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Tooth bonding to light up your smile

Because it's faster and cheaper than capping, tooth bonding is gaining supporters among dentists and patients. Convenience is its appeal; durability is a question.

FOR HALF TO A THIRD of the cost of customary repair you can have a patch applied painlessly to a tooth that is split, broken or badly blemished. Restorations that once required considerable grinding over several sessions now are done in one sitting without pulverizing the enamel. Best of all, if you don't like the renovation, it can usually be undone and the dentist is able to start over with orthodox treatment.

Bonding, as this method of tooth repair is called, has been around for years. The news is that manufacturers have developed remarkable new materials and dentists have improved their skills to a point at which bonding can be completed more rapidly with greater assurance that the job will please the eye and hold up in the mouth.

Bonding was born in the mid 1950s, when Dr. Michael Buonocore of the Eastman Dental Center in Rochester, N.Y., developed an adhesive sealant that could be used to repair fractured teeth and, on the crevices of rear teeth, to protect against decay. Over the years such sealants, coated on chewing surfaces where fluoride does a poor job, have helped thousands of children overcome vulnerability to cavities.

With materials developed recently, dentists can now mix the plastic into paste, tint the mixture to match your

teeth and use it in place of conventional rehabilitations.

Crowns vs. bonds

In preparing or fitting regular crowns, also called caps and jackets, the dentist deadens the area around the tooth with a local anesthetic, removes any decay and grinds the tooth to a nub. Next, soft material is used to make an impression of the tooth and surrounding structure. Then the dentist cements into place a temporary crown, which may stay a few days or even weeks while the dental laboratory copies the impression to make a crown. It may take a little or a lot of work to make certain that the fit is

precise. It may also require an x-ray.

In bonding—also called acid-etching—no anesthetic is used and there is no drilling unless the tooth is decayed. Several teeth can be bonded in one sitting. The process starts by walling the tooth off from other teeth with a Mylar polyester strip; the tooth is then cleaned with a slurry of paste and water. The surface is dried and a solution of phosphoric acid is brushed on the tooth, producing microscopic pores in the enamel. The etched areas are filled in with an acrylic liquid.

Next comes a resin paste composed of inorganic bits of silica, quartz and glass, applied to the tooth in a thin layer and sculpted to proper shape. Finally, the dentist adds another layer of micro-resin, tinted to match the tooth, and exposes the handiwork to a beam of ultraviolet or visible light to hasten the bonding of the material. Contouring and polishing put the finishing touches on the restructured tooth.

The tooth's natural mineral fills in the grooves etched by the acid, so the underlying tooth surface remains intact, even if the resin layer must ever be removed. This isn't the case when the dentist fits a crown because the natural enamel must be ground to a core over which the restoration is slipped like a thimble over a fingertip.

A variation on bonding



that also works without grinding is a thin laminate veneer—a plastic hull that forms a new surface on a front tooth.

Pluses and minuses of bonding

Bonding can substitute for caps or jackets to improve both appearance and function. Besides camouflaging stains deeply ingrained in the enamel from smoking, drinking tea or coffee, or taking certain medicines, bonding can narrow gaps between widely spaced teeth and pave over surfaces that are broken, chipped or worn.

When kids break their teeth, capping may be impractical because a child's tooth is still growing. But bonding's great flexibility can make it a good stopgap repair and, says Dr. Hazel Harper, a Washington, D.C., dentist, can serve as the glue to anchor orthodontic plastic brackets on kids' teeth.

Good as it is, bonding isn't always the ideal alternative to a regular cap or crown. Bonding is not the choice for mending teeth in the back of the mouth, where chewing generates tremendous pressure. "Bonding can be an excellent solution under the right circumstances," says Dr. Ronald Maitland, a New York City dentist. "We find, though, we have to tell our patients it's a temporary procedure that will probably require some attention."

The answer to how long bonding lasts depends on the experience and the enthusiasm of the dentist you ask. The American Dental Association says you can expect a bonded restoration to last no longer than five years, compared with ten or more for a cap or crown. Tints in bonding don't always match exactly, says ADA, and if the resin wears off or discolors, the treatment must be repeated. The American Academy of Esthetic Dentistry is worried about flamboyant claims for bonding. "Composite resin bonding has expanded the ability of dentists to treat patients who desire esthetic improvement," says academy president Dr. Peter Dawson of St. Petersburg, Fla., "but it is not the panacea that some have made it out to be."

Other dentists find their own experience with bonding more positive. By the reckoning of Dr. Martin Ettin-

ger of New York City, in properly selected cases bonding gives better cosmetic results than capping bleached teeth with porcelain jackets.

At the Eastman Dental Center in Rochester, N.Y., Dr. Odd Sveen has repaired hundreds of fractured teeth with the technique. "Very few have to be adjusted," he reports. "Generally, bonding is long lasting. Whenever the dentist can get acceptable results without extensive removal of enamel, he should do it."

To bond or not to bond

Bonding is currently practiced by at least half of the nation's 136,000 dentists, many of whom learned it from each other in professional seminars. As with traditional restoration, all dentists are free to do bonding and some are simply better at it than others. If your own dentist is not proficient in either bonding or conventional restorations, he should refer you to another practitioner. You may want to seek out friends or relatives who can endorse the work of dentists who did their own restorations. Also, you can ask your family physician for the name of a dentist or request a list of competent practitioners from the nearest dental school's faculty.

If you have a dental problem you think bonding will solve, heed the advice of Dr. Ronald Goldstein, a lecturer in esthetic dentistry at Emory University in Atlanta who has a practice that is now 70% bonding and 30% crowns—just the reverse of what it was several years ago.

► Consider bonding for any of your front six teeth, upper or lower, if the need is to repair a break or to improve their shape. If the structure is good but the teeth are darkly stained, ask about the treatment called bleaching. Covering up stains this way with a 30% hydrogen peroxide solution may take up to ten sessions, but the tooth surface is not altered.

► Satisfy yourself that the dentist has done enough bonding to become proficient. Find out the cause of your dental problem as well as the nature of your bite. For example, if you have an end-to-end bite, in which your front teeth touch each other as you chew, you wouldn't want a bonded laminate veneer; it might pop off.

► Count on changing some habits with bonding. Smoking and drinking coffee and tea can stain bonded surfaces, and eating raw apples, carrots and nuts may exert undue strain on bonded teeth.

► Finally, hear your dentist out if the reasons for using a cap or crown rather than bonding sound convincing. Occasionally, a person with protruding lips will be a poor candidate for bonding because the layers involved in the process tend to exaggerate the characteristic, and there are other facial and dental misalignments that might make bonding unsuitable for you.

The cost of correction

The fees for conventional caps or crowns vary according to the material and the difficulty of construction; fees also depend on where you live. In large metropolitan areas a full crown may cost up to \$400 or \$500, possibly \$1,000 if the dentist is a specialist in esthetic problems; fees would be less in smaller towns and rural areas. The fees for bonding also vary but generally run a half to a third of conventional restoration or sometimes less.

Many dental insurance plans list bonding, or acid-etching, as reimbursible procedures. Applying for reimbursement may be complicated by whether the work is for cosmetic purposes or to improve the function of the teeth. □