

Assessing spatiotemporal gait parameters in patients with damage to the brain or spinal cord to evaluate the effectiveness of the Brucker Biofeedback Method® (Bachelor-/Master Thesis)

The Brucker Biofeedback Method® (BBFM®) is a special form of electromyographic biofeedback in which muscle activity is measured using surface electrodes and is visually displayed in real time. One of the uses of BBFM® is the rehabilitation of children and adolescents with damage to the brain or spinal cord. This thesis is part of an ongoing study to evaluate the effects of BBFM® on gait, stance, muscle activity, and balance in children and adolescents with damage to the brain or spinal cord.

Your task is to conduct a pre-post designed study with patients with damage to the brain or spinal cord at the Schönklinik München Harlaching.

You will learn how to conduct an empirical experiment, including gait and stance analysis (Zebris FDM 2 system), EMG (Tringo Wireless System) and a balance test (Berg Balance Scale)

Study Participants: children and adolescents with damage to the brain or spinal cord

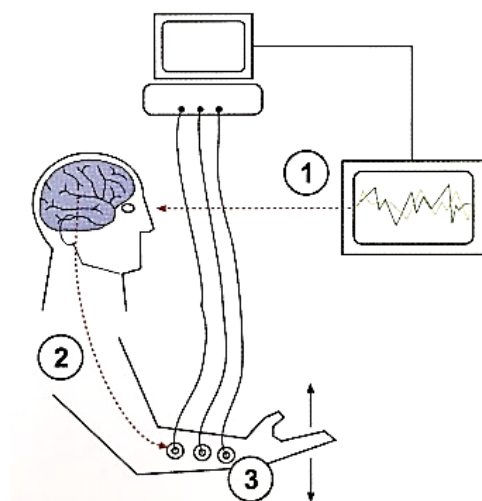


Abbildung 1. Brucker-Biofeedback (Schön Klinik München Harlaching, 2020)

Supervision: Michaela Guder, (Schön Klinik), Dr. Waltraud Stadler (TUM)

Contacts: MiGuder@schoen-klinik.de;
RNickel@schoen-klinik.de;
waltraud.stadler@tum.de;

Information/Literature:

Shumway-Cook, A. (2001). Motor control. *Theory and practical applications*, 176-182.

Fowler, E. G., Staudt, L. A., & Greenberg, M. B. (2010). Lower-extremity selective voluntary motor control in patients with spastic cerebral palsy: increased distal motor impairment. *Developmental Medicine & Child Neurology*, 52(3), 264-269.

Moreland, J. D., Thomson, M. A., & Fuoco, A. R. (1998). Electromyographic biofeedback to improve lower extremity function after stroke: a meta-analysis. *Archives of physical medicine and rehabilitation*, 79(2), 134-140

Brucker, B. S., & Fuhrs, M. (2006). Revolutionäre Methode für Opfer von Cerebralschäden und Paralysen - Neuroplastizität und die Rolle von Biofeedback in der Zukunft.



Abbildung 2. From Dr. Laura Willinger: Evaluation of the Effects of the Brucker Biofeedback Method® on Foot Roll Over in Children and Adolescents with Cerebral Palsy (2020)

