An Examination of Dietary Excess

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Project #1

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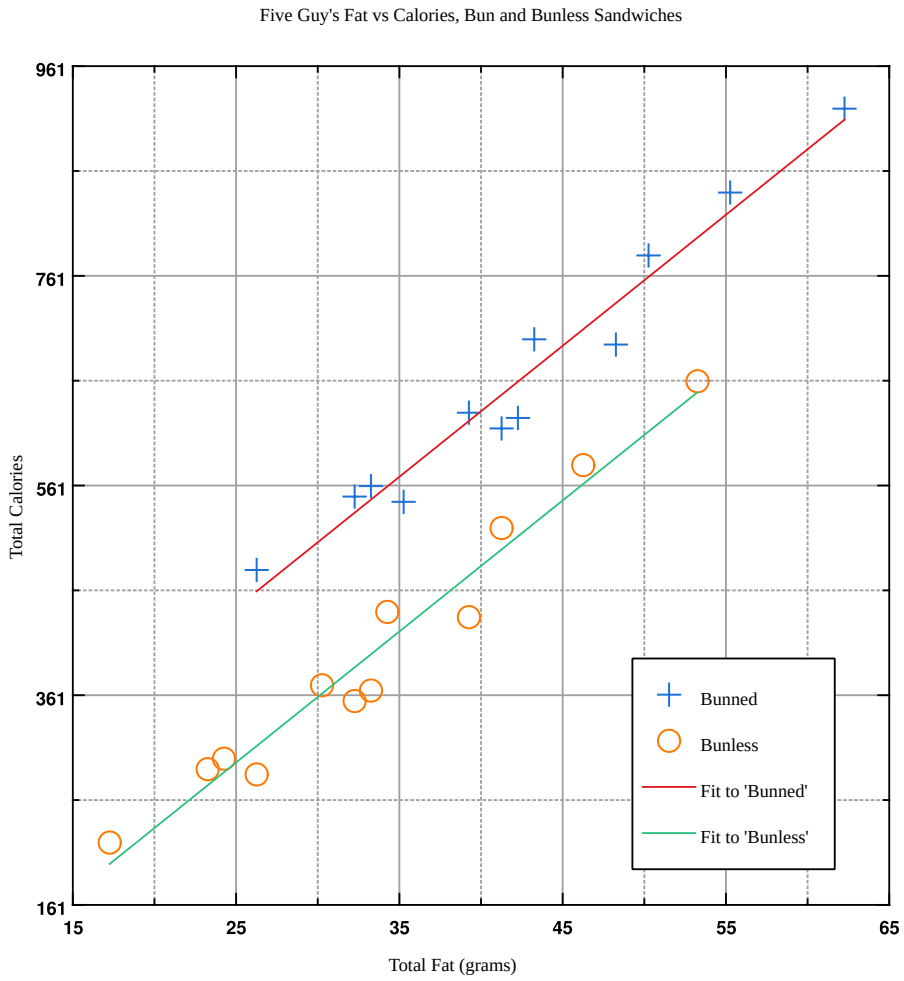
Abstract

In this project, we explore the gastronomical minefield that is Five Guy's menu. Charting the heretofore uncharted, we reveal the calorically dense panoply that is Five Guy's one-stop-shop for cardiologists' express disapproval. A cursory google says there's about 9 calories in a gram of fat; given there are carbohydrates and proteins in all of the examined menu items, accounting for the difference, this coincides with our findings.

Chart



Data Tables

Bunned

Name	Total Fat (grams)	Total Calories
Hamburger	43	700
Cheeseburger	55	840
Bacon Burger	50	780
Bacon Cheeseburger	62	920
Little Hamburger	26	480
Little Cheeseburger	32	550
Little Bacon Burger	33	560
Little Bacon Cheese Burger	39	630

Name	Total Fat (grams)	Total Calories
Hot Dog	35	545
Cheese Dog	41	615
Bacon Dog	42	625
Bacon Cheese Dog	48	695

Bunless

Name	Total Fat (grams)	Total Calories
Hamburger	34	440
Cheeseburger	46	580
Bacon Burger	41	520
Bacon Cheeseburger	53	660
Little Hamburger	17	220
Little Cheeseburger	23	290
Little Bacon Burger	24	300
Little Bacon Cheese Burger	30	370
Hot Dog	26	285
Cheese Dog	32	355
Bacon Dog	33	365
Bacon Cheese Dog	39	435

Best Fit for Bunned

Performing a linear regression of the Bunned data set gives a best-fit line:

$$y = 12.50x + 134.73$$

$R = 0.963$, indicating a very good fit with positive correlation.

Best Fit for Bunless

Performing a linear regression of the bunless data set gives a best-fit line:

$$y = 12.50x - 12.80$$

$R = 0.981$, indicating a very good fit with positive correlation.

Significance of Slope

In both bun and bunless, the slope is ≈ 12.50, meaning a gram of fat is about 12.50 calories.

The slope has a unit of $\frac{Calories}{Grams\ of\ Fat}$.

Interpolating Data

40 Grams of Fat in a Bunned Sandwich

If a bunned hot dog or burger were to have 40 grams of fat, we could expect it to have about 635 calories.

Best Fit for Bunned:

$$y = 12.50x + 134.73$$

Fill in 40 grams of fat:

$$y = 12.50 \times (40) + 134.73$$

Solving:

$$y \approx 635$$

30 Grams of Fat in a Bunless Sandwich

If a bunless hot dog or burger were to have 30 grams of fat, we could expect it to have about 362 calories.

Best fit for Bunless:

$$y = 12.50x - 12.80$$

Fill in 30 grams of fat:

$$y = 12.50 \times (30) - 12.80$$

Solving:

$$y \approx 362$$

Conclusion

There is a strongly linear, positive correlation between fat content and calories.

Additionally, buns add calories and fat. We can estimate a bun adds roughly 148 calories per sandwich.

I should eat at FiveGuys less.

Notes on Software Used

Plots and data analyses were done using LabPlot 2.10.0, free, open-source, and cross-platform Data Visualization and Analysis software.

This document was composed in Markdown, rendered to HTML using a small program utilizing the gomarkdown[1] package. Math formulae are composed in MathJax, compiled to MathML. Page layout and styling was manually done with hand-written CSS.

The final rendering was done with the Google Chrome web browser.

The sourcecode for all the files involved are available on GitHub[2].

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1. https://github.com/gomarkdown/markdown
2. https://github.com/sparques/mat171-project1