"The Sometimes Misguided Pursuit of 'Health' and Thinness: Some Cultural Perspectives."

Paul Rozin
Villanova
September 15, 2017

Marasmus: energy deficiency

Kwashiorkor: protein deficiency

"The state of food insecurity and nutrition in the world" U.N.. FAO 2017

- "In 2016 the number of chronically undernourished people in the world is estimated to have increased to 815 million, up from 777 million in 2015 although still down from about 900 million in 2000."

World obesity 2010

- http://www.who.int/mediacentre/factsheets/fs311/en/
- In the world, over 200 million men and nearly 300 million women are obese

World Obesity (CIA, 2008)

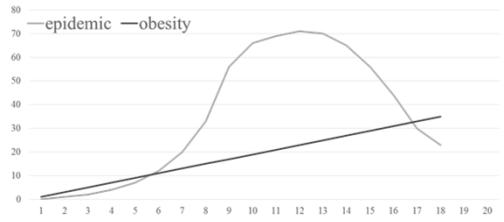
Obesity BMI>=30 as % of all adults

- https://www.cia.gov/library/publications/the-world-factbook/rankorder/2228rank.html
- 1. American Samoa 74.6%
- 18. USA 33.0%
- 23. Mexico 32.1%
- 102. Brazil 18.8%
- 108. France 18.2%
- 157. Japan 5.0%
- 184. India 1.9%

The obesity epidemic

- Since 2000
- Not an epidemic
- Not contagious
- Not a growth curve like an epidemic
- For Americans in last 20 years
  - About 1.5 pound gain per year

Epidemic versus “Slow crawl”



The obesity epidemic

- For Americans in last 20 years
  - About 1.5 pound gain per year

“obesity”: mention in American English Books, 1900-2008

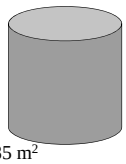
1900 1950 2000

Obesity questionnaire

- Blank page
- Your position (.e.g., nurse)
- BMI = (weight in kg)/(height in m^2)
- Criterion for obesity: BMI>= ?
- Height is squared in the denominator of BMI
- Why?

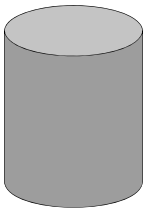
BMI: Why is height squared?
Quetelet: 19 century

Assume 1 square meter = 100kg



Hgt 1.3m
Diam 1m
H/D = 1.3

Vol = .785 m^2
Wgt = 102kg
BMI = 60.35
Bmns = 78.4
Bm^3 = 46.4



Hgt 2.0m
Diam 1.54m
H/D = 1.3

Vol = 3.71 m^2
Wgt = 371kg
BMI = 92.7
Bmns = 240.9
Bm^3 = 46.4

Volume = hgt * (pi*r^2)

A

3

Height
4 ft 11 in

3

Height
5 ft 9 in

Selling obesity as public health disaster # 1

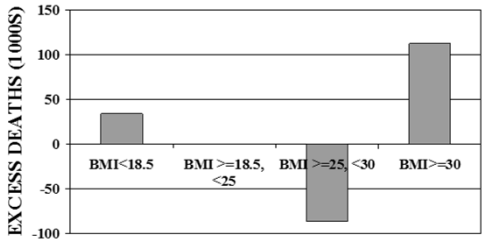
- Switch from obesity to overweight (BMI>=25) 1/3 to 2/3
- Attributing all negatives associated with obesity to obesity
- Cost estimates for USA per year vary widely

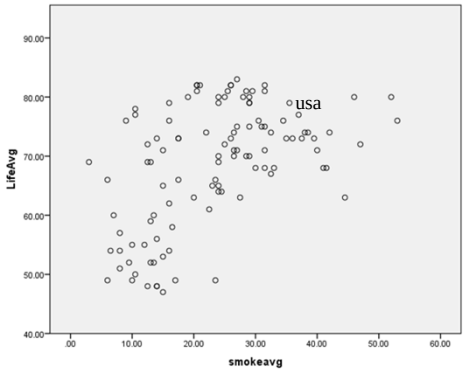
http://www.surgeongeneral.gov/news/testimony/obesity07162003.htm
Office of surgeon general
Statement of
Richard H. Carmona, M.D., M.P.H., F.A.C.S.
Surgeon General
U.S. Public Health Service
Wednesday, July 16, 2003
"The crisis is obesity. It's the fastest-growing cause of disease and death in America. And it's **completely preventable**.

- •Nearly two out of every three Americans are overweight or obese.
- •One out of every eight deaths in America is caused by an illness directly related to overweight and obesity.

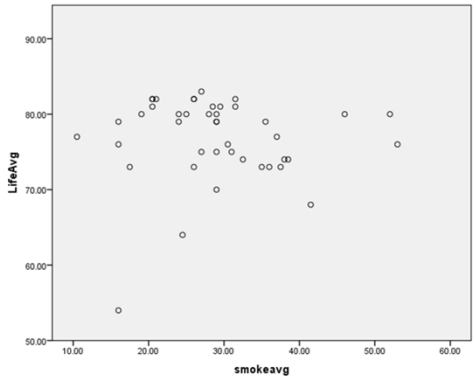
But the fact is that we have an **epidemic** of childhood obesity.

Flegal et al., 2005
Main Outcome Measures Number of excess deaths in 2000 associated with given BMI levels





Life expectancy and % people smoking: r = .52, n= 110 countries

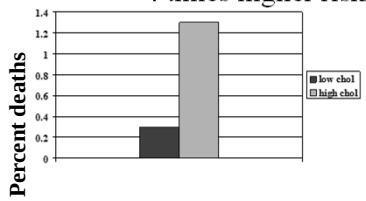


Life expectancy and % of people smoking
R = .00 Only countries with mean per capita income >=$10,000, n=47

MRFIT STUDY
12,000 middle-aged US males followed for seven years

Condition	Highest cholest decile >265	Lowest cholest decile <170
Fatal heart attacks (%)	1.3%	0.3%

Mr. Fit: % Fatal heart attacks by highest vs. lowest decile in blood cholesterol
4 times higher risk!!

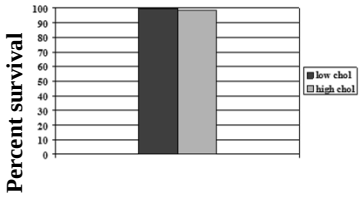


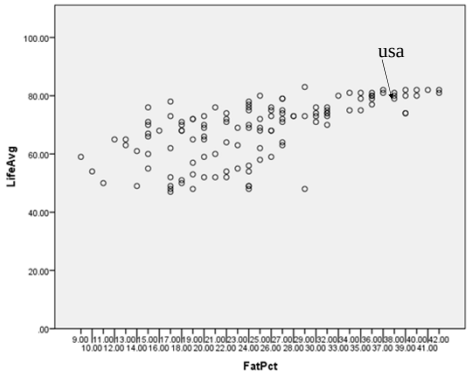
Mr. Fit: % Fatal heart attacks by highest vs. lowest decile in blood cholesterol

MRFIT STUDY
12,000 middle-aged US males

Condition	Highest cholest decile >265	Lowest cholest decile <170
Fatal heart attacks (%)	1.3%	0.3%
No fatal heart attack (%)	98.7%	99.7%

Mr. Fit: % NO Fatal heart attacks by highest vs. lowest decile in blood cholesterol





Life expectancy and % calories as fat, r=.64, 126 countries

Cod liver oil and vitamin C

Cholesterol, sugar, antioxidants Google Ngram

Cholesterol sucrose antioxidant

1950 1975 2000

The natural and organic fad

- Natural vs Manufactured Poisons
- Bruce Ames on Pesticides

Late 20th Century developed world

- Epidemiological revolution: longer life and death from degenerative diseases
- food surplus
- Development of super-foods (hi sugar, hi fat)
- Extraordinary variety
- no work needed to attain choices
- massive amounts of risk information
- no training in dealing with risks/benefits

Mismatch: Health information and lay ability to interpret it

- Lack of knowledge of probability and risk-benefit thinking
- **Simplifying heuristics: e.g., good and bad foods**

A diet totally free of salt is healthier than a diet of the same number of calories that includes a pinch of salt every day

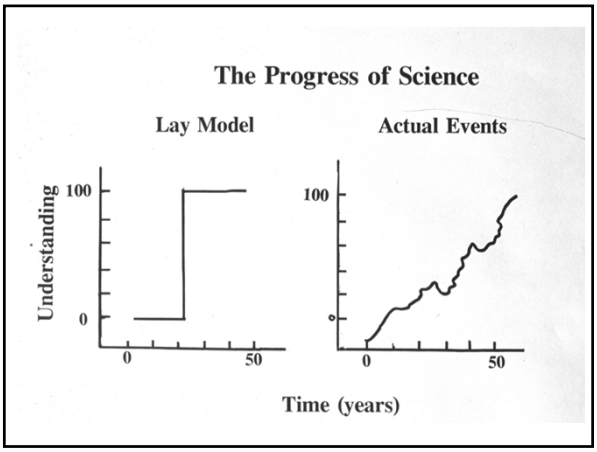
Group	% Agree
College students	19
National Sample	27
Physical Plant workers	37
Overall	28

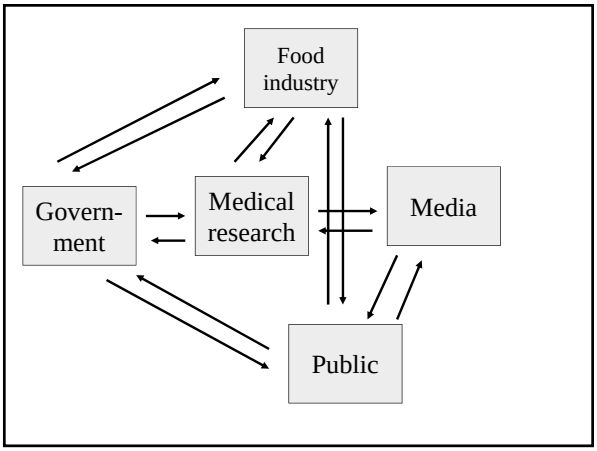
A pint of cottage cheese has more calories than one teaspoon of ice cream.

Group	% Disagree
College students	30
National Sample	25
Physical Plant workers	38
Overall	31

Mismatch: Health information and lay ability to interpret it

- Lack of knowledge of probability and risk-benefit thinking
- Simplifying heuristics: e.g., good and bad foods
- **Lack of understanding of the scientific enterprise**





Culture borrowing/sharing (preadaptation across cultures)

- Weapons
- Money
- Alphabet

Feature	Heaven	Hell
Love	Italians	
Banks	Swiss	
Universities	British	
Food	French	

Feature	Heaven	Hell
Love	Italians	Swiss
Banks	Swiss	
Universities	British	
Food	French	

Feature	Heaven	Hell
Love	Italians	Swiss
Banks	Swiss	Italians
Universities	British	
Food	French	

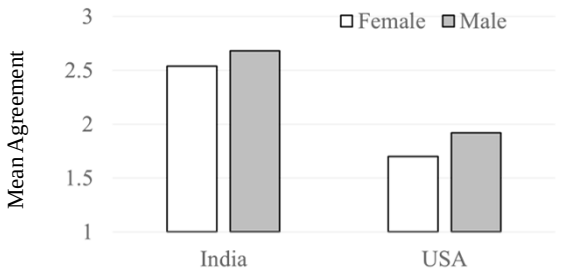
Feature	Heaven	Hell
Love	Italians	Swiss
Banks	Swiss	Italians
Universities	British	French
Food	French	

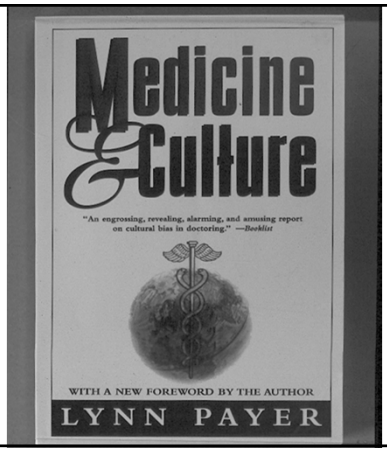
Feature	Heaven	Hell
Love	Italians	Swiss
Banks	Swiss	Italians
Universities	British	French
Food	French	British

India

- Number of People

Eating is a religious experience; My diet must adhere to strict moral/religious principles





Doctors and lay people: The power of culture

- 50-70 doctors and 50-70 lay people from each of five countries
- France, Germany, Italy, U.K., U.S.A
- 20 items relating diet and eating to health
  - Value of vitamin pills
  - Healthiness of dairy products, wine, meat
  - Importance of food, exercise, moderation for health
  - (Leeman, Fischler & Rozin, 2006)

Lay-Doctor similarities on food-health (Pearson rs across 20 variables)

- France doctor with
  - France Lay .45
  - US doctor -.53
- US doctor with
  - US Lay .48

The combination of health and beauty norms

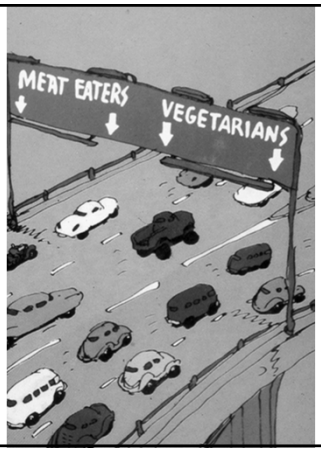
"Concerned about being overweight"

- % responding "often" or "almost always"
- 57% females, 21% males
- US college students from 6 universities across the country

Rozin, Bauer & Catanese, 2003

"I am embarrassed to buy a chocolate bar in the store"

- American college students from six campuses across the USA
- % Females: **13.5**
- % Males: **4**



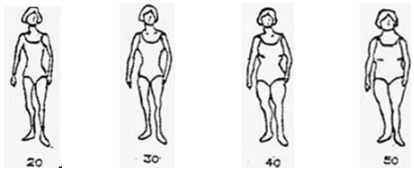
Argentina P I C

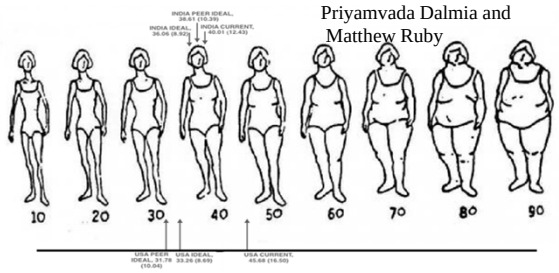
Brazil P I C

France P I C

USA P I C

C=current
I= ideal





Priyamvada Dalmia and Matthew Ruby

France versus USA

- Claude Fischler
- Rebecca Bauer, Dana Catanese, Kim Kabnick, Estelle Masson, Erin Pete, Alison Sarubin, Christy Shields, Amy Wrzesniewski

Obesity: France vs USA

- **% BMI >= 30**
- France: 16%
- USA: 32%

- 2008 http://www.who.int/gho/countries

Life expectancy at birth

(data from 2008-2010: www.who.int/gho/countries)

rank	country	years	rank	country	years
1	Japan	83	10	Norway	81
4.5	Australia	82	10	Sweden	81
4.5	Israel	82	14	Austria	80
4.5	Italy	82	14	Belgium	80
4.5	Singapore	82	14	Finland	80
4.5	Spain	82	14	Germany	80
4.5	Switzerland	82	14	Greece	80
10	Canada	81	14	Korea	80
10	**France**	**81**	14	U.K.	80
10	Netherlands	81	**19.5**	**U.S.A.**	**79**

Age-standardized annual mortality from CHD and related risk factors

(males 35-64)
WHO/MONICA Renaud & de Logeril, 1992

Location	**Mortality / 100,000**	**Serum chol-esterol (mg/dl)**
Toulouse, France	**78**	**230**
Lille, France	**105**	**252**
Stanford, USA	**182**	**209**

Percent of subjects preferring luxury hotel to gourmet hotel at the same price

	Female students	Male students
France	13%	8%
USA	83%	71%

Percent of subjects saying "unhealthy" for choice:
Heavy cream: whipped or unhealthy

	Female students	Male students
France	28%	23%
USA	67%	48%

Percent of subjects mentioning "fat" words in first three free associations to "chocolate" (college students, 1995, Rozin et al.)

Location	Females	Males
India	00	00
Paris	04	05
USA	27	14

Percent of subjects agreeing that they eat a “healthy diet”

	Females	Males
France	76%	72%
USA	28%	38%

Metaphor: Food and the body are like:

	USA	France
Tree	26	66
Car or factory	43	26
Temple	32	10

Representative national samples
Fischler, Rozin et al., 2004

If there was an inexpensive pill to safely satisfy nutritional needs and hunger without having to eat, I would take it

	% > = very true of me
Argentina	15.8%
Brazil	11.3%
France	5.9%
USA	14.3%

Alvarenga, Rozin et al.

Enjoying food is one of the most important pleasures in my life

	% > = very true of me
Argentina	52.8%
Brazil	56.1%
France	66.2%
USA	53.1%

In general, I am more concerned with the caloric content of food than the taste

	% > = very true of me
Argentina	5.3%
Brazil	4.4%
France	2.5%
USA	34.6%

The food environment

Restaurant portion size

Restaurant	France	USA
McDonald's (7)	189g	256g
Quick/Bking(5)	207g	322g
Chinese (6)	244g	418g

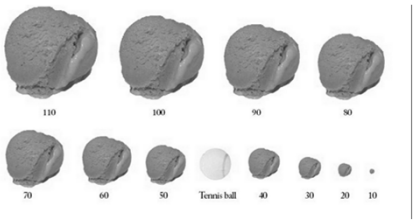
Rozin, P., Kabnick, K., Pete, E., Fischler, C., & Shields, C. (2003). The ecology of eating: Part of the French paradox results from lower food intake in French than Americans, because of smaller portion sizes. Psychological Science, 14, 450-454.

Supermarket food portions

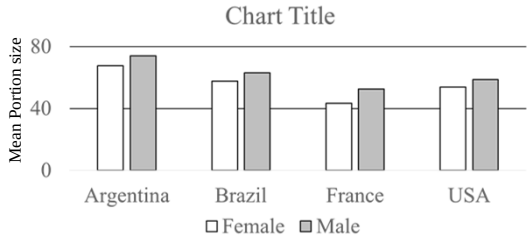
ITEM	Carrefour	Acme
Yogurt (modal)	125g	227g
Fresh fruit (mean,4 types)	431g	553g
Coca cola (modal)	330ml	500ml

Supermarket non-food portions

ITEM	Carre-four	Acme
toothpaste (modal, ml)	75	170
toilet paper (mean, sq cm)	121	117
Cat food (modal, g)	100	85



Mean own portion size (ice cream) (scoop size: 10-110)



35 calories/wedge

Government versus Industry initiation

- Let the free market do it (organic, fat free, calorie free)
- Smaller portion sizes

In a student cafeteria, when students are served a 50% larger portion of macaroni and cheese (right) they eat more, and don't compensate by eating less of the rest of the meal

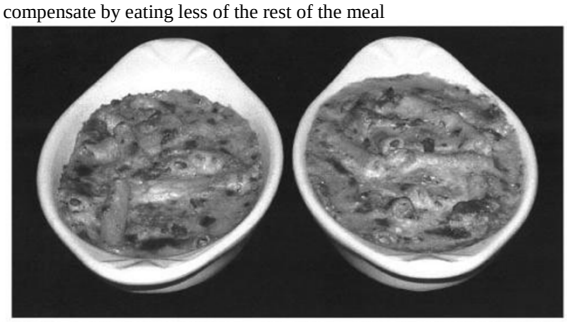


Figure 1: Standard (100%) and larger (150%) portion sizes of the baked pasta entrée are shown on the left and right, respectively, for comparison. The two portions were served on different days; therefore, customers never saw both of them simultaneously.

Diliberti, Rolls et al., 2004

Time use France (Rennes) and USA (Columbus) Kahneman et al., 2010

Activity	France	USA
Working/ commuting	6.3 hours	5.4 hours
Walking	19 minutes	7 minutes
Reading	48 minutes	33 minutes
Pray/worship	3 minutes	19 minutes
eating	117 minutes	52 minutes

French dinner

Obesity: Changing the person

- Dieting
- Nutrition information and education Education about science, risks, benefits
- Changing preferences and intake
- Failure of obesity treatments and dieting
- Only bariatric surgery
- Think about height

Changing the food environment

- Accessibility
- Small accumulated value
- 1-3 standard coca cola cans a week

Social norms and eating

Unit Bias

- Norm for eating one entity
- M&Ms free in bowl
- Small spoon or 4X spoon
- 70% more consumed with 4X spoon
- 60% more with double vs single pretzels

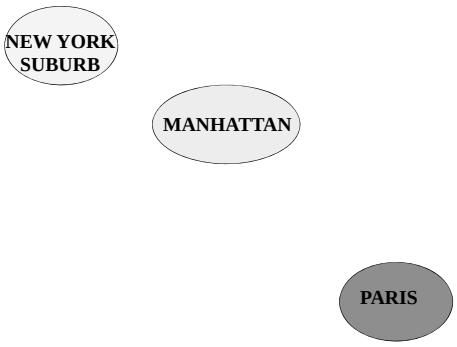
- Geier, A. B., Rozin, P., & Doros, G. (2006). Unit bias: A new heuristic that helps explain the effect of portion size on food intake. Psychological Science, 17, 521-525.

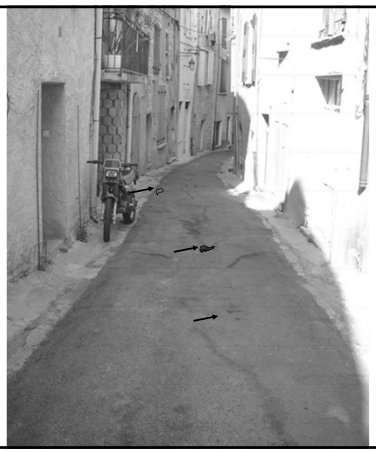
French vs American differences
(with Abigail Rosenstein & Claude Fischler)

- Quality vs quantity
- Moderation vs abundance
- Collective values vs individualization
- Joys vs comforts
- Food more associated with conviviality
- Environment limits modest amounts of food to mealtimes and smaller portions

Pleasure and health

- Learn from the French: Focus and savoring
- Fix the environment
- Incremental, below threshold changes
- Macrovariety
- Moderation: Less food, more pleasure





The NEW ENGLAND JOURNAL of MEDICINE

2013

SPECIAL ARTICLE

Myths, Presumptions, and Facts about Obesity

rista Casazza, Ph.D., R.D., Kevin R. Fontaine, Ph.D., Arne Astrup, M.D., Ph.D
ann L. Birch, Ph.D., Andrew W. Brown, Ph.D., Michelle M. Bohan Brown, Ph.
Nefertiti Durant, M.D., M.P.H., Gareth Dutton, Ph.D., E. Michael Foster, Ph.D
Steven B. Heymsfield, M.D., Kerry McIver, M.S., Tapan Mehta, M.S.,
Nir Menachemi, Ph.D., P.K. Newby, Sc.D., M.P.H., Russell Pate, Ph.D.,
Barbara J. Rolls, Ph.D., Bisakha Sen, Ph.D., Daniel L. Smith, Jr., Ph.D.,
Diana M. Thomas, Ph.D., and David B. Allison, Ph.D.

some useful evidence-based concepts. We define myths as beliefs held to be true despite substantial refuting evidence, presumptions as beliefs

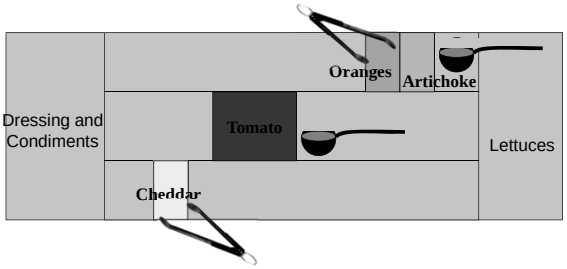
SMALL SUSTAINED CHANGES IN ENERGY INTAKE OR EXPENDITURE

Myth number 1: Small sustained changes in energy intake or expenditure will produce large, long-term weight changes.

Accessibility

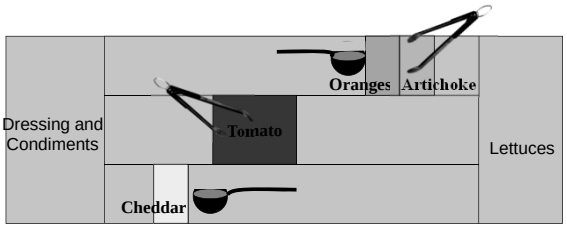
- In hospital staff/visitor cafeteria
- With Sydney Scott, Megan Dingley, Kalina Urbanek, Chen-Chen Jiang and Mark Kaltenbach

Schematics: Spoons/Tongs, Manipulation A



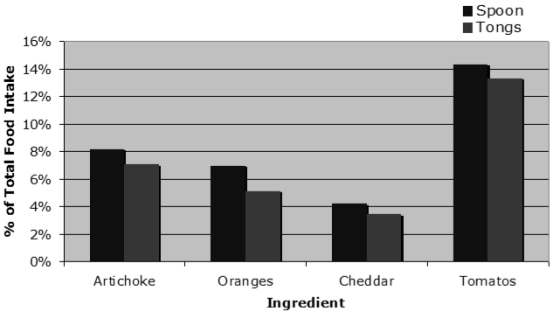
- Isolates edge v. middle

Schematics: Spoons/Tongs, Manipulation B



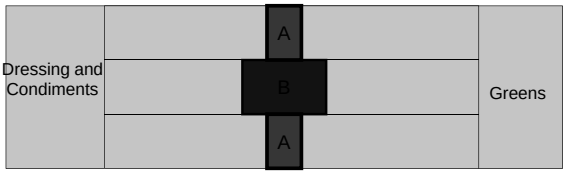
- Isolates edge v. middle

Utensil Study Results (% of Total Intake)



Net difference of 5.53 g/day, or 1,476 g/year or 0.43 pounds/yr

Schematics: Salad Bar Position: Study 1



Other possibilities

- De-emphasizing cost (savings by larger size) vs calories for soups
- Locating fruits at cashier
- Adding “healthier” fruit items: Exposure matters
- Changing portion sizes

Segmentation cues or consumption interrupts

Geier, Wansink & Rozin

Yes, eating can be bad for health

But NOT EATING is much worse for health