

**Title:**

Effect of Gum Chewing Against Experimental-Induced Pain in Human Adults

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adjunct effect, non-invasive approach and pain relief

**References:**

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2) Konno M, Takeda T, Kawakami Y, Suzuki Y, Kawano Y, Nakajima K, Ozawa T, Ishigami K, Takemura N, Sakatani K.: Relationships Between Gum-Chewing and Stress. *Adv Exp Med Biol*, 876, 343-349, 2016.

**Abstract Summary:**

This aim of study was to examine the intervention effects of gum chewing against experimental-induced pricking pain in human adults. As a results, the intervention by gum chewing with a constant rhythm is possibility to be useful for temporary acute stress in adults.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will understand that the non-pharmacological intervention by gum chewing might contribute pain relief as an adjunct to minor procedures in adults.	The intervention by gum chewing with a constant rhythm is possibility to be useful for temporary pain relief in adults.
Experimental-induced pricking pain is attenuated by gum chewing with the constant rhythm.	The chewing movement using gum might lead to short-time inhibition of acute stress associated with pricking pain in adults.

**Abstract Text:**

**Purpose:** The aim of study was to examine the intervention effects of gum chewing against experimental-induced pricking pain in human adults. This study conducted the quasi-experimental designs.

**Methods:** Thirteen healthy adults participated in this study. The participants chewed gum to the rhythm of a metronome for 60 minutes during the experiment. In addition, we employed the pricking pain method using the portable peripheral neural stimulator device, to generate experimental pain. Experimental pricking pain was intermittently induced at right forearm of subjects five times every twenty minutes by 0.5mA fixed stimulus. This devise readily evoked pricking pain by intra-epidermal electrical stimulation. The participants sensed pain similar to pricking by the needle. Interventional efficacy was quantitatively evaluated as follows: volume of acute stress substances with chromogranin A in saliva, the amount of

emotional sweat and two visual analogue scales (VAS) of pain intensity and comfortableness. The protocol in this study is reviewed and approved by the ethical committee at the research institution at Kawasaki University of Medical Welfare in Japan. In addition, the participants signed a consent form after the purpose and procedures of study had been explained. And, the conflict of interest is not existed in this study.

**Results:** Chromogranin A in saliva significantly decreased under pain stimulus at chewing initiation 20 minutes compared to the pre-experiment condition, and increased by stopping the chew of gum. Additionally, the subjective estimate of comfortableness was ranked highest at sixty minutes among all time zones. Conversely, no significant differences in secretion of emotional sweating and pain VAS scores were found at all time zones.

**Conclusion:** These findings reveal that gum chewing effects by a constant rhythm against pain would appear 20 minutes on the after the chew beginning, indicating that the chewing movement using gum might lead to short-time inhibition of acute stress related to pricking pain in adults. Gum chewing itself is very brief and non-invasive approach. Therefore, this intervention by gum chewing would be effective for the predictable pricking pain such as injection or venipuncture, and might contribute acute stress relief as an adjunct to pricking pain in adults.