Fast Food, Slow Food

Margaret Adamek
Center for Urban and Regional Affairs
University of Minnesota
2005 Bioneers Conference
.....the unraveling web

caffeine

sugar & amphetamine
Childhood Obesity

- 27% of children are overweight (CDC, 2003)
- Obesity rates among children have doubled in the last ten years and tripled for adolescents (Troiano, 1998)
70% of children who are overweight will be obese as adults (USDA, 2004)

Childhood tantrums are positively correlated with obesity (Agras et al. 2004)

Childhood obesity linked to depression (Mustillo, 2003)
Attention deficit hyperactivity disorder

- 7.5% of children exhibit this disorder; 3 times as many boys as girls (Archives of Pediatrics and Adolescent Medicine 2002)
- 80% of prescriptions for amphetamines are written for children diagnosed with ADHD (DEA Congressional Testimony, 2000)
- Administration of amphetamines to children has risen 3000% in the last ten years (DEA Congressional Testimony, 2000)
- ADHD often co-occurs with other problems, such as depressive and anxiety disorders, conduct disorder, drug abuse, or antisocial behavior.
8% of American teens suffer from depression each year; depression onset is occurring earlier in life today than in past decades (Klerman & Weissman, 1989)

5% of youth have anxiety disorders; anxiety disorders have significantly increased in children in the last 30 years (UMMC, 2002)
Change in Carbohydrate Consumption

- Increase of 50% in refined carbohydrates from 1970 (USDA Economic Research Service)
- Americans consume less than one serving per day of whole grains (USDA Economic Research Service)
- 4000+% increase in consumption per annum per person of high fructose corn syrup (USDA Economic Research Service)
- Additional average 300 daily calories consumed attributed to increase in carbohydrate consumption (CDC 2004)
Sugar intake rose 30 percent between 1983 and 1999 and was at 158 pounds per person/year (Center for Science in Public Interest 222.cspinet.org/new/sugar_limit.html)
Candy and Other Confectionary Products: US Per Capita Consumption, 1966 – 2000, Pounds/Year
Per Capita Consumption of Wheat Flour
1965 - 2001

Lbs

Year

US Per Capita High Fructose Corn Syrup Disappearance
1967 – 2000, Pounds / Year
Introduction of new, larger portions, 1970–1999

Young & Nestle 2002


Portion sizes

- Energy dense, nutrient poor foods comprise 27% of diet (+ 4% alcohol) \textit{(Kant 2000)}
- Standard portion size for factory-made cookies exceeds USDA standards by 700%; muffins by 333%, and bagels by 195%
- French fries, hamburgers and sodas increased 2 – 5 times since 1970
- 7-11 Big Gulp contains the caloric equivalent of more than one third the energy requirement of large segments of American population
Our love affair with fast food

- One in four adults eats fast food everyday in the United States
- One in three children eats fast food everyday in the United States
- Soft drink consumption up 135% since 1977
Solving weight issues

- Standard Approach: Individual Responsibility
  - Cut calories
  - Increase activity
  - Reduce soft drink and fast food consumption
  - Reduce time spent watching television and playing video games
from branches to roots: the effects of diet on people
neurochemical roots of the problem

- Volatile blood sugar
- Low serotonin
- Low beta endorphin
- Low dopamine

Glucose molecule
Volatile blood sugar

- Tired all the time for little reason
- Restless and edgy
- Confused/foggy/spacey
- Irritable and easily frustrated
- Cranky
- Short-fused
Low serotonin

- Depressed
- Impulsive
- Short attention span
- Scattered
- Aggressive
- Reactive
- Craving sweets and carbohydrates

Serotonin peptide
Low beta endorphin

- Low pain tolerance
- Low self-esteem and feels inadequate
- Tearful
- Sensitive to criticism
- Feels isolated
- Seeks crisis
- Feels victimized
- Craves sugar and fat

Beta endorphin peptide
Low dopamine

- Correlated with unhappiness
- Linked to aggressive behavior and violence
- Lack of ‘positive emotionality’
DBA/C57 mice – inherited suite of biochemical deficits that give rise to a set of emotional and physical symptoms

Individuals who suffer from this profile seek out foods or substances that elevate these deficits...

Sugar, fat, alcohol and other drugs cause the brain to produce opiates
Sugar Sensitive Eating Habits

- Skip breakfast
- Low protein intake
- Erratic mealtimes
- High intake of refined carbohydrates and sugars
- Frequent meal skipping
- High consumption of caffeine
- True of alcoholics and of ‘C57’ sugar sensitive types

Low serotonin linked to carbohydrate craving, obesity and depression (Wurtman 1986, 1995)

Sugar induces physical dependency \((Colantuoni \text{ and } Hoebel 2002)\)

Sugar is a ‘gateway’ substance that increases likelihood of addiction to other substances, e.g. amphetamines \((Hoebel 2003)\)

Sugar and fat together create significantly increased consumption behavior \((Kelley 2003)\)
More research...

- Palatability/sweet taste *alone* will evoke opiate response (*Hoebel*)
- High fructose corn syrup does not metabolize in ways that other sugars do, creating biochemical reactions that alter metabolism (*Bray 2003*)
Addiction mechanism in the rat is similar to humans (Deroche-Gamonet et al., 2004)

Areas in brain activated in food craving are also activated in drug craving (Raglund et al 2004)
A complex system of addiction
...with complex consequences
...with complex consequences
...with complex consequences
Connecting the body to community

- How we produce food
- What we produce
- How we process food
- How we consume food
- What are the economic, ecological, cultural and health impacts?

- Healing the sacred web of life…
Problem Foods

- High fructose corn syrup
- Transfats
- Low quality protein
- Processed milks
- ‘Liquid candy’
Dependent kids

- **Volatile blood sugar** – moody, sulky, outbursts, tearful, poor attention
- **Low serotonin** – anxious, depressed, low impulse control
- **Low dopamine** – anger, violent, addictive
- **Low opiates/beta-endorphin** – sense of victimization, alienated, low self esteem, addictive
The Ideal Childhood?

- Anxious? – paxil
- Depressed? – Prozac
- Diabetic? – insulin
- ADHD? – ritalin
- Obese? – artificial sweeteners
- PTSD? – indoor toilets
What children need...

- Enough and on time
  - Adequate protein, complex carbs, fruits and vegetables, omega 3 fatty acids, water
  - Stabilizes blood sugar, produces adequate serotonin
  - Complete breakfast, lunch, dinner and two snacks
What children need...

- No spiking and dipping – *calming the addictive mechanism*
  - No liquid candy – pop, large servings of fruit juice, infant formula blended with high fructose corn syrup
  - Snacks – complex carb & protein – twice a day
- Good fats – *avoiding depression & anxiety*
  - Cold water fish, grassfed meats and dairy products, high omega 3 eggs
mending the web of life

caffeine

sugar & amphetamine
Questions?

- Maggi Adamek, Director, The Sugar Project; Center for Urban and Regional Affairs, University of Minnesota. madamek@umn.edu

- “Little Sugar Addicts” – Kathleen DesMaisons
  - www.radiantrecovery.com OR www.littlesugaraddicts.com