

Abstract:

The bachelor thesis deals with virtual reality balance therapy. The therapy focuses on chronic patient after brain damage.

The first - theoretical part of the thesis contains especially definitions of biofeedback and virtual relality. It analyses possibilities of balance testing in detail.

The second - practical part of the thesis includes description of a virtual environment developed at the Joint Department of Biomedical Engineering of Czech Technical University and Charles University in Prague. The input and output examinations of two patients are compared and results of the therapy are evaluated. The examinations consist of subjective MiniBESTest and objective posturographic Complete Static Sensory Organization Test (CSSOT) and Faller Assessment. An objectification of the instantaneous effect of the therapy is evaluated by virtual reality games.

The discusion compares patient's and control group's examination findings. The results of the MiniBESTest, CSSOT and velocity of movement in virtual enviroment show improvement in postural stability.

Key words: virtual reality, postural stability, balance testing, posturography, brain damage, balance board