

Focus On

Critically Thinking About Coronal Polishing

by Deborah Johnson Horlak; Lucinda J. Lyon; Paula D. Watson

Coronal polishing is a procedure performed on a regular basis by a growing number of assistants. Currently, 36 states specifically allow dental assistants to perform this function and four states plus Washington, DC, do not prohibit (and therefore, are considered to allow) dental assistants to perform coronal polishing. Many of these states require a formal examination and/or formal education to polish. Ten states expressly prohibit dental assistants from coronal polishing, but those states' assistants associations are working to include this function to their allowable duties.

Coronal polishing follows the removal of soft and hard deposits from tooth surfaces. This procedure may be so routine that, before you reach for the handpiece, you should stop and consider asking yourself, "...Is polishing truly beneficial for this patient's oral health?" Current research demonstrates that coronal polishing may not be optimal care for some patients, and that others may benefit from alternative methods of stain removal. This article will provide relevant information prompting us to think critically about various removal options before delivering a "service" based on habit.

Historical Perspective

Coronal polishing does not involve calculus removal. It is defined as the polishing of the tooth surface coronal to the gingival margin to remove bacterial plaque and extrinsic stains and has been considered an important part of the traditional dental prophylaxis visit for many years.¹

To evaluate the perceived need for coronal polishing as part of the preventive care visit, a look back to the establishment of the procedure is of interest. At the beginning of the 20th century, a subspecialty in dentistry to be practiced by women—the polishing of teeth and care of the mouth—was proposed. Shortly thereafter, A. D. Fones trained his office assistant in prophylactic procedures, initiating the first steps leading to trained auxiliaries providing clinical services.²

World Wars I and II prompted a reform in the American public's attitude toward the importance of dental care. The pervasiveness of early tooth loss in draftees and the appearance of "trench mouth" in GIs led to the emergence of public health dentistry. Also at this time there was an increase in insurance group plans that provided for routine dental care.³

As routine dental visits became the norm, a typical "recare" visit involved an examination by the dentist, periodic exposure of radiographs and, generally, an oral prophylaxis performed by the dentist or dental hygienist.¹ In addition to the scaling of teeth to eliminate soft and hard deposits, prophylaxis routinely included polishing tooth surfaces to remove extrinsic stains. This procedure not only provided a more esthetic appearance for some, but also may have provided patients noticeable evidence that their teeth had, in fact, been cleaned thoroughly. Patients came to expect this polishing procedure, and dental clinicians, desiring satisfied patients, continued to encourage the performance of coronal polishing as a routine part of the prophylaxis visit.

Recent research has prompted interest and discussion about the true therapeutic value of traditional coronal polishing after dental prophylaxis.^{4,5} With technologies capable of quantifying hard tissue abrasion, the advent of new generations of highly polished esthetic restorative materials, and alternative methods for plaque biofilm removal, clinicians must carefully consider how engine-driven coronal polishing will fit into the clinical armamentarium of the future. Practitioners find themselves in a balancing act between meeting the desire of a patient base that identifies polishing as an integral, and perhaps the most identifiable, part of their preventive care visit and incorporating evidence-based alternative procedures for biofilm removal.⁶

Coronal Polishing

The tradition of rubber-cup coronal polishing for every patient after routine dental prophylaxis has remained virtually the same—until recently. In today's busy, patient-centered private practice, polishing decisions based on evidence have replaced the traditional one-size-fits-all approach.

The indications for coronal polishing after calculus removal are ¹ :

- Elimination of extrinsic stains

The contraindications for coronal polishing are ^{7,8} :

- Areas of decalcification
- Newly erupted teeth
- Exposed root surfaces (Figure 1 [View Figure](#))
- Restorations (esthetic or gold) (Figure 2 [View Figure](#) and Figure 3 [View Figure](#))
- No unsightly stain
- Patient experiencing sensitivity
- Implants
- Inflamed or bleeding gingival tissue

The Patient's Perspective

Based on an informational survey to determine patient views on polishing, researcher Shirley Gutkowski concluded that frequent application of prophylactic paste at nearly every visit, by nearly every hygienist, can result in an undeserved significance for this cosmetic procedure.⁹ The patient may perceive the resulting smooth tooth surface to be an indication that the tooth is free from all soft or hard deposits, and has come to expect the polishing procedure as the final task of the recare visit. By using the traditional approach to delivering patient care, the clinician of today may well be responsible for perpetuating the belief that rubber-cup coronal polishing always follows scaling procedures.

The Evidence-Based Perspective

Qualifications for evidence-based practice include ¹⁰ :

- use of scientific knowledge to guide practice;
- assessment of evidence supporting clinical decisions;
- ability to evaluate research critically; and
- integration of experience with evidence to provide customized patient treatment.

The availability of online journal resources increases access to healthcare information and creates greater responsibility for professionals to keep their

practices current. When faced with a clinical problem or question, a practitioner is compelled to examine existing evidence as one aspect of decision-making. Current "best practices" in polishing regimens is reinforcement of evidence-based decision making.

All filling materials sustain damage, ranging from surface roughening to complete restoration loss, when polished with traditional prophylactic paste compounds.¹¹ Restorative materials fare differently, with amalgam showing results similar to tooth structure, but composites, glass ionomers, and compomers showing significantly more loss of substance. Engine-driven polishing can no longer be performed with one paste for all teeth and restorative materials. Polishing with pumice-based abrasives is contraindicated for teeth with root exposure and tooth-colored restorations. Alternatives to this material are increasing, including products which are designed for polishing a variety of esthetic surfaces.⁶ Products that can be used to polish esthetic restorations include:

- Nupro[®] Shimmer[™] (DENTSPLY Professional, York , PA) (Figure 4 [View Figure](#))
- Pro Care[®] Powder (Young Dental Mfg Co, Earth City , MO)
- CPR—Cosmetic Polishing Restorative (IC Care Inc, Rolling Bay, WA)

Newer products on the market that claim to remineralize tooth structure contain amorphous calcium phosphate (ACP). Research indicates that ACP may be useful in treating demineralized tooth structure.¹² Continued research into the efficacy of these products may again change the evidence regarding coronal polishing. Products containing materials to promote remineralization include:

- MI Paste Plus[™] with Recaldent[™] and Fluoride (GC America, Inc, Alsip , IL)
- Enamel Pro[®] prophylactic paste with ACP (Premier Products Co, Plymouth Meeting, PA)
- NuCare[™] prophylactic paste with NovaMin[®] (Sunstar Americas, Inc, Chicago , IL)

Selective Polishing

In theory, the concept of selective polishing is not a new one, evidenced by its inclusion in an early Wilkins text, *Clinical Practice of the Dental Hygienist*.¹³ It simply means that only teeth with a stained appearance are polished and clinicians emphasize the patient's responsibility to remove plaque daily.⁸ In practice, however, our clinical protocol may be the result of habit, not evidence-based decision making.

A tooth-by-tooth review of the patient's oral cavity for stain, recession, and restorative materials describes the process of selective polishing.¹⁴ During selective polishing, the clinician can focus on the type of stain present and remove it effectively by the least damaging method.⁶ Because polishing agents affect the integrity of all restorative materials to some extent, the prudent clinician must choose to polish based on the patient's restorative condition. Clinicians must reconcile patient preferences and employer expectations with scientific evidence.⁶

Current Perspective

The standard of care is a moving target based on scientific research, patient expectations, clinician preferences, the opinions of our professional organizations, and what educational programs teach, among other considerations. Armed with sophisticated techniques to remove plaque and stain as well as assess the long-

term stability of hard tissues, poses the question, is your standard of care changing? Practitioners must commit to educating their patients and peers about the benefits of this new, evidence-based paradigm.

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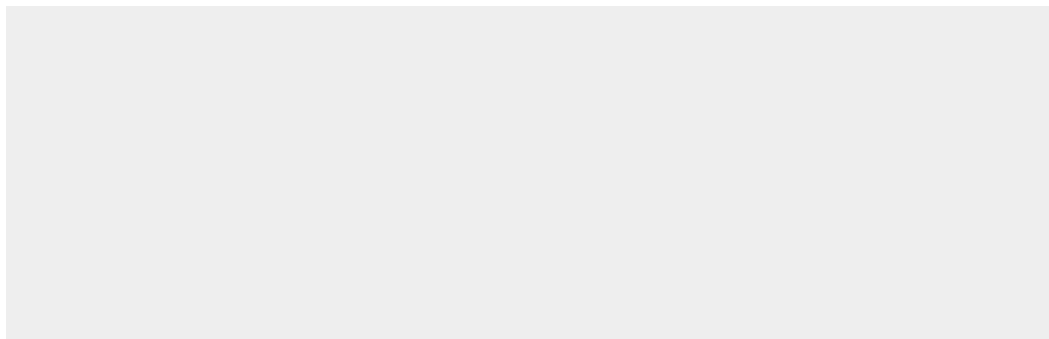




Figure 1 Exposed root surfaces may be abraded easily by traditional polishing compounds.



Figure 2 Esthetic tooth-colored restorations must be polished with new-generation products specifically designed to maintain original shine.



Figure 3 Gold restorations may suffer from microabrasion if improperly polished.

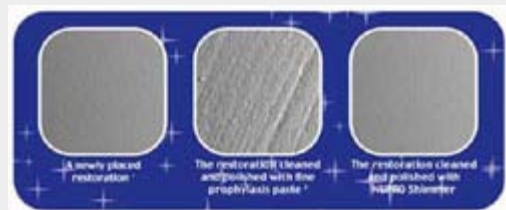


Figure 4 Scanning electron microscope slides demonstrate the abrasive potential of traditional prophylactic paste on tooth-colored restorations. (A) The newly placed restoration. (B) The restoration cleaned and polished with a fine-grit prophylactic paste. (C) The restoration cleaned and polished with a paste designed for polishing a variety of esthetic surfaces (Nupro Shimmer). Images courtesy of DENTSPLY Professional.

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