

# Precise EMG - diagnosis: how can it be used in the daily routine of physiotherapy

Sonja Soeder, German Pelvic Floor Center, Germany

**Introduction:** The prerequisite for a targeted and effective physiotherapy is an accurate diagnosis. Physiotherapy uses the ICF criteria to show the changes in structure/function, activity, participation and the contextual factors. Hypothesis categories and hypotheses are developed in consultation with the patient and are part of the therapeutic decision-making process, including whether instrumental physiotherapy is indicated. The aim is to optimise functions and behaviour in the physiological functional context.

**Objective:** The 137 patients treated showed different diagnoses and findings. The retrospective analysis of the data revealed several subgroups with specific EMG values. The aim was to give the therapists an overview of recurrent findings in everyday life. This creates more exchange and the less experienced therapists can benefit as well as the patients.



Fig.1: MAPLe® Set

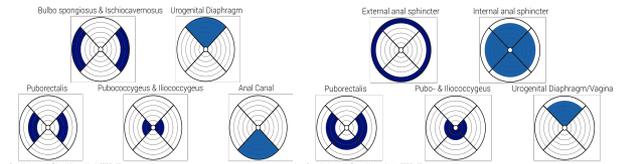


Fig.2: Grid vaginal

Fig.3: Grid Anal

**Method:** MAPLe is a vaginal and rectal usable probe with 24 electrodes as measuring points and stimulation points. Based on the points assigned by MRI, it is possible to differentiate exactly which muscle shows which activity where. The standardized positioning and overview measurement allows a comparison between patients. Initially, resting EMG (1 minute), high-speed strength (10 x 3 sec contraction/relaxation) and endurance (15 x tension (15 sec)/relaxation (10 sec) are measured. Each contraction can be displayed individually and in an overview. The recruitment or fatigue of individual muscles can be displayed.

**Results:** 156 patients were treated with MAPLe in the last 4 years. Diagnoses (number of patients): Urinary incontinence postpartum (16), pelvic floor weakness (8) dyspareunia (31) pelvic floor pain (38) incontinence with orthopaedic diagnosis (22) urge incontinence (12), faecal incontinence (29), the average number of treatment sessions was 12. In pain patients, dolence was achieved from VAS 8-10/10 to VAS 0-1/10 after 4-12 sessions. It was possible to assign certain parameters to these sub-groups, which must be confirmed in a large number of cases. The pelvic floor is neglected in orthopaedic and neurological clinical pictures, but the retrospective overview shows the central function of this muscle group and The pelvic floor is neglected especially in orthopaedic clinical pictures.

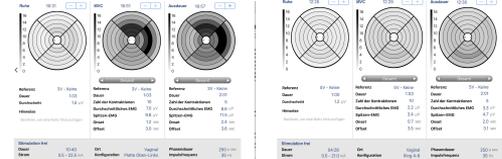


Fig. 4 and 5: Initial Measurement with unequal muscle activity due to ISG blockade and urinary incontinence due to insufficient levator activity and intermediate findings before strengthening training.

**Conclusion:** This is a very precise diagnostic and therapeutic procedure, which shows important diagnosis and very good therapy results in a short time if used optimally and with the right indication, application good certified training and experience of users.

**References:**  
 Vorham van der Zalm P et al: Reliability and Differentiation of Pelvic Floor Muscle Electromyography Measurements in Healthy Volunteers Using a New Device: The Multiple Array Probe Leiden (MAPLe). Neurourology and Urodynamics DOI 10.1002/nau  
 Vorham JC et al: The effect of EMG biofeedback assisted pelvic floor muscle therapy on symptoms of the overactive bladder syndrome in women: A randomized controlled trial. J Neurourology Urodynamics 2016. DOI 10.1002/nau.23180

**CONTACT INFORMATION:** s.soeder@alexianer.de