Exploring the universe of sleep
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Artist

- Reversed calendar
Sleep is hard

- Late social activity?
- Evening sport?
- Late food?
- Screen time?
Aim
What I tracked about my sleep

- Time in bed
- Time sleeping
- Time awake
- Deep sleep
- REM sleep
- Light sleep
- HRV evening
- HRV morning
- Sleep rating

Emfit QS – The Key to Winning™

- Electronics with Wi-Fi can be placed far away to avoid disturbance to sleep.
- Sensor is installed under the mattress.

Emfit QS is under mattress installed, all automatic sleep monitor with web application. Because it is Heart-Rate-Variability enabled, it will help you train all the way to your limits and improve strength, power, conditioning, and fitness!
What I tracked about my behavior

- sport start- end
- meeting start - end
  - perception of meeting
- calorie intake
- stress level during the day
- happiness level during the day
- screen time duration
How I tracked my behavior

Start time sport
Time

End time sport
Time

Start time social meeting
Time

End time social meeting
Time

Feeling social meeting
- Positive
- Neutral
- Negative
Working with Emfit data

• Export per night
• Reconstruct night
• Convert from minute notation to decimal notation
Design

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Nights as planets
Visualizing variables

- Calories
- Stress & mood
- Recovery
- Evening activities
- Ratings
Calories
Recovery
Evening activities
Sleep ratings
Art & Science
Correlations

<table>
<thead>
<tr>
<th>Variable 1</th>
<th>Variable 2</th>
<th>Correlation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awake</td>
<td>Morning HRV</td>
<td>-.493**</td>
<td>Not sleeping is bad for HRV</td>
</tr>
<tr>
<td></td>
<td>Systole blood pressure</td>
<td>.396*</td>
<td>Not sleeping raises systole bp the following morning</td>
</tr>
<tr>
<td></td>
<td>REM, light sleep</td>
<td>negative</td>
<td>No correlation found with deep sleep</td>
</tr>
<tr>
<td>REM sleep</td>
<td>Morning systole blood pressure</td>
<td>-.378*</td>
<td>REM sleep lowers systole bp</td>
</tr>
<tr>
<td></td>
<td>In sleep, light sleep</td>
<td>Positive**</td>
<td>No correlation found with deep sleep</td>
</tr>
<tr>
<td></td>
<td>Subjective sleep appreciation</td>
<td>.521**</td>
<td>The more REM sleep the better I rate my sleep</td>
</tr>
<tr>
<td>Light sleep</td>
<td>In sleep</td>
<td>.902**</td>
<td>Most of my time is spend in light sleep</td>
</tr>
<tr>
<td></td>
<td>Subjective sleep appreciation</td>
<td>.658**</td>
<td>The more light sleep the better I rate my sleep, has even more impact than REM</td>
</tr>
<tr>
<td>Deep sleep</td>
<td>Evening calorie intake</td>
<td>-.494**</td>
<td>The more calories I eat in the evening the less deep sleep I get</td>
</tr>
<tr>
<td>Evening calorie intake</td>
<td>HRV evening &amp; HRV morning</td>
<td>Negative*</td>
<td>The more I eat in the evening the lower my HRV in the evening and morning</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
Unexpected correlations

• Awake time - Systole blood pressure positive
• REM sleep - Systole blood pressure negative
• Meditation no correlation
Sleep & calorie intake

- Calorie intake effects deep sleep
- Calorie intake effects HRV
Sleep appreciation

- Light sleep
- REM sleep
I learned:
tracking sleep is hard
I learned: Screen time may not be the culprit.
I learned:
Calories count
I learned:
Calories count
I learned:
I love Statistics
I learned:
The joy of creating
Thank you!

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