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Shining a New Light on Selective Polishing

Selective polishing is no longer a viable therapeutic approach as polishing the entire dentition produces better outcomes.

By Caren Barnes, RDH, MS

The most profound change ever to affect oral prophylaxis occurred in 1976 with the advent of selective polishing, which was introduced in the fourth edition of *Clinical Practice of the Dental Hygienist* by Esther M. Wilkins, BS, RDH, DMD.¹ The text stated: "Polishing is a selective procedure and not every patient needs to have the teeth polished, especially on a routine basis."¹ In practice, selective polishing meant that only stained teeth received prophylaxis, and polishing to remove plaque was not necessary because patients could perform this function themselves.

Selective polishing was a response to the concern that abrasives in polishing pastes removed the fluoride-rich outer layer of enamel. This theory was based on a study that found 4 μm of enamel was removed during a 30-second polishing with a pumice-water slurry.² Selective polishing was also supported by the fact that polishing for stain removal is not classified as a therapeutic procedure. Proponents of selective polishing suggested that instead of polishing, dental hygienists should spend their time preventing or arresting caries and/or periodontal diseases, providing individualized treatment plans, and educating patients about oral health self-care techniques.¹

Selective polishing may have found support among clinicians, but patients were another matter. Most still desired the oral prophylaxis that left them with the smooth, clean, polished feeling that was "proof" they had received a complete dental cleaning.³ Some patients felt like they were being cheated, while others accused dental hygienists of being lazy.⁴ This dilemma was made even more confusing by the fact that both the American Dental Hygienists' Association and the American Academy of Periodontology included polishing in their definition of oral prophylaxis.³

The Tide Turns

Dental hygiene is dynamic, with change occurring frequently across all facets of care. Today, evidence-based decision making is the framework for all patient care decisions. No scientific proof shows how much enamel is removed during polishing procedures—if it is removed at all.⁴ The original study that reported the removal of enamel after polishing was fraught with problems. Notably, the sample size was too small, there were too many uncontrolled and/or undisclosed variables that affected the outcome, and the polishing procedure used did not mirror realistic clinical polishing techniques.²

Enamel remains an enigma and we have much to learn, especially about its thickness and smoothness. Enamel is in a constant state of demineralizing and remineralizing.⁵ Therefore, if microns of enamel are removed by polishing, it may remineralize in time with salivary minerals and exposure to fluoride,

especially if the patient receives a fluoride treatment after the polishing procedure.

Cleaning agents are also a viable alternative to traditional prophylaxis polishing agents. Cleaning agents contain no abrasives and do not compromise the surface integrity of teeth or esthetic restorations, while still producing a high luster.⁴ Cleaning agents can be used any time polishing is indicated, but are especially helpful when polishing teeth with little or no stain, the appropriate polishing agent for an esthetic material is unavailable, or the type of restorative material is unknown.

Polishing—whether with a cleaning agent, polishing agent, or specially formulated paste designed for esthetic restorations—produces smooth surfaces on teeth and restorations that reduce the adherence of oral accretions, such as dental biofilm and extrinsic stains. Polishing is used during many dental procedures, including stain and plaque removal.⁶ As procedures to whiten and brighten smiles have become some of the most popular in dentistry, it is clear that consumers desire an attractive smile. Patients expect to have their teeth polished and leave the dental appointment with that "smooth" feeling. Even during the era of selective polishing, dental hygienists continued to provide patients with oral prophylaxis, which is confirmed by the amount of polishing products sold each year.⁴

Essential Selective Polishing

Dental hygienists can now feel free to polish all teeth—stained or unstained—as selective polishing has been redefined as essential selective polishing.⁷ Essential selective polishing is based on scientific and clinical evidence—dental hygienists should select cleaning or polishing agents according to the individual patient's needs. This new definition will appear in the 11th edition of Wilkins' *Clinical Practice of the Dental Hygienist*, which will be published this year.⁷

The place to initiate essential selective polishing is during the oral examination. Does the patient have any stained teeth or esthetic restorations? Are the esthetic restorations stained? Some conditions do contraindicate polishing, such as amelogenesis imperfecta, enamel demineralization, enamel hypocalcification, enamel hypoplasia, exposed cementum, and dentinal hypersensitivity. Once the patient's polishing needs are determined, the dental hygienist must select the correct cleaning or polishing agent to meet those needs.

If the patient has stained teeth and no esthetic restorations, the prophylaxis polishing agent selected (fine, medium, or coarse) should be the least abrasive necessary to remove the stains. If a patient has stains and esthetic restorations, the appropriate paste should be used only on the teeth, not on the restorations. While cleaning agents can be used on all restorative materials, a polishing paste recommended by the material's manufacturer or designed specifically for the restorative material can be used. Air polishing with sodium bicarbonate is safe for tooth stain removal, provided patients meet all selection criteria. Air polishing with any type of air polishing powder is contraindicated for esthetic restorations, including glass ionomers, porcelain, and composites.

The essential selective polishing approach solves the "one polishing paste for all polishing procedures" dilemma.⁷ Dental hygienists who have adopted this method will use either whatever grit is available or coarse polishing paste on everything.^{4,7} Both are unethical because they ignore the patient's needs and could severely damage esthetic restorations.² The premise for the "coarse polishing paste on everything" approach is that the use of the coarsest polishing paste available will remove the heaviest amounts of stain as well as the lightest amounts, therefore saving time. Providers who polish in this ill-advised fashion ignore the science of abrasion, which is to use the polishing grits in a progression of coarse, medium, and fine applications, changing the rubber cup with each grit size.⁴ Unfortunately, the "coarse paste on everything" approach is widespread as demonstrated by the fact that 80% of all prophylaxis pastes sold in the United States is coarse grit, followed by 10% in medium grit, and 10% in fine grit.⁸ Coarse grit polishing pastes can cause dentinal hypersensitivity, produce rough surfaces, and accelerate staining and the adherence of dental plaque. The surface characterization of esthetic

restorations can be highly damaged by coarse polishing paste, even after one polishing exposure.⁹

Summary

The era of selective polishing is over. Polishing is an integral procedure provided by dental hygienists. Patients look forward to the resultant smooth, clean feeling, and dental hygienists must ensure that all patients are polished according to their individual needs—ensuring the safety of their teeth and restorations.



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