Personal Sleep Study Project - A. Fraser

Category: Healthcare

Problem: I struggle with incredibly low energy levels despite sufficient sleep with no identifiable medical cause at the time of study causing low energy levels such as vitamin deficiency, diabetes, etc. To try and combat low energy levels, I have conducted a one-week (seven day) self-study to analyse the effects of increased daily exercise and improved sleep hygiene on my energy levels.

Additional Issues: After the loss of a close relative, low energy levels are exacerbated by the presence of grief.

Methodology: I am conducting a one-week sleep study on myself to determine how increased daily exercise and slowly improving sleep hygiene affects my daily energy levels over time. The data collected will be a mixture of quantitative data and qualitative data in the form of self-reports.

- ***Goal for daily exercise***: dedicated thirty minutes of exercise per day, as outlined by current NHS guidelines: Physical activity guidelines for adults aged 19 to 64 - NHS
- ***End goal for sleep hygiene***: implement a long-lasting consistent routine of falling asleep by 22:00 and rising between 07:00-07:30.

As I have already made long-term changes to my diet such as cutting out dairy due to an allergy, removing red meat consumption, and making balanced home-cooked meals, diet was not the focus or the culprit behind low energy levels. As such, diet was not a dependent variable in this study and remained an independent variable. The two dependent variables in this study were exercise and "sleep hygiene". For the purpose of this study, "sleep hygiene" refers to the quality of sleep created by consistent and adequate sleep schedules resulting in between 8-10 hours of quality sleep per day.

Prior to the study, I was not new to exercise and was frequently active throughout the week, participating in dedicated workouts approximately 3-4 times per week; however, the NHS guidelines suggest dedicating roughly 30 minutes per day to any form of exercise to improve quality of life. Using the current guidelines, I decided to increase the variety in my workouts to accommodate a new schedule of 30 minutes of dedicated exercise per day. It is important to note that even though I dedicated 30 minutes to exercising every day, that did not mean I was sedentary the remainder of the day: I was not. It simply means that I specifically dedicated 30 minutes per day strictly to a workout regimen, in addition to any other movement that occurred throughout the day.

Client Goal: Using the findings in the data, I will create suggestions to implement, resulting in better energy levels to combat and beat chronic low energy.

Project Requirements: Record qualitative and quantitative data in a Google Sheets spreadsheet and create a secondary sheet to include a legend outlining the format of each data type. Once results are complete and data is clean, analyse the data to identify patterns and create solutions. Once data analysis is complete, create a data visualisation using Tableau Public to easily share results in an easy-to-understand format.

Results: After a small one-week study on how incorporating 30 minutes of exercise per day and a proper sleep routine could improve my overall energy levels, I found the following:

- My body feels best when I go to bed at 22:00. Anytime later than 22:00 and my body feels sluggish in the morning.
- My body feels best waking between the hours of 06:45-07:30.
- My body feels best when I take the time to slowly wake up instead of rushing to get out of bed. Rushing exacerbates the feelings of sluggishness and tiredness.
    - By switching my alarm to a specialised alarm that plays soft music instead of a harsh alarm sound and setting the alarm to slowly wake me up 10-15 minutes prior to my wakeup time allows my body to wake up naturally and feel less sluggish.
- Through the study, my body had consistent natural dips around 13:00-15:00 consistently; however, I was better able to handle and recognise energy dips and adjust accordingly.
- At times, I did feel the worried that walking would not be considered a proper "workout", despite the guidelines stating that it is. As such, I was nearly discouraged at times from doing walking workouts in between hard workouts because I felt like it was not enough.
    - I combatted this mentality with logical reasoning and determination to complete the study as directed.
- By focusing on my sleep, I have noticed that I cannot sleep the full night without waking up 3-6 times a night. Despite falling back asleep, the constant disruption in my sleep cycle is likely contributing to excessive daytime drowsiness.
    - My sleep is largely disrupted by the inability to breath properly through my airways, causing inflamed tonsils, and a swollen and sore throat.

Suggestions: Based on the data, it is clear that incorporating a proper sleep routine and participating in frequent exercise is vital to increasing my energy levels over a long period of time. As a result, the following recommendations are:

- Maintain a proper sleep routine of going to bed at 22:00 and rising between 06:45-07:30 everyday (including weekends).
- Slowly wake myself up with a specialised alarm that eases me into the morning.
    - For instance, set a soft music alarm that starts to go off 10-15 minutes prior to my set wakeup time to allow myself to slowly wake up and adjust.
- Incorporate thirty minutes of exercise daily. Exercise can be as simple as walking or as intense as strength training and speed training.

    - Make sure to incorporate easier workouts (such as walking) between harder workouts and take rest days when necessary to avoid burnout, injury, and excess fatigue.
- I must speak to my primary care physician regarding the following:
    - Frequent disruptions to sleep cycle during the night (approximately 3-6 disruptions nightly), largely attributed to suspected chronic rhinitis and tonsilloliths.

Conclusions: It is clear from the data that some further medical discussions must be conducted between myself and my primary care physician regarding disruptions in the sleep cycle; however, daily exercise per the NHS guidelines and a proper sleep schedule (or good "sleep hygiene") dramatically improves my energy levels throughout the day.

My conclusion is that whilst improving lifestyle factors such as diet, exercise, and/or sleep hygiene may not completely erradicate chronic drowsiness or low energy levels, it is a powerful tool for combating and alleviating the symptoms of fatigue and can improve a person's quality of life.

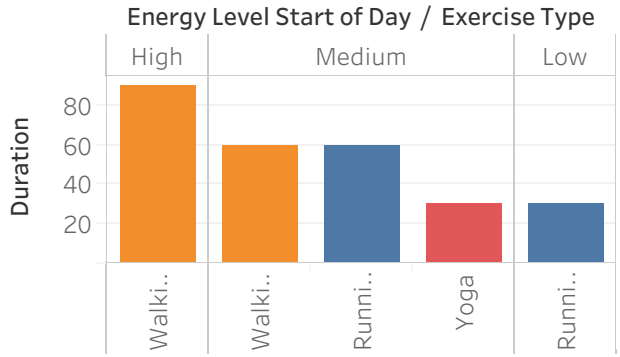
Date	Rise_Time	Bed_Time	Total_Hours_Slept	Exercise?	Exercise_Type	Exercise_Duration	Energy_Level_Start_of_Day	Energy_Level_End_of_Day	Additional_Comments
10/07/2022	08:00	22:45	8.48	Yes	Running	30	Low	Low	Low energy all day
11/07/2022	08:00	23:45	7.48	Yes	Running	30	Medium	Low	Low energy due to labour-intensive work
12/07/2022	08:00	21:00	11	Yes	Yoga	30	Medium	Low	Hard time waking up
13/07/2022	08:00	19:00	12.5	Yes	Walking	90	High	Low	Intense physical activity drained me end of day.
14/07/2022	07:50	22:00	9.15	Yes	Walking	30	Medium	Medium	Slight energy dip after waking.
15/07/2022	07:15	22:00	8.45	Yes	Running	30	Medium	Medium	Slight energy dip at end of day before bed.
16/07/2022	06:45	22:00	0 [1]	Yes	Walking	30	Medium	Medium	Restless sleep (low quality) but overall am okay.

[1] Study ends here, so nothing to add in total_hours_slept for this date.

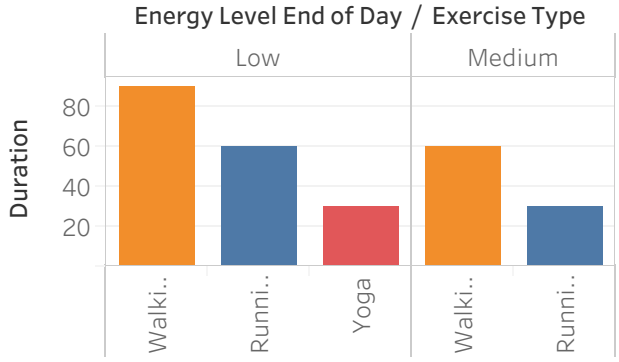
Column_Name	Format
Date	Day/Month/Year
Rise_Time	Hours
Bed_Time	Hours
Total_Hours_Slept	Hours
Exercise_Duration	Minutes
Additional_Comments	Qualitative Data - Self-Reports

How Exercise and Sleep Influence Energy Levels

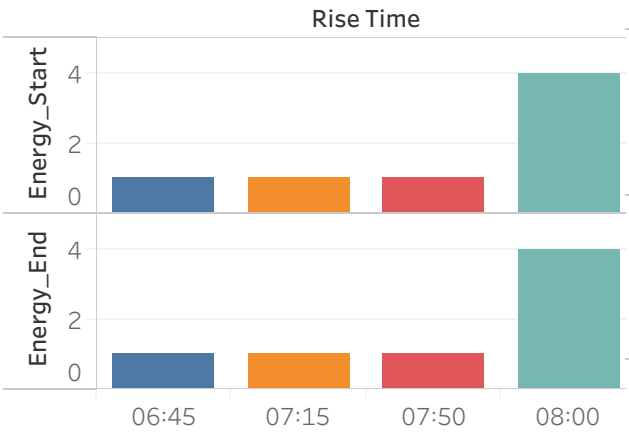
Energy Level and Exercise - Start of Day



Energy Level and Exercise - End of Day



Energy Levels by Rise Time



Energy Levels by Bed Time