnutrition
GDP per Capita and Dietary Energy Supply (DES)*


* kcal per day
Undernutrition

BMI by 10% in Ethiopia

Work output
23%

Wages
27%

Soil Fertility Depletion

- N 132 million tons
- P 15 million tons
- K 90 million tons

worth $11 billion/year!

LOST from cultivated land in 37 African countries during the last 30 years

Smaling, 1993
Sanchez, 2002
Health, Agriculture, Environment

Poverty

Loss of nutrients, soil erosion, biodiversity

AGRICULTURE
poor management

ENVIRONMENTAL DEGRADATION

Declining labor productivity

Decreased food production

MALNUTRITION, ILLNESS

Palm C, 2006
“Hidden” Malnutrition
Micronutrient Deficiencies

Focus on 7 sentinel nutrients:

- Iron
- Iodine
- Vitamin A
- Zinc
- Folate
- Vitamin D
- Calcium
Intervention Strategies--how to decide

‘Pop a Pill’

Eat your green leafy vegetables

Just put it in the flour
Intervention Strategies--how to decide

Just put it in the flour
Health, Agriculture, Environment, Poverty

A need for econutrition

AGRICULTURE
poor management

ENVIRONMENTAL DEGRADATION

Loss of nutrients, soil erosion, biodiversity

MALNUTRITION, ILLNESS

Declining labor productivity
Increased food production
NUTRITION

“The Double Burden”

Undernutrition

Overnutrition
Obesity in Children: A World-wide Epidemic

Weight-for-Height Distribution of Pre-school Children (94 Countries)

## Deaths from CVD/100,000 35-64yrs (2000)

<table>
<thead>
<tr>
<th>Country</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil:</td>
<td>71</td>
<td>49</td>
</tr>
<tr>
<td>India:</td>
<td>81</td>
<td>56</td>
</tr>
<tr>
<td>S Africa:</td>
<td>97</td>
<td>68</td>
</tr>
<tr>
<td>China:</td>
<td>38</td>
<td>24</td>
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<tr>
<td>USA:</td>
<td>56</td>
<td>28</td>
</tr>
</tbody>
</table>

Adapted from Leeder S et al, Race Against Time, 2004
Projected deaths by cause in high, middle, and low income countries, 2004 to 2030

Global Burden of Disease 2004 Update, WHO
Stages of the Nutrition Transition

Pattern 3
Receding Famine

- starchy, low variety, low fat, high fiber
- labor-intensive work/leisure

MCH deficiencies, weaning disease, stunting

Slow mortality decline

Pattern 4
Degenerative Disease

- increased fat, sugar, processed foods
- shift in technology of work and leisure

obesity emerges, bone density problems

accelerated life expectancy, shift to increased DR-NCD, increased disability period

Pattern 5
Behavioral Change

- reduced fat, increased fruit, veg, CHO, fiber
- replace sedentarianism with purposeful changes in recreation, other activity

reduced body fatness, improved bone health

extended health aging, reduced DR-NCD

Urbanization, economic growth, technological changes for work, leisure, & food processing, mass media growth

“Supersize” and triple your calories

REGULAR SIZE
- Regular
- Small Fries
- 16 oz. Soda
- TOTAL = 627 Kcal (19 g Fat)

SUPERSIZE
- Supersize Cheeseburger
- Supersize Fries
- Supersize Soda
- TOTAL = 1805 Kcal (84 g Fat)

“Bigger Meals, Bigger Kids?”
The Meat Industry in the USA
Decrease in corn prices

What to do with all the corn???
Corn/ maize-feeding cows become the way to burn up the surplus corn!

14 kg of corn to make 1 kg of beef !!

ratio for pork 6:1, chickens 3:1
Sustainable Diets – Solutions
Intersectoral Approaches Needed!!

Agriculture

Sustainable Diets

Ecological

Socioeconomic
Food-Based ++++’s

- Focus on food groups, not single nutrients
- Focus on amounts, knowledge, behaviour
- Focus goes beyond foods (e.g., healthy weight)
- Varies portion size, not dose
- Reduces risks of high dose or of adverse interactions among nutrients
- Sustainable
China’s Pagoda

Fat and oils 25g

Milk and diary products 100g
Beans and bean products 50g

Meat 50-100g, fish 50g, eggs 25-50g

Vegetables 400-500g
Fruits 100-200g

Cereals 300-500g

Recommended by Chinese Nutrition
Food-Based Barriers

- Availability, access
- Cost
- Sociocultural /behavioural factors
- Specific micronutrient adequacy may be difficult to achieve (e.g., iron, folate)
- Bioavailability of certain nutrients
- Food storage and safety
- Adapting to the ‘tastes’ of diversity
Food Prices!

The price of food

Proportion of household expenditures on food

- ≥ 50%
- 36-49%
- 25-35%
- < 25%

Source: FAO
Cost of Diets: Four country case study

De Pee and Bloem 2010
Factors Influencing Purchase Decisions

Source: International Food Information Council Food and Health Survey, 2012
Where does our agriculture system fit into this?

“Nutrition should be the main driver of agriculture. What else is agriculture for?”

--Lawrence Haddad, Director, Institute for Development Studies
Agriculture’s roles have benefits beyond just food production

Source: Bread for the World 2010
“The agriculture and food system plays a significant role in the illness and early death that arise out of the imbalanced diets, empty calories, and overconsumption that are rampant in high and middle-income countries and increasingly apparent in the nutrition and epidemiological transitions underway in the developing countries.”

Bringing Agriculture to the Table, Chicago Council, 2011
Econutrition + Diet Sustainability

*Is It Worth It?*

Health + Nutrition + Agriculture = ?

1 + 1 + 1 = 5

or

1 + 1 + 1 = 3

or

1 + 1 + 1 = 2

What are the needed metrics?
What are the costs of doing nothing?
THANK YOU!!
NIH, UNRWA, Danone

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Maysoon Obeidi
Umaiyyeh Khammash

Kaichi Kida
Koji Takemoto
Steve Shea

Sarah Couch

Bram Wispelway
Tanya Blasbaq

MoD Task Force

Steve Leeder
Henry Greenberg

Jessica Fanzo