

TOOTH PULP EVOKED POTENTIALS DURING PERMANENT STIMULATION OF HUMAN TEETH. W.H.-M. Raab, Department of Restorative Dentistry and Periodontology, University of Erlangen-Nürnberg, D-8520 Erlangen/FRG

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Aim of Investigation: Tooth Pulp Evoked Potentials (TPEPs) have already been described by many authors. The short duration of the stimuli, however, does not correspond to the clinical situation of continuous pain. So, the purpose of this study has been the development of a method which combines both the use of a permanent stimulus and short stimuli for the recording of TPEPs.

Methods: The permanent stimulus consisted of an alternating constant current square wave of 2 ms duration. In addition, stimuli of varying intensities in five steps of 2 dB each, related to the individual pain threshold, were given. To avoid electrical artefact in the EEG the permanent stimulus was switched off for 1024 ms after the test stimulus had been set.

Results: For the first time TPEP could be recorded while using an additional permanent stimulus. All subjects described a change in subjective felt pain 20-30 s after the onset of the permanent stimulus. They did not notice the absence of the permanent stimulus during EP recording. The TPEPs obtained by this method show an increase of amplitudes and a shortening of latencies with rising intensities. A clear relation between the increase of intensity and the amplitude of the N_1P_2 component could be proved.

Conclusions: This method provides a new possibility of testing analgesics under experimental conditions which are comparable to the clinical situation of pain.