

## **Abstract**

**Title:** Changes in muscle strength during the menstrual cycle

**Objectives:** The aim of this thesis is the monitoring of possible changes in muscle strength depending on the phase of the menstrual cycle. The sub-goals are the description of the effect of estradiol on skeletal muscle and the clarification of the effect of its concentration on the magnitude of muscle strength.

**Methods:**-The measurement was carried out with the help of two devices – an isokinetic dynamometer Humac Norm and a digital handheld dynamometer Takei A5401. The research part of the work is a pilot study in which 63 eumenoretic probands between the ages of 19 and 45 participated. Female subjects were measured at different stages of MC. MS Excel software was exclusively used for statistical processing.

**Results:** Tables and graphs were used to present the results. The values of muscle strength do not show a significant statistical dependence on the course of the menstrual cycle. However, the influence of other endogenous and exogenous factors cannot be excluded. The results of the analysis of the mutual influences and effects of the hormones progesterone and estradiol were confirmed by the trends described in the professional literature. As the level of progesterone in the blood decreases, the quality of strength-endurance performances increases.

**Keywords:** estrogen, estradiol, progesterone, menstrual cycle, muscle strength