

## **Abstract**

**Title:** Functional assessment after experimentally induced focal cerebral ischemia in rat.

**Objectives:** The aim of this diploma thesis was to design and test a set of motor tests, which provide an effective assessment of motor deficit, which forms after small ischemic lesion of primary motor cortex.

**Methods:** Experiment was performed in 16 Long Evans rats from breeding in Institute of Physiology, Academy of Sciences of the Czech Republic. Rats were divided into two groups (experimental and control). Ischemic lesion was induced by a photothrombotic stroke model to affect a small area – a motor cortex. For functional assessment we used five motor tests – Reaching test, Bar holding test, Rotarod test, Ladder rung walking test and Oper field test. For data analysis we used program Sigma Stat3.5®SPSS and Microsoft Excel 2010.

**Results:** Our findings demonstrate that a small lesion of motor cortex is objectively measurable by Reaching test, which focuses on grip and fine motor skills. Other tests assess mainly gross motor skills and there we did not find a significant difference between experimental and control group. Our findings show that functional deficit manifests mostly in function of upper limb. During the time of the experiment we can see an improvement and increasing success in Reaching test and partial recovery of motor skills.

**Keywords:** stroke, neurological deficit, functional assessment