



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Logan Burns	Project Number J1207
Project Title Can We Improve Sleep by 25% for Only 25 Cents?	
<p style="text-align: center;">Abstract</p> <p>Objectives 33 percent of American adults and 80 percent of teenagers do not get enough sleep. Yet, poor sleep is a major risk factor for breast cancer, colon cancer, prostate cancer, and many other health problems. Improved sleep is tied to increased melatonin production in the body, but other than taking melatonin supplements, most people do not have an easy way to increase melatonin in their bodies. The objective of this project is to determine whether a simple and inexpensive sleep mask improves the quality and quantity of sleep.</p> <p>Methods My project measured sleep quality and quantity for 14 participants over two weeks. The participants did not wear an eye mask during the first week but did wear one during the second week. I created a control group of four participants that did not wear an eye mask at all during both weeks. I used Google Forms to create a questionnaire in order to learn about each participant's sleep and other habits and also the weekly sleep logs each participant kept. After I received the completed questionnaire and sleep logs from everyone, I used Google Sheets to analyze the data.</p> <p>Results For adult participants, who were the main target of my research, total average weekly sleep hours improved by 5.7 hours, which is 12.5 percent, but the control group sleep hours only improved by 12 minutes. Total weekly sleep hours for the four children who participated in the survey increased by only 30 minutes. For both adults and children, sleep quality improved by 18% versus only 4% for the control group. Participants who did not drink alcohol had the biggest increases in hours slept. Participants who slept next to someone who snores had almost no increase in sleep hours, but the people who they slept next to (the people who snored) who also wore the mask increased their sleep hours by 30%!</p> <p>Conclusions Rather than using expensive and possibly harmful melatonin supplements, a simple eye mask works very well in improving sleep hours and sleep quantity. Plus, an eye mask only costs 25 cents on Alibaba. In the future, this research can be expanded to include more people and more time wearing the mask. Some people said it took a few days to get used to the mask and the results would have probably been better if I had more time. Also, someone should invent a better sleep mask that doesn't fall off as much.</p>	
Summary Statement I showed that sleep quality and quantity can be dramatically improved using an inexpensive eye mask	
Help Received My parents helped me set up my questionnaire in Google Forms and also paid for the eye masks. They also helped me with the layout of my project board.	