# Behavioral Analysis, Software that Can Measure Effects of Drugs on Rodent Pain

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## Technology description

### 3D Force Measurement Device and Behavioral Assay Software Detect Orofacial Pain and Therapeutic Care

This simple mechanical device and software package captures, measures, and assesses behavioral data collected from rodents used in orofacial pain research. Measurement of animal behavior and determinations of pain and anesthesia offers potential applications in the field of neuroscience, pain management and dentistry. Uncontrolled pain remains an ongoing health problem globally, of which orofacial pain disorders represent a large portion. The 3D incising measurement device assesses the central pattern generator for mastication and the effects of pain or drugs on the incising temporal pattern over a 24-hour period. It can measure incising duration plus force magnitude, direction, and frequency. The Licking Analysis software package can be used with standard behaviors to assess pain in rodents; researchers completed an elaborate study of two behaviors: licking and facial contact. Both the mechanical device and the software help researchers evaluate orofacial pain in rodents by measuring and recording their reactions to pain. The software program allows for further analysis of the recorded information since the output files can be imported into other programs, such as Excel, to conduct specialized analysis.

## Technology

The measurement of incising in three dimensions allows for a more accurate examination of forces that are generated than available standard strain gauge methods. The design of this 3D force measurement device includes an easy-to-use interface that attaches to a standard small rodent cage and allows the use of three pieces of standard rodent chow, oriented in the food tray for easy access by the animal. No training is required for the animal to use this device. The Licking Analysis software records, measures, and assesses data collected from rodents during pain research to allow further analysis of information. The software measures two standard behavioral models in pain research, licking and facial contact, and possesses features such as segmented data, event histograms on two time scales, event duration histograms, cumulative frequency graphs, and text output files that can be imported into other programs for further specialized research or summary statistics.

## Application area

Measures, records and assesses behavioral data from rodents used in orofacial pain research

## Advantages

Non-invasive data collection, preserving accurate outcome measures
Tracks rodents for extended period of time, allowing the detection of multiple outcome measures
Creates text output files transferrable to other programs, fostering analysis of data
Assesses two standard models used in pain research, making the software easy and ready to be implemented

## Institution

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