

Nutrition & Lifestyle Analysis

Data source: MyFitnessPal export aggregated to daily totals (multiple meals per day). Optional lifestyle variable: time at home (hours).

Goal. Explore how daily calories relate to macronutrients (carbs/protein/fat), and whether *time at home* shows any relationship with diet composition (macro % and sugar share). A simple nutrition score summarizes how close each day is to target ranges.

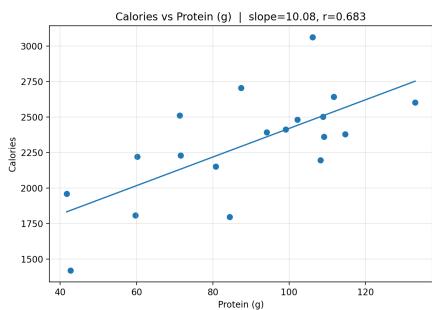
Method (very short). Meals were summed by date to obtain daily totals. Macro energy shares were computed using a fiber-aware 4–4–9 model:

$$\text{NetCarbs} = \max(\text{Carbs} - \text{Fiber}, 0), \quad E_{\text{macro}} = 4 \text{ NetCarbs} + 4 \text{ Protein} + 9 \text{ Fat}$$

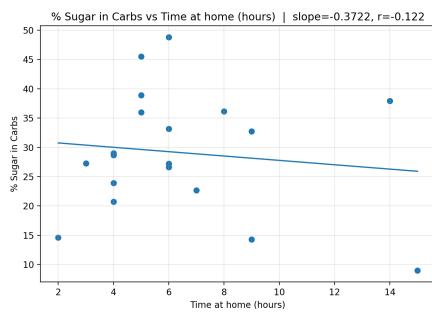
$$\%C = 100 \cdot \frac{4 \text{ NetCarbs}}{E_{\text{macro}}}, \quad \%P = 100 \cdot \frac{4 \text{ Protein}}{E_{\text{macro}}}, \quad \%F = 100 \cdot \frac{9 \text{ Fat}}{E_{\text{macro}}}$$

A linear fit ($y = mx + b$) and Pearson correlation r are shown on scatter plots.

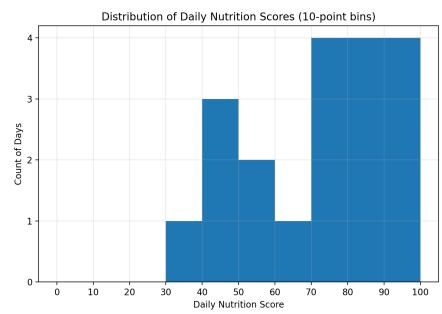
Example figures



Calories vs protein



Sugar% in carbs vs time at home



Score distribution

Results table.

Relationship	Slope m	Corr. r	Interpretation (short)
Calories vs Carbohydrates (g)	2.404	0.407	Positive trend: more carbs generally means more calories, but moderate scatter.
Calories vs Protein (g)	10.08	0.683	Stronger positive association: higher-protein days also tend to be higher-calorie days.
Calories vs Fat (g)	6.631	0.634	Strong positive association: fat intake is strongly linked with calorie intake.
Calories vs Time at home (h)	-24.52	-0.223	Weak negative trend in this sample; likely not stable with small N .
Sugar% in Carbs vs Time (h)	-0.3722	-0.122	Very weak relationship; sugar share varies a lot day-to-day.

Discussion. Overall, calories are most strongly associated with **protein** and **fat** in this dataset (higher r values), while carbohydrates show a weaker but still positive relationship. The time-at-home relationships appear **weak** (near-zero r), so conclusions should be cautious: a small sample can hide patterns or produce accidental trends. The score histogram summarizes how often daily intake falls near the chosen target ranges; improving the score can be approached by adjusting calories into the target band and keeping macro percentages closer to the desired ranges, deviations were in every category.

Limitations and next steps.

- **Small dataset.** The current analysis is based on a limited number of days; extending the dataset to at least 28 days would improve statistical robustness.
- **Weekday effects.** A weekday-based analysis (Monday–Sunday averages) could help separate routine-driven dietary patterns from the influence of time spent at home.