Fitbit Data Analysis

Exploring Sleep and Physical Activity Patterns

Introducing the data

Dataset with 30 to 40 users

Timeframe: March – May 2016

Goal is to identify behaviour patterns in sleep and activity

Focus on giving insights for Bellabeat smart watch "Time" marketing decisions

Methodology

Data cleaning in Big Query and Google Sheet

- Excluding null values
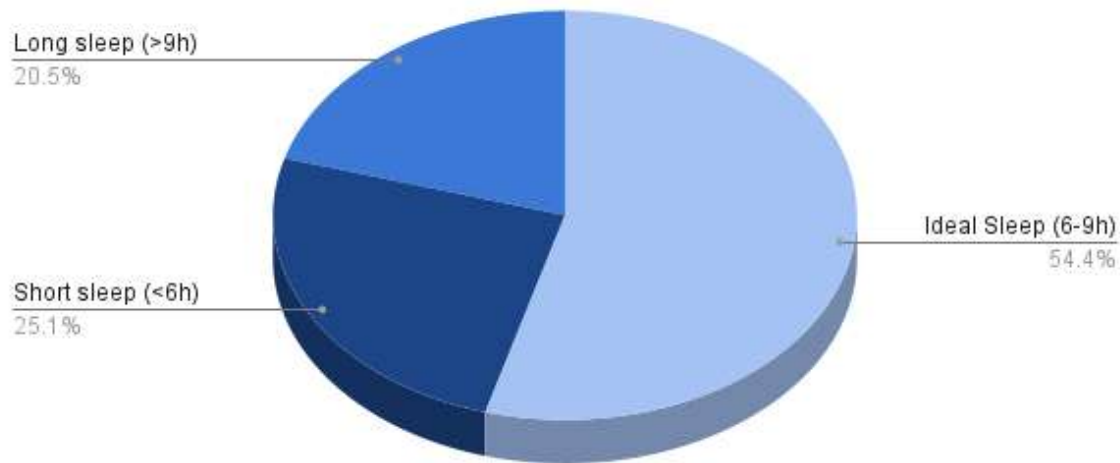- Data formatting to work with Big Query

Aggregation by day of the week and user

- SQL queries on Big Query and exporting results to Google Sheets

Visual exploration with Tableau and Google Sheets

Analysis limited by no stress and no menstrual cycle data

Sleep Percentage Per Sleep Category

Long sleep (>9h)
20.5%

Short sleep (<6h)
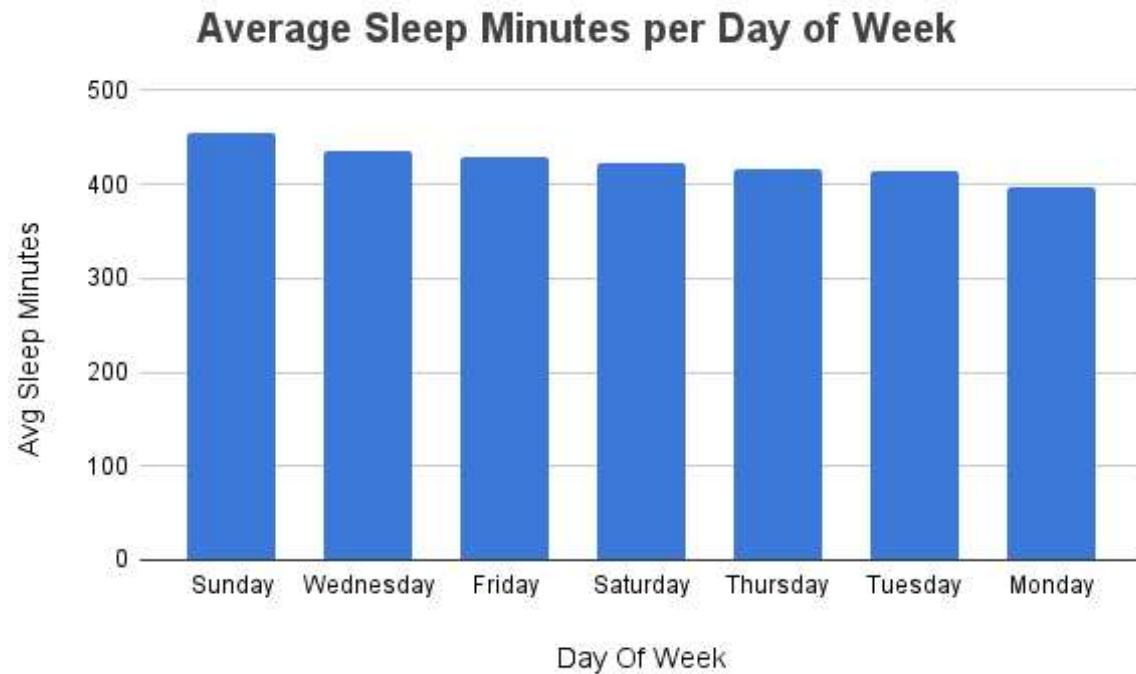25.1%

Ideal Sleep (6-9h)
54.4%

Sleep Overview

The dataset shows an average daily sleep duration of 393 minutes, which is approximately 6.5 hours.

According to the National Sleep Foundation, young adults and adults should aim for 7 to 9 hours of sleep per night. However, only 54% of users meet this recommended sleep range.
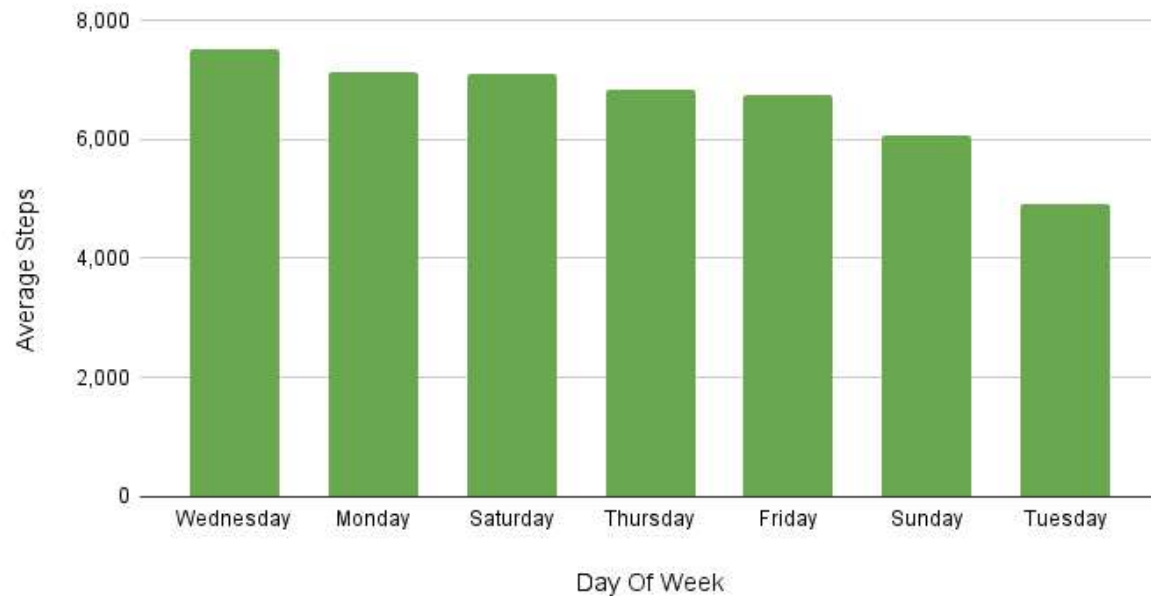
Average Sleep Minutes per Day of Week

Sleep by Day of Week

- Longest sleep duration: Sunday (454 minutes)

- Shortest sleep duration: Monday (396 minutes)

- Pattern observed: users tend to catch up on sleep during weekends, with reduced sleep duration on weekdays.
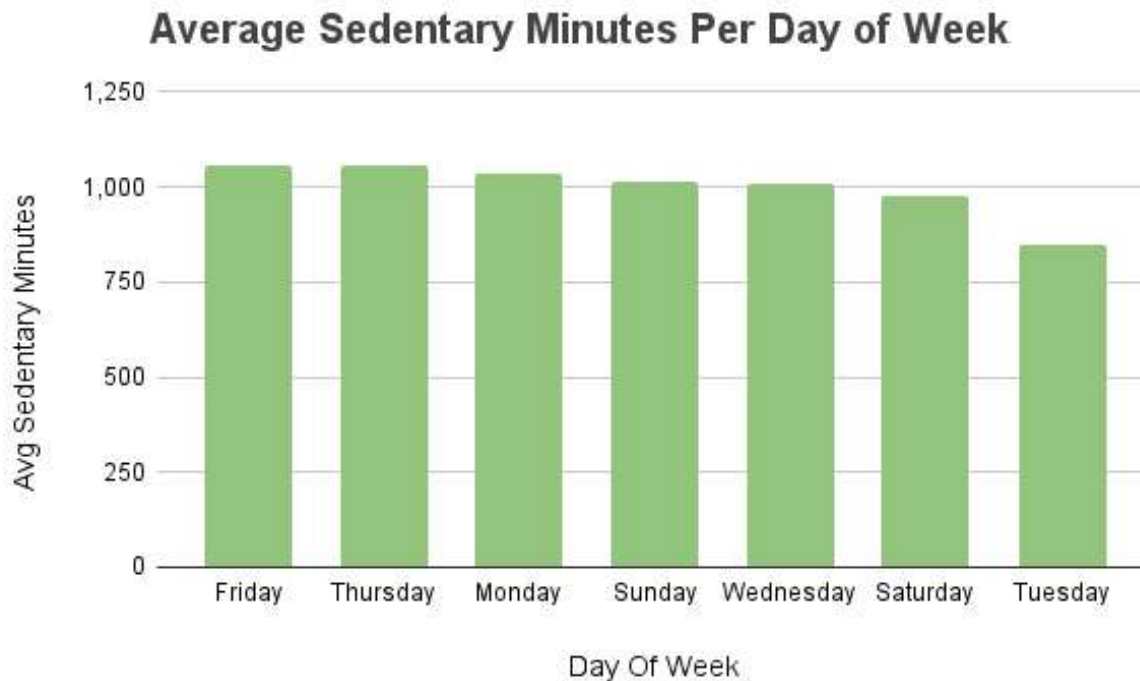
Activity: Steps


Average Steps Per Day Of Week

- Average daily steps: 6,547

- The Lancet Public Health recommends 7,000 steps per day

- Users are below the recommended level

- Peak activity: Wednesday (7,511 steps)

- Lowest activity: Tuesday (4,915 steps)

Average Sedentary Minutes Per Day of Week

Sedentary Behavior

- Average sedentary time: 995 minutes (around 16.5 hours per day)

- Peak sedentary periods: Thursday and Friday (1,055 minutes)

- Lowest sedentary period: Tuesday (850 minutes)

Activities Average Per Day

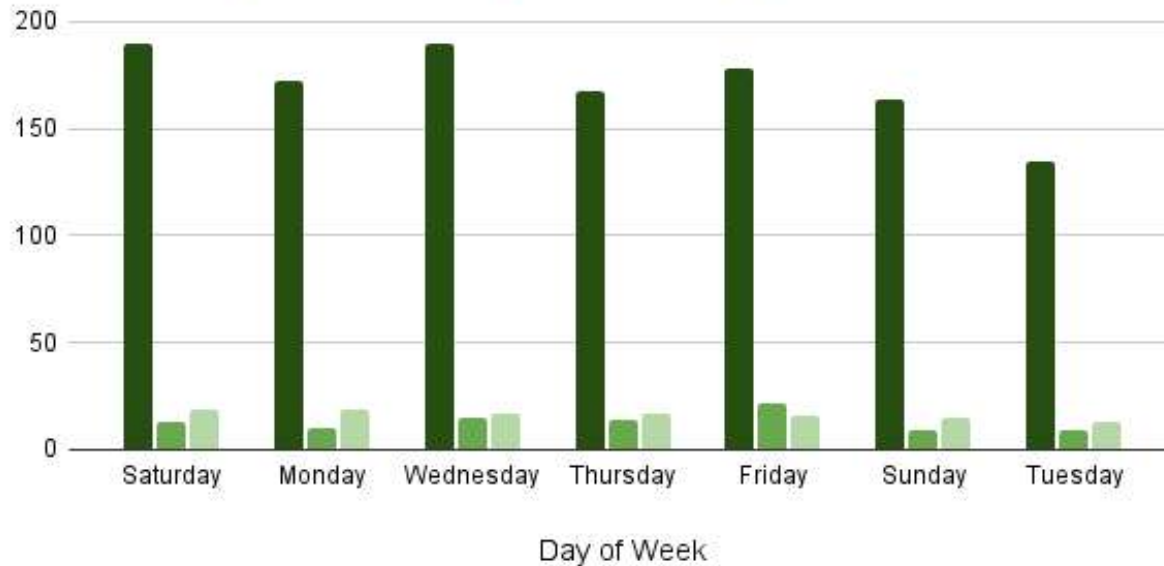Very Active
8.5%
Fairly Active
6.5%
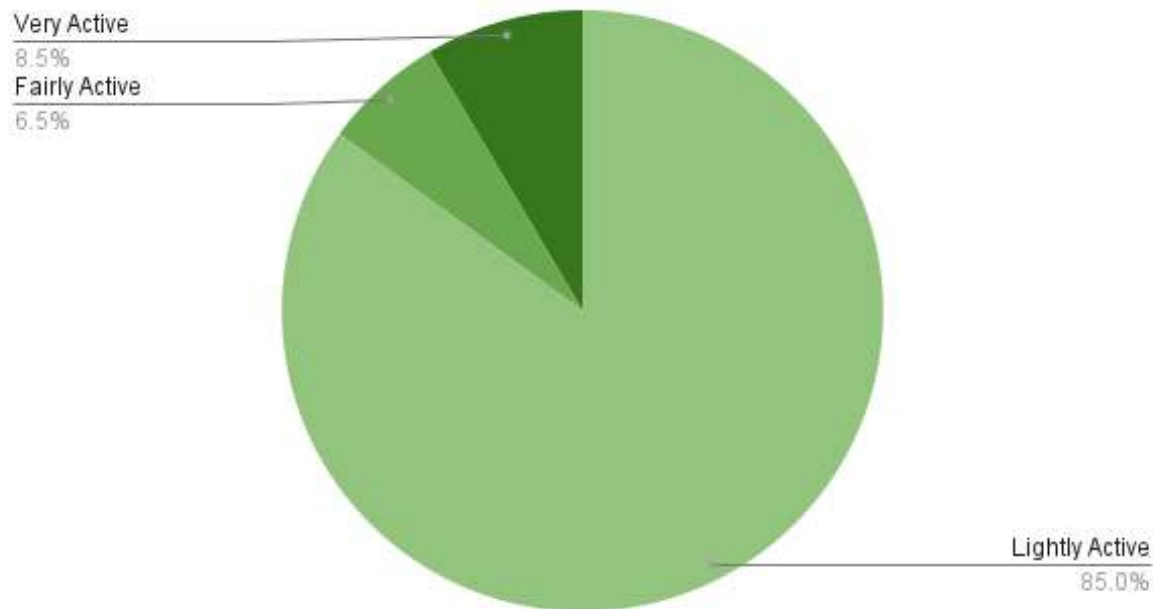
Lightly Active
85.0%

Active Minutes Per Day

- Light Activity: average of 170 minutes

- Fairly Active: average of 13 minutes

- Very Active: average of 17 minutes

- Saturday and Wednesday have the highest levels of activity

- Activity levels remain significantly below the World Health Organization's recommendation of 150 minutes per week of moderate exercise

Average Activities Per Day of Week

Physical Activity Patterns Across the Week

- Monday and Saturday record the highest average of Very Active minutes, both at 19 minutes.

- Friday leads in average Fairly Active minutes with 22 minutes, while Sunday and Tuesday register the lowest at 9 minutes.

- The average duration of Lightly Active physical activity varies considerably compared to other activity levels, reaching its minimum on Tuesday and peaking on Saturday and Wednesday.

Trends in Smart Device Usage

Key findings:

- Steps below recommended range → 6,500 steps per day vs 7,000 steps recommended

- High sedentary behavior → Approximately 16 hours per day sitting

- Sleep imbalance → Shorter sleep on weekdays and longer recovery on weekends

- Average minutes of lightly active physical activity show a significant discrepancy compared to the other activity levels.

How These Trends Apply to Bellabeat Customers

- Women face similar challenges in balancing physical activity, sleep, and stress levels.

- The quality of sleep holds particular significance for women's health, impacting hormonal cycles, recovery, and mood.

- Prolonged sedentary periods highlight the importance of movement prompts and monitoring activity.

- Opportunity to integrate wellness insights with menstrual cycles and stress patterns, a unique feature of Bellabeat.

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Marketing Strategy Recommendations

Position Bellabeat as holistic ➡ Not just tracking, but guiding women across sleep, activity, and cycle health

Highlight unique features ➡ Menstrual cycle and stress tracking

Engage community campaigns ➡ "7k Steps for Balance", "Sleep Reset Weeks"

Personalized nudges ➡ Reminders tied to user's cycle phase + lifestyle coaching

Messaging angle: "Balance your body. Balance your life."

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THANK YOU

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