Bellabeat Case Study — Share Phase

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Contents

1. Executive Summary

This Share Phase summarizes how activity and sleep patterns from Fitbit users can guide Bellabeat's **app improvements, coaching content, and user engagement strategies**.

The analysis identified key behavioral trends, activity–sleep relationships, and opportunities for personalization.
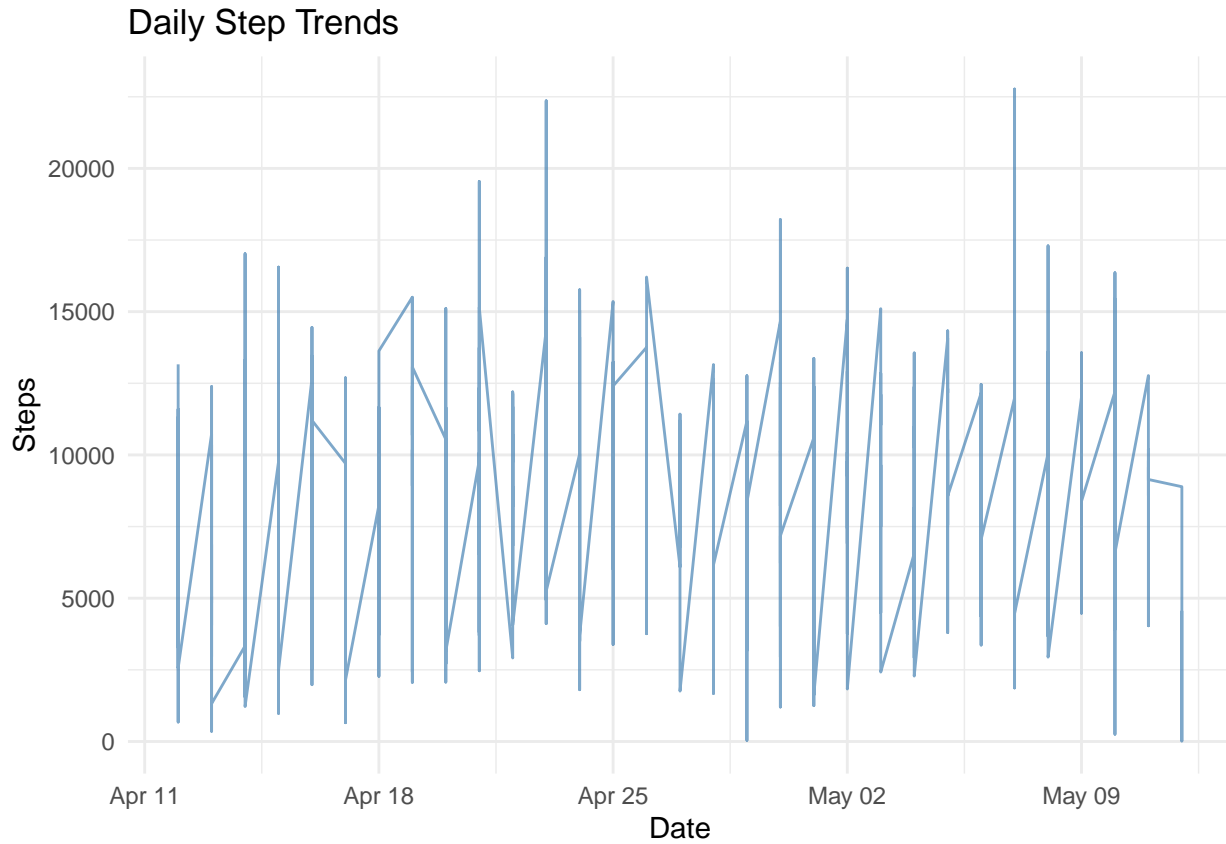
Bellabeat can use these insights to deliver:

- Recovery-based nudges

- Weekend engagement content

- Light-activity positive reinforcement

- Personalized sleep coaching

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2. Key Findings

2.1. Daily Activity Patterns

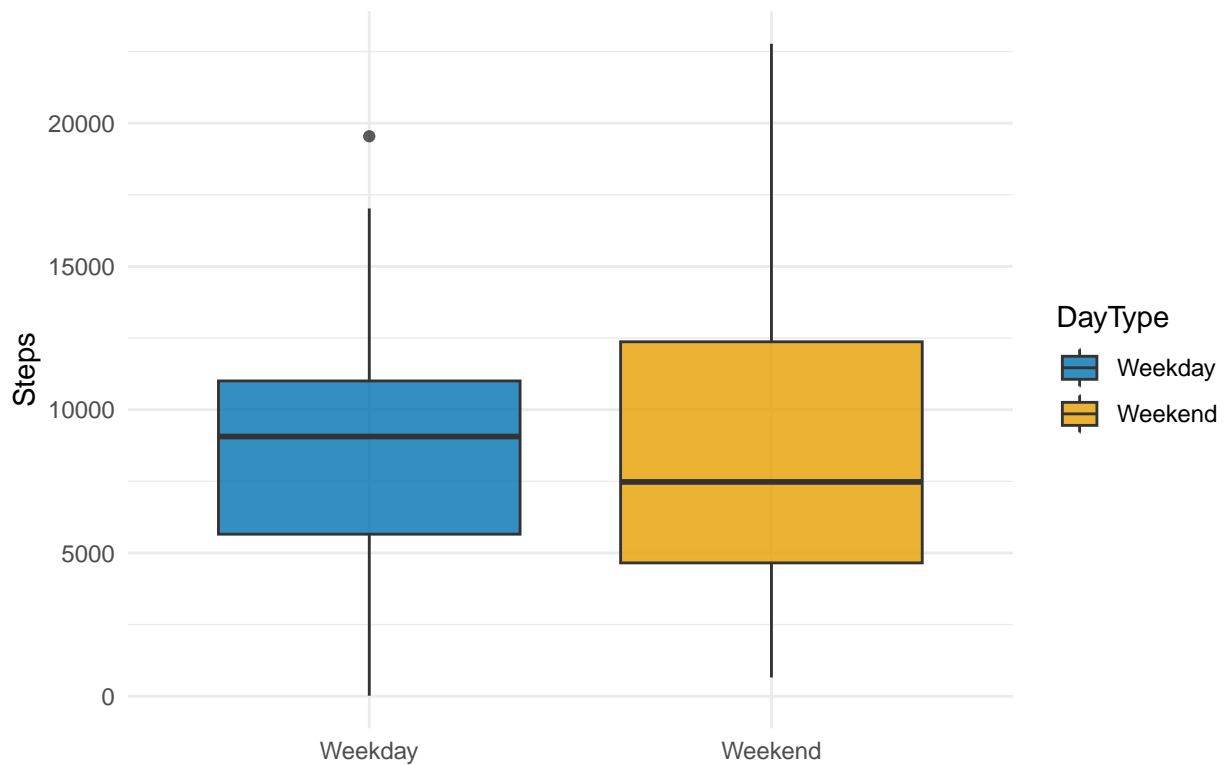### Daily Step Trends

Insight:

Users walk **more on weekdays** and **less on weekends**, showing predictable behavior patterns the app can leverage.

2.2. Weekday VS Weekend
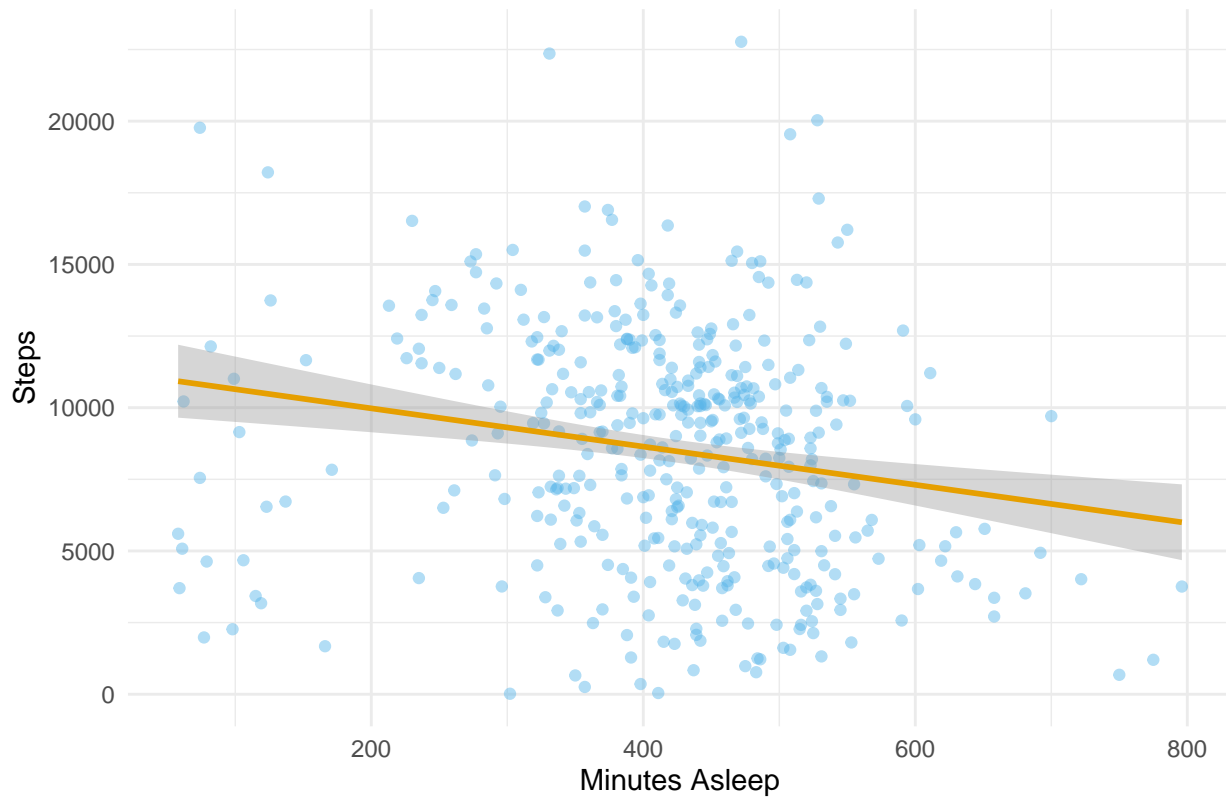
Weekday vs Weekend Activity

Insight:

Weekend steps consistently drop → Bellabeat can increase engagement through **weekend micro-challenges**.

2.3. Sleep Duration VS Activity

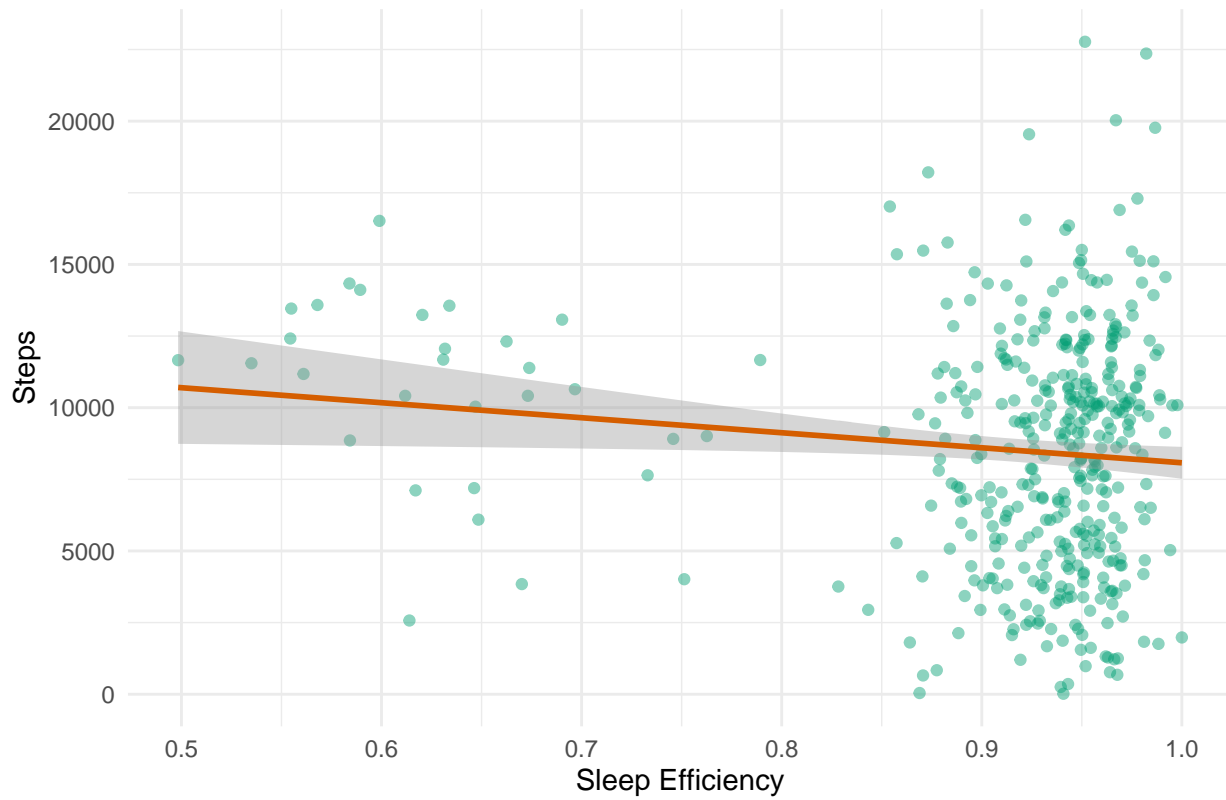Sleep Duration vs Daily Steps

Insight:

Longer sleep is associated with **lower activity**, likely reflecting recovery days.

2.4. Sleep Efficiency VS Activity
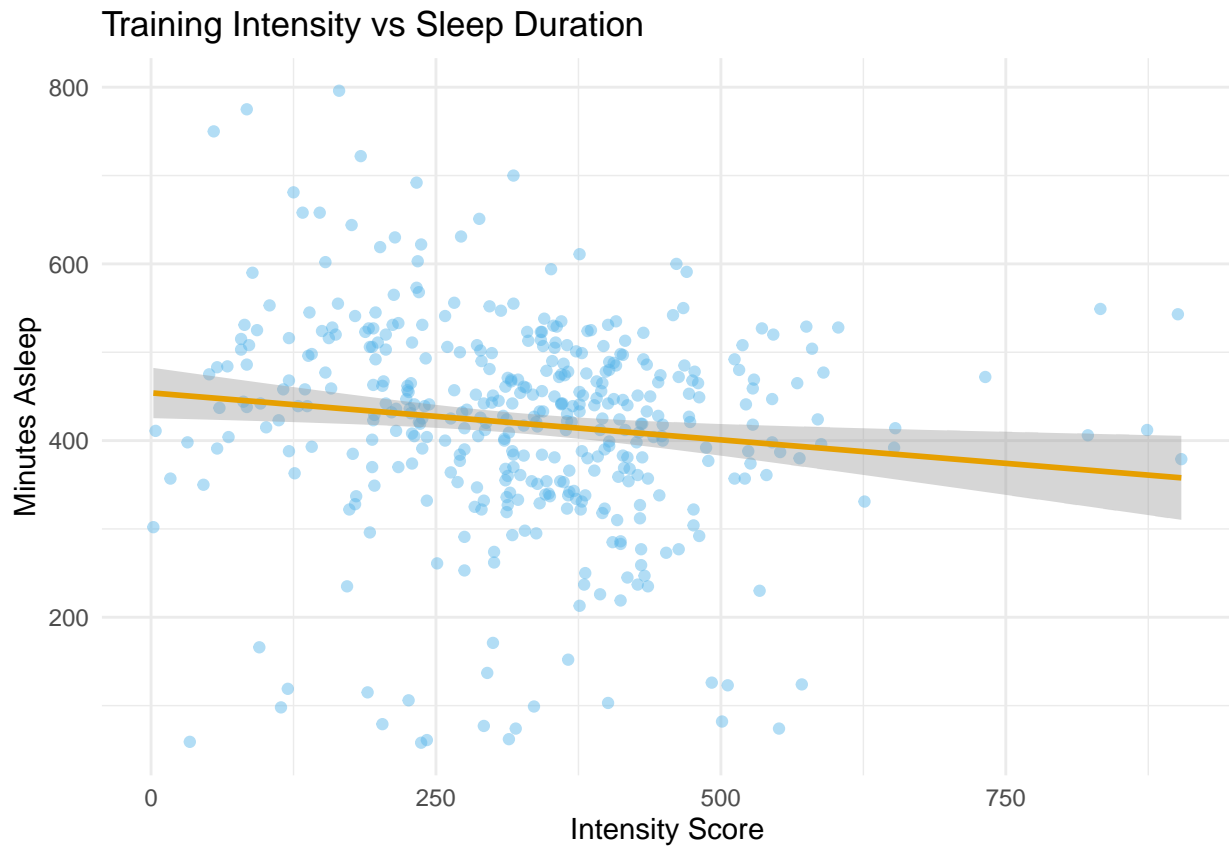

Sleep Efficiency vs Steps

Insight:

Sleep efficiency mildly decreases on higher-activity days → an opportunity for **rest advice**.

3. Training Intensity & Sleep

3.1. Intensity Score VS Sleep Duration

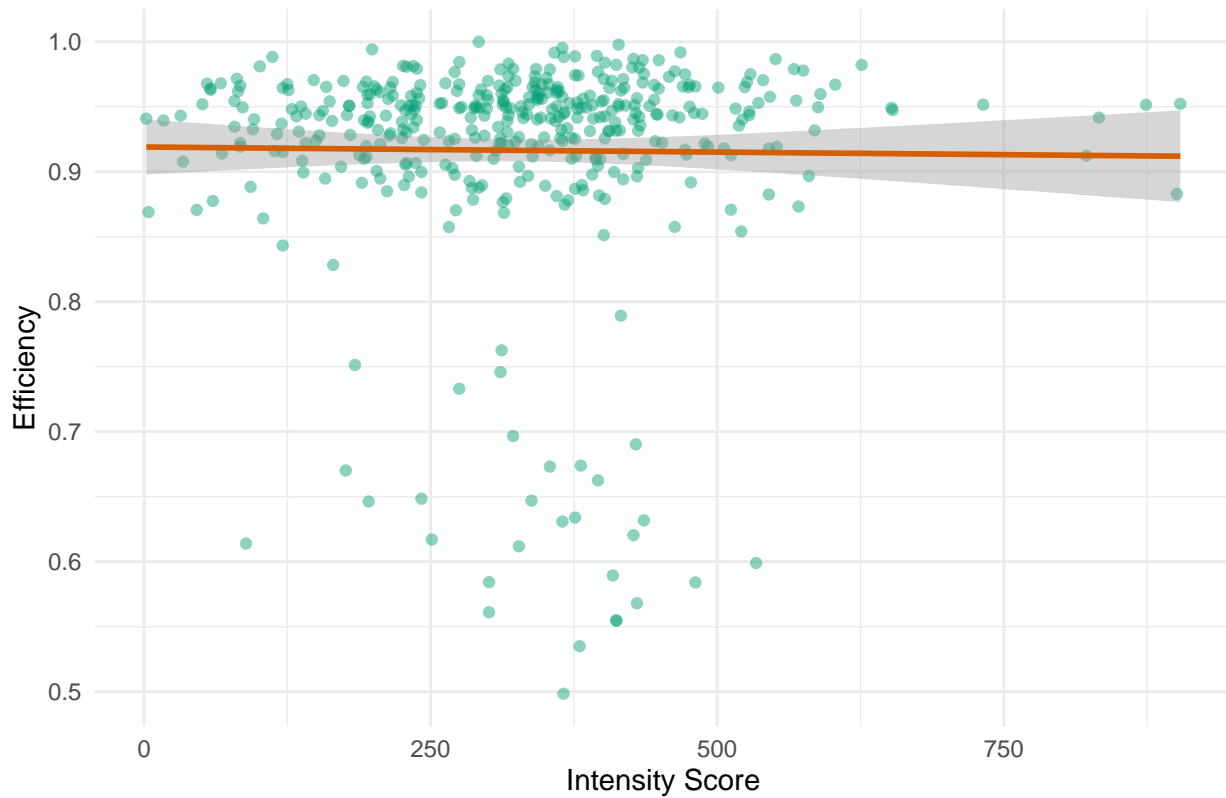### Training Intensity vs Sleep Duration

Insight:

Higher intensity days slightly reduce sleep duration → the app can provide **recovery nudges**.

3.2. Intensity Score VS Sleep Efficiency

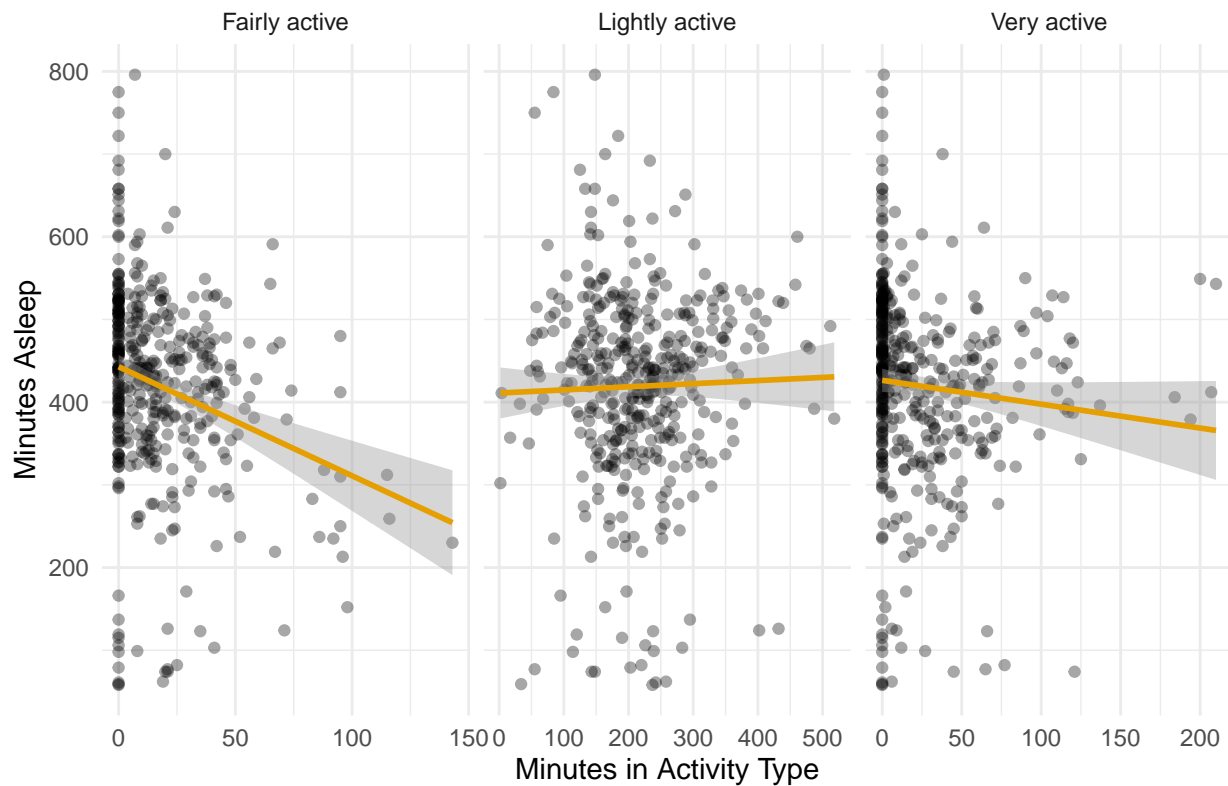Training Intensity vs Sleep Efficiency

Insight:

No meaningful relationship → users seem to maintain sleep efficiency regardless of intensity.

4. Activity Type VS Sleep

4.1. Create Long Format for Faceting

4.2. Activity Type VS Sleep Duration
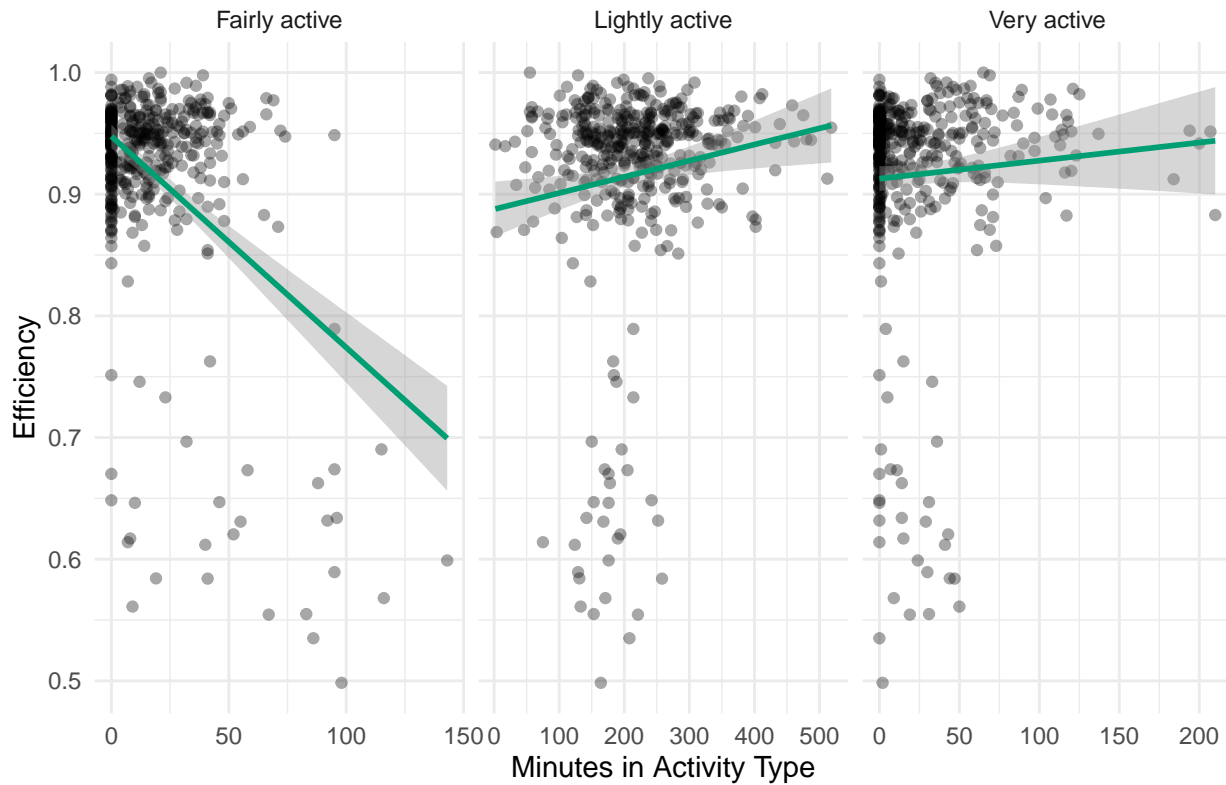
Activity Type vs Sleep Duration

Insight:

Moderate activity ("Fairly active") predicts the most reduction in sleep.

4.3. Activity Type VS Sleep Efficiency

Activity Type vs Sleep Efficiency

Insight:

Light activity helps maintain efficiency; moderate activity reduces it.

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5. Limitations & Biases

- Small sample (30 users) limits generalizability
- Fitbit users   Bellabeat's female target demographic
- ~2-month dataset misses seasonal trends
- Self-reporting and device differences introduce noise
- Missing context (nutrition, stress, illness, menstrual cycle)

Conclusion: **Findings reflect behavioral patterns, not universal truths**.

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6. Recommendations for Bellabeat

6.1 Recovery-Based Notifications

Trigger smart nudges when activity is high:

- Wind-down routines

- Sleep hygiene prompts
- Hydration reminders

6.2 Weekend Engagement Boost

Since activity drops:

- Offer weekend micro-challenges
- Promote restorative movement
- Use gentle push notifications

6.3 Personalized Sleep Coaching

Use last-day activity to adjust:

- Readiness score
- Bedtime suggestions
- Rest-day planning

6.4 Increase Light Activity Messaging

Light activity supports better sleep

Encourage:

- "Movement snacks"
- 5–10 minute breaks
- Walking reminders

6.5 Activity–Sleep Insight Dashboard

Display:

- Sleep efficiency trends
- Activity type balance
- Recovery cycles

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7. Analyst's Reflection

The analysis reveals a meaningful *interplay* between *movement, intensity, and sleep.*

Moderate-intensity activity consistently predicts poorer sleep outcomes, giving Bellabeat a powerful opportunity to *personalize recovery recommendations.*

Light activity shows benefits, making it ideal for *low-pressure coaching content.*

Weekend behavior patterns highlight engagement opportunities, while the overall *activity–sleep loop reinforces Bellabeat's vision of preventative, behavior-driven wellness.*