Frozen Prepared Meals
Under Utilized Weapon in the War Against Obesity

Institute of Medicine Food Forum
November 2, 2010

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EVP, Research, Quality, and Innovation
ConAgra Foods
Frozen Prepared Meals

1. Science is strong, frozen meals help control calories

2. Food and Packaging Technology improve quality, taste, and nutrition

3. Gap between the reality of 1 and 2 versus what consumers are being advised
Science is Strong, frozen meals help control calories

Crucial Dietary Issues for Obesity

- Propensity to gain weight
- Inability to reduce weight
  - Lack of compliance to reduced calorie intake
  - Large portions
  - Energy density of diet

Source: Advisory Committee DGA 2010
Chapter Summary from: The Science Base: Energy Balance and Weight Management
Frozen Meals Enhance Weight Loss

Frozen Meals Treatment
- breakfast, lunch, dinner
- self-selected fruit, vegetable, dairy, etc.

Usual Care Treatment
- dietary counseling
- exchange lists
- self-selected foods

Subjects
- Adult males & females

Duration
- 10 weeks

Weight Loss (lbs)

<table>
<thead>
<tr>
<th>Frozen Meals</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 272</td>
<td>N = 270</td>
</tr>
</tbody>
</table>

P = 0.03
Benefit of Frozen Meals For Weight Loss Success Occurs Immediately

Frozen Meals Treatment
• lunch & dinner meals
• self-selected snacks, fruit, vegetables, etc.

Usual Care Treatment
• dietary counseling
• food lists
• self-selected foods

Subjects
• Adult females

Duration
• 8 weeks

* p< 0.05

<table>
<thead>
<tr>
<th>Time (weeks)</th>
<th>Weight Loss (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>4</td>
<td>-4</td>
</tr>
<tr>
<td>6</td>
<td>-6</td>
</tr>
<tr>
<td>8</td>
<td>-8</td>
</tr>
</tbody>
</table>
Frozen Meals Promote Greater Weight Loss Long-term

Adults males & females
n = 233

Weight Loss (lbs)

Time (weeks)
12 26 52

Frozen Meals (3x/d)  Usual Care

Arch Intern Med 2000
Dietary Guidelines Advisory Committee Report on the Dietary Guidelines for Americans 2010

Strength of the Evidence

Review of evidence for portion size using RCTs with frozen meals

Grading System Methodology
- Quantity and Quality
- Pre-Determined Criteria
- Consistency of Data
- Clinical Meaningful
- Generalizability

DGA Advisory Committee Conclusion: Evidence Ranking = Strong
Employee Engagement At ConAgra Foods with Portion Control

- N = 172 employees (males and females)
- Duration: 4 weeks

- Approximately 20 ConAgra Foods Brands included across all temperature states
- Based on consumption of 2 portion controlled frozen or ready to eat meals
- Self-selected additional foods (snacks, fruits, vegetables, dairy, grains, etc)

- Mean weight Loss: 7.5 lbs

Follow-up survey (2 months post-completion)

Weight Loss: 55% maintained, 26% continued to lose weight

Key principles learned and continued to use:

- **Portion control**: 83%
- **Sensible snacking**: 59%
- **Reading labels**: 52%

Surprised with variety of foods: 93%
Would recommend to others: 99%
Composition of Frozen Meals and Typical Lunch & Dinners

- Typical = NHANES 2007-2008, Age 40-49, Males & Females
- Frozen Meals = Marie Callender’s and Healthy Choice Steamers
Frozen Single Serve Meals Have Low Energy Density (kcal/g)

- NHANES 1999-2004 Solid Food Only
- Healthy Choice and Marie Callendar’s Steamers

<table>
<thead>
<tr>
<th>NHANES</th>
<th>Healthy Choice = 0.94</th>
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</thead>
<tbody>
<tr>
<td>Tertile 1</td>
<td>1.59 – 2.17</td>
</tr>
<tr>
<td>Tertile 2</td>
<td>0.94</td>
</tr>
<tr>
<td>Tertile 3</td>
<td>2.49</td>
</tr>
</tbody>
</table>

Plain Turkey Patty = 2.02

Food and Packaging Technology improve Quality, Taste, and Nutrition of Frozen Meals

Every Frozen Meal improved taste, nutritional or environmental footprint in past 3 years

Improved Taste through Science
• Healthy Choice Café Steamers taste as good as freshly prepared meals

Improved Nutritionals
• Pledge to reduce sodium by 20% by 2015
• 40000 lbs of sodium and 661000 lbs fat removed annually from frozen meals
• Artificial colors and preservatives removed from Kid Cuisine

Improved Sustainability
• Only manufacturer with Recycled PET in frozen meal trays
Healthy Choice nutritionals are regulated:
- < 600mg sodium
- ≤ 3g fat/100grams
- < 1g saturated fat/100grams
- > Good source of 3 nutrients
- $2.72 average retail price

Top colander separates components from sauce and allows steam/moisture migration
- Meal can be plated with sauce poured over top OR components plated in bottom bowl with sauce
- Microwaveable tray is 100% recyclable
BROWN BAG LUNCH OF THE MONTH

green bean and pasta salad

TOTAL TIME: 20 MINUTES | SERVES 2

Cook 4 ounces (1 1/4 cups) penne according to the package directions, adding 4 ounces of green beans (halved crosswise; about 1 cup) during the last 3 minutes of cooking. Drain and run under cold water to cool.
Toss the cooled pasta and green beans with 1 cup canned red or kidney beans (rinsed), 3/4 cup chopped flat-leaf parsley, 2 tablespoons grated Parmesan, 2 tablespoons olive oil, 2 tablespoons fresh lemon juice, 1/4 teaspoon kosher salt, and 1/4 teaspoon black pepper. Divide the salad between 2 containers and refrigerate for up to 1 day.

THE COST: $2.60 a serving.
Lunch Steamers by Healthy Choice

- Innovative steaming technology
  - Package vents at the right pressure and temperature
  - Better food in Faster time
  - Meets Healthy nutrition requirements
  - $2.21 average retail price

Brown Bag Lunch of the Month
- 20 minute cook time
- Shopping for individual ingredients
- Clean-up
- $2.60 / serving
Packaging Technology improves Quality and Taste of Frozen Meals

Patented packaging technology steams product in pressurized vessel

- Improved taste
- Better texture
- Preferred consumer experience

The Heating Mechanism – How it works

humidity Loss, ~ 2.1% vs. 8% in traditional frozen meals

- Separates meal components from sauce
- Steam generation from sauce helps cook meal faster and more consistent

CAG Internal Report BSTR0002, 2008
Café Steamers Taste as Good as Freshly Prepared Meals

**Improved Taste through Science and Technology**
- Healthy Choice Café Steamers taste as good as freshly prepared meals

**Healthy Choice Grilled Chicken Marinara**
Paired Comparison Blind Test
Café Steamers vs Components Freshly Prepared

<table>
<thead>
<tr>
<th></th>
<th>Steamers</th>
<th>Freshly Cooked</th>
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</thead>
<tbody>
<tr>
<td>Overall Product Liking</td>
<td>7.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Preference</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Taste Liking</td>
<td>7.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Texture Liking</td>
<td>7.2</td>
<td>7.0</td>
</tr>
<tr>
<td>Freshness Liking</td>
<td>7.4</td>
<td>7.4</td>
</tr>
</tbody>
</table>

n=41, Statistical testing at 90% confidence level

**Café Steamers replaced Flavor Adventures**
→ Consumer consumption increased 150% behind better taste through steaming
During past 12 months percent that almost always discuss with clients:

- Portion Control
- Food Preparation Techniques

Frozen Single Serve Meals as a Portion & Calorie Control Strategy

(N = 160 Registered Dietitians & Diabetes Educators, May 2010)

Source: ConAgra Foods
Consumers: 2007 % Food Expenditure Away from Home

Health Professionals: % Preparing 5 or Fewer Dinners Per week at home

Health Professionals: % Rating of Own Cooking Skills as Extremely Good

Source: USDA-ERS, ConAgra Foods
Advice for Achieving and Maintaining a Healthy Weight

(where’s the single serve frozen meal recommendation?)

<table>
<thead>
<tr>
<th>Publication</th>
<th>Source</th>
<th>Is Portion Control Discussed and Recommended?</th>
<th>Are Frozen Single Serve Meals Suggested as an Option?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim for a Healthy Weight</td>
<td>DHHS</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Just Enough for You – about food portions</td>
<td>NIH Weight Control Information Network</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Healthy Weight – it’s not a diet, it’s a life style</td>
<td>CDC</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Choose a single serve frozen meal. These foods can help you eat a portion and calorie controlled meal when:

- You’re pressed for time
- Don’t know how to cook a particular dish
- Simply don’t feel like preparing a meal from scratch