Bellabeat Case Study: Fitbit Data Analysis

Uncovering trends in activity, sleep, and calorie burn
by Kemi Gafar . July 2025

What was the goal?

- *Analyze Fitbit data to find patterns in activity, sleep, and calorie burn*

- *Support Bellabeat's women-focused marketing.*

Where the Insights Come From

Data:

- Fitbit Activity Data (April - May 2016)
- DailyActivity, SleepDay and DailyCalories datasets

Tools:

- Google sheets
- Formulas (Vlookups, IF, Index/Match)
- Pivot Tables
- Scatter Charts
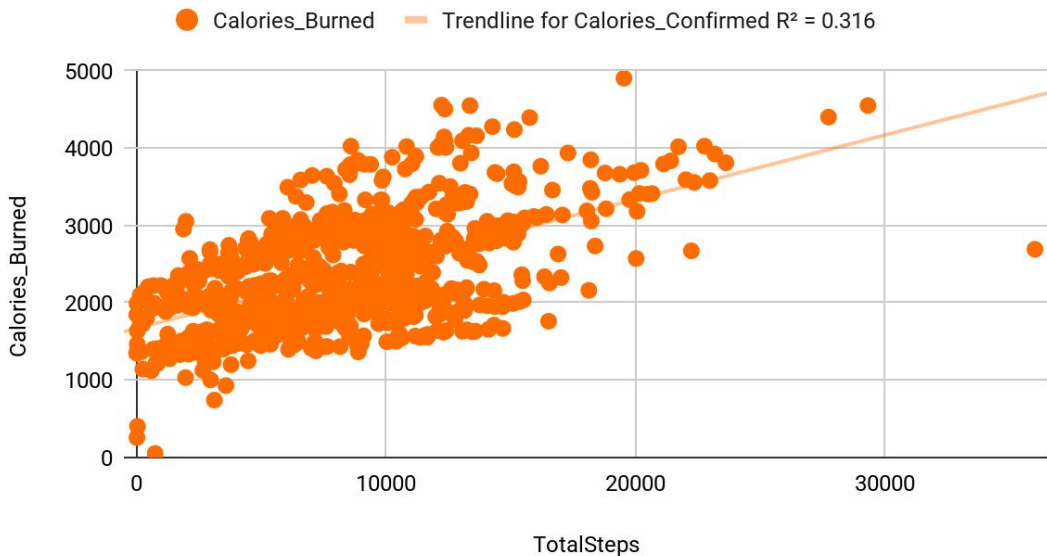
How I cleaned the data

- *Merged datasets by ID + date*

- *Created Sleep Efficiency %*

- *Removed duplicates and blanks*

- *Added a Data Dictionary*

Do more steps burn more calories?

R^2 = 0.316 (moderate to positive correlation)

Higher step counts generally leads to more calories burned
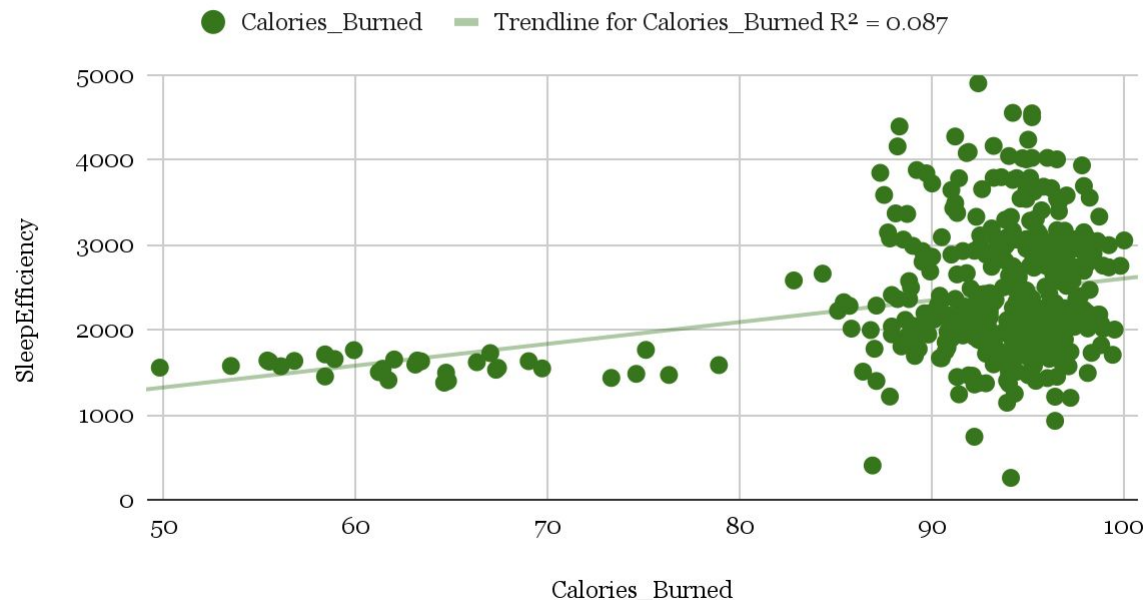
Calories_Burned vs. TotalSteps

Does sleep affect calories burned?

$R^2 = 0.087$ (Weak correlation

Sleep quality has minimal impact on calories burned

SleepEfficiency vs. Calories_Burned

why saturdays matters the most

Saturdays = 8,153 steps

Sundays = 6,933 steps (lowest)

Users move the most at weekend and mid-week

Day Of Week	AVERAGE of To...
Saturday	8152.975806
Tuesday	8125.006579
Monday	7780.866667
Wednesday	7559.373333
Friday	7448.230159
Thursday	7405.836735
Sunday	6933.231405
Grand Total	**7637.910638**

Bellabeat Marketing Recommendations

- ✅ *Encourage weekend activity — push step challenges on Saturdays*

- 💤 *Promote rest-based content — Sundays are natural low-activity days*

- 📊 *Track beyond steps — yoga, mindfulness, or HIIT*

- 🔄 *Treat sleep/activity as distinct habits in the app*

Learning Outcomes

"This project taught me how to clean, analyze, and visualize real-world health data."

Thank you! Lets connect