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Relationship Between Sleep and Life

1. Motivation behind Research Paper

Are you interested in modern medicine? According to Dai-ichi Life, modern medicine is advanced medicine. However, I was deeply saddened when I learned through someone close to me that, even with advanced medical care, there were cases where people were not receiving treatment to improve the root cause of their illness. I would like to improve the current state of medicine as much as possible. I thought about the project necessary for that from a high school student's point of view. The goal of this research paper is to be a necessary project for a healthy future.

2. Introduction

In this project, we focused on "human health" and proceeded. When we processed the project into our health and thought about it, we realised that various things are related to "sleep", and started research activities on the theme of "Relationship Between Sleep and Life". Sleep is an essential part of life for our health. According to Zepp Health Corporation, Japan is the country with the second shortest amount of sleep after Indonesia, so we thought sleep needed to be taken more seriously. Looking at the impact on our daily lives, the current situation is that it is difficult for us to get a good night's sleep because we are busy with extracurricular activities and cram schools. We include daytime sleepiness, effects on brain

function, and we can’t work as expected when trying to study. So we thought that a large part of the impact on how the brain works could improve by making small changes to how we sleep, so we set out the project.

3. Results and Analysis

We conducted an experiment based on the hypothesis that the length of sleep affects the function of the brain. We conducted an experiment in which the subject participated. For the 1st week, each subject slept as usual, and in the 2nd week, I asked them to sleep one hour longer than in the first week. On the day of the experiment, when they arrived at school, they were asked to come to the designated classroom and we conducted a one-minute check test.

Figure 1 : the results of the experiment

The results of the experiment are shown in Figure 1. Although there are individual differences in the results, it can be seen that the correct answer rate is higher in the 2nd week than in the 1st week. However, looking at the subjects' actual sleep duration, shown in Figure 2 below, we decided that it was unlikely that their brains were more efficient.

Figure 2 : the sleep duration of each participant in the experiment

Figure 2 shows the sleep duration of each participant in the experiment. People who already have a stable rhythm of daily life will wake up an hour earlier even if they go to sleep an hour earlier. In other words, in the second week, I was inevitably able to go to bed early and wake up early. So we made another hypothesis. Falling asleep before 12:00 am makes your brain more efficient the next day. Based on this hypothesis, we decided to conduct a second experiment.

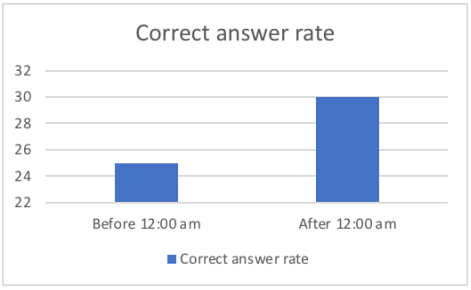

Figure 3 : the results of the second experiment

The results of the second experiment were shown in Figure 3, and the average percentage of correct answers was calculated for those who fell asleep before 12:00 am and for those who fell asleep after 12:00 am. Combined with the results of the first experiment, we found that the amount of sleep and early to bed and early to rise were not closely related to brain efficiency. From a different point of view, we thought that life rhythm, that is, "regularity", might be more deeply related to the efficiency of the brain.

4. Conclusion and Future Problems

Based on the theme of the relationship between sleep and life, we conducted research activities through experiments. Having learned the knowledge and importance of sleep, we conducted two experiments to test our hypotheses. As a result, it was found that there is no close relationship with brain efficiency. Summarising the considerations, a new hypothesis was born that "regularity is related to brain efficiency." Since we were unable to conduct experiments on new hypotheses at this time, we should be deeply conscious of regularity in our daily lives and investigate on our own in order to prove it together with newly created hypotheses as a future task.

5. Reflection

Since we weren't able to conduct experiments on all hypotheses and conditions during this research activity, we weren't able to take steps to solve specific problems. However, I was able to face my own theme seriously, and by conducting hypotheses and experiments, I was able to feel the importance of sleep. Without forgetting this feeling, I would like to live my life while being conscious of my health and sleep.

6. Work Cited

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