Effect of Daily Exercise on Sleep Efficiency, Percentage of Deep Non-REM Sleep, and Heart Rate Variability

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The purpose of my project is to determine whether there is a significant daily variability regarding sleep efficiency, heart rate variability, and percentage of time in deep non-REM sleep due to exercise. Each participant will wear an Oura Ring while they sleep for twenty nights. Ten of the nights will be following a day without exercise and the other ten following a day with an hour of cardio performed. The Oura Ring provided me with a multitude of data in order to determine the effect of daily exercise on heart rate variability, percentage of time in deep non-REM sleep, and overall sleep efficiency. Following each participants conclusion of the twenty day study, I collected the data and plotted each individuals' data separately. Similarly, each variable was plotted separately in order to determine whether a pattern was evident and to compare the exercise and non-exercise days. I also performed calculations to determine whether the data was statistically significant, using an alpha value of 0.05. The mean heart rate variability, sleep efficiency, and percentage of deep non-REM sleep following exercise was greater than the mean following no exercise apart from two occasions. This suggests a trend of greater sleep quality following exercise, however, only the heart rate variability data was statistically significant for every participant. Therefore, I can only conclude a direct correlation between daily exercise and increased heart rate variability following my study.

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