

The Bonding characteristics of novel anti-microbial cements

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The placement of orthodontic brackets and bands can make effective oral hygiene difficult and lead to an increase in the levels of cariogenic bacteria. This can result in the development of decalcification of tooth surfaces and one of the most susceptible sites is around the band margins of posterior teeth. Fluoride releasing cements are used to attach the bands to the teeth and prevent decalcification, however previous studies have shown that the presence of fluoride does not reduce the incidence of decalcification significantly. We aimed, in this split site study to assess:

- Whether the addition of various concentrations of chlorhexidine digluconate to an orthodontic banding cement improved the antibacterial effectiveness of the cement using an agar diffusion test (Leeds).
- Whether there were differences in the mean *in vitro* retentive strength and survival time of orthodontic micro-etched bands cemented with chlorhexidine –modified (CHXGIC) or conventional glass ionomer cement (Glasgow).

We found that the CHXGIC materials showed marked antibacterial activity which reduced gradually over time. We also demonstrated that the mean retentive strength for bands cemented with these cements was not significantly different to GIC and that the *in vitro* survival time and reliability of the materials was also similar. These results suggest that the modified cement may have comparable clinical performance to GIC for band cementation. Indeed a three centre clinical study, supported by BOSF is now underway to establish if the results shown *in vitro* can be replicated in patients.

Millett DT, Doubleday B, Alatsaris M, Love J, Wood D, Luther F and Devine D. Chlorhexidine-modified glass ionomer for band cementation? An *in vitro* study. *J Orthod.* 2005 Mar;32(1):36-42