

PEDIATRIC DENTAL JOURNAL International Journal of
Japanese Society of Pediatric Dentistry
The Japanese Society of Pediatric Dentistry

Available Issues | Japanese >> Publisher Site

Author: Keyword: Search **ADVANCED**



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1880-3997

PRINT ISSN : 0917-2394

Pediatric Dental Journal

Vol. 18 (2008) , No. 2 pp.137-146

[\[PDF \(209K\)\]](#) [\[References\]](#)

Relationship between reaction time for mandibular movement and the level of muscular discharge of the masticatory muscles in a reaction time task in patients with cerebral palsy

Atsushi Uchida¹⁾, Masafumi Yoshida²⁾, Hironobu Araki²⁾, Taketo Yamaguchi³⁾, Sawako Nakamura²⁾, Haruko Yoshida²⁾, Ichiro Nakajima²⁾ and Tetsuo Shirakawa²⁾

1) Department of Dentistry, Saitama Prefecture Ranzango

2) Department of Pediatric Dentistry, Nihon University School of Dentistry

3) Department of Dentistry, Saitama Prefecture Kaikoen

(Received on April 2, 2008)

(Accepted on June 27, 2008)

Abstract We hypothesized that patients with Cerebral Palsy (CP) are affected by the preparatory process in the central nervous system for initiating a jaw movement. We tested this hypothesis on 13 in patients with CP (average: 36.9 years old) and 13 in healthy adults (average: 34.7 years old) as subjects. We recorded the muscular discharge of the masticatory muscles from the time a warning stimulus was presented to the time an instruction stimulus was presented during the reaction time (RT) with the open mouth movements in patients with CP. The following results were obtained. The RT for executing the open mouth movements is significantly longer in the CP subjects than in the healthy subjects. In the CP subjects during the movement task, the level of muscular discharge of the masticatory muscles in the 1-s period before presentation of a warning stimulus was significantly lower than that in the 1-s period or in the period from 1 s to 2 s after the presentation of the warning stimulus. The other side, In the healthy subjects, no change in the muscular discharge of the masticatory muscles was observed. However, In the CP subjects and in the healthy subjects during the nonmovement task, no change in the level of muscular discharge of the masticatory muscles in each period was observed. A significant correlation was observed between the percent change of the level of muscular discharge of the masseter muscle (or the digastric muscle) and RT for the open mouth movement. From the results of this study, as one of the reasons for the difficulty in executing smooth voluntary movements in the oromandibular region in individuals with CP, we consider that the

movement is delayed because the period of preparation of the movement is significantly prolonged in individuals with CP although they started the preparation of the movement at an earlier period than in individuals who do not have CP.

Key words Electromyogram (EMG) of the masticatory muscles, EMG-reaction time, Patients with cerebral palsy, The open mouth movements

[\[PDF \(209K\)\]](#) [\[References\]](#)

Download Meta of Article [\[Help\]](#)

[RIS](#)

[BibTeX](#)

To cite this article:

Atsushi Uchida, Masafumi Yoshida, Hironobu Araki, Taketo Yamaguchi, Sawako Nakamura, Haruko Yoshida, Ichiro Nakajima and Tetsuo Shirakawa: Relationship between reaction time for mandibular movement and the level of muscular discharge of the masticatory muscles in a reaction time task in patients with cerebral palsy . *Ped Dent J* **18**: 137-146, 2008 .

JOI JST.JSTAGE/pdj/18.137

Copyright (c) 2008 by The Japanese Society of Pediatric Dentistry



[Japan Science and Technology Information Aggregator, Electronic](#)

