Abstract: The Effect of Chemical Sympathectomy on Mouse Sleep Using Piezoelectric Technology

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The effects of many drugs on the phenotype of sleep in vertebrates have not been conclusively proven and are not completely understood. We took 16 female mice and injected (IP) half with 6-OHDA (6-hydroxydopamine) and the remaining half with saline solution as a control. 6-OHDA temporarily desensitizes the sympathetic nervous system (SNS) in the periphery, and the SNS is involved with sleep. We then monitored the effects on their sleep patterns using non-invasive piezoelectric technology. This technology emits a low electric field and senses small movements (including respiration rhythms) from the mice, which can be correlated with sleep/wake patterns. We looked at sleep bout lengths, percentage of sleep in light and dark environments, and sleep histograms to determine if the drug had any effect on sleep. The results showed that there were no outstanding differences between the two experiment groups.