



Repair or not to repair, that is the question?

Restorative dentistry has changed profoundly its treatment philosophy to be as least invasive as possible, limiting its actions to replacing or restoring just the minimum size of the injury that caused a loss of tissue.^[1]

The field of adhesives has enjoyed great successes and also large failures. Composite resins have been the restorative material of choice for more than 40 years due to their indisputable characteristics. We ask if the repairs of composite resins can be used in the clinic as effective and long-term treatments.

There have been very few clinical trials thus far focused on repair of composite resins. Our group published one of these trials and reported that approximate success of 80% of composite resins at 10 years.^[2] However, the patients employed in this sample had a low or medium risk of caries, and hence the question remains open if these restorations would have achieved the same longevity in a more hostile environment.

Another trial of interest was conducted by Popoff *et al.*, who compared two types of composite repairs. In their latest report from 2 years ago, these authors reported a 100% success rate of composite resins.^[3]

The types of defects repaired in these two trials are quite similar: 3 mm in size, approximately, and characterized by auto-cleaning and good visual control.

Opdam *et al.* additionally retrospectively analyzed a large number of restorations and found that some procedures were not successful. This finding may be mainly due to the types of defects being larger than 3 mm, like the recomposing cusps. Although there has been no clinical work to provide randomized evidence about this type of major repair, it is logical that mechanical factors of demand, coupled with the inability to control and maintain some margins of these repairs, result in decreasing the useful lifetime of the repaired restorations.^[4]

In addition to composite resin acting as a restorative material or adhesive system, DeMarco *et al.* proposed that the longevity of resin composites also depends on important factors associated with the patient, such as sex, age, position and type of tooth.^[5] These considerations lead us to believe that there is sufficient evidence to make decisions based on A1 evidence for all cases in which we could perform a repair.^[6]

Clinicians should repair a defective composite resin because the complete replacement procedure is biologically much more expensive than replacing the restoration, due to lost tissue or major possibility of injury in pulp.^[7,8]

The universal adhesive system with methacryloyloxydecyl dihydrogen phosphate-10, which functions as an active monomer

facilitates the adhesion of the new resin body to the original body of resin composite restoration.^[9] Our group despite using one of the worst adhesives system without pre-conditioning (prompt L-pop) in our 10 years of work, we can say that we did not experience any adhesive failure in any of the restorations that our group repaired. Moreover, the repaired restorations failures resulted from failures and defects that occurred in the original resin body; the repairs behaved as a new composite resin. Unfortunately, systems to evaluate restorations fail to differentiate between the original portion and the repair of the composite resin.^[2]

We recommend repair as the treatment of choice in almost all cases of failure of the composite resin. Several adhesive systems, such as universal systems, could also provide a better adhesion between the new and the original resin. Therefore, we strongly recommend this type of procedure. However, it is always important to consider that if the original restoration failed for any mechanical or biological reason and we don't achieve controlling that risk, our repair may meet the same fate.

Fernández E, Mena K

Department of Restorative Dentistry, University of Chile, Santiago, Chile.

How to cite the article:

Fernández E, Mena K. Repair or not to repair, that is the question?. Sci J Dent 2015;2:1-2.

doi:doi: 10.15713/ins.sjod.13

Reference

1. Lynch CD, Opdam NJ, Hickel R, Brunton PA, Gurgan S, Kakaboura A, *et al.* Guidance on posterior resin composites: Academy of operative dentistry - European section. J Dent 2014;42:377-83.
2. Fernández E, Martín J, Vildósola P, Oliveira OB Junior, Gordan V, Mjor I, *et al.* Can repair increase the longevity of composite resins? Results of a 10-year clinical trial. J Dent 2015;43:279-86.
3. Popoff DA, de Magalhães CS, de Freitas Oliveira W, Soares LA, de Almeida Santa Rosa TT, Ferreira RC, *et al.* Two-year clinical performance of dimethacrylatebased composite restorations repaired with a silorane-based composite. J Adhes Dent 2014;16:575-83.
4. Opdam NJ, Bronkhorst EM, Loomans BA, Huysmans MC. Longevity of repaired restorations: A practice based study. J Dent 2012;40:829-35.

5. Demarco FF, Corrêa MB, Cenci MS, Moraes RR, Opdam NJ. Longevity of posterior composite restorations: Not only a matter of materials. *Dent Mater* 2012;28:87-101.
6. Sharif MO, Catleugh M, Merry A, Tickle M, Dunne SM, Brunton P, *et al.* Replacement versus repair of defective restorations in adults: Resin composite. *Cochrane Database Syst Rev* 2014;2:CD005971.
7. Gordan VV, Mondragon E, Shen C. Replacement of resin-based composite: Evaluation of cavity design, cavity depth, and shade matching. *Quintessence Int* 2002;33:273-8.
8. Mjör IA, Reep RL, Kubilis PS, Mondragón BE. Change in size of replaced amalgam restorations: A methodological study. *Oper Dent* 1998;23:272-7.
9. Perdigao J, Loguercio AD. Universal or multi-mode adhesives: Why and how? *J Adhes Dent* 2014;16:193-4.