Indirect versus direct bonding of lower fixed retainers: a randomized clinical trial comparing placement time and failure rate over a 6-month period.

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Am J Orthod Dentofacial Orthop. 2014 Dec;146(6):701-8.

Aim: *The objective of this "2-arm parallel" single-center trial was to compare placement time and numbers of failures of mandibular lingual retainers bonded with an indirect versus a direct bonding procedure.*

Methods: *Sixty-four consecutive patients of the postgraduate orthodontic clinic of the University of Geneva scheduled for debonding and lower fixed retainer placement, were randomly allocated to either an indirect bonding procedure or a traditional direct bonding procedure. Eligibility criteria were the presence of the four lower incisors and two lower canines, no active caries, restorations, fractures or periodontal disease of these teeth. Patients were randomized in blocks of four; the randomization sequence was generated using an online randomization service (www.randomization.com). Allocation concealment was secured by contacting the sequence generator for treatment assignment; blinding was possible for outcome assessment only. Bonding time was measured for each procedure. Unpaired t-tests were used to assess differences in time. Patients were recalled at 1, 2, 4 and 6 months after bonding. Lower fixed retainers having at least one composite pad debonded were considered as failures. The log-rank test was used to compare the Kaplan Meier survival curves of both procedures. A test of proportion was applied to compare the failures at 6 months between treatment groups.*

Results: *Sixty-four patients were randomized in a 1:1 ratio. One patient dropped out at baseline after bonding procedure, and three patients did not attend the 4- and 6-month recalls. Bonding time was significantly shorter for the indirect (321 ± 31 sec, mean ± SD), versus the direct procedure (401 ± 40 sec) (PP analysis of 63 patients, mean difference, 80 sec; 95% CI, 62.4-98.1; p<0.001). The 6-month numbers of failures with the indirect technique were 10 out of 31 (32%) versus 7 out of 29 (24%) for the direct technique (log rank: p=0.35, test of proportions: risk difference, 0.08; 95% CI, -0.15-0.31; p=0.49). No serious harm was observed beside plaque accumulation.*

Conclusions: *Indirect bonding was statistically significantly faster than direct bonding, with both techniques showing similar risk of failure*