classic versus modern: Comparison of new method of professional dental cleaning

By Adina Maurer, Germany

The early work of prophylaxis pioneers Axelson and Lindhe in the late 70s already described the content and procedure of a dental prophylaxis session. Due to scientific and technological progress, new possibilities are available today that enable professional dental cleaning in a more efficient, effective and gentle way (minimally abrasive and atraumatic) with increased potential to encourage better oral care among children.

Co-chaired by Hamdan Bin Mohammed's College of Dental Medicine's Professor Crawford Bain and Dr Arwa Alsayed, Director for the Saudi Board of Periodontics, the meeting of ten dentists from Lebanon, Oman, Saudi Arabia and the United Arab Emirates met for two days to discuss how best to promote good oral hygiene through brushing. Held in Dubai at the end of August and supported by Procter & Gamble, the first dental consensus has issued a series of recommendations to help improve oral hygiene in the region. These proposals, which focused on tooth brushing habits across the Middle East, include an agreement that electric power brushes are more effective at maintaining oral health, and that Bluetooth enabled power brushes have the potential to encourage better oral care among children.

The group agreed on the following recommendations:

1. Evidence suggests that power brushes are more effective in the short & long term compared to manual brushes. According to present data, over time brushing can be started at any age if parent and child are comfortable with it.
2. Evidence suggests that oscillating-rotating power brushes are superior to all others in the short & long term.
3. Bluetooth enabled power brushes with interactive apps and smart guides have the potential to aid in better compliance from children. This consensus suggested that power brushing can be started at any age if parent and child are comfortable with it.
4. Power brushes with an oscillating-rotating mode of action are more effective than others at reducing and preventing gingivitis in the short & long term.
5. Power brushes with an integrated pressure feedback mechanism could have the potential of reducing soft & hard tissue abrasion.

Middle East’s Dentist Meet Recommends Power Brushes for Improved Oral Hygiene

First dental consensus agrees that electric power brushing is best for oral health; 80 per cent of children between 12-15 years have unhealthy gums, according to research by the Dubai Healthcare Authority

By Oral-B

Dubai, UAE: A group of the Middle East’s leading dentists have come together to agree on how best to promote good oral hygiene through brushing. Held in Dubai at the end of August and supported by Procter & Gamble, the first dental consensus has issued a series of recommendations to help improve oral hygiene in the region. These proposals, which focused on tooth brushing habits across the Middle East, include an agreement that electric power brushes are more effective at maintaining oral health, and that Bluetooth enabled power brushes have the potential to encourage better oral care among children.

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Toothpaste app?

By Kimberly Bray, RDH, MS

What determines your level of confidence in recommending a product to your patients? My confidence level depends on doing some of my own research and coming to my own conclusions.

When I first heard about Crest Pro-Health toothpaste and the wide range of cosmetic and therapeutic benefits it provides, I have to admit I was curious. The only product I own that can do just about anything is my smartphone! It’s a phone, camera, iPod, and so much more! Then I started wondering, what if toothpaste could work that way, providing all of the key oral health benefits in a single tube? What would be the advantages? As it turns out, I could think of quite a few:

• Convenience. Many patients just don’t have time to use more than one oral care product to get a wide range of benefits. They would prefer to simply use one product.
• No trade-offs. Patients could get therapeutic benefits without trading off cosmetic benefits of extrinsic whitening, tartar control, and breath protection.
• No selection required. Unlike my smartphone, where I select the app I want, a multi-benefit dentifrice would provide all of the benefits with each use.
• Widely applicable. It would be a product that would offer benefits for both teens and adults alike.
• Provide therapeutic protection. It would provide protection against caries, plaque, gingivitis, and sensitivity.

My list of potential benefits turned out to be pretty impressive. So I decided to do some research on Crest Pro-Health toothpaste. Here are the questions I asked and what I learned.

What is the basis for Crest Pro-Health formulations? Crest Pro-Health (CPH) dentifrice is based on a unique, patented system of stabilized stannous fluoride (SnF2) and a cosmetic ingredient, sodium hexametaphosphate (NaHMP).
Stannous fluoride has a long history of use in oral products for protection against caries, sensitivity, plaque, gingivitis, and oral malodor.1 Crest with Fluoristat, introduced by Procter & Gamble (P&G) in 1955, contained SnF2 and was the first dentifrice to receive the American Dental Association (ADA) Seal of Acceptability. A later addition to SnF2 dentifrices was a standard sodium fluoride (NaF) dentifrice. Considerable clinical benefits were also demonstrated by Welef et al. in an in vitro study.1

One breakthrough along the way was the discovery of polyphosphates, such as NaHMP, as cosmetic agents. Pyrophosphates were used in Crest Tartar Control dentifrices to provide tartar control benefits. Compared to pyrophosphate, NaHMP is a larger polymer and more resistant to adsorption to tooth enamel, which provides surface stain removal and antimicrobial action through calcification of plaque to provide tartar control benefits. NaHMP was successfully used in Crest toothpastes to improve whitening benefits. The successful formulation of NaHMP and stabilized SnF2 in a single dentifrice formulation is the key breakthrough leading to the introduction of CPH dentifrice in 2005.

How does CPH dentifrice perform?

CPH dentifrices containing a system of stabilized SnF2 and NaHMP have been shown to provide a full range of therapeutic and cosmetic benefits (see Figure 1). The efficacy of CPH dentifrice has been demonstrated in randomized, blinded, controlled, and independent clinical studies. Based on these clinical studies, CPH dentifrice was awarded the Seal of Acceptance from the ADA in five categories: cavities; gingivitis; plaque; oral malodor; sensitivity and whitening. In fact, CPH dentifrice is the only toothpaste on the market to earn acceptance in all five categories.

Efficacy demonstrated in technical studies, clinical trials, and professional usage experience

Over 80 publications and research presentations support the efficacy of CPH dentifrice. The results show CPH dentifrice to be:

1. Effective in preventing and reducing the incidence of caries. Use of a fluoride-containing dentifrice is known to be effective in reducing caries and reversing early carious lesions by promoting remineralization and preventing demineralization.2

In addition, fluoride may also limit the production of acid associated with cariogenic bacteria.3 Stookey conducted a two-year clinical trial with 955 subjects. A dual-phase protocol of CPH provided 7% to 25% fewer caries relative to a standard sodium fluoride (NaF) dentifrice. Clinical benefits were also demonstrated by Welef et al. in an in vitro study.1

2. Effective in building protection against dentinal hypersensitivity. Laboratory studies show SnF2 reacts to form precipitations that include dentinal tubules and provide sensitivity relief. Figure 2 shows high magnification scanning electron micrographs (SEM) of teeth studied before and after the use of CPH dentifrice.1

Independent clinical studies of CPH dentifrices in both the mouth and long-term sensitivity relief as measured by tactile and thermal methods compared to standard fluoride negative controls. Results from one clinical study showed a 44% decrease in thermal sensitivity and up to a two times greater tolerance in tactile sensitivity after eight weeks of use.4

3. Effective in reducing plaque and gingivitis. These benefits are due to the broad spectrum antibacterial properties associated with CPH dentifrice.1 Independent studies have shown CPH dentifrice reduces the development of gingivitis. Gingivitis, if left untreated, can lead to periodontal disease, which can eventually lead to tooth loss. Emerging research suggests that poor oral hygiene may be linked to systemic conditions.5 Figure 5 demonstrates that the antibacterial activity of CPH dentifrice remains strong for 16 hours to control a live/dead assay.6

Numerous clinical studies, ranging from short-term studies to six-month clinical trials, have shown significant reductions in plaque, gingival inflammation, and bleeding after use of CPH dentifrice relative to positive and negative controls.6,10

4. Effective in reducing bruxist malodor. The antibacterial action of SnF2 inhibits the breakdown of residual proteins in the mouth to form volatile sulfur compounds responsible for oral malodor.15 Independent clinical studies involving a total of 75 subjects showed significant reductions in halitosis overnight after using CPH dentifrice compared to a standard NaF control.16

A longer-term study of 71 subjects showed significant reductions in halitosis after one week and three weeks of CPH use compared to a standard NaF control.17

5. Effective in reducing formation of calculus. Laboratory studies have shown that NaHMP significantly reduces the crystal growth and mineralization of plaque either in aqueous solution or in a dentifrice compared to a conventional anti-tartar dentifrice containing pyrophosphate.18 The efficiency of CPH dentifrice is evidenced by results obtained from two independent six-month clinical trials in which a CPH prototype and a CPH prototype with a positive control were compared to marketed controls at the end of the three- to four-month study and six-month study.22,23

6. Effective in whitening teeth by removal and prevention of stain formation. The full-mouth examination of NaHMP and an advanced, high cleaning silica system results in stain removal and whitening benefits. The surface activity of NaHMP competes with stains for surface sites, effectively preventing the buildup of new stains. Figure 4 shows improvement in stain removal after two weeks of CPH use.1

Four separate clinical trials, summarized in two publications, compared the stain removal efficacy of CPH dentifrice with that of a positive control whitening dentifrice at two different time points: baseline and two weeks,24 and baseline, three, and six weeks.25 In all cases, a highly significant improvement in stain removal was observed from baseline for both the CPH and positive control whitening dentifrice. In addition, the long-term benefits of the CPH dentifrice were not significantly different from the positive control.

What do patients and professionals think about CPH? The efficacy of CPH dentifrice is supported by extensive body of clinical evidence. However, its success ultimately depends upon its effectiveness and acceptability to users in the home environment. The question is the benefit measured or observed in a controlled clinical environment by clinical specialists translate to product acceptance in the home environment? Other words, are dental benefits observed by patients and dental professionals in clinical studies evident when used in the home environment? These questions have been addressed in two recent home-use studies. These studies showed that CPH dentifrice is effective for and acceptable to both patients and dental professionals who used it as home part of their normal oral hygiene routine.

Practice-based assessment. A practice-based assessment of CPH dentifrice was conducted among patients across the USA. In this study, both patients and their dental professionals answered questions about the product as “excellent,” “very good” or “good.”96% indicated they would continue to use the product.82% agreed that dentifrices containing SnF2 can benefit their patients more than other toothpastes.91% said they had recommended CPH dentifrice to patients in the past and 96% said they would recommend CPH to more patients now that they had experienced the product themselves (see Figure 6).

When asked why they would recommend CPH to more of their patients, some responses given were:

• “I believe patients can benefit from CPH dentifrice.”
• “I can only vouch for a product I have personally used and liked.”
• “I believe this is the best product on the market right now.”
• “Orthodontics use is an extra level of protection.”
• “It feels clean, and there was noticeable plaque reduction in my mouth.”
• “It helped with my sensitivity and has a nice, refreshing taste. It’s also good for the gums.”

That jumped to 91% of dental professionals who noted improvements in their patients’ oral health or staining.

Usage study among dental professionals. Before receiving a tube of Crest Pro-Health (Clinical Gum Protection variant) for their personal use, approximately 2,000 dental professionals completed an optional online survey about their experience using the product:

• 95% of dental professionals rated their experience with the product as “excellent,” “very good” or “good.”
• 96% indicated they would continue to use the product.
• 82% agreed that dentifrices containing SnF2 can benefit their patients more than other toothpastes.
• 91% said they had recommended CPH dentifrice to patients in the past and 96% said they would recommend CPH to more patients now that they had experienced the product themselves (see Figure 6).

CPH dentifrices containing SnF2 and NaHMP have been shown to provide a full range of therapeutic and cosmetic benefits (see Figure 1). The efficacy of CPH dentifrice has been demonstrated in randomized, blinded, controlled, and independent clinical studies. Based on these clinical studies, CPH dentifrice was awarded the Seal of Acceptance from the ADA in five categories: cavities; gingivitis; plaque; oral malodor; sensitivity and whitening.
in controlled clinical trials translates into effectiveness and acceptability among both patients and dental professionals.

Recent studies have shown that dental care routines that include CPH, an Oral-B oscillating-rotating power toothbrush, and regular use of dental floss can further enhance oral care benefits to patients. These findings show that you can be confident in recommending CPH dentifrice to your patients, knowing that the vast majority are likely to notice and appreciate benefits of a clean, healthy mouth and gums.

References

Editorial note:
The full list of references is available from the publisher.

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said Professor Crawford Bain, Program Director Periodontology, at Hamdan Bin Mohammad College of Dental Medicine. The two-day meeting was attended by Professor Khaled Balto, Chairman Department of Endodontics at King Abdulaziz University, and King Saud University’s Dr. Montasser Al-Qutub, Associate Professor in Periodontology & Implantology, both from Saudi Arabia, and Dr. Nabeel Al-Sabeeha, Consultant Prosthodontist at the Ministry of Health in Ras Al Khaimah, Dr. Elias Berdouses, Assistant Professor Department of Paediatric Dentistry at Dubai’s European University College, Dubai-based Dr. Ajay Juneja, Specialist Prosthodontist and Esthetic Dentist, Dr. Eftherios Kaklamanos, Assistant Professor of Orthodontics, at the Hamdan Bin Mohammad College of Dental Medicine, all of whom are based in the UAE, as well as Dr. Badar Monir Zaki, Senior Consultant Orthodontics & Dentofacial Orthopedics, Al Nahda Hospital from Oman and Dr. Nabil Nader, Clinical Chief Oral & Maxillofacial Surgery Department, from the Beirut-based Lebanese University.

Author’s acknowledgment: To Ms. Anita Gay for assistance with manuscript preparation.

Figure 3. Summary of patient survey results from practice-based evaluation of CPH dentifrice. The percentage of patients rating the CPH dentifrice as “excel lent/very good/good” in each category shows the high effectiveness and acceptability among patients who used the product at least three months and completed the survey. (Courtesy of Journal of Dental Hygiene26)

Figure 6. Summary of in-home usage study of CPH dentifrice among dental professionals. Results showed the product is highly effective and widely accepted among dental professionals participating in the study. More study participants indicated they would recommend CPH dentifrice to their patients after using the product at home.

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Prof. Bray has 24 years of clinical experience in both general and periodontal practice with research interests in patient adherence, alternative learning strategies, and product efficacy.

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Using the example of a 20-year-old patient with braces, increased plaque deposits and a hyperplastic gingiva, the author describes the procedure, the implementation and time management of a structured, professional prophylaxis session. The upper jaw was treated with the modern method using piezo technology (EMS No Pain) and air-flow technology (EMS, Air-Flow with Plus powder). The lower jaw was treated according to the classic, conventional method (hand instruments, ultrasonic technology, polishing cup, brush, polishing paste CCS red and Profix fine, Ivoclar Vivadent). The diagnostic findings should be discussed in detail with the patient. They are the basis for selecting the specific needs and questions of the treatment and motivation of oral hygiene measures at home. Only if patients understand their situation, can better compliance be expected. Visual aids such as a magnifying mirror and an intraoral camera are very useful for instructive purposes.

Disinfection of oral cavity (1-2 minutes)

In order to reduce the number of bacteria prior to further treatment, rinsing with 0.2% chlorhexidine solution is recommended. Another modern way is to clean the entire oral cavity (full mouth treatment according to Flemmig) including tongue, cheek, palate and mucosal fold using air-flow technology and Plus powder in a gentle and simple manner (Fig. 4). This seemingly simple step already serves to carry out successful biofilm management (guided biofilm therapy).

Diagnoses (7 minutes)

After the visual inspection of the teeth, the inspection of the mucous membranes in the oral cavity. This is where the tongue surface, the teeth, the palate, base of the mouth, the mucosal fold as well as lips and inner surfaces of the cheeks are accurately inspected. After that, a re-evaluation of caries, salivary function and erosion diagnosis is carried out and the adjustment of the instrument and conclusion of cleaning.

Professional tooth cleaning (30-90 minutes)

Modern professional dental cleaning involves the removal of hard and soft deposits in a particularly gentle way. Biofilm management today plays an increasingly important role. With the air-polishing technology erytrithol, the surfaces are not only cleaned and subjected to biofilm management in supragingival and subgingival regions, but also in subgingival regions even into the distance of 3-6 mm, in agreement with conventional polishing pastes, cups and brushes, which can only be done using supragingival regions and areas always accompanied by loss of substance. In this new technology, injury to the soft tissue around the tooth and the bottom of the teeth can be avoided. Another big advantage is that all restorations and prosthetics in the oral cavity are cleaned and polished at the same time without roughening or damaging the materials.

Modern preservation therapy (general)

In the case at hand, the biofilm and discoloration made visible by staining were removed in the upper jaw using air-flow technology and erytrithol powder (Plus, EMS) above and below the enamel cement border (Fig. 6, upper jaw). Only by using the new technology is it possible to quickly and easily achieve a perfect polish in difficult-to-reach areas, which in turn contributes to preserving the enamel, polishing cup and brush. In addition, when using this technology, the individual oral hygiene appliances can also be cleaned without running the risk of damaging them. Once the biofilm has been removed, tartar and any subgingival calculus become clearly visible and can be selectively removed with a very fine ultrasonic tip (EMS Piezon/PS tip). This development in ultrasound technology is referred to as “Piezon No Rin”. This new generation of technology plays a key role in eliminating plaque and calculus.

Control of the degree of periodontal disease (10 minutes)

To control the success of the hygiene measures, it becomes important to determine a specific appropriate time for the follow-up session, which will allow for a successful reinstruction and reinforcement training, if necessary. This depends on individual resources and the patient’s ability to successfully carry out the respective hygiene activities (i.e. brushing, flossing). The diagnostic findings should be discussed in detail with the patient. They are the basis for selecting the specific needs and questions of the treatment and motivation of oral hygiene measures at home. Only if patients understand their situation, can better compliance be expected.

Recall (2 minutes)

Regular professional care is a basic condition, which is important to determine an appropriate time for the follow-up session, which will allow for a successful reinstruction and reinforcement training, if necessary. This depends on individual resources and the patient’s ability to successfully carry out the respective hygiene activities (i.e. brushing, flossing). The diagnostic findings should be discussed in detail with the patient. They are the basis for selecting the specific needs and questions of the treatment and motivation of oral hygiene measures at home. Only if patients understand their situation, can better compliance be expected.

Conclusion

A paradigm shift is currently taking place when it comes to the procedures and implementations of professional preservation therapy, which makes it necessary to critically re-think our work environment below the cement condition and technical conditions are provided. It is time to start using the simplified, more efficient, effective, comfortable and – above all – substance-conserving treatment method for the good and the health of our patients.

About the Author

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Fig. 3: Air-Flow Master Piezon device.

Fig. 4: Cleaning the oral cavity with erytrithol.

Fig. 5: Staining with Mira 2 Ton color before cleaning the upper and lower jaw.

Fig. 6: Inspection after cleaning the upper jaw using a modern method and the lower jaw using a classic method.
Oral health and diabetes discussed at premier event in Singapore

By Dental Tribune International

SINGAPORE: Among developed nations, Singapore has the second-highest proportion of diabetics, according to a recent report by the International Diabetes Federation. As the condition continues to be a growing concern owing to the increasingly sedentary lifestyle and high-calorie diets of Singaporeans, the city-state was the ideal place for the Joslin-Sunstar Diabetes Education Initiative (JSDEI) to hold its first Diabetes, Oral Health and Nutrition symposium in Asia. The one-day event took place last week at the Swissôtel The Stamford. Attended by Singapore Chief Dental Officer Patrick Tseng and Japanese Ambassador Haruhisa Takeuchi as part of the S50 celebrations (a number of events to commemorate 50 years of diplomatic ties between Singapore and Japan), it provided the latest information on the two-way relationship between diabetes and oral health. Over 500 international leading medical and dental health care global experts, including Dr George King, Senior Vice President, Chief Scientific Officer and Director of Research at the Joslin Diabetes Center in Boston in the US, among others, presented the latest findings on the interrelationships, innovations and interactions between periodontitis and diabetes.

Future strategies on oral and systemic health, as well as how JSDEI’s efforts at strengthening the ties between the medical and dental fields were also discussed.

According to the initiative, increasing evidence supports the existence of an association between periodontal disease and diabetes. The latest research has shown that not only are people with diabetes more susceptible to serious periodontal disease, but the condition may also have the potential to affect blood glucose control and contribute to the progression of diabetes.

Recognising that early and proper treatment of periodontal disease can have a profound effect on the control of diabetes and its complications, the Sunstar Foundation established the JSDEI in April 2008 with the Joslin Diabetes Center, the world’s largest diabetes research and clinical care organisation dedicated to the prevention, treatment and cure of diabetes, affiliated with the Harvard Medical School, to engage in education and research to improve knowledge and practices in this field.

In addition to its symposium in Asia, it has organised an annual event under the same name in Europe.

Established almost 40 years ago, the Sunstar Foundation for Oral Health Promotion has achieved international recognition for the significant benefits to society gained through its efforts to improve oral care and promote dental health through various activities.
Dentine hypersensitivity protection, now in a daily mouthwash

The first Sensodyne mouthwash containing 3% potassium nitrate and fluoride, proven to provide ongoing protection from dentine hypersensitivity with twice-daily rinsing¹⁻⁵*

* Rinse twice daily after brushing with a fluoride toothpaste.

PRECISION CLEAN BRUSH HEAD PROVIDES

UP TO 5x

GREATER REDUCTION

IN PLAQUE BIOFILM ALONG THE GUMLINE

* vs. a regular manual toothbrush

continuing the care that starts in your chair