Can processed foods be healthy?

Eric A. Decker
Department of Food Science
University of Massachusetts, Amherst
Today’s Public Health Message

Processed Foods are Evil!!

The Indypendent

Amy Jussel
http://www.shapingyouth.org/
What isn’t a Processed Foods

- Pick
- Wash
- Wax
- Controlled Atmosphere Storage
- Transport and Eat

- Pick
- Wash
- Vacuum Cool
- Transport
- Kitchen Process
- Dress and Eat

- Pick
- Wash
- Transport
- Chop and Wash
- Bake
- Eat
What have Processed Food Done for Me?
Benefits of Processed Foods

Increased Spending Power

- Food Cost are declining

23.4% in 1929

9.6% in 2008
Benefits of Processed Foods

Time Management

• 1887: Half of a households labor hours were for preparing foods

• 2010:
  – Food preparation < 25 min/day
  – Shopping for foods (< 15 min/day)
    • Allowed dual working households
    • More leisure time
Benefits of Processed Foods
Healthier Foods

- Food fortification:
  - Niacin
  - Vitamin D in milk and rickets
  - Iodine in salt and goiter
  - Folate in cereal foods and neural tube defects

- 28% reduction between 1995 to 1999 after mandatory fortification in 1996


Miller, D.F., 1978

www.cafemom.com
Life without Processed Foods

• Can we:
  – Grow the majority of our own foods
  – Get a year round supply of healthy foods
  – Make all foods from scratch

• The food processing industry needs to play a large role in improving the food supply?
  – Especially true for low income Americans
The Healthy Processed Food Dilemma

• For a Food to Impact Health it must be Eaten:
  – Taste Great
  – Be a Good Value
  – Be Convenient
Why Do We Need to Improve the Food Supply

If food are causing health problems this indicates that they can also be an important component of preventative health care strategies.

Producing healthier foods will require more knowledge of what foods do and new technologies to make food healthier.
Examples of Technologies that can make the Food Supply Healthier
Obesity: How did we get here and what can we do about it?

• Increase caloric consumption
  – Increased portion size
  – Increased food accessibility
  – More eating out of home
  – More frequent eating
• Decreased exercise

http://hoboken411.com/archives/12228
http://www.woohome.com/home-gadgets/car-swivel-saucer
Portion Size

• If people are given excess food they will over-consume
  – People given 1000 g of mac and cheese ate 30% more calories than those given 500 g (Rolls, Morris, Roe, 2002).

• Portion-size control meals are an effective method for weight loss
Weight Loss in Women Consuming Portion Controlled Entrees 2 times/day

(Hannum et al., 2004)

Challenge = Sodium

Self-select diet was base off Food Guide Pyramid
Omega-3 Fatty Acids

- Under-consumed
- Expensive
- Lifetime nutritional requirement

Sudden death reduced by 47%
(p=0.0136)
Omega-3 fortified Yogurt (350 mg DHA/serving)
Decker and McClements, UMass Food Science

- Like extremely
- Like very much
- Like moderately
- Like slightly
- Neither like nor dislike
- Dislike slightly
- Dislike moderately
- Dislike very much
- Dislike extremely

Protein Encapsulated Omega-3
Removing Synthetic Food Additives

**Ethylene Diaminetetraacetic Acid** (EDTA)

Common Synthetic Food Preservative used to protect flavor and color
Active Packaging
Julie Goddard, UMass Food Science

- Replaces EDTA
- Enables Additive Free Label claim
- Maintains Product Quality
Orange peel has been used in traditional Asian medicine for upset stomach, skin inflammation and muscle pain.
Orange Flavonoids and Colon Cancer

IC50 (MicroM)

50-100 fold stronger

Control         5HPMF           M2               M3

5HPMF          M2         M3             M1

IC50 ({\mu}M)

SW 620

SW 480

(C)

Control   5HPMF   M2   M3

M1
Investment in Food Science

- Food Industry is
  - 8-10% of GDP (approximately $1 trillion)
  - 15% of workforce

- Value added Food Processing is approximately 80% of Food Industry

- Total Federal Research Investment is $142 billion

- Food Science Research Budget is less than $50 million = 0.4% of federal research budget
Conclusions

• Processed foods are a critical component of developing food based approaches for preventative health care strategies

• Processed foods that will improve health must taste good, be convenient and have good value or they will not be incorporated into the diet
  – Making food healthier will require investment in science for technology development
Challenges to Improving the Food Supply

• It's easy for a food company to make money selling junk.

• Incentives are needed to stimulate research investments to make healthy foods
  – Public research support
  – Public-Private research partnerships
  – Strict regulations on health claims (current regulation is from 1938)

  • Can only make claims for healthy population
Sugar and Health?

- The issues:
  - Calories from sugar is too high
    - Hard to change consumer behavior
      - Americans love sweet foods
      - Could sugar consumption be reduced by slow, long-term reduction?
    - People don’t accept sugar alternatives
      - Non-caloric sweeteners (Nutrasweet vs Stevia)
  - Efficacy of non-caloric sweeteners?
Mean (±SEM) changes in body weight, fat mass, and fat-free mass during an intervention in which overweight subjects consumed beverages containing either sucrose (n = 21) or artificial sweeteners (n = 20) daily for 10 wk.