

## 2. ABSTRACT

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Title of Thesis: Western blot analysis of markers of endothelial dysfunction in mice aorta following high-fat diet administration

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**Background:** High dietary fat intake is associated with increased risk of developing various metabolic diseases, including increased cardiovascular risk. The aim of this thesis was to investigate whether the administration of the high-fat diet containing 42 % kcal of fat affects expression of selected markers of endothelial dysfunction, the key mechanism in development of cardiovascular complications.

**Methods:** In this thesis were evaluated changes in the expression of endothelial nitric oxide synthase (eNOS), endoglin (ENG), endothelin-1 (ET-1), intercellular adhesion molecule 1 (ICAM-1) and vascular cell adhesion molecule 1 (VCAM-1). An experimental group of male C57BL/6J mice aged 7 months was fed the high-fat diet containing 42% kcal of fat for 12 weeks. The control group was fed a standard laboratory diet. Western blot analysis followed by detection using a chemiluminescent reagent was used to evaluate the observed markers of endothelial dysfunction

**Results:** The results show that there were no significant changes in the expression of the examined markers in the thoracic part of the mouse aorta. Only eNOS showed a significant increase in expression, which could be due to compensatory response to maintain the ability to vasodilate.

**Conclusions:** According to the results of the present thesis, long-term feeding with high fat diet containing 42 % kcal of fat has effect only on the expression of endothelial nitric oxide synthase.

**Keywords:** endothelium, endothelial dysfunction, high fat diet, Western blot analysis