

## **Use of an Episodic Food Intake Monitoring System to Evaluate Feeding Behavior in Mice**

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The measurement of food consumption in laboratory animals is critical to studies in metabolism and obesity. Unfortunately, feeding behavior is very sensitive to the environment. Many factors such as the change of cages, diet, and human interactions can introduce undesired experimental variation. Here we describe our experiences with a commercially available episodic food intake monitoring system, the BioDAQ Monitor. This system is designed to quantitatively record feeding behavior in mice. It continuously monitors the weight of the food and uses this information to determine bout length and size. Bouts that occur soon after one another can then be defined as meals. When an animal jostles the food hopper while eating, the weight of the hopper fluctuates and eating is considered to be in progress. Once the hopper weight has been stable for a specified time, that period of feeding is considered to be concluded. The system also has the capability to assess either food or liquid choice paradigms and to directly measure the administration of orally available drugs in either the feed or the water. In addition to these functions, the system uses an environment monitor to record temperature, humidity and lighting of the room every five minutes. Here we present data showing measurements taken in hyperphagic mutant mice, altered feeding paradigms, and under different drug and protein hormone treatments. Future studies using this system will continue to focus on the hyperphagia associated obesity phenotype observed in mice upon conditional disruption of primary cilia.