

## **Abstract**

**Headline:** Swimming technique of physically disabled swimmers with unilateral above-knee amputation

**Aim of the Thesis:** The aim of this thesis is to describe the intra-individual differences in the swimming technique of unilateral above-knee amputees by measuring the EMG of selected muscle groups.

**Methods:** Surface EMG measurement in combination with using synchronized video recordings.

**Results:** Research of the observed swimmers with unilateral above-knee amputation showed that:

- when swimming the front crawl, the swimmers unequally balance the intense kick of right and left leg mainly using the abdominal muscles and subsequently also in the electric potential of different sizes in other observed muscles;

- when swimming the backstroke, the upper body muscles on the side of amputated limb do not show any different activity than the muscles of the opposite side;

- when swimming the breaststroke, the main propulsion muscle for locomotion through the shoulder girdle – m. latissimus dorsi is activated for a longer period of time on the side of amputated limb; thereby, electrical activity of the selected muscles is not symmetrical in the timeline.

**Key words:** swimming step, swimming, above-knee amputation, electromyography, muscle activity, handicap, EMG.