# Medial Forebrain Bundle Deep Brain Stimulation

Previous studies have used various stimulation parameters for operant conditioning, though the effectiveness of these parameters has not been systematically studied.

The purpose of a study was to investigate the optimal Medial Forebrain MFB stimulation parameters for controlling the conditioned behavior of rats.

They evaluated four factors, including intensity, frequency, pulse duration, and train duration, to determine the effect of each on lever pressure applied by animals. We further compared burst and tonic stimulation in terms of learning and performance abilities.

The number of lever presses increased with each factor. Animals in the burst stimulation group exhibited more lever presses. Furthermore, the average speed in the maze among burst stimulation group subjects was higher.

They determined the optimal parameters for movement control of animals in operant conditioning and locomotor tasks by adjusting various electrical stimulation parameters. Our results reveal that a burst stimulation is more effective than a tonic stimulation for increasing the moving speed and number of lever presses. The use of this stimulation technique also allowed us to minimize the training required to control animal behavior [1].

## Indications

Medial Forebrain Bundle Deep Brain Stimulation for depression.

1)
Kong C, Shin J, Koh CS, Lee J, Yoon MS, Cho YK, Kim S, Jun SB, Jung HH, Chang JW. Optimization of Medial Forebrain Bundle Stimulation Parameters for Operant Conditioning of Rats. Stereotact Funct Neurosurg. 2019 Apr 1:1-9. doi: 10.1159/000497151. [Epub ahead of print] PubMed PMID: 30933953.

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