Tracking restaurant menu items in the UK

Energy and nutrient trends

Coffee Break Seminar

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Content

**Why**
do we need to track the nutrient composition of restaurant menu items?

**How**
can we track the nutrient composition of restaurant menu items?

**What**
have we found through tracking restaurant menu items in the UK?
Saltiest chips/fries competition

Which one contains the highest amount of salt?

- McDonald's Fries (Medium): 0.62 g
- Nando’s Chips (Regular): 0.60 g
- The Regal: Bowl of Chips (Wetherspoons): 2.2 g
- McCain Home Chips (one serving of 100g): 0.54 g
Nutrient composition of restaurant menu items

Why?

Restaurant foods tend to be high in energy, fat, and salt, yet low in fibre and micronutrients.

Compare to their supermarket equivalents, the food and drinks served out-of-home (or takeaway meals) contain twice as many calories on average.

The food we eat outside the home makes up 20-25% of adult daily calorie intake.

Frequent restaurant food consumption is associated with higher daily energy intake and BMI.

Nutritional composition of restaurant menu items

Why?

Restaurant food environment

Current landscape/trajectory

Policy evaluation

Cross-country comparison

Participant YH’s food diary

Breakfast: regular oat latte + croissant from Caffe Nero

Lunch: Italian B.M.T wrap from subway

Dinner: tantanmen beef brisket ramen from wagamama

Improve the estimation of nutrient consumption
Nutritional composition of restaurant menu items

How?
Nutritional composition of restaurant menu items

How?

Luckily, some restaurants post this information online and/or in-store!

News story

Calorie labelling on menus to be introduced in cafes, restaurants and takeaways

Government renews drive to tackle obesity and improve the nation’s health
Nutritional composition of restaurant menu items

Building a database

- Energy and nutritional information of menu items served by large chain restaurants (potentially subject to the calorie labelling rule).
Web scraping
The power of web scraping
Web scraping
web crawler in action

Irish Velvet Hot Chocolate and Cream

Customise your drink

Pick a cup size

Small  Medium

Pick a milk
<table>
<thead>
<tr>
<th>Product</th>
<th>Ingredients</th>
<th>Size</th>
<th>Calories (KJ)</th>
<th>Energy (kJ)</th>
<th>Energy (cal)</th>
<th>Fat (g)</th>
<th>Of which saturated (g)</th>
<th>Cholesterol (mg)</th>
<th>Carbohydrate (g)</th>
<th>Of which sugars (g)</th>
<th>Protein (g)</th>
<th>Carbohydrates (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caffe Latte - Skinned Milk</td>
<td>MILK, brewed espresso</td>
<td>50</td>
<td>713</td>
<td>165</td>
<td>15.3</td>
<td>19.0</td>
<td>7.5</td>
<td>9.0</td>
<td>8.0</td>
<td>1.3</td>
<td>0.5</td>
<td>62</td>
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<tr>
<td>Caffe Latte - Semi - skinned Milk</td>
<td></td>
<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Caffe Latte - Whole Milk</td>
<td></td>
<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
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<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
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<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
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<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
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<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
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<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Caffe Latte - Oat</td>
<td></td>
<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Caffe Latte - Original Nit Blend</td>
<td></td>
<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Vanilla Latte - Skinned Milk</td>
<td>MILK, brewed espresso, vanilla ice flavouring, acidity regulator: citric acid</td>
<td>50</td>
<td>15.3</td>
<td>9.0</td>
<td>0.5</td>
<td>9.0</td>
<td>8.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>0.5</td>
<td>58.5</td>
</tr>
</tbody>
</table>

**MenuTracker**

A longitudinal restaurant nutritional database

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**Camelot: PDF Table Extraction for Humans**

Release v0.10.1. ([Installation](https://github.com/camelot-team/camelot))

Camelot is a Python library that can help you extract tables from PDFs!

**Note:**

You can also check out [Excalibur](https://github.com/camelot-team/excalibur), the web interface to Camelot!

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**Tabula**

Tabula is a tool for liberating data tables locked inside PDF files.
## MenuTracker database

**Data collected (quarterly)**

<table>
<thead>
<tr>
<th>Collection</th>
<th>Month Year</th>
<th>Number of food outlets (restaurants)</th>
<th>Number of Menu Items</th>
<th>Primary sampling frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot Data Collection</td>
<td>April-June 2018</td>
<td>42</td>
<td>10,782</td>
<td>top 100 based on volume sales</td>
</tr>
<tr>
<td>Pilot Data Collection</td>
<td>April 2019</td>
<td>48</td>
<td>13,678</td>
<td>over 20 outlets</td>
</tr>
<tr>
<td>Pilot Data Collection</td>
<td>October 2020</td>
<td>40</td>
<td>9,330</td>
<td>top 100 based on volume sales</td>
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<tr>
<td>Pilot Data Collection</td>
<td>December 2020</td>
<td>40</td>
<td>11,584</td>
<td>top 100 based on volume sales</td>
</tr>
<tr>
<td>Quarterly Data Collection</td>
<td>March 2021</td>
<td>85</td>
<td>18,005</td>
<td>Over 250 employees</td>
</tr>
<tr>
<td>Quarterly Data Collection</td>
<td>June 2021</td>
<td>83</td>
<td>19,310</td>
<td>Over 250 employees</td>
</tr>
<tr>
<td>Quarterly Data Collection</td>
<td>September 2021</td>
<td>79</td>
<td>19,323</td>
<td>Over 250 employees</td>
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<tr>
<td>Quarterly Data Collection</td>
<td>December 2021</td>
<td>81</td>
<td>19,698</td>
<td>Over 250 employees</td>
</tr>
</tbody>
</table>
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

- Voluntary salt, sugar, and calorie reduction programmes
- April 2018: soft drinks industry levy
- Sept – Dec 2018: Consultation
- June 2018: Chapter 2 of the obesity policy, Compulsory calorie labelling
- July 2020: consultation response on introducing mandatory calorie labelling

2018  2019  2020
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 - 2020

Core Items
Items available in all three years

- Big Mac
- Quarter Pounder™ with Cheese

Newly introduced items
reintroduced items
removed items

- McPlant
- Nacho cheese wedges

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>?</td>
<td>?</td>
<td>500</td>
</tr>
<tr>
<td>Nutrition</td>
<td>?</td>
<td>500</td>
<td>?</td>
</tr>
<tr>
<td>Nutrition</td>
<td>500</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

• Sugar per serving reduced from 15.28 g in 2018 to 14.41 g in 2020 (p<0.05).
• We also observed a downward trend for energy, and upward trends for salt and saturated fat, but these were not statistically significant.

Figure 2 Predicted mean energy (kcal), salt (g), saturated fat (g), and sugar (g) per serving by year, among all menu items. Models were adjusted for children's menu item status, shareable status, food category, and restaurant type. The 95% confidence intervals (CI) are represented by vertical bars, and the predicted mean values are represented by red dots.
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 - 2020

All menu items, by food category

Changes were sporadic and consistent across different food categories.
No significant changes were observed in the nutrient content of salads, soups, and toppings & ingredients.
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 - 2020

• Sugar per serving decreased by 0.31g per year (95% CI = -0.45, -0.17).
• There were no significant changes in salt, sugar, and saturated fat content among core items.

Figure 4 Predicted mean energy (kcal), salt (g), saturated fat (g), and sugar (g) per serving by year, among core items. Models were adjusted for children’s menu item status, shareable status and food category. The 95% confidence intervals (CI) are represented by vertical bars, and the predicted mean values are represented by red dots.
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

**core items, by food category**

- Saturated fat content of menu items decreased in sandwiches, but increased in pizzas. There was a downward trend for sugar in beverages, but no significant trend in salt in any food category.
- There were no significant changes in appetisers & sides, burgers, desserts, fried potatoes, salads, soups, and toppings & ingredients, among core items.
Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 - 2020

Our results showed that **sugar** content of all menu items and core items declined from 2018 to 2020.

Among core items, sugar per serving reduced significantly from 2018 to 2020, especially in **beverages**.

Energy, salt, and saturated fat content in menu items remained constant overall.
Energy and nutrient trends
Menu items served by large chain restaurants in the UK, 2018 -2020

• Policies focusing on single nutrient do not necessarily improve the nutrient quality of restaurant food items.

• Our results signal that little progress has been made towards a healthier restaurant environment by industry self-regulation between 2018 and 2020, when no mandatory policy for the out-of-home sector has been implemented. More robust policy approaches may be needed to improve the overall nutritional quality of restaurant foods.
Acknowledgement

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