

## **Abstract**

**Title:** The Appearance of the reflex locomotion elements in the hurdle clearance stride

**Thesis Objective:** The main objective of this thesis is to state the frequency of the presence of reciprocal inhibition (RI) and cross extensor reflex (CI – contralateral inhibition) during hurdle overrun.

**Methods:** The subjects were tested during running over three hurdles with modified distances similar to the 110m hurdles. The height of the hurdles was set to 0,99 m. The muscle activity was monitored by surface electromyography and video was recorded simultaneously. The hurdle clearance was divided into particular phases which altogether formed one cycle. Collected data was analyzed by the software Megawin (rectification, smoothing, and synchronization with camera) and subsequently converted into software MATLAB. Nine cycles of each subject were averaged. Such modified cycle was evaluated consequently.

**Results:** Reflex locomotion (RI and CI) was presented more often in the group with less experience with the hurdles. Co-activation of antagonist muscles was typical for the group consisting of more experienced individuals, rather than RI and CI.

### **Key Words:**

hurdles, biomechanics, sEMG, reciprocal inhibition, contralateral inhibition



