

Polysensographical measurement of the tongue force under electromyostimulation of the muscles of the mouth floor

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Introduction

The electromyostimulation (EMS) of the mylohyoid muscles and lingual muscles is applied for therapy of obstructive sleep apnea syndrom (OSAS).

Material and Methods

In 17 patients with OSAS and 9 healthy probands over a time period of 4 weeks 2 times daily the enoral-cutaneous EMS was applied by using the apparatus BMR PolyStim 262 (Bio-Medical Research Company). The training parameters in all probands were previously determined and the real training time was controllable. In all patients and probands the measurement of the lingual force was done before stimulation and in the fourth week under stimulation by the polysensographical system Sensoral (SensoMedical Company). A calibrated Sensor FlexiForce TM Single Serial Button (= SSB-T; CMV Hoven Company) was connected to it by a digital, multifunctional interface. The sensor was fixed to the palate by histoacrylic glue one centimeter behind the maxillary front teeth.

Results

All patients and probands reliably applied the EMS. There were no side effects to be noticed. All probands as well as in the OSAS patients after 4 weeks stimulation therapy an increase of the tongue force could be found. On average the amount of increase of lingual force was minimally 7% and maximally 99% (mean 31%). In the group of healthy probands the increase was between 14 % and 39 % (mean 28%).

Conclusions

The polysensography is a new method which enables an exact determination of the tongue force and is a suitable technique to prove the effects of EMS. Simultaneously it could be demonstrated that the EMS is as effective in OSAS patients as in healthy probands.

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