

**Original**

## Relationship between Occlusal Contact Patterns and the Prevalence of Non-carious Cervical Lesions

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**Abstract:** In order to test whether the occlusal contact pattern is a factor that contributes to the development of non-carious cervical lesions (NCCLs), 15 dentists clinically investigated their prevalence in the general population in two different ways to classify the occlusal scheme (one based on the tooth-contact pattern during wakefulness and the other on that during sleep). We established the occlusal contact pattern of 240 subjects during sleep bruxism with BruxChecker. We checked the 6,564 teeth of the total subjects and examined the NCCL prevalence regarding each tooth. The overall prevalence of NCCL was 11.4%. The prevalence increased with age: 7.1% for people in their 20s to 15.8% for people in their 50s. Based on the standard 5-category occlusal contact patterns established by BruxChecker, there was a significant difference between the proportion of NCCLs identified in bilateral group function grinding subjects (12.8%) and that in bilateral canine dominance grinding subjects (3.6%). Using the new 3-category system (incisor-canine grinding (IC) subjects, incisor-canine-premolar grinding (ICP) subjects, and incisor-canine-premolar-molar grinding (ICPM) subjects), there was a significant difference between the proportion of NCCLs identified in bilateral ICP subjects (13.5%) and bilateral IC subjects (3.6%) than in bilateral ICP subjects (13.6%) than in bilateral IC subjects (3.6%). It was proportional to the laterotrusive-side occlusal contact area. We conclude that the prevalence of cervical lesions is significantly related to occlusion, and that the risk of non-carious cervical lesions is a function of the laterotrusive-side occlusal contact area.

**Key words:** Non-carious cervical lesion, Abfraction, Occlusal scheme, Sleep bruxism, Bruxism-based occlusal contact patterns, Bruxism