Food Away from Home, Sugar-sweetened Drink Consumption and Juvenile Obesity

**OBJECTIVE**
To identify if particular foods or food groups may be associated with obesity in children and adolescents.

To determine if consuming food away from home has an effect on the nutritional quality of their diets.

**STUDY DETAILS**
- A cross-sectional design looking at diet patterns at one point in time can only examine associations and cannot determine direct cause and effect
- 181 Caucasian children and adolescents, aged 4 to 16 years, recruited over 1 year (to allow for seasonal variation in diet)
- Weight was <75th (non-obese) and >95th (obese) percentiles of the reference values for age and gender
- Exclusions included: children with eating disorders including dieting, genetic disorders of obesity, physical limitations such as spina bifida, cerebral palsy or muscular dystrophy, other co-morbid conditions that might affect eating or treated by medications that could affect eating such as psychiatric disorders or attention deficit disorder

**KEY FINDING**
Obese children consumed significantly more meat and alternatives, grain products, food away from home, sugar-sweetened drinks and potato chips.

Higher consumption of meat and alternatives, sugar-sweetened drinks, and food away from home was significantly associated with greater percentage body fat.

Higher consumption of cheese and fruit (including fruit juice) was significantly associated with lower percentage body fat.

**RESULTS**
- Both groups were low in fruit and vegetables, milk and milk products and consumed more meat than recommended
- Obese subjects consumed more potato chips (*p*<0.05), sugar-sweetened drinks (*p*<0.002) and a combination of sugar-sweetened drinks and regular soda pop (*p*<0.005), and ate more food away from home (including ordering in, take-out, restaurants, theme days at schools and food bought at school [*p*<0.0001])

<table>
<thead>
<tr>
<th></th>
<th>Non-obese group n=90 (35 boys, 55 girls)</th>
<th>Obese group n=91 (40 boys, 51 girls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>9.5</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>(4.3 to 16.9)</td>
<td>(4.3 to 16.2)</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>33</td>
<td>64*</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>17</td>
<td>29*</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>136</td>
<td>147*</td>
</tr>
<tr>
<td>% body fat</td>
<td>17</td>
<td>35*</td>
</tr>
</tbody>
</table>

* Significant between group difference *p*<0.0001
An increase in the frequency of meat and meat alternatives, grain products, sugar-sweetened drinks and potato chips was associated with an increase in dietary energy, fat and/or sugar intake.

The consumption of meat and meat alternatives daily ($p=0.0001$), sugar-sweetened drinks weekly ($p=0.0001$) and foods away from home monthly ($p=0.02$) was significantly associated with an increase in percentage body fat.

A decrease in percentage body fat was significantly associated with increased consumption of cheese weekly ($p=0.003$) and fruit including fruit juice daily ($p=0.05$) (the computer program could not differentiate between fruit and fruit juice).

No other correlations between percentage body fat and other foods or food groups were found.

Those who consumed more foods away from home consumed more meat and alternatives and grain products.

Neither vegetables and fruit nor milk products were associated with foods away from home.