

## **Abstract**

This bachelor's thesis is focused on the motion of spine that appears during phasic movement of upper extremities. Postural strategy is selected with the aim of minimizing impact of arising reactive forces and of change in position of center of mass on the balance and alignment of body's segments. This process prevents interference of the reactive forces with goal of the motor task. Further the thesis summarise underlying activation of postural muscles and consequences of low back pain on the postural control.

Over a period of abduction of upper limbs was recorded movement of thoracic spine and sacral bone using inertial measurement units. External loading of the upper limbs was changed in different phases of the experiment. The measurement was performed with one healthy individual without history of low back pain or any other severe disease and one patient diagnosed with intermittent low back pain. Results of the experiment are coherent with preceding studies. The preparatory movement of the spine in the direction opposing the reaction forces is apparent from the record. With the amount of external loading the amplitude of the preparatory motion is increasing. However its characteristic remains unchanged.