

Challenges on Anterior Restorations: Beveling or not Beveling

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COLUMN ARTICLE

Ceramics and composites are known as the most aesthetic materials among the dentistry market, thus resin composites has a great advantage over ceramics in terms of simple technique, fast resolution, and low costs. Although the material has its own minimal requirements, improvements are being made along the way, like better esthetic, greater longevity, and enhanced mechanical properties; still the recent concept of minimally invasive dentistry most part of the time is misunderstood by clinicians, creating challenging situations since the treatment plan. The fact of composite materials most part of time being able to restore natural conditions without grinding the teeth, is an enormous advantage, if basic procedures were added to initial preparation with the aim to achieve excellence, beveling may be taken in consideration.

As dated from Schroeder, *et al.* 2015 [1], where the authors run a systematic review about the influence of enamel beveling of composite restorations in non-carious lesions, it may be an opportunity to write about a subject of so much debate. It is well known that beveling healthy enamel will reduce the quantity of the dental substrate, however, is still controversy if removing the first layer of healthy enamel would increase the bond strength; in terms of taking in consideration what you removed versus how much benefits you can achieve. The question is why so much debate and when should be done it or not? A study published few years

ago showing the effect of enamel bevel [2] on cervical lesions, concluded that bevel is not mandatory in short terms of clinical evaluation. However, they end up with such a conclusion; on the same paper the authors mention benefits by beveling enamel margins which is also cited by others studies. Some of major gains are less marginal microleakage [3-5], better adhesion [6,7], lower risk of enamel marginal fracture [6] and better transition between composite resin and dental substrate inducing higher esthetic pattern [8]. Controversial studies affirm that bevel could improve the retention only up to six months [9], while others affirm that short term clinical evaluation are not ideally to have significant results.

Different tooth preparation were proposed from 1-mm bevel, 2-mm bevel, plain chamfer, stair-step chamfer, and butt joint [10], varying the loading conditions, as results no difference were observed between, 2-mm bevel, plain chamfer, and stair-step chamfer; all three with superior fracture resistance. The higher the area where the restoration is seated the lower will be stress conditions under that material is on; of course this is not the only situation responsible for a great bonding strength. Bonding procedures are time and technique sensitive, and will lead most part of the time between success and failure among composite restorations. Others factors related to composite resin materials are of the greatest importance; mechanical properties, and have been changing every couple years. From macro-filled (8 - 12 μm), small particle (1 - 8 μm), hybrid (0.4 - 1 μm), micro-filled (0.04 - 0.4 μm), nano-hybrid (0.02 - 2.5 μm),

to nano-filled (0.06 - 1.4 μm), the filler size are changing in a way of enhancing mechanical properties such as fracture resistance, polishing efficiency, and aesthetics features. And not only selecting the type of preparation more appropriate on each case individually, but also knowing which composition of the material that you are about to use should be addressed by the clinicians.

It seems that as more information is published more complicated it turns to choose the ideal materials and protocols, with the aim of become excellent in what you do most. Whether or not the improvement achieved when adhesive restorations are beveled, the clinicians must be comfortable with operative procedures did on a daily basis, and more you do better will be. Every type of preparation make different contributions no matter these is advantages or disadvantages. In literature is possible to look for the most variety of data, affirming that beveling margins is good in several different protocols, thus dentistry professionals must be aware of looking for the best options while doing the treatment planning and analyzing clinically what will best perform in terms of necessity individually case by case.

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