**Preliminary Experiment**

As stated in Step 3 of my procedure, I tested the effectiveness of various tools in keeping the rats awake for this portion of the experiment. As it is crucial that my decided sleep depriving tool be effective in keeping the rats awake for an extended amount of time, I tested each of the following for at least 1/2 hour, and observed the rats' reactions to the methods. I observed during Day 1 and 2 of my process that the rats' deepest sleep seemed to be in the early afternoon, therefore I attempted to keep them awake with these ideas between the hours of 12 and 3 PM in a single afternoon.

* **Electric toothbrush:** the buzzing of the toothbrush initially startled the rats, and they woke up for a few minutes. However, they soon grew used to the lull of the toothbrush. The rats fell back into their deep sleep after a period of about 10-15 minutes. I then tried placing the vibrating toothbrush under the rat cage, but they were not in any way fazed by the gentle, continuous pulse occurring underneath their cage.

* **Loud TV:** According to my juvenile literature, All About My Mouse, TV's emit a high pitched tone that is inaudible to the human ear, but closely resembles the sound that baby mice make when crying out to their mother. The book warned young pet-keepers to keep the cages away from TV's, so I figured that this might be a good possibility. However, other than the initial shock of the volume of the TV, the rats did not seem disturbed at all by the supposed "sounds from their young". My book was about mice - maybe this does not apply to rats. Another possibility may be that my young rats, who had yet to deliver any babies, were unaware of the importance of the sound. One last possible solution to the mystery: the rats ignored the sound and muffled it by snuggling underneath each other and up against the cage wall.

* **Loud Radio:** The radio was successful in keeping the rats awake for about 5 minutes, but they also became used to the volume after a while, and snuggled back up to go to sleep. The radio definitely would not be effective in keeping the experimental group awake for hours at a time.

* **\*\*\*Vibrating Chair Massager:** We have a vibrating chair massager that sits on one of our family room chairs and is controlled by a handheld remote. The massager has the capability of "vibrating" in a variety of patterns, speeds, and strengths. I laid the massager flat of the floor, and placed the rat cage on top. The strong massaging pattern, which rattled the cage every couple of seconds, kept the rats wide awake for over 1/2 hour. Although my time periods will be more than 1/2 hour, I am confident that this method will be the most effective in keeping the rats awake. The one drawback: the handheld remote requires that the massaging cycle button be "re-pushed" every 15 minutes. I am going to have to devise a plan for keeping the massager going for hours at a time without always being home to push it.

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