A Comparison of the Benefits of Meditation and Nature Using Electroencephalography (EEG) and Blood Pressure (BP) Analysis

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Meditation and nature have both been demonstrated to reduce stress levels, however, a comparison in teenagers using electroencephalography (EEG) and blood pressure (BP) has not been made. This project aims to create such a comparison in Hot Springs National Park. It was hypothesized that being in nature would reduce stress more, as measured by relative gamma and BP, than mindfulness meditation by novices. Eight novice meditators were recruited and tested twice. Three EEG tests were conducted, each consisting of a five-minute EEG recording: control, meditation, and the Park. BP was recorded once during the control and before and after the meditation and Park tests. For EEG analysis, the average prefrontal relative gamma was calculated and the mean for each test was compared. For BP analysis, the percent change between the control and Park test for diastolic and systolic pressure before and after meditation tests were compared, and the average between the systolic and diastolic values reported. Results showed a decrease in blood pressure overall and a corresponding increase in RG during both nature trials. This was interpreted to indicate that stress was correlated to BP in most trials, reduced by nature trials. In contrast, RG does not appear to be correlated to stress in this scenario. It appears from this data that RG is instead a correlate of attention being paid to one’s surroundings. This calls into question the usefulness of RG as a correlate of stress.

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