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### Characteristics of lower-jaw-position sensation with respect to oral-jaw functions in patients with cerebral palsy

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**Abstract** In order to investigate the effects of desensitization which is induced by the application of a vibration stimulus simulating massage to patients with cerebral palsy (CP) on the lower-jaw-position sensation, we compared the masticatory-muscle sensation of patients with CP with that of healthy adults without functional abnormalities of the jaw and oral cavity who were used as control subjects, using a lower-jaw-position sensation discrimination test. The subjects of the study were eight patients with CP and eight healthy adults as control subjects. The following findings were obtained.

1) When the discrimination ability in healthy adults was compared between before and after the stimulus application, it was significantly higher after the stimulus application when the interincisal distance was smaller (9.5 mm) than that with the reference stick.

2) When the discrimination ability of patients with CP was compared between before and after the stimulus application, it was significantly lower after the stimulus application when the interincisal distance was smaller (9.5 mm) than that with the reference stick.

Thus, results for the patients with CP are contrary to those for healthy adults; this is because of the appearance of the tonic vibration reflex in CP patients, which results in a decrease in the activity of  $\gamma$ -motor neurons. The threshold value of muscle sensation was increased by the application of vibration stimulus. Consequently, the discrimination ability of the patients with CP increased.

**Key words** Cerebral palsy, Lower-jaw-position sensation, Masticatory muscle, Muscle spindle, Tonic vibration reflex



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