Electromyographic evaluation of neuromuscular co-ordination during chewing in a subject with organic occlusion.

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The neuromuscular co-ordination of the anterior masseter and temporal muscles during chewing has been studied. The subject analysed was 24 years old female with organic occlusion, molar and canine class 1, with 2 mm overbite and overjet, frontal disocclusion and canine protection, with no cranio-mandibular disorders. Masticatory cycles and electromyographic activity were recorded with a K6 I kinesiograph (Myotronics Inc., Seattle, WA, USA). The chewing cycles were recorded with a soft bolus and a hard bolus, on 3 consecutive days. Electromyographic analysis during masticatory cycles showed that electromyographic activity was higher in the masseter muscle homolateral to the chewing side than in the contralateral muscle, whereas the anterior temporal muscles achieved similar voltages. When chewing the hard bolus, versus the soft bolus, activity in the contralateral masseter muscle increased to a greater extent than in the homolateral masseter muscle. The results were analogous at all 3 recordings. When chewing, the subject showed good muscle co-ordination, which was constant over the 3 recordings made on 3 consecutive days. Increased activity of the contralateral masseter muscle when chewing the hard versus the soft bolus indicates the stomatognathic system's capability to adapt to load and its neuromuscular equilibrium.

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