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日 時: 2008 年 7 月 15 日(火) 16 時 30 分~17 時 30 分

場 所: 実習館 2 階総合歯科医学研究所セミナールーム

演 者: **Kemal S. Turker 氏** (Ege University, Professor)

タイトル: **Reflex control of human mastication**
(ヒト咀嚼における反射性調節機構)

In literature, all investigations on the human masticatory system have used static conditions where the jaws do not move. In this talk, we illustrate preliminary findings on the modulation of the synaptic potential from periodontal mechanoreceptor (PMR) input to motoneurons that innervate jaw muscles changes during simulated mastication. During experiments, healthy adult volunteers masticated after they bit into impression material mounted on two fixed bite bars. During this simulated mastication, each time the mandible went through 14mm of jaw separation, we delivered various strengths of taps to the upper right incisor. Responses of the jaw muscles were examined using spike triggered averaging of the electromyogram (EMG). To compare the results, static tests were also performed using similar EMG levels to the ones obtained during the opening and closing phases as the jaw crossed 14mm threshold. Once the experiment had been performed, local anaesthetic solution was administered to the upper and lower central peri-incisal periodontium and the incisive papilla, and all procedures were repeated. Thus contribution by the PMRs was blocked and only the contribution of the muscle spindles was determined. This study has shown what the reflex response will be to larger stimuli while the reflex evoked by weak stimuli decreased during both jaw opening and closing. According to our findings, weak stimuli generate decreased reflex responses, while the responses to larger stimuli do not decrease during mastication. This indicates that the reflex responses are increased to protect the teeth and supporting structures if the encountered force is large.

担当: 顎口腔機能制御学講座 増田 裕次