

Sleep deprivation and classical conditioning assignment

[Psychology](#)



The only way to truly and accurately showcase the harmful effects that sleep deprivation can have upon the mind and body is to design and perform an experiment. The hypothesis being tested is that if a person gets less than the scientist recommended eight hours of sleep a night, they will have decreased cognitive, thinking, memory and learning abilities. The independent variable in this experiment is sleep, and the dependent variable is cognitive ability. A random sample of ten people would be used as the subjects of this experimentation.

It is hoped that this small random sample will help us to make assumptions about a larger population. The random sample would consist of five males and five females whose ages vary between 18-20 years old. All subjects would have to be in good, normal health at the time of this experiment. In the first part of the experiment the control data would be collected. This information would be acquired by observing the individual's daily sleep and activity patterns over a 48-hour period.

The subjects would undergo several cognitive tests at different times during the 48-hour period to test their learning and memory capabilities. This information would provide researchers with individualized profiles of each subject that displays each person's cognitive abilities within their personal environments. The data collected would also serve as the basis of comparison for the sleep deprivation experiment. In the second part of this experiment the subjects would be exposed to a 24-hour period of sleep deprivation.

During various mints across this 24-hour period subjects would be given similar cognitive tests to see if there was a difference in cognitive and learning ability due to the harmful effects of total sleep deprivation. Comparing the two sets of data would suggest a correlation between increased sleep deprivation and a decrease in cognitive test scores. Additionally, this would show a decrease in long and short-term memory, which inhibits ones ability to learn. The function Of a neuron is to transmit information within the nervous system.

Neural transmission occurs when a neuron is activated. When a neuron is fired is sends out electrical impulses. This takes place when a neuron is stimulated by pressure, heat, or light, or when it is simulated by chemical messages from neighboring neurons. The impulse is called an sartor potential. An action potential is a brief electrical charge that travels down its axon. The axon passes messages away from the cell body to other neurons or glands. Fatty tissue called myelin sheath insulates the axon and helps speed neural impulses.

Neurons generate electricity from chemical events. In this process electrically charged atoms called ions are exchanged. The fluid inside a resting axon is mostly negatively charged while the fluid outside of the axon is mostly positively charged. This state is called resting potential. When the neuron fires the first section of the axon opens its gates and allows positive ions to flood in causing deportation. Deportation causes the next axon channel to open and so on. During the resting phase the positive ions are pumped back outside of the axon. Then it can fire again.