

Can processed foods be healthy?



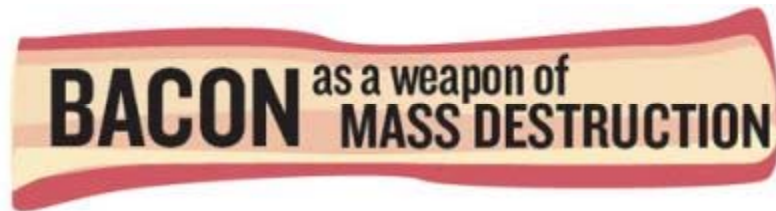
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Today's Public Health Message

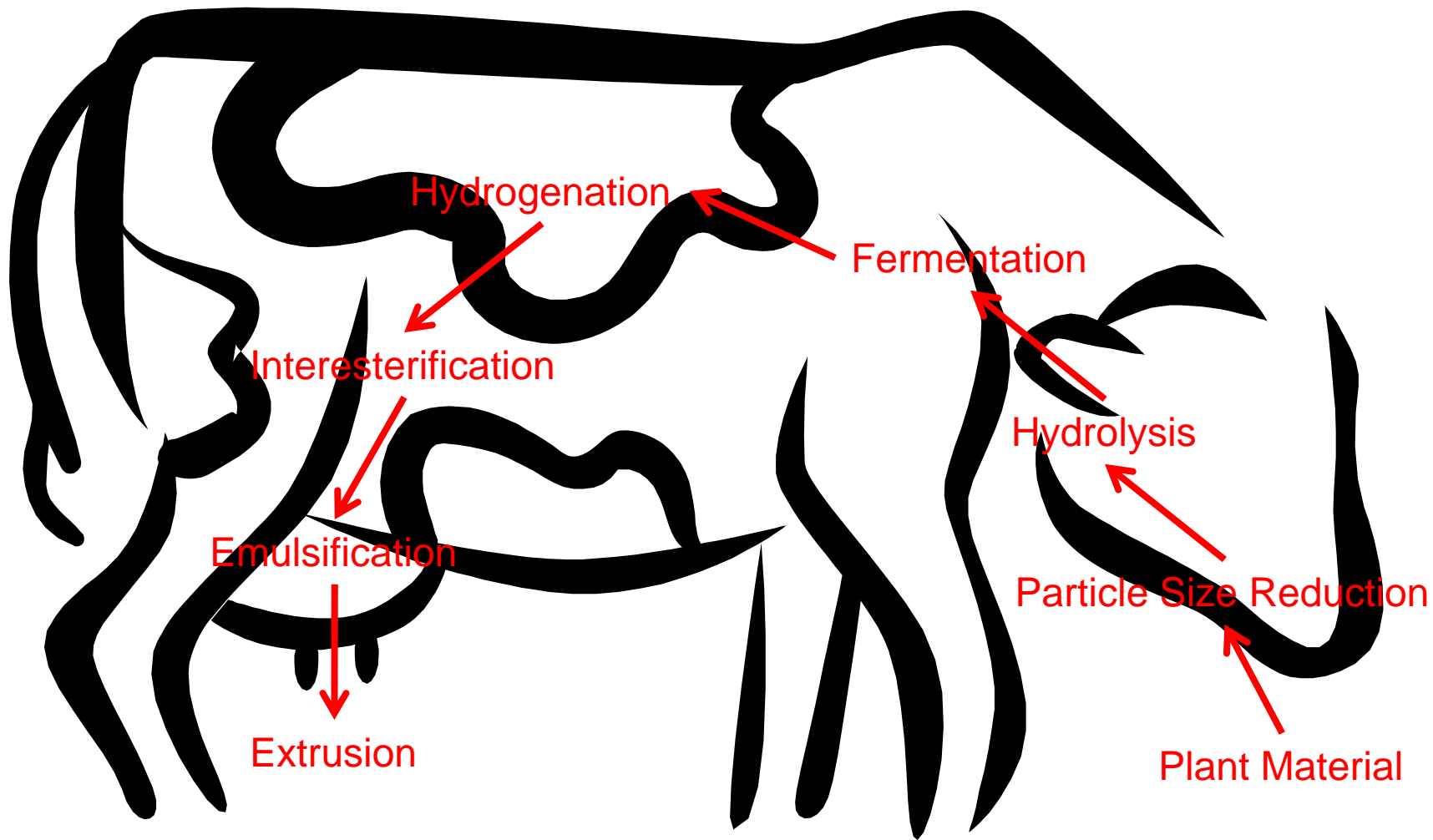
Processed Foods are Evil!!



The Independent
<http://www.independent.org/2009/07/23/bacon-as-weapon/>



Amy Jussel
<http://www.shapingyouth.org/>



What isn't a Processed Food



Pick



Wash



Wax



Controlled Atmosphere
Storage



Transport and Eat



Pick



Wash



Vacuum Cool



Transport



Kitchen Process



Dress and Eat



Chop and Wash



Pick



Wash



Transport



Bake



Eat



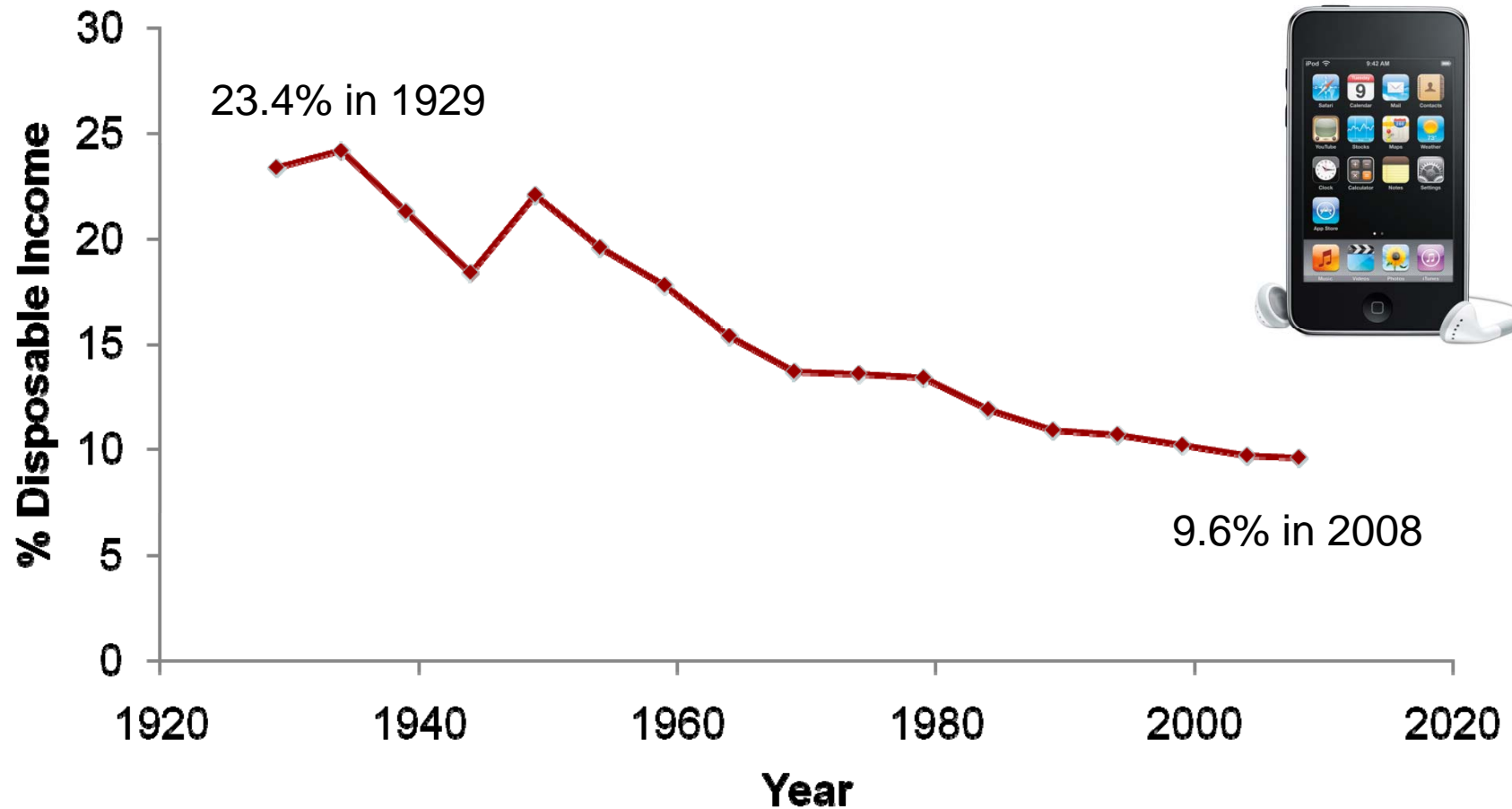
What have Processed Foods Done for Me?



Benefits of Processed Foods

Increased Spending Power

- Food Cost are declining



Benefits of Processed Foods

Time Management

- 1887: Half of a household's 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

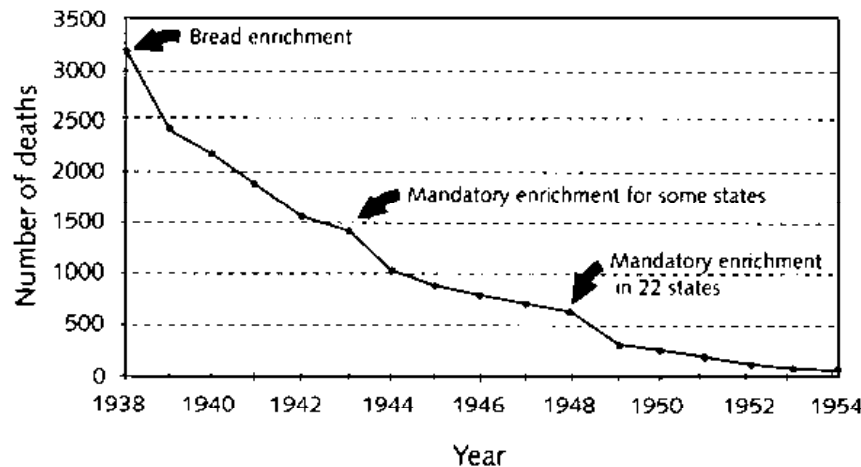


Benefits of Processed Foods

Healthier Foods

- Food fortification:

- Niacin



Pellagra in the United States, 1938-1954.

Miller, D.F., 1978



www.cafemom.com

- 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

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 foods 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



Twenty Years Ago
3-inch diameter
140 calories

Today—Noah's Plain Bagel
5-6-inch diameter
350 calories

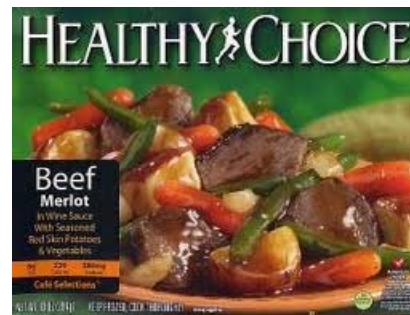
<http://hoboken411.com/archives/12228>



<http://www.woohome.com/home-gadgets/car-swivel-saucer>

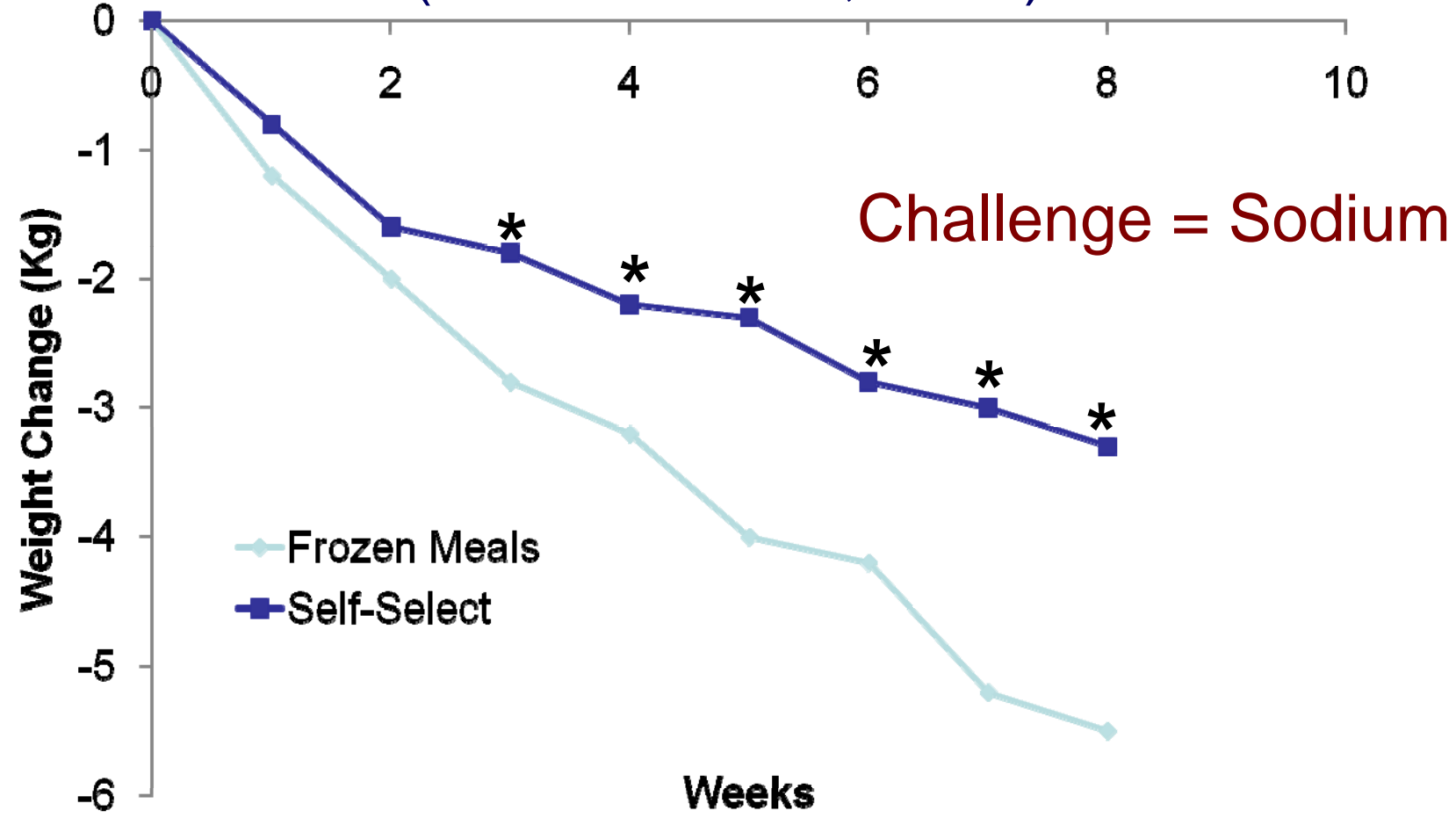
Portion Size

- 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)

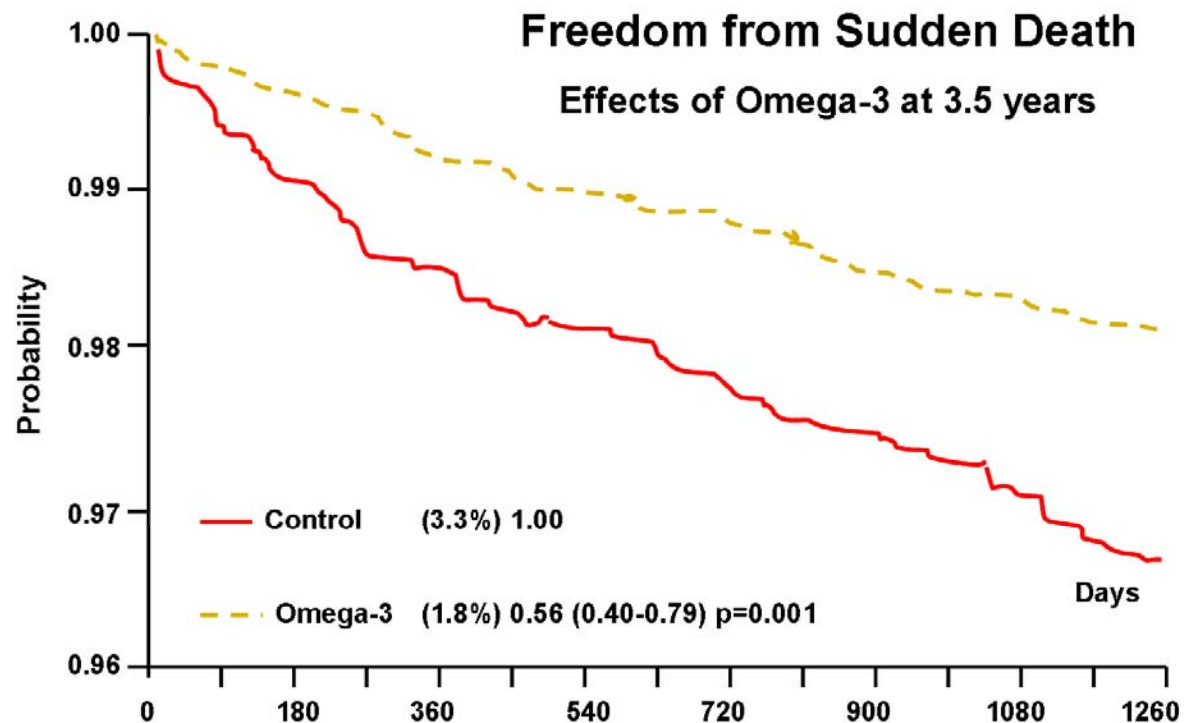


Self-select diet was base off Food Guide Pyramid

Omega-3 Fatty Acids

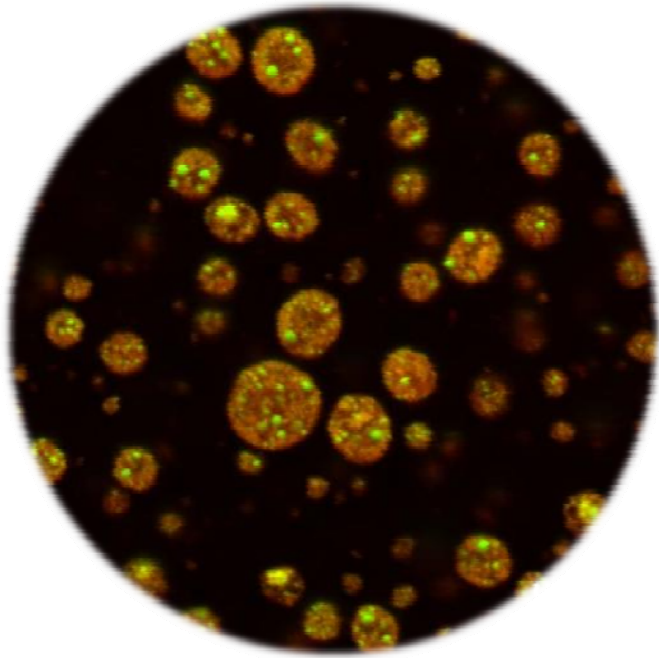
- Under-consumed
- Expensive
- Lifetime nutritional requirement

**Sudden death
reduced by 47%**
($p=0.0136$)



Omega-3 fortified Yogurt (350 mg DHA/serving)

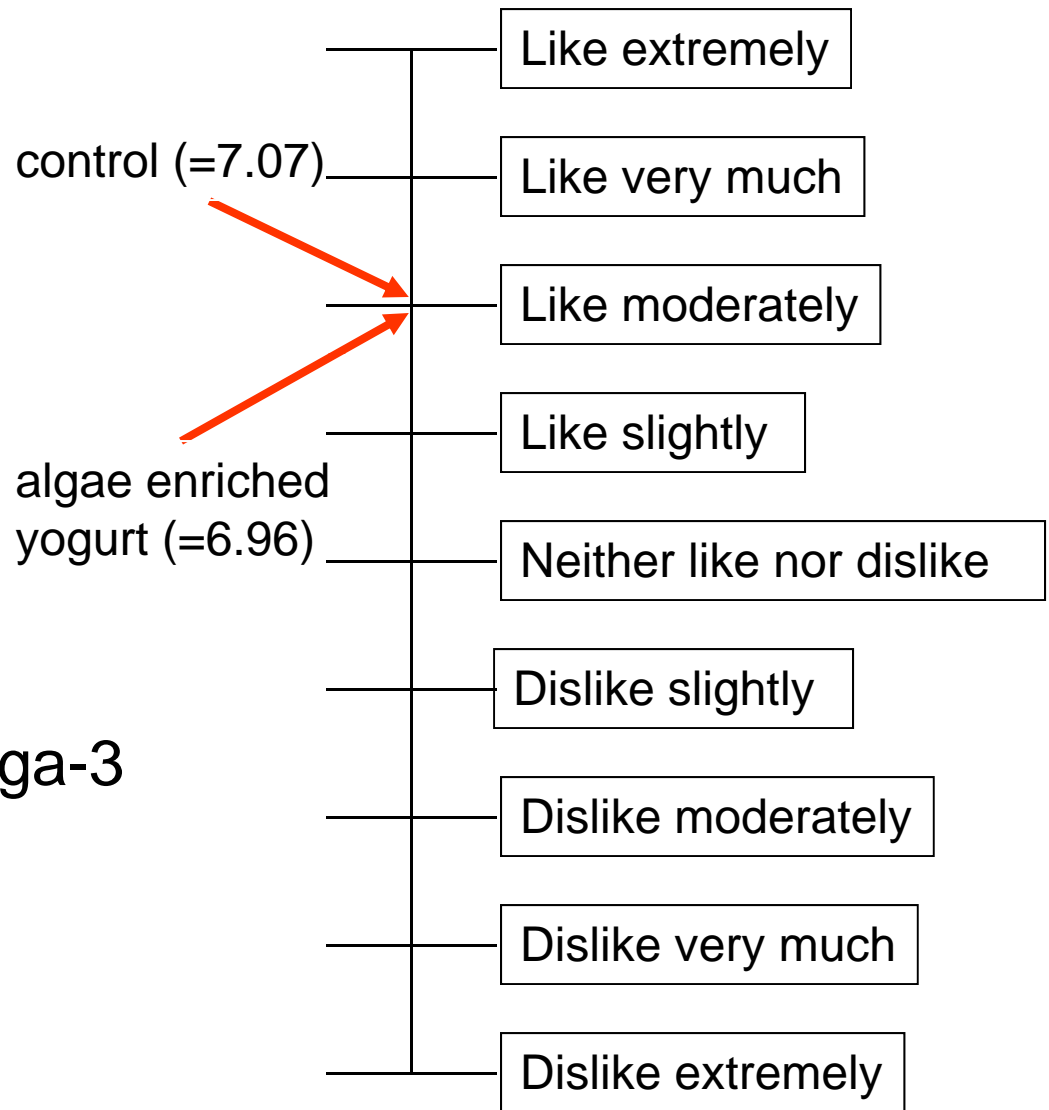
Decker and McClements, UMass Food Science



Protein Encapsulated Omega-3



United States Department of Agriculture
National Institute of Food and Agriculture

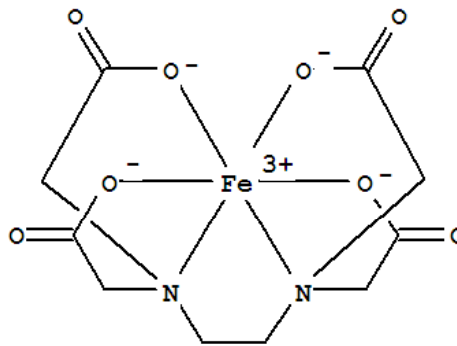


Removing Synthetic Food Additives

Ethylene Diaminetetraacetic Acid

(EDTA)

Common Synthetic Food Preservative used to protect flavor and color

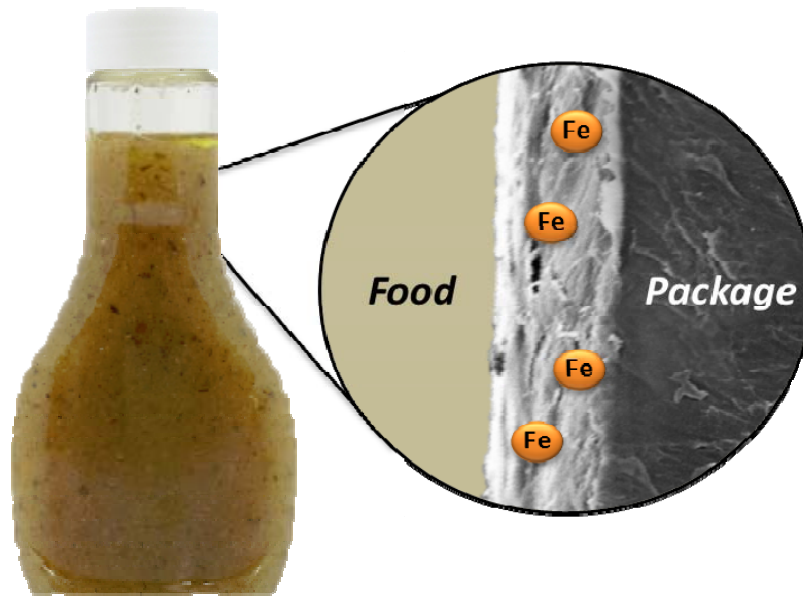


Active Packaging

Metal-Chelating Packaging

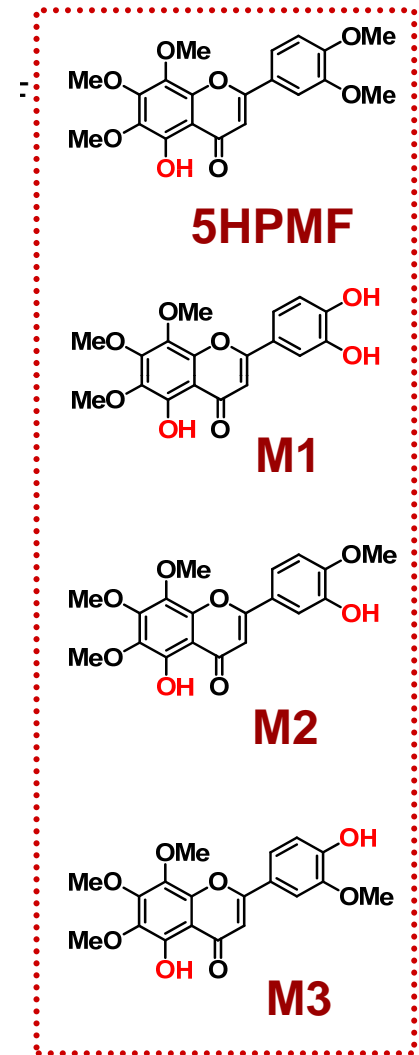
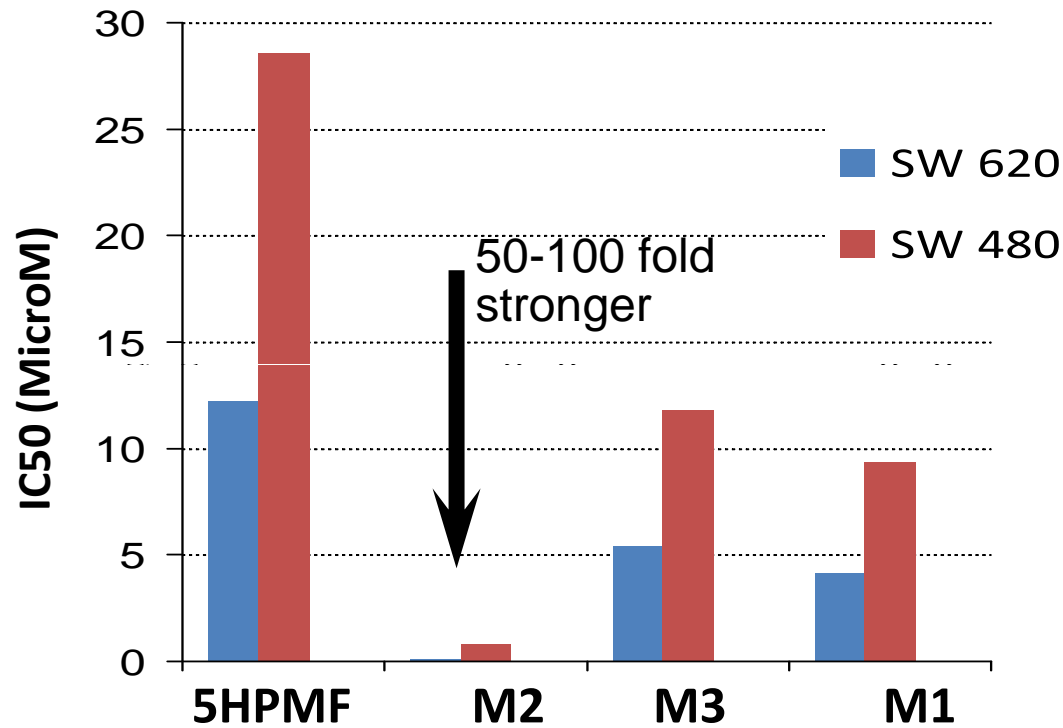
Julie Goddard, UMass Food Science

- *Replaces EDTA*
- *Enables Additive Free Label claim*
- *Maintains Product Quality*

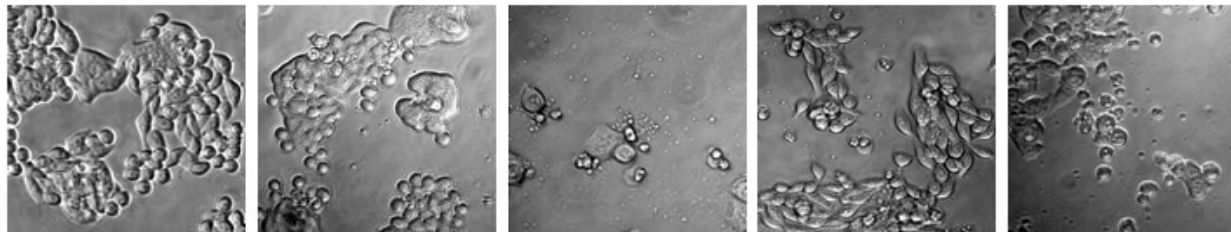


United States Department of Agriculture
National Institute of Food and Agriculture

Orange Flavonoids and Colon Cancer



(C)



Control
M1

5HPMF

M2

M3

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
- 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
 - These challenges 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

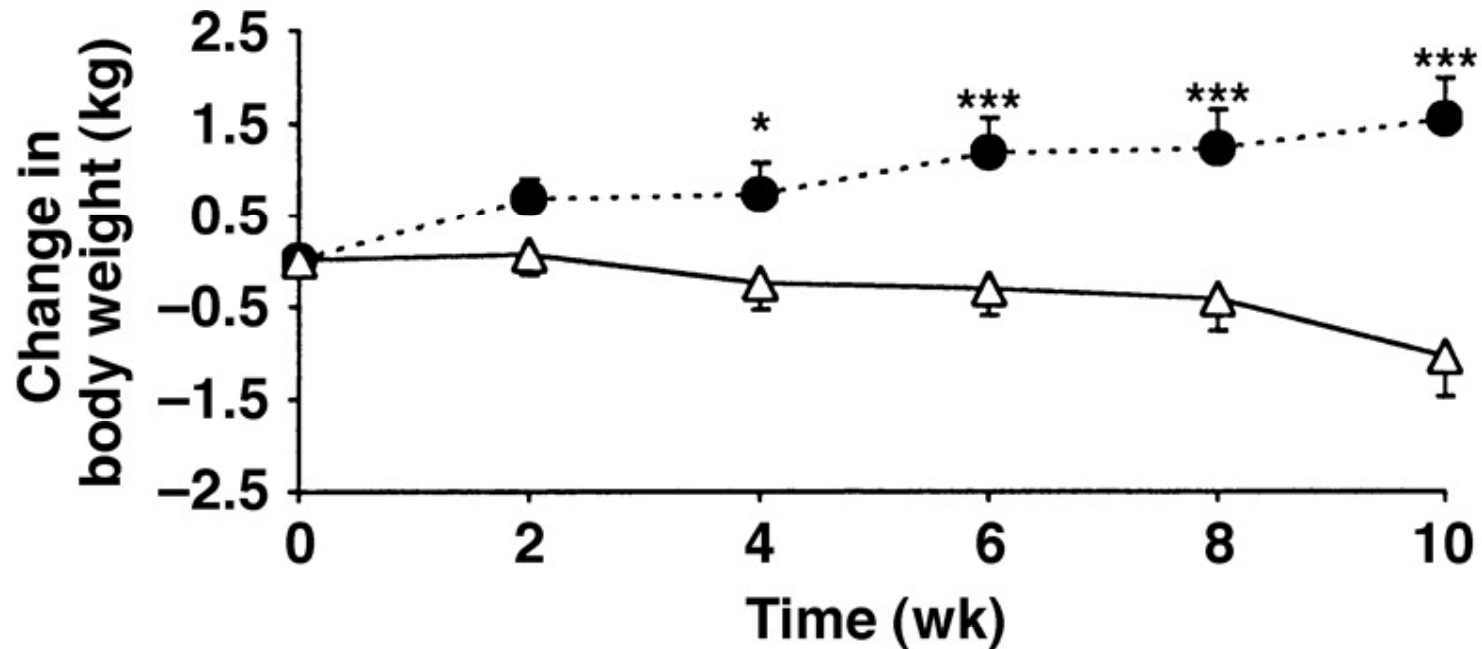


Sugar and Health?

- The issues:
 - Calories from sugar are 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 (\pm 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



Raben, A. et al. Am J Clin Nutr 2002;76:721-729