Department of Psychology

Daphnee Georges

Mentor: Paul Currie

Feeding Responses of Twelve Sprague-Dawley Male Rats

In this study, we investigated the paraventricular nucleus of the hypothalamus, an area that is implicated in feeding activity. We injected 12 male Sprague-Dawley rats with Neuropeptide NPY, a peptide that is widely distributed in the brain. It is known to increase feeding when injected into various regions of the hypothalamus, including the paraventricular nucleus. We examined whether the administration of another drug, DOI, would block the effects of NPY on feeding activity. The rats were given the injections at the start of their dark cycle.

My responsibility was to perform surgery, which usually took less than two hours. We first got the rats accustomed to being handled and to our scent, then shaved their heads for surgery, and injected them with anesthetic. Rats were placed in a stereotaxic frame, which held the rats' heads in a secure position. The skin on the head was cut in a diamond-shaped pattern with clean instruments. We removed fascias from the brain until we saw the point where Bregma met. We marked the place where a cannula would be implanted, using marks on the anterior, mid-lateral, and posterior parts of the brain. We inserted a cannula and filled the incision with acrylic powder and liquid to hold the cannula in place.

I was also responsible for post-operative care of the rats. They were kept on a hyperthermia blanket. I applied water with a Q-tip to keep them hydrated and assessed their condition at all times. When the rats had fully recovered from surgery, they were returned to their cages.

NPY increased feeding when injected into the paraventricular nucleus of the hypothalamus at the start of the dark cycle. When we injected the drug DOI immediately before the administration of NYP, DOI blocked the feeding response typically caused by NYP. DOI is a drug that acts on brain serotonin receptors, specifically the 5-HT2A/2C receptors.