

Dental erosive wear – a growing problem in the Nordic countries

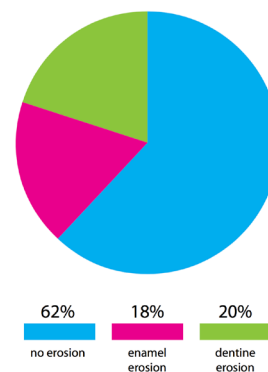


NIOM Scientist and dentist, Aida Mulic is a co-author of a recently published Norwegian study that examines the prevalence and severity of dental erosive wear in 16-year-old adolescents in the County of Troms in northern Norway. The data analysed in the study indicated both wide prevalence and high severity of dental erosion among adolescents. The authors stress the importance of information, early and effective diagnostics and implementation of prevention strategies.

Despite the wide methodological variations between studies of prevalence that prevent direct comparisons, there are indications that dental erosive wear is relatively common among children and adolescents throughout the Nordic countries.

Caries down, erosive wear up; blame acidic drinks

As the incidence of caries has decreased across the Western world, focus has shifted towards an apparent increase in prevalence of dental erosive wear. Several recent studies investigating the prevalence of dental erosion in the Nordic countries have reported that dental erosive wear is a growing problem among children, adolescents and adults. One suggested reason is that the consumption of acidic drinks – thought to be one of the most important factors leading to dental erosive wear – has increased greatly over the past decades.



Dental erosive wear is common among adolescents.

The occlusal surfaces of the lower first molars, and the palatal surfaces of the maxillary incisors were the most often and most severely affected.



Results

- More than one third (38%) of the adolescents had dental erosive wear on at least one tooth surface, limited to the enamel for 18% and extending into the dentine for 20% of the participants.
- The occlusal surfaces of the lower first molars, and the palatal surfaces of the maxillary incisors were the most often and most severely affected.
- Of the participants showing dental erosion, 93% exhibited “cuppings” on the molars, with 48% limited to the enamel and 52% extending into the dentine.
- The highest prevalence of “cuppings” (73%) was found on the first lower molars, especially on the mesiobuccal cusp.
- The prevalence and severity of dental erosion was found to be higher in male than in female participants.

References:

Prevalence and severity among 16-year-old adolescents in Troms, Norway. Mulic A, Fredriksen Ø, Jacobsen ID, Tveit AB, Espelid I, Crossner CG. Eur J Paediatr Dent. 2016 Sep;17(3):197-201.

Erosive tannslitasjer: Forekomst og alvorlighetsgrad blant 16-åringer i Troms Ø. Fredriksen, ID. Jacobsen, AB. Tveit, I. Espelid, CG. Crossner, A. Mulic Nor Tannlegeforen Tid 2017; 127: 600–5

Improved micro-tensile strength test developed by NIOM reveals key to successful repair of restorations

Sigfus Thor Eliasson
Visiting scientist



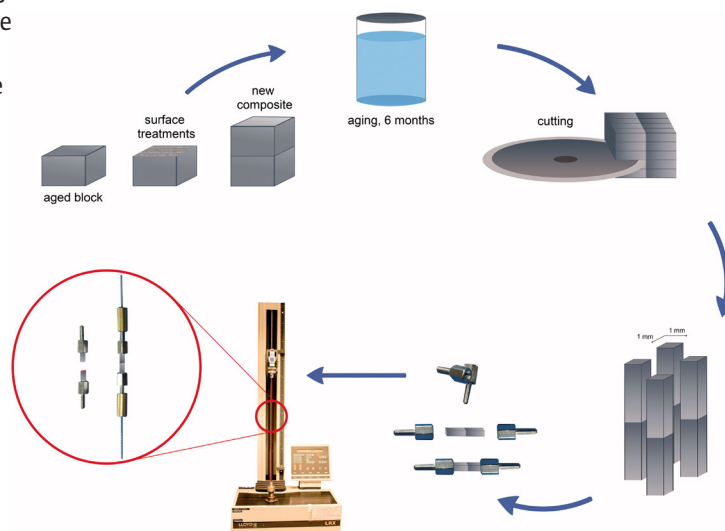
Jon E. Dahl
Managing Director



A more reliable and less time-consuming test method to evaluate the micro-tensile strength of the repair bond between old and new composites has recently been published. The improved test method is based on studies carried out previously at NIOM. These studies showed that, in general, a thinner bonding layer renders a repair bond stronger, and that silane surface treatment significantly improves repair strength. The results support the reliability and effectiveness of the clinical procedure that the new investigation proposes.

Repairing composites increases the longevity of restorations

There is growing evidence that repairing composites increases the longevity of restorations. Methods to achieve the best repair have been explored in a number of investigations. The majority of these studies compare both different adhesives and various surface treatments of the composite to be repaired. In addition to roughening with diamond burs, sandblasting, etching with hydrofluoric acid, lasers and silane application have been suggested. To date, there appears to be no consensus on the most appropriate way to prepare the substrate.



A new method for tensile bond testing

Avoid curing the adhesive before placement of repair composite

New test method adds further support to previous studies

The most recent NIOM investigation confirmed the results from the previous studies. Application of freshly prepared silane and the use of a thin bonding layer lead to higher micro-tensile bond strength. The recommended procedure to obtain intimate contact between the old restoration and repair composite is to avoid curing the adhesive before placement of the repair material. This makes composite repair simpler and less time consuming.

Clinical implication

A feasible clinical procedure for composite repair is:

- roughen with a diamond bur,
- acid etch
- apply bis-silane and adhesive
- squeeze the repair composite on to the uncured adhesive before curing.



KNOWLEDGE – INNOVATION – QUALITY

The Nordic Institute of Dental Materials (NIOM) is responsible for promoting a continuing Nordic collaboration in the field of dental biomaterials. NIOM maintains a distinct Nordic profile through broad contacts with the Nordic dental educational institutions and research centres. The Institute undertakes research, materials testing, standardisation and research-based consulting directed towards health authorities and dental health services in the Nordic countries. Our research and consulting are required to be scientifically founded and applicable to clinical dentistry.

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