



## Disposable Prophylaxis Angles: What's Best?

**Gordon's Clinical Bottom Line:** There are many more prophylaxis angles and cups than you may have considered. In preparation for this report, CR identified 135 disposable prophylaxis angles (DPAs) being marketed by 34 companies. They vary in important characteristics and in cost. This project has identified the brands most used, their relative effectiveness, and the differences in price. It became very evident that DPAs and cups vary significantly, and these differences relate directly to their clinical effectiveness in both dental hygiene and in restorative dentistry. *CR suggestions about the important features to consider and best overall DPAs reviewed are listed.*

Plastic disposable prophylaxis angle (DPA) use continues to increase; 84% of dentists and dental hygienists responding to a CR survey report using DPAs with the majority selecting latex-free cups (see survey on page 3). DPAs are convenient, can be cost effective, and are individually packaged for each patient. Although well-maintained metal reusable prophylaxis angles offer smoothest operation, low noise, and excellent visibility, the time and effort required for cleaning, lubricating, and sterilizing is considered less convenient by most CR Evaluators and CR Project Directors.

**This report identifies the most used disposable prophylaxis angles (DPAs); provides a table with ratings and cost; lists CR identified desired features; offers clinical tips; and includes CR conclusions.**

### Survey Results (n=626, dentist and dental hygienist respondents)

- **Prophylaxis Angle type used most:** 84% disposable, 16% reusable
- **Angle of prophylaxis angle used most:** 84% 90°, 16% contra-angle
- **Cup material type used most:** 74% non-latex, 22% natural rubber, 4% both
- **Prophylaxis cup rigidity preferred most:** 77% soft, 20% firm, 2% ultrasoft
- **Cup design used most:** 45% webbed, 28% ribbed, 22% webbed and ribbed, 5% spiral ridges
- **Leading 3 criteria for prophylaxis angle purchase (multiple responses allowed):** 72% cost, 62% smooth running, 43% reputable company

- **Features of prophylaxis angle most important to users (multiple responses allowed):** 50% ability to clean/stain removal, 47% flexibility of cup, 41% gentle to gingiva, 37% sub-gingival access



Best performing prophylaxis cup designs had thin soft lip for flare and access, and recessed webbing/ribbing/spirals to hold paste

- **Prophylaxis angle company reported most:** 19% Young, 14% Denticator, 10% Dentsply, 7% Patterson, 6% Henry Schein, 5% Preventech, 4% Ultradent, 3% 3M ESPE, 3% Sultan, 29% other

### Comparison of Top Reported Disposable Prophylaxis Angle (DPA) Brands and Unique New Prophylaxis Angles

All DPAs tested were identified as the most used brands in a CR survey, and the DPA companies identified cup designs most sold for those brands (all soft and latex free). New brands with unique features were also tested. The top 16 products are listed by rating then alphabetically.

Company, Brand	Cost Each	% Use (from survey)	Available Cup Firmness	Cup Design Tested (interior)	Interproximal/Subgingival Access	Vibration/Comfort	Notable Features	Rating
ProphyMagic, ProphyMagic soft <b>CR Choice</b>	\$0.29	2.1%	Soft or Firm	Webbed/Ribbed	Excellent	Excellent	Soft cup and smooth running angle	Excellent
Ultradent, Ultrapro Tx <b>CR Choice</b>	\$0.37	4.0%	Soft or Firm	Webbed/Ribbed	Excellent	Exc-Good	Low cost	Excellent
Waterpik, Densco Latex-Free <b>CR Choice</b>	\$0.62	>1%	Soft	Webbed/Spiral Rib	Excellent	Excellent	Unique spiral ribbing	Excellent
Young, Vera Classic Petite Web <b>CR Choice</b>	\$0.91	5.7%	Soft or Firm	Webbed/Ribbed	Excellent	Excellent	Compact head and slim neck	Excellent
3M ESPE, Clinpro Disposable Angle	\$0.69	3.2%	Soft or Firm	Webbed/Ribbed	Exc-Good	Good	Pre-lubricated	Exc-Good
Crosstex, Sparkle	~\$0.60	1.9%	Soft or Firm	Webbed/Ribbed	Exc-Good	Exc-Good	Beveled gear design	Exc-Good
Denticator, Diamond	\$0.63	2.1%	Soft or Firm	Diamond Design	Exc-Good	Good	Long cup, unique ribbing	Exc-Good
Denticator, Original Green	\$0.60	7.6%	Soft or Firm	Webbed/Ribbed	Exc-Good	Good	Popular product	Exc-Good
Dentsply, NUPRO Freedom	\$0.62	5.3%	Soft or Firm	Spiral	Exc-Good	Excellent	Requires Midwest RDH Freedom Cordless Prophylaxis System	Exc-Good
Dentsply, NUPRO revolv	\$0.67	4.2%	Soft or Firm	Spiral	Exc-Good	Exc-Good	Brush or pointed tip available	Exc-Good
Henry Schein, Acclean Disposable Angle	\$0.50	5.9%	Soft or Firm	Webbed/Ribbed	Exc-Good	Exc-Good	Improved design	Exc-Good
Kerr, Perfect Pearl	\$0.72	2.3%	Soft or Firm	Inner/Outer Spiral	Exc-Good	Good	Brush available	Exc-Good
Patterson, Disposable Angle	\$0.49	7.4%	Soft or Firm	Webbed/Ribbed	Exc-Good	Exc-Good	Pre-lubricated, popular product	Exc-Good
Premier, 2pro Total Access	\$0.62	>1%	Soft or Firm	Webbed/Ribbed	Exc-Good	Exc-Good	Gearless, dual-action cup/tip	Exc-Good
Preventech, Pivot NL	\$0.51	3.2%	Soft or Firm	Webbed/Ribbed	Exc-Good	Exc-Good	Brush available	Exc-Good
Sultan, Upgrade	\$0.67	3.0%	Soft or Firm	Webbed/Ribbed	Exc-Good	Good	Beveled gear design	Exc-Good
<b>Control:</b> Henry Schein, Screw Type Ribbed Prophylaxis Cup (100-1800) and Young Care-Free Autoclavable Prophylaxis Angle	\$0.39 and ~\$60	7.9%	Soft or Firm	Ribbed	Excellent	Excellent	Disposable cup (natural rubber) and autoclavable metal prophylaxis angle	Excellent

## Disposable Prophylaxis Angles: What's Best? (Continued from page 3)

### CR Desired Prophylaxis Angle Features and Main Comparison Observations

- All DPAs tested had acceptable size and design and allowed good access and visualization.
- Cup design is an important consideration.
  - *For restorative polishing*, web-free cups are preferred. Webs can produce irregularities in the restoration surface.
  - *For prophylaxis polishing*, many clinicians often think it is merely esthetic removal of stain and plaque. However, polishing can be very useful in disruption and removal of microorganism colonies located subgingivally and interproximally. In order to gain maximum access to these areas, prophylaxis cup must be designed with:
    - **Thin lip** for ability to flare with little pressure. Flare is able to access subgingivally and interproximally.
    - **If internal webbed**, webs must be recessed from lip. Webs provide stability to cup and prevent cup lip from folding onto itself during use. However, webs extending to lip of cup produced a rougher polishing sensation for patients and impeded desired lip flare.
    - **Thin internal ribs, also recessed from lip**, help hold prophylaxis paste and provided some support to cup.
    - **External ridges and features** promoted for improved interproximal cleaning impeded subgingival access and were least comfortable designs reported by patients.
    - **Soft cup** for pliability to adapt easily to tooth contours. Firm cups require more force to flare and this increases heating of tooth structure from friction created.
    - **Small cup size** allowed better access and produced more comfortable polishing for all teeth. Lower anterior lingual surfaces were a challenge to access with some cups.
    - **90° vs. contra-angle design** did not affect access. Long cups were a bigger issue in accessing some posterior tooth surfaces.

### Clinical Tips

- **Optimal handpiece speed is between 1,500 and 3,000 rpm.** Faster speeds produced too much heat and can destroy DPAs.
- **Light to moderate pressure with continuous cup movement** reduces possibility of frictional heating of tooth.
- **Hold cup at a 90° angle to the tooth surface** to avoid subgingival gouging and damage to softer dentin tooth structure.
- **Be aware of surfaces being polished.** Softer restorative materials (*gold, resin-based composite, and others*) should be final polished with fine abrasives to prevent scratching. When used for restorative polishing, non-webbed cups are preferred as webs can produce restoration irregularities.
- **Standardized sequence of prophylaxis** helps ensure treatment of all facial, lingual, interproximals, and subgingival tooth surfaces.

### CR Conclusions:

Overall performance of plastic disposable prophylaxis angles with small, soft, non-latex cups was surprisingly good. Cup design is most critical to stain, plaque removal, and patient comfort. Desired features are small soft cups with thin lips and internal webs/ribs/spirals recessed from lip for best subgingival, interproximal, and overall access. DPAs with best overall ratings were: ProphylMagic, ProphylMagic soft; Ultradent, UltraproTx; Waterpik, Densco; and Young, Vera Classic Petite Web.

# What is CR?

#### HOW DOES CR FUNCTION?

Each year, CR tests in excess of 750 different product brands, performing about 20,000 field evaluations. CR tests all types of dental products, including materials, devices, and equipment, plus techniques. Worldwide, products are purchased from distributors, secured from companies, and sent to CR by clinicians, inventors, and patients. There is no charge to companies for product evaluations. Testing combines the efforts of 450 clinicians in 19 countries who volunteer their time and expertise, and 40 on-site scientists, engineers, and support staff. Products are subjected to at least two levels of CR's unique three-tiered evaluation process that consists of:

1. Clinical field trials where new products are incorporated into routine use in a variety of dental practices and compared by clinicians to products and methods they use routinely.
2. Controlled clinical tests where new products are used and compared under rigorously controlled conditions, and patients are paid for their time as study participants.
3. Laboratory tests where physical and chemical properties of new products are compared to standard products.

#### WHY CR?

CR was founded in 1976 by clinicians who believed practitioners could confirm efficacy and clinical usefulness of new products and avoid both the experimentation on patients and failures in the closet. With this purpose in mind, CR was organized as a unique volunteer purpose of testing all types of dental products and disseminating results to colleagues throughout the world.

#### WHO FUNDS CR?

Research funds come from subscriptions to the *Gordon J. Christensen Clinicians Report*. Revenue from CR's "Dentistry Update" courses support payroll for non-clinical staff. All Clinical Evaluators volunteer their time and expertise. CR is a non-profit, educational research institute. It is not owned in whole or in part by any individual, family, or group of investors. This system, free of outside funding, was designed to keep CR's research objective and candid.

**Clinicians Report®** a Publication of **CR Foundation®**  
 3707 N Canyon Road, Building 7, Provo UT 84604  
 Phone: 801-226-2121 • Fax: 801-226-4726  
 CR@CliniciansReport.org • www.CliniciansReport.org

*CRA Foundation® changed its name to CR Foundation® in 2008.*