

GUIDED **BIOFILM** THERAPY

CARIES AND PERIO PREVENTION AND MAINTENANCE



Evidence-based protocols for biofilm management on teeth, soft tissues and implants.



MINIMALLY INVASIVE MAXIMALLY PREVENTIVE

**NO¹
PAIN**

AIRFLOW® 
PERIOFLOW® 
PIEZON PS® 

- 1. MAKE BIOFILM VISIBLE**
- 2. AIRFLOW® FIRST**
- 3. PS INSTRUMENT FOR REMAINING CALCULUS**
- 4. LESS POWER AND HAND INSTRUMENTS**
- 5. NO MORE RUBBER CUPS, NO MORE PASTE**

¹ Throughout this document, NO PAIN applies when used in accordance with EMS instructions and/or training by the Swiss Dental Academy.

GBT - THE **NEW** AND MODERN **WAY**

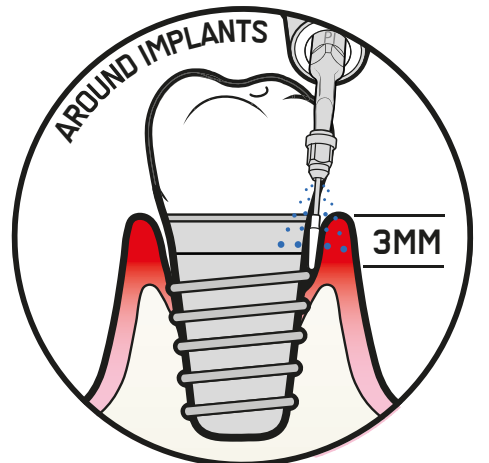
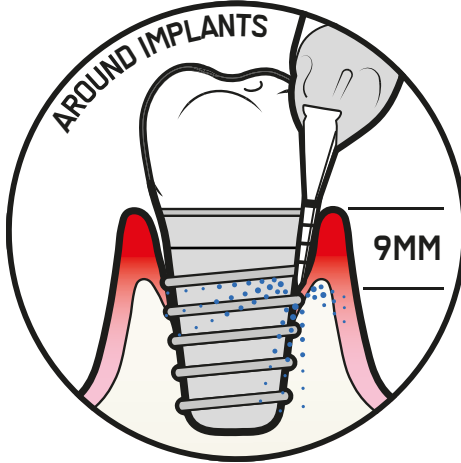
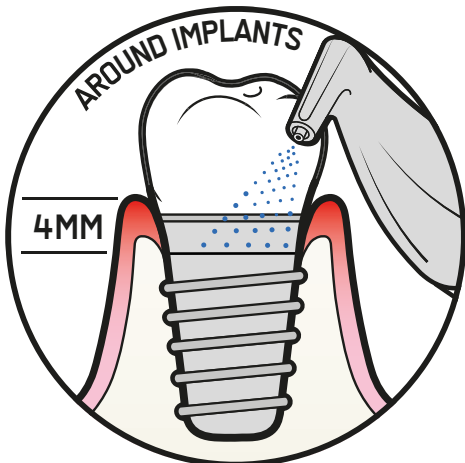
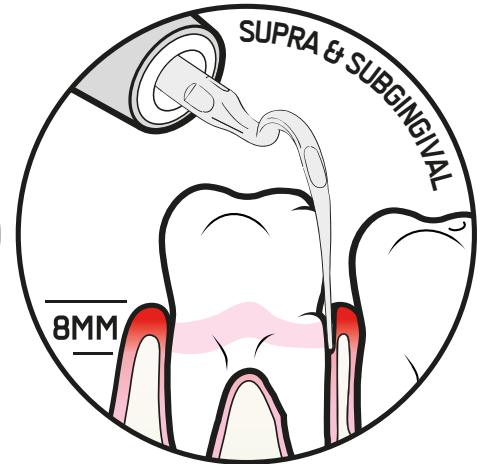
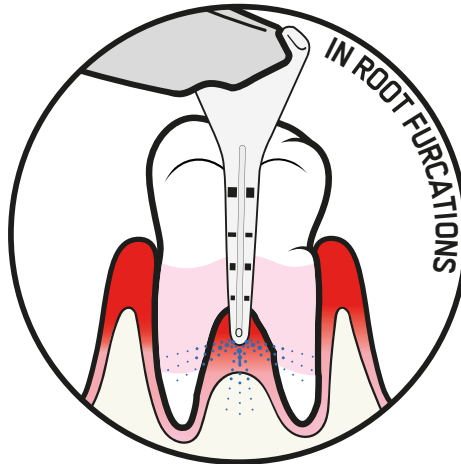
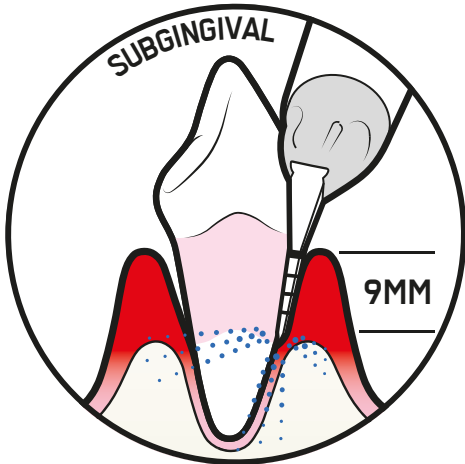
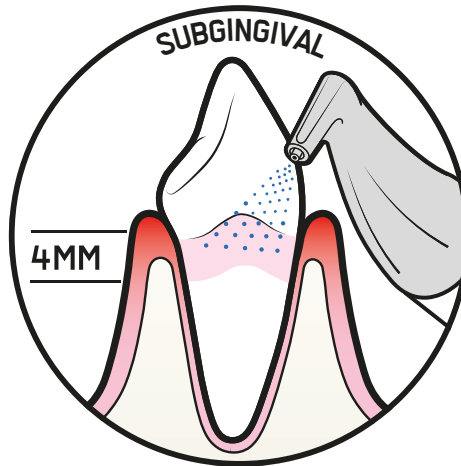
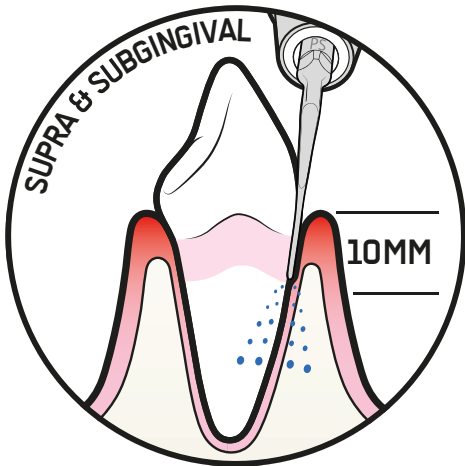
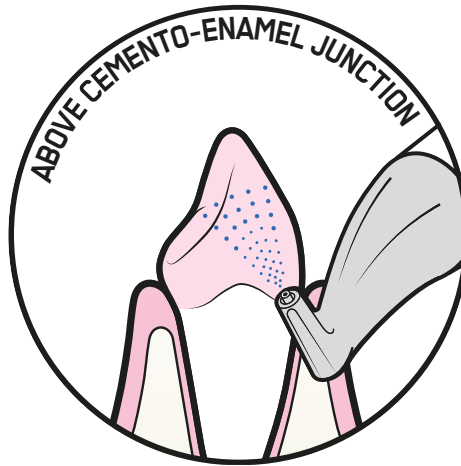
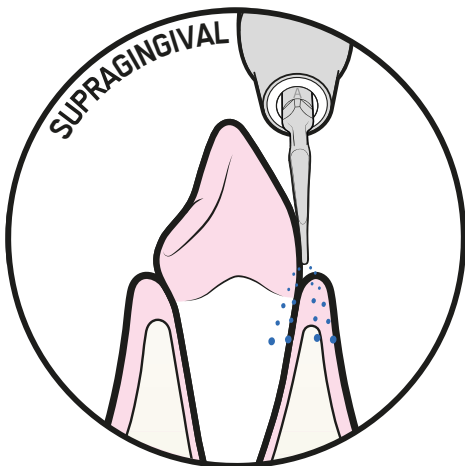


**"I FEEL
GOOD"**

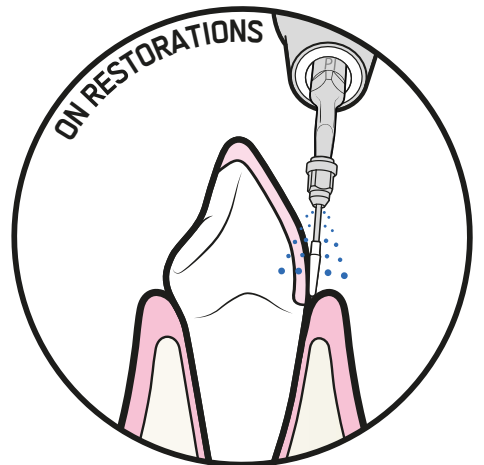
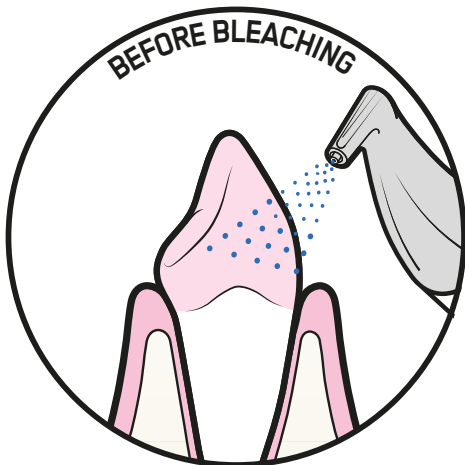
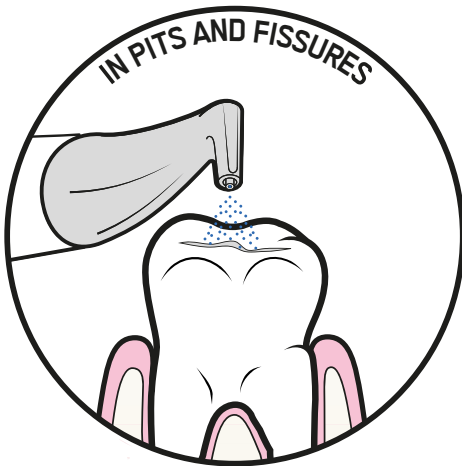
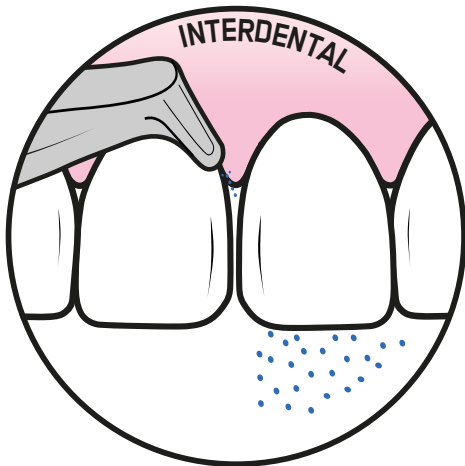
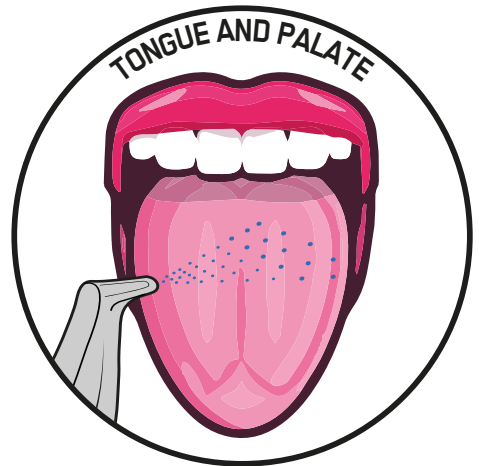
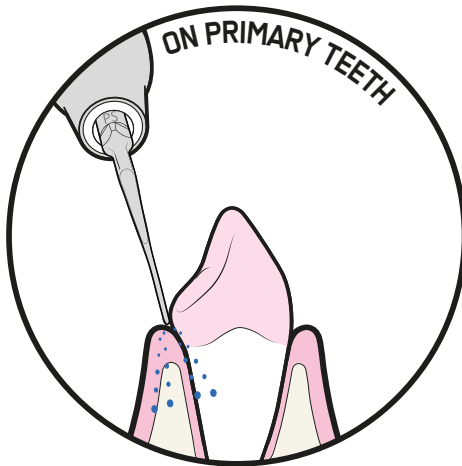
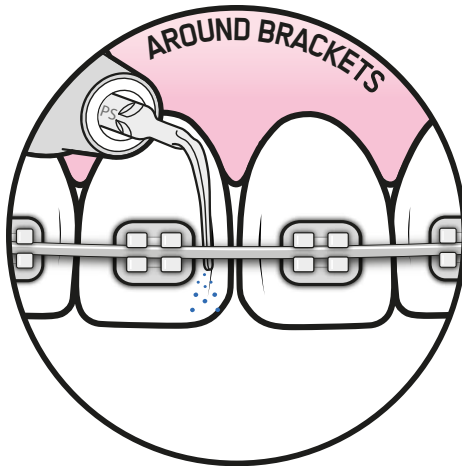
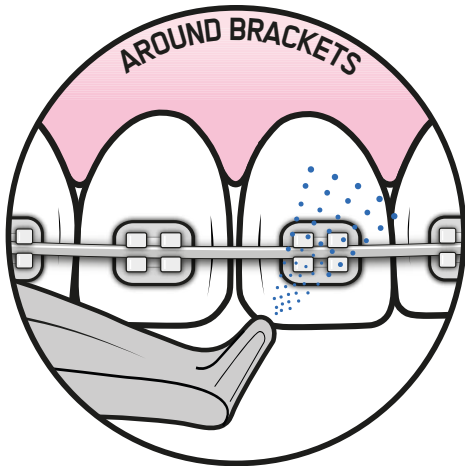
- ▶ ONLY THE VERY BEST FOR MY PATIENTS
- ▶ ONLY THE SWISS ORIGINALS

GBT SAVES TEETH, IMPLANTS

22
APPLICATIONS
OF GBT



AND MUCH MORE



THE GBT COMPASS AND ITS

08 RECALL

HEALTHY PATIENT = HAPPY PATIENT

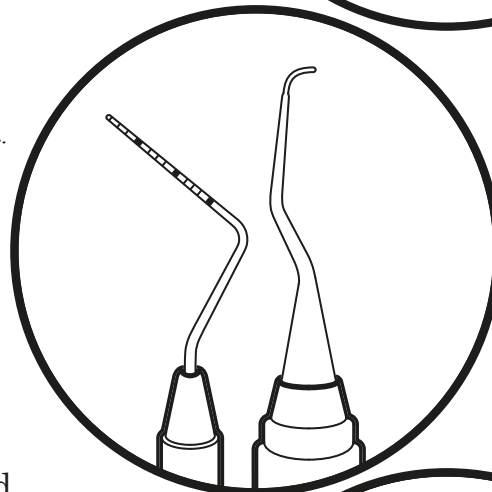
- ▶ Schedule recall frequency according to risk assessment
- ▶ Ask your patient if he or she liked the treatment



07 CHECK

MAKE YOUR PATIENT SMILE

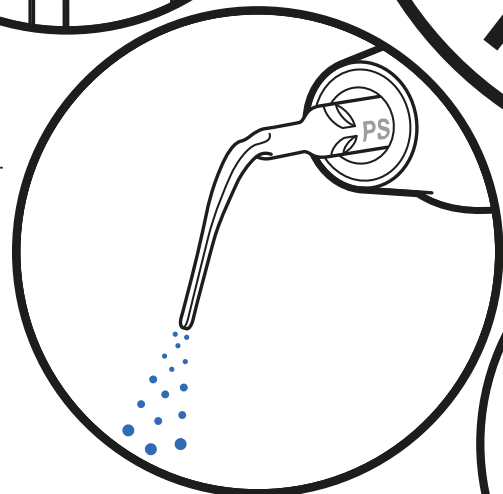
- ▶ Do a final check for remaining biofilm
- ▶ Ensure calculus is fully removed
 - ▶ Accurately diagnose caries
 - ▶ Protect with fluoride



06 PIEZON® PS

REMOVE REMAINING CALCULUS

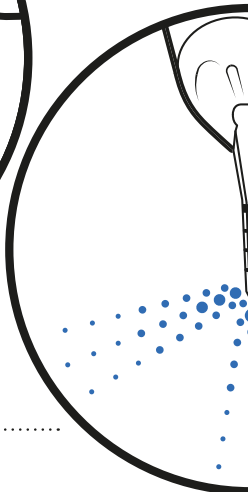
- ▶ Use the minimally invasive EMS PIEZON® PS Instrument supra- and subgingivally up to 10 mm
- ▶ Clean > 10 mm pockets with mini curette
- ▶ Use EMS PIEZON® PI Instrument around implants up to 3 mm subgingivally and on restorations



05 PERIOFLOW®

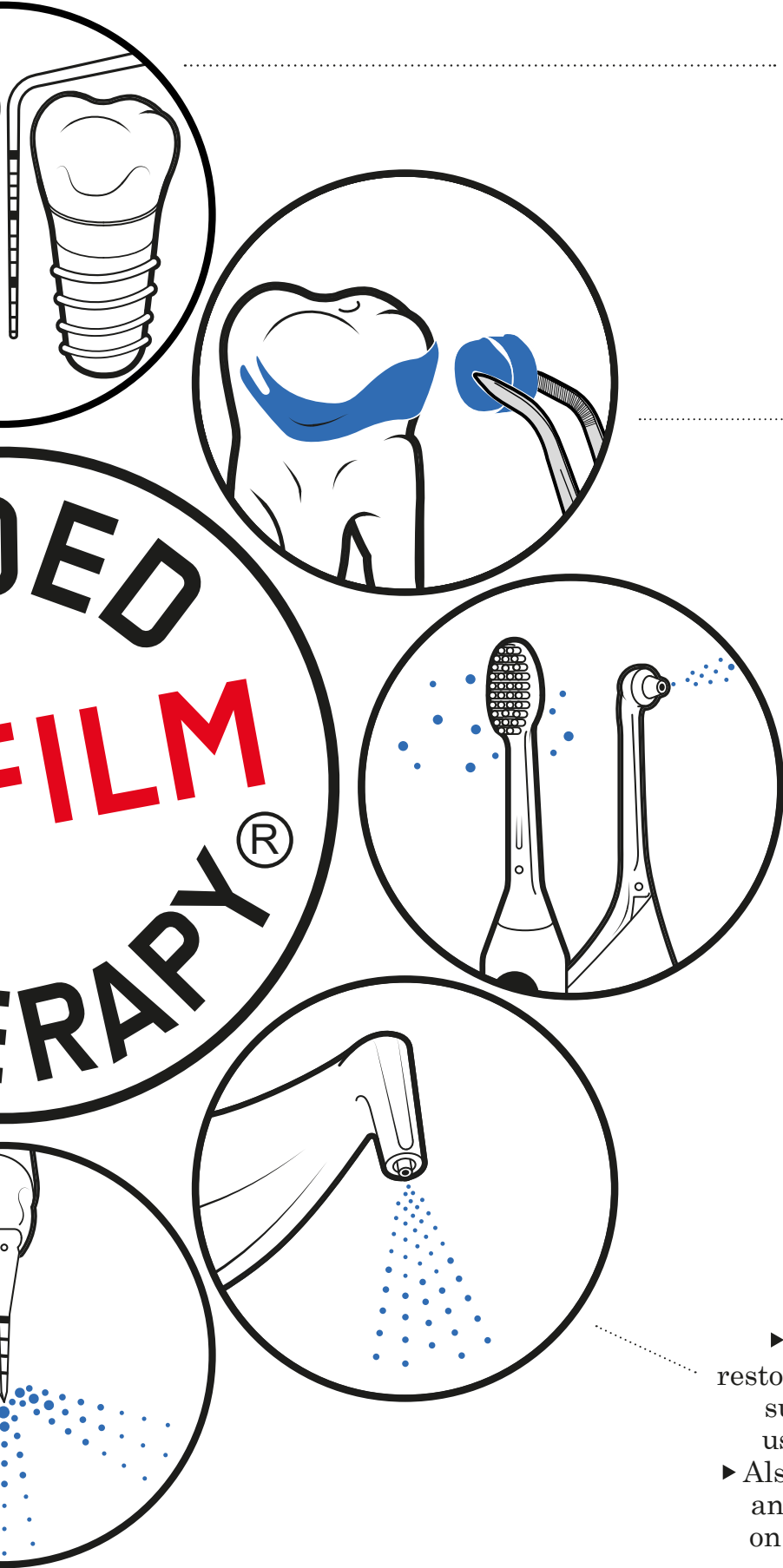
REMOVE BIOFILM IN >4 TO 9 MM POCKETS

- ▶ Use AIRFLOW® PLUS Powder on natural teeth in deep pockets and root furcations and on implants
- ▶ Use new and slimmer PERIOFLOW® Nozzle



GUIDE
BIOFILM
THE

8-STEP PROTOCOL



01 ASSESS

PROBE AND SCREEN EVERY CLINICAL CASE

- ▶ Healthy teeth, caries, gingivitis, periodontitis
- ▶ Healthy implants, mucositis, peri-implantitis
- ▶ Start by rinsing with BacterX[®] Pro mouthwash

02 DISCLOSE

MAKE BIOFILM VISIBLE

- ▶ Highlight to patients the disclosed biofilm and their problematic areas with EMS Biofilm Discloser
- ▶ The color will guide biofilm removal
- ▶ Once biofilm is removed, calculus is easier to detect

03 MOTIVATE

RAISE AWARENESS AND TEACH

- ▶ Emphasize prevention
- ▶ Instruct your patients in oral hygiene
- ▶ EMS recommends Philips Sonicare toothbrushes, interdental brushes and Airfloss Ultra

04 AIRFLOW[®]

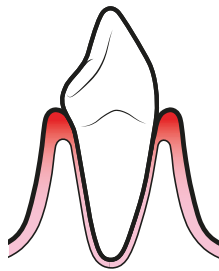
REMOVE BIOFILM, STAINS AND EARLY CALCULUS

- ▶ Use AIRFLOW[®] for natural teeth, restorations and implants
- ▶ Remove biofilm supra- and subgingivally up to 4 mm using AIRFLOW[®] PLUS 14µm Powder
- ▶ Also remove biofilm from gingiva, tongue and palate
- ▶ Remove remaining stains on enamel using AIRFLOW[®] CLASSIC Comfort Powder

THE AIM OF GBT IS

GINGIVITIS

EMS Biofilm Discloser visibly reveals the presence of early and mature biofilm. The sulcus area (gingival margin) shows mature biofilm due to an inappropriate brushing technique leaving biofilm untouched.



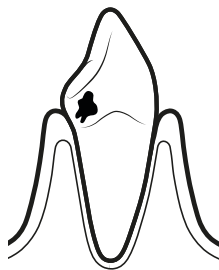
In this case, GBT was limited to AIRFLOW® PLUS Powder up to 3mm. Some bleeding from the gingival margin (red line) indicates low-grade gingivitis. GBT fosters the patient's motivation to use correct tooth brushing techniques.

- ▶ GBT prevents and treats gingivitis



CARIES DETECTION

Accurate caries detection requires clean teeth. Here, the EMS Biofilm Discloser shows the presence of biofilm, interdentally as well as at the gingival margin. Finally, GBT reveals interdental caries at an advanced stage.

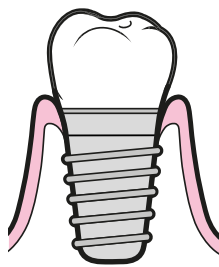


- ▶ GBT helps detect caries with precision.
- ▶ No more biofilm: No more caries.



IMPLANTS

In this sequence of peri-implantitis, AIRFLOW® removes supra- and subgingival biofilm up to 4mm. The EMS Biofilm Discloser helps to minimize treatment time. PERIOFLOW® removes biofilm in peri-implant pockets up to 9mm. Finally, the PIEZON® PI Instrument removes the remaining calculus around the implant.



- ▶ GBT contributes to the treatment of peri-implantitis in a minimally invasive way.



TO ELIMINATE ALL BIOFILM ON TEETH, IMPLANTS AND SOFT TISSUES.



Photos: Courtesy, Prof. Magda Mensi



Photos: Courtesy, Beverly Watson

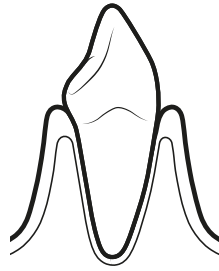


Photos: Courtesy, Prof. Magda Mensi

GUIDED **BIOFILM** THERAPY

CHILDREN

In this case, using a 2-tone disclosing agent visibly reveals cariogenic biofilm and helps motivate the young patient. Children love AIRFLOW® – it is “cool” and they lose the fear of the treatment.

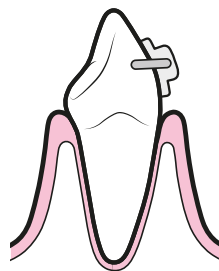


- ▶ The pain-free GBT method motivates children and helps prevent caries.



ORTHODONTICS

Orthodontic appliances are a challenge for patients and professionals performing biofilm management. Using a 3-tone disclosing agent reveals cariogenic biofilm (pH < 4,5) in areas difficult to access during home care and helps to motivate the young patient. AIRFLOW® PLUS Powder during GBT reveals demineralized white spots which were impossible to identify before.

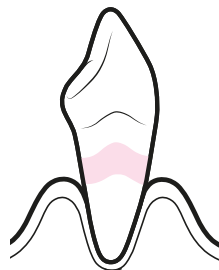


- ▶ GBT prevents caries during orthodontic treatment.
- ▶ GBT maintains orthodontic appliances.



EXPOSED DENTINE

Biofilm and calculus removal on exposed dentine surfaces is usually critical in terms of patient comfort (dentine hypersensitivity) and risk of over instrumentation. The disclosed biofilm helps to minimize AIRFLOW® treatment and to save time. No more color (of the disclosing agent) - no more biofilm. AIRFLOW® PLUS Powder and PIEZON® NO PAIN with PS Instrument are the best assurance for high quality and painfree treatments.

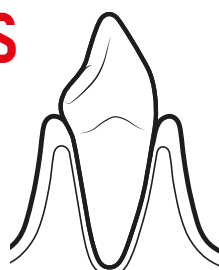


- ▶ GBT preserves exposed dentine preventing sensitivity.



STAINS AND CALCULUS

AIRFLOW® removes stains and facilitates further calculus removal with PIEZON® PS Instrument, minimizing power instrumentation.



- ▶ GBT will make your patient smile again.



MORE CASES



Photos: Courtesy, Dr. Gleb Aseev



Photos: Courtesy, Dr. Gleb Aseev



Photos: Courtesy, Prof. Magda Mensi



WHY GBT IS THE...

- ▶ Dental biofilm is the main etiological factor for caries, periodontitis and peri-implant infections. Periodontitis may increase the risk of systemic diseases, such as cardiovascular and respiratory disorders, arthritis or diabetes.
- ▶ Regular oral hygiene, combined with professional measures, keeps biofilm under control – for a better oral and systemic health. Axelsson and Lindhe pioneered preventive dentistry in the 1970's with studies and clinical protocols based on prophylaxis in “recall hours”.¹⁻²
- ▶ GBT follows the recommendations on Professional Mechanical Plaque Removal (PMPR) and Oral Hygiene Instructions (OHI) for Home Care issued by the European Federation of Periodontology (EFP).³⁻⁵ .
- ▶ “Periodontal Health for a Better Life!”

PROFESSIONAL TOOTH CLEANING CAN BE A PAINFUL EXPERIENCE

PATIENTS DO NOT LIKE IT AND OFTEN STAY AWAY FROM RECALLS



This shows that dental biofilm is not always visible.

1 Removing calculus with hand instruments can often be painful for the patients. Dental surfaces and implants often will be scratched.

2 Polishing with rotary rubber cups and brushes is time-consuming and often messy. With many areas not reachable, the gingiva will be affected mechanically. Dental hygienists and assistants know that traditional cleaning may be a painful experience. For this reason, patient compliance is not often very high. Now, almost fifty years later, it is time for change.

1. Axelsson P. Preventive Materials, Methods and Programs: Quintessence Publishing, 2004. | 2. Axelsson P, Nystrom B, Lindhe J. The long-term effect of a plaque control program on tooth mortality, caries and periodontal disease in adults. Results after 30 years of maintenance. Journal of Clinical Periodontology 2004;31:749-757. | 3. Tonetti MS, Chapple ILC, Jepsen S, Sanz M. Primary and secondary prevention of periodontal and peri-implant diseases. Journal of Clinical Periodontology 2015;42:S1-S4. | 4. Tonetti MS, Eickholz P, Loos BG, Papapanou P, van der Velden U, Armitage G, et al. Principles in prevention of periodontal diseases. Journal of Clinical Periodontology 2015;42:S5-S11. | 5. Sanz M, Bäumer A, Buduneli N, Dommisch H, Farina R, Kononen E, et al. Effect of professional mechanical plaque removal on secondary prevention of periodontitis and the complications of gingival and periodontal preventive measures. Journal of Clinical Periodontology 2015;42:S214-S220.

GAME CHANGER



GBT IS THE NEW AND PATIENT ORIENTED CONCEPT

1 Before removal, biofilm is always disclosed with a dye solution. Biofilm and early calculus are easily removed with AIRFLOW® and PERIOFLOW® – supra- and subgingivally.

2 If needed, this is followed by debridement with PIEZON® PS NO PAIN piezoceramic instruments.

3 Guided Biofilm Therapy means that the clinician is guided by the disclosed biofilm during tooth cleaning procedures.

4 Guided Biofilm Therapy is truly minimally invasive and reduces the need for hand and sonic/ultrasonic instrumentation. It is safe, effective and gentle to teeth and soft tissues, implants and restorations.¹⁻⁴

5 GBT is very comfortable for patients and practitioners.⁵ It is efficient and timesaving.⁶ This also valid for primary caries and perio prevention in children and teenagers.



6 GBT is part of a comprehensive preventive concept – to preserve your patients' oral health – and to make the patients feel good.

7 Since 1982 EMS has provided dental practices all over the world with AIRFLOW® air polishing and PIEZON® PS NO PAIN piezoceramic scaling technology.

8 In 2012 EMS added the high-tech erythritol-based AIRFLOW® PLUS Powder with a particle size of only 14 µm.

9 Guided Biofilm Therapy is based on clinically proven technologies invented by EMS. It was developed in cooperation with highly respected and experienced periodontologists, caries specialists and dental hygienists.

10 GBT is a systematic, predictable, risk-oriented and user-friendly treatment for all age groups and each individual patient.

1. Wennstrom JL, Dahlen G, Ramberg P. Subgingival debridement of periodontal pockets by air polishing in comparison with ultrasonic instrumentation during maintenance therapy. *Journal of Clinical Periodontology* 2011;38:820-827. | 2. Ronay V, Merlini A, Attin T, et al. In vitro cleaning potential of three implant debridement methods. Simulation of the non-surgical approach. *Clinical Oral Implants Research* 2017;28:151-155. | 3. Bühler J, Amato M, Weiger R, Walter C. A systematic review on the effects of air polishing devices on oral tissues. *International Journal of Dental Hygiene* 2016;14:15-28. | 4. Barnes CM, Covey D, Watanabe H, et al. An in vitro comparison of the effects of various air polishing powders on enamel and selected esthetic restorative materials. *The Journal of Clinical Dentistry* 2014;25:76-87. | 5. Aslund M, Suvan J, Moles DR, et al. Effects of two different methods of non-surgical periodontal therapy on patient perception of pain and quality of life: a randomized controlled clinical trial. *Journal of Periodontology* 2008;79:1031-1040. | 6. O'Hehir TE. How subgingival air polishing will turn dental hygiene upside down. Interview with Prof. Dr. Thomas Flemmig. dentaltown.com 2014:94-96. | 7. Flemmig TF, Arushanov D, Daubert D, et al. Randomized controlled trial assessing efficacy and safety of glycine powder air polishing in moderate-to-deep periodontal pockets. *Journal of Periodontology* 2012;83:444-452.

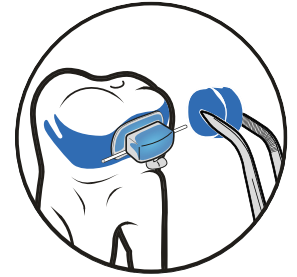
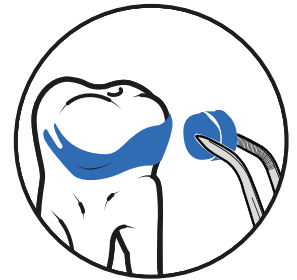
PROBABLY THE **BEST** PROFESSIONAL

1. WHY **MAKE BIOFILM VISIBLE?**

- ▶ With GBT we intend to eliminate all the biofilm, including areas which are difficult to access.
- ▶ If biofilm is made visible, it is removed much faster with GBT.
- ▶ What you see is what you remove.

Color removal = Biofilm removal. Also on soft tissues.

- ▶ The users of hand instruments, rubber cups and “polishing” paste do not like to disclose biofilm as they would need much more time to finish the treatment.
- ▶ The German Stiftung Warentest reported that the conventional prophylaxis only removes 50% of Biofilm in the difficult to access areas.
- ▶ Colored teeth and gums will also help motivate the patient to improve their homecare – OHI.



This 14 year old patient has a significant lack of oral hygiene. Disclosing agent reveals massive acidogenic biofilm.

Courtesy, Dr. Gleb Aseev

2. WHY **AIRFLOW® FIRST?**

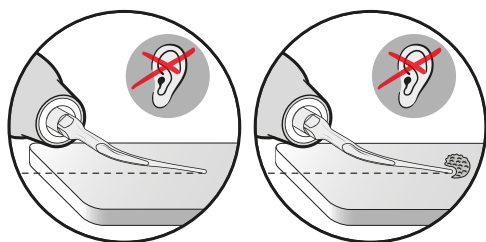
- ▶ AIRFLOW® removes biofilm, stains and colorations first as well as the thin layers of early forming calculus. Now you will see the remaining calculus better and it will be easier to eliminate it with the PIEZON® NO PAIN PS Instrument.
- ▶ With GBT the removal of calculus in supra- and subgingival areas is easier, faster and truly minimal invasive.
- ▶ This pain free and comfortable GBT treatment method, if done correctly by trained GBT dental professionals will help create happy and loyal patients for your recall practice.
- ▶ AIRFLOW® = CASH FLOW.

TOOTH CLEANING EVER...



3. WHY ONLY THE PS INSTRUMENT?

- ▶ The PIEZON® PS (Perio Slim) Instrument is slim and smooth like a probe. It is gum-friendly, minimally invasive, maximally preventive and preserves the epithelium due to its absolute linear movements.
- ▶ By using only one instrument to do 95% of the work, things will be easier. For the 5% that remain we recommend our new curved PIEZON® PSL and PSR (Perio Slim Left and Right) Instruments. The PIEZON® PS Instrument gives the clinician a good haptic and secure feeling when working subgingival.



THE GLASS PLATE TEST:

Touch the glass plate with the PS instrument on its side as shown on the left, set the Piezon to medium power, apply gentle pressure, turn on the spray and you won't hear anything – acoustic proof that you have the right instrument in your hand.

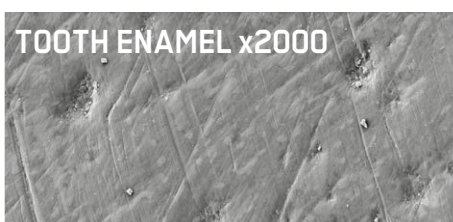
Now allow a small lump of dental cement to harden on the glass plate. Then lay the instrument to one side on the glass plate as in the previous test and guide it towards the "tartar". You will notice that it disappears instantly. That is precisely what makes it so different from other instruments which do not move in such a controlled and consistent fashion.

- ▶ The treatment with the PS instrument is Pain Free if used the correct way.
- ▶ A Pain Free and pleasant treatment is the dream of every patient. This is the key for patient loyalty and satisfaction.
- ▶ The cost of a PS instrument is only 5 cents per treatment and per patient! It is absolute nonsense to buy copy or "compatible" tips.
- ▶ If EMS handpieces get damaged (e.g. the thread) with a "compatible" tip you will lose your EMS warranty.
- ▶ The PIEZON® PS Instrument, the PIEZON® Handpiece and the PIEZON® NO PAIN electronic module were made/matched for each other. This Trilogy works in harmony.

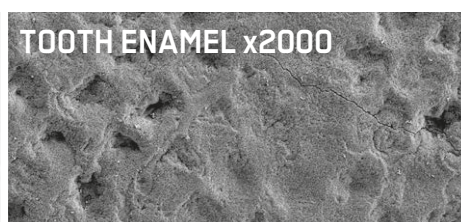
4. WHY NO MORE „POLISHING“ PASTE?



**BEFORE CLEANING,
RESIDUAL BIOFILM**



**AFTER „POLISHING“ WITH
LOW-ABRASIVE PASTE RDA 27**



**AFTER CLEANING WITH
AIRFLOW® PLUS POWDER**

▶ The enamel prisms of the natural tooth enamel are easily recognizable. The photo shows the remnants of the bacteria killed off with sodium hypochlorite.¹

▶ The vital enamel prisms have been „polished“ away. Pastes have caused scratches. Biofilm has spread into natural crevices.
▶ Overall abrasive pastes cause a loss of valuable enamel. No improvement of the dental surface.¹

▶ The biofilm has been removed with AIRFLOW®. The surface is clean down to the pores. No abrasion. The enamel prisms remain intact and the surface is perfectly smooth. The tongue no longer feels any roughness - no need to „polish“ with abrasive paste. Save enamel and treatment time.¹

¹ Camboni S, Donnet M. The Journal of Clinical Dentistry 2016;27:13-18.

ONE POWDER ONLY

FOR 90% OF ALL CASES



OPTIMAL COMFORT
MINIMALLY INVASIVE
MAXIMALLY PREVENTIVE

TEETH

- ▶ Primary and permanent teeth
- ▶ Interdental spaces
- ▶ Crowded teeth
- ▶ Exposed dentine
- ▶ Pits and fissures
- ▶ Demineralized enamel

CARIES MANAGEMENT

- ▶ Before caries detection
- ▶ Before sealing
- ▶ Before fluoridation

SOFT TISSUES

- ▶ Sulcus
- ▶ Shallow pockets up to 4mm
- ▶ Deep pockets >4 to 9mm
- ▶ Tongue and palate

ORTHODONTICS

- ▶ Orthodontic brackets
- ▶ Patients with Invisalign

AESTHETIC DENTISTRY

- ▶ Crowns and veneers
- ▶ Before placing restorations
- ▶ Before bleaching

IMPLANTS

- ▶ Peri-implant sulcus
- ▶ Deep peri-implant pockets



ONE INSTRUMENT ONLY

FOR 95% OF ALL CASES



**OPTIMAL COMFORT
MINIMALLY INVASIVE
MAXIMALLY PREVENTIVE**

SUPRAGINGIVAL

- ▶ Primary and permanent teeth
- ▶ Best interproximal access¹
- ▶ Crowded teeth
- ▶ Exposed dentine

SUBGINGIVAL

- ▶ Sulcular deposits
- ▶ Preserves the epithelium
- ▶ Pockets up to 10mm

ORTHODONTICS

- ▶ Around orthodontic brackets

¹ Clinical Research Associates, Newsletter.

THE SWISS ORIGINAL.

THE AIRFLOW® PROPHYLAXIS MASTER



The original from the Inventor. Guaranteed Swiss precision and superb design. Highest performance, reliability and know-how. Experts in prophylaxis since 1981.

1 GOOD DESIGN®, one of the most important design awards in the world from the Chicago Athenaeum Museum of Architecture and Design.

THE SWISS MASTER.



THE PROPHYLAXIS STATION



The Swiss-Made AIRFLOW® Prophylaxis Master was developed at the EMS Research Centre with more than 100 000 hours of technical and clinical testing in collaboration with leading dental professionals worldwide.

04 AIRFLOW®

AIRFLOW® REMOVES BIOFILM, STAINS & EARLY CALCULUS. CLEANS AND POLISHES AT THE SAME TIME.

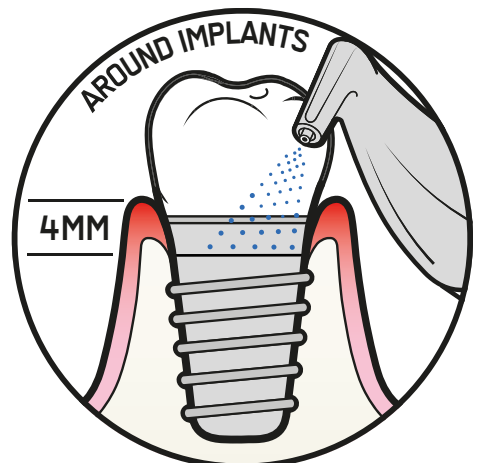
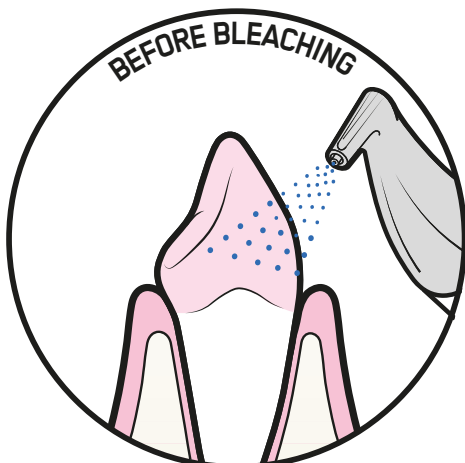
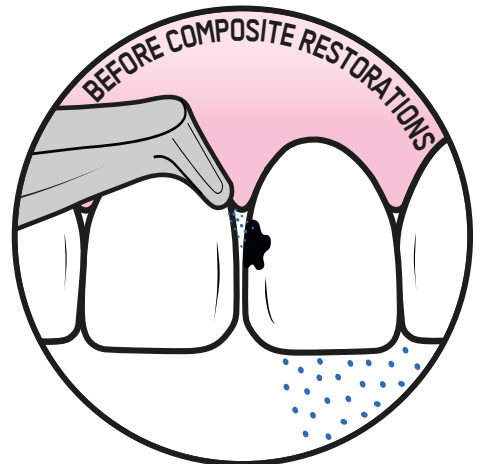
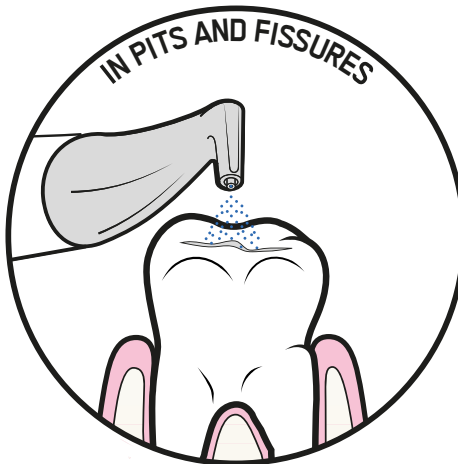
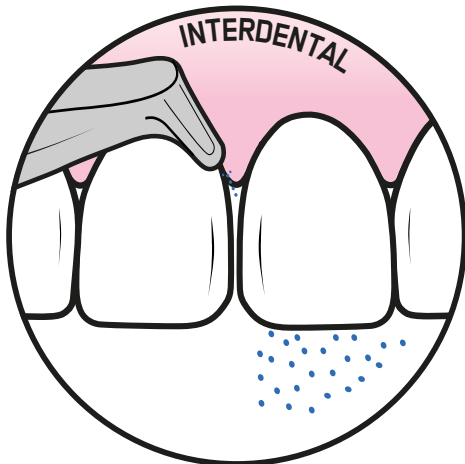
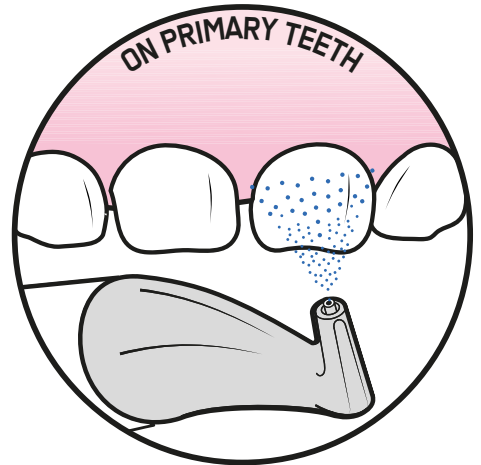
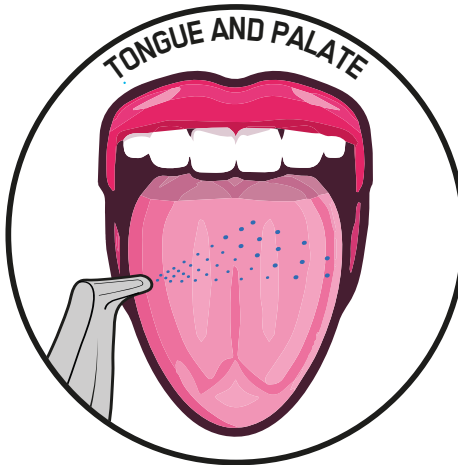
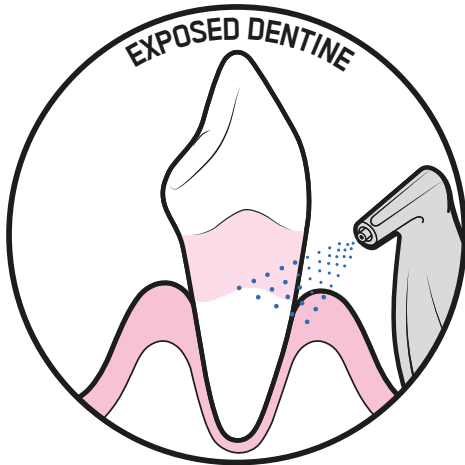
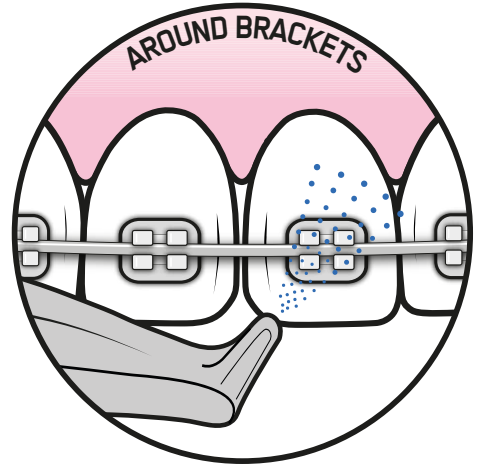
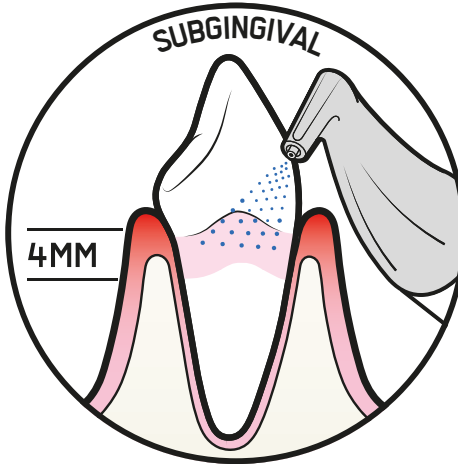
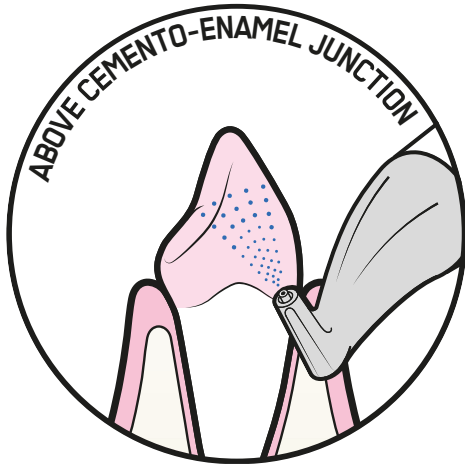
- ▶ After the use of AIRFLOW® no extra polishing with rubber cups/paste is necessary any more.
- ▶ Dental practices using AIRFLOW® and GBT have more and happier recall patients.
- ▶ Professional prophylaxis is becoming an important economic factor.¹



- ▶ AIRFLOW® removes biofilm and early calculus in all these situations. It also cleans the gingival or peri-implant sulcus to a depth of 4mm.²⁻⁴ At the same time AIRFLOW® is fast, efficient and comfortable for the patient.
- ▶ Fine tune the air pressure/power for all clinical situations.

1. O'Hehir TE. dentaltown.com 2014(1):94-96. | 2. Patil SS, et al. J Intern Soc Prev & Commun Denti 2015;5:457-462. | 3. Flemmig TF, et al. J Periodontol 2007;78:1002-1010. | 4. Botti RH, et al. Eur J Paediatr Dent 2010;11:15-18.

THE MULTITASKER



AIRFLOW® POWDERS

STUDY FROM BARNES, ET AL J CLIN DENT 2014, 25-76-87 ON POWDER ABRASIVITY.

► Objective: The purpose of this study¹ was to investigate the effects of each of the commercially available air polishing powders on the surface characterization of human enamel, hybrid composite, and glass ionomer using a highly standardized protocol. The air polishing powders utilized in the study included aluminum trihydroxide, calcium carbonate, calcium sodium phosphosilicate, glycine, and sodium bicarbonate.

THERE ARE DAMAGING POWDERS IN THE MARKET

► Based on the results of this study, the air polishing powders that are compatible with use on hybrid composite and glass ionomer cements are EMS glycine and EMS sodium bicarbonate. The air polishing powders that are compatible for use on enamel include EMS glycine, Dentsply sodium bicarbonate, and EMS sodium bicarbonate. In the study a particle size of 65µm of the EMS powder was used.

Since 2013, EMS has reduced the particle size of its Comfort sodium bicarbonate Powder to only 40µm.

► “The results of this research indicate that there are air polishing powders that are significantly less abrasive than others, even with similar ingredients, specifically sodium bicarbonate.”

► Please read the full study, just download the QR code below.

ERYTHRITOL 14µm PLUS POWDER

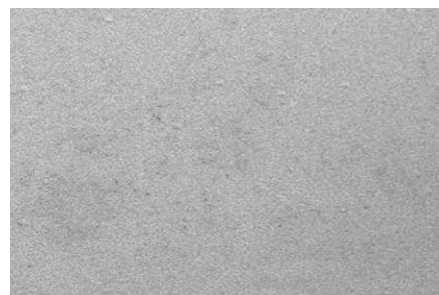
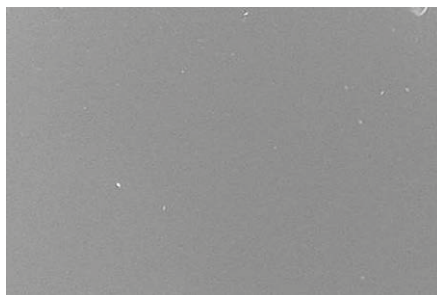
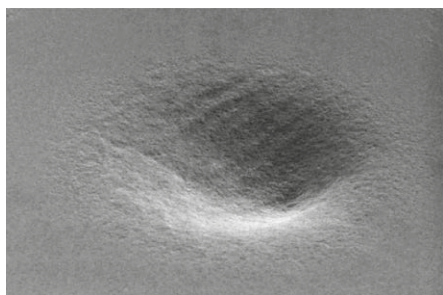
► Today, EMS offers an even better erythritol based prophylaxis powder, which enables supra- and subgingival treatment with superior comfort and efficiency than glycine powder.



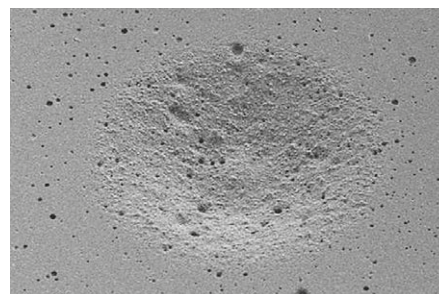
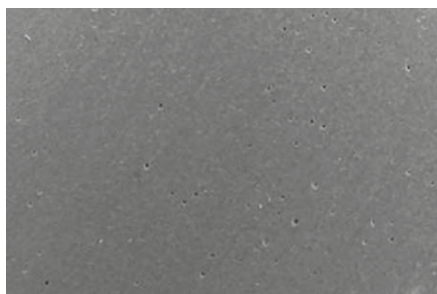
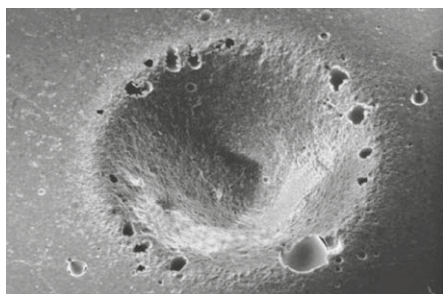
OSSPRAY
CALCIUM SODIUM
PHOSPHOSILICATE¹

EMS AIRFLOW® PLUS
POWDER ERYTHRITOL²

EMS SODIUM
BICARBONATE³



EFFECT OF 5 SEC AIR POLISHING ON HUMAN ENAMEL



EFFECT OF 5 SEC AIR POLISHING ON GLASS IONOMER

1. Barnes CM, et al. J Clin Dent 2014;25:76-87. | 2. For AIRFLOW® PLUS Powder, complimentary tests have been submitted to the J Clin Dent (Barnes CM, et al.). | 3. Barnes CM, et al. J Clin Dent 2014;25:76-87. The EMS sodium bicarbonate had a particle size of 65 µm. New Powder AIRFLOW® CLASSIC Comfort has 40 µm particle size, for more smoothness and patient comfort.

Download full study



EMS POWDER GUIDE



► With 2 chemical laboratories in Germany and Switzerland, EMS is the only company producing its own powder. With 35 years of clinical research and testing, many scientific studies and millions of patients treated, EMS recommends the following 2 powders for all clinical cases.

RECOMMENDED



OTHER EMS POWDERS

Name	PLUS	CLASSIC COMFORT	CLASSIC	SOFT	PERIO
Ref	DV-082	DV-048	DV-048/LEM/65	DV-071	DV-070
Flavor	NEUTRAL	LEMON MINT CHERRY NEUTRAL	LEMON	NEUTRAL	NEUTRAL
Composition	ERYTHRITOL	SODIUM BICARBONATE	SODIUM BICARBONATE	GLYCINE	GLYCINE
Particle size	~14µm	~40µm	~65µm	~65µm	~25µm
pH	-7	-8.1	-8.1	-6	-6
Teeth	Stains and early calculus	✓	✓	✓	✗
	Enamel	✓	✓	✓	✓
	Enamel white spots	✓	✗	✗	✗
	Pits and fissures	✓	✗	✗	✗
	Dentine	✓	✗	✗	✗
Soft tissues	Gingiva	✓	✗	✗	✓
	Tongue and palate	✓	✗	✗	✓
Restorations	Hybrid composite	✓	✗	✗	✓
	Glass ionomer	✓	✗	✗	✓
Implants	...and peri-implant tissues	✓	✗	✗	✓
Orthodontics	Brackets and appliances	✓	✗	✗	✓

⚠ Beware of so-called „EMS compatible“ powders in the market, which can damage oral tissues and the device. See here a nozzle completely damaged by such aggressive powders.

- Use only EMS powders with your EMS devices.
- The use of not authorized powders by EMS will result in a loss of warranty.



05 PERIOFLOW®



NEW PERIOFLOW® NOZZLE

- ▶ Subgingival biofilm removal (debridement) in >4 to 9 mm periodontal¹ and peri-implant² pockets
- ▶ Initial and follow-up (SPT) periodontal therapy³
- ▶ Prevention of mucositis / peri-implantitis⁴
- ▶ Initial and follow-up treatment of mucositis / peri-implantitis⁵

3
POWDER
SPRAYS

+ water rinsing



1. Sculean A, et al. Quintessence Int 2013;44:475-477. | 2. Schwarz F, et al. Quintessence Int 2016;47:293-296. | 3. Flemmig TF, et al. J Periodontol 2012;83:444-452. | 4. Muller N, et al. J Clin Periodontol 2014;41:883-889. | 5. Riben-Grundstrom C, et al. J Clin Periodontol 2015;42:462-469

FIRST TO GO SUBGINGIVAL



NEW PERIOFLOW® NOZZLE

EMS invested in research on safety matters before it decided to offer the subgingival PERIOFLOW® application.

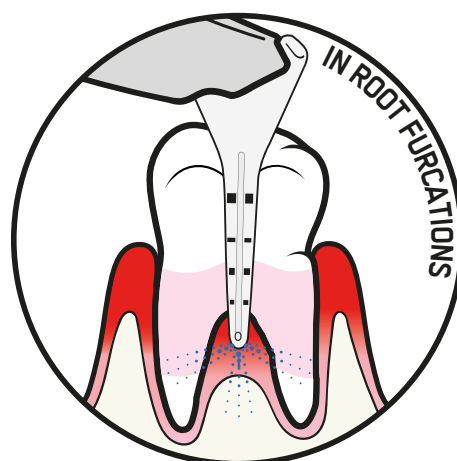
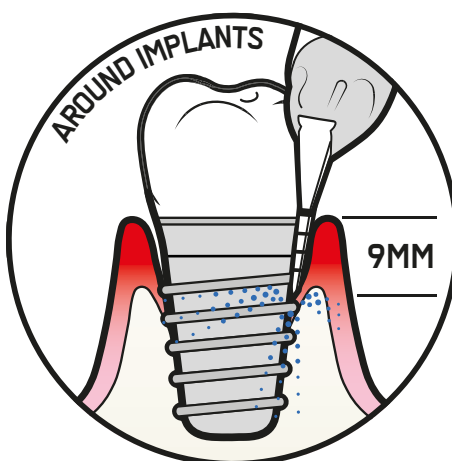
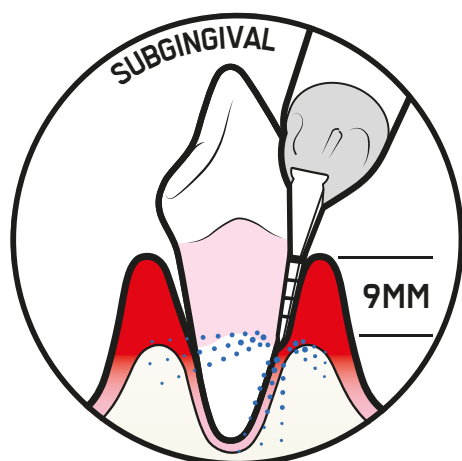
EMS' main concern was to limit risks of emphysema.

In 2019 at IDS, EMS will offer for sale the third generation new PERIOFLOW® exchangeable nozzle - slimmer, safer and easier to use.



The new PERIOFLOW® Nozzles are thinner and more flexible and able to adapt to the topography of periodontal/peri-implant pockets. A pressure release groove limits pressure in periodontal/peri-implant pockets.

PERIOFLOW® APPLICATIONS



PERIODONTAL POCKETS

PERI-IMPLANT POCKETS

ROOT FURCATION



06 PS INSTRUMENT

AFTER USING AIRFLOW[®], REMOVE REMAINING SUPRA- AND SUBGINGIVAL CALCULUS WITH THE PIEZON[®] NO PAIN¹ PS INSTRUMENT.

- ▶ Linear movement of the PS Instrument
= no damage to tooth surfaces and soft tissues.
Minimally invasive with regard to root cementum.
Dynamic power setting.
- ▶ “EMS PS (Perio Slim) Instrument delivers the best
interproximal and subgingival access.”²
- ▶ Patients will be surprised as the treatment with
the PIEZON[®] PS Instrument will be entirely Pain Free
when used in the correct way by Dental Professionals.



1. NO PAIN: when used in accordance with EMS instructions and/or the training by the Swiss Dental Academy.

2. CRA, Clinical Research Associates, USA. Newsletter June 1998.

95% OF ALL CASES



Photos: Courtesy, Prof. Magda Mensi

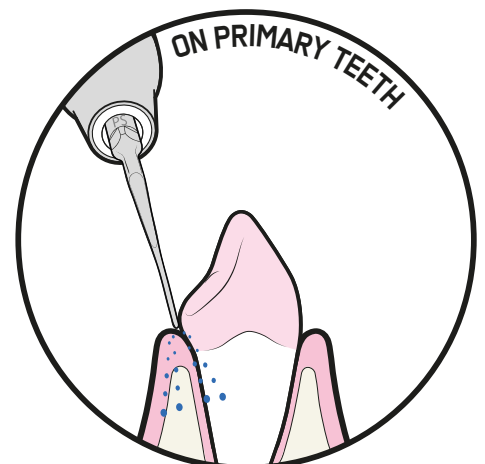
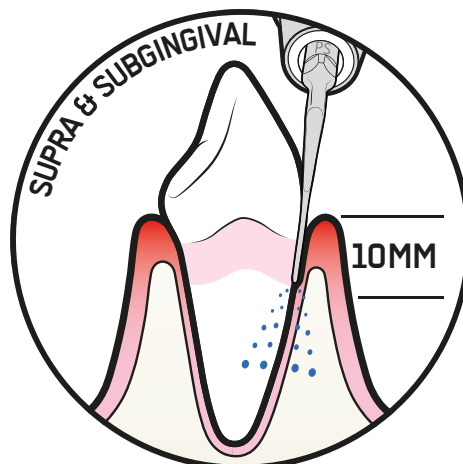


CALCULUS REMOVAL WITH EMS PIEZON® PS INSTRUMENT



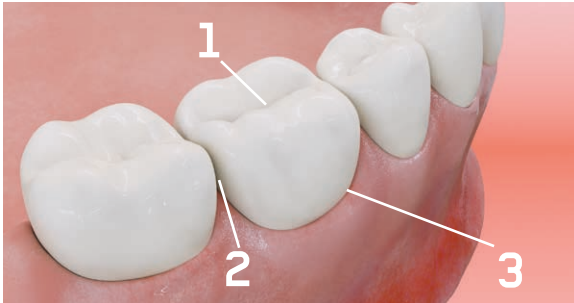
PS - THE ONE AND ONLY

EMS PS PERIO SLIM INSTRUMENT
IS INDICATED FOR 95% OF ALL CASES.



07 CARIES CHECK

CARIES DETECTION REQUIRES CLEAN TEETH



The following dental surfaces are most at risk for caries^{1,2}:

- 1 - Occlusal.
- 2 - Approximal.
- 3 - Cervical areas.

In these areas:

- ▶ GBT helps effectively remove the biofilm and prevent caries in a minimally invasive way.

At an early stage of demineralization, caries is often hard to detect even with X-rays. Biofilm and calculus may conceal them. The International Caries Detection and Assessment System - ICDAS (2011) underscores the importance of „clean and dry“ surfaces for accurate detection.

1 OCCLUSAL



Courtesy, Prof. dent. Hervé Tassery, Marseille/France

2 APPROXIMAL



Courtesy, Dr. Wolfgang Gutwerk Aschaffenburg/Germany

3 CERVICAL



Courtesy, Prof. dent. Adrian Lussi, Bern/Switzerland

AND **EARLY** TREATMENT



14µm PLUS POWDER AND EARLY TREATMENT



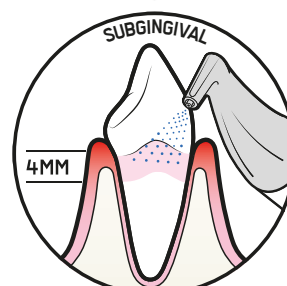
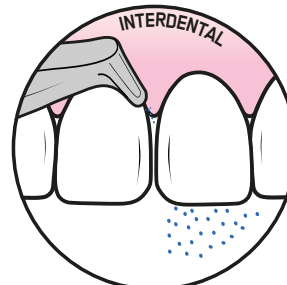
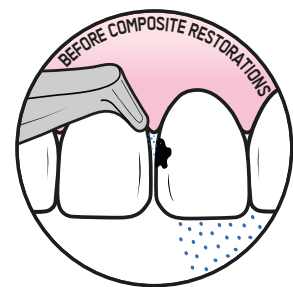
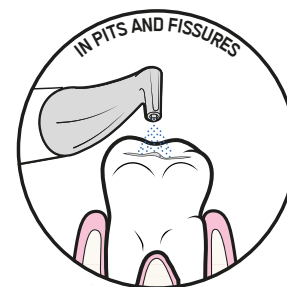
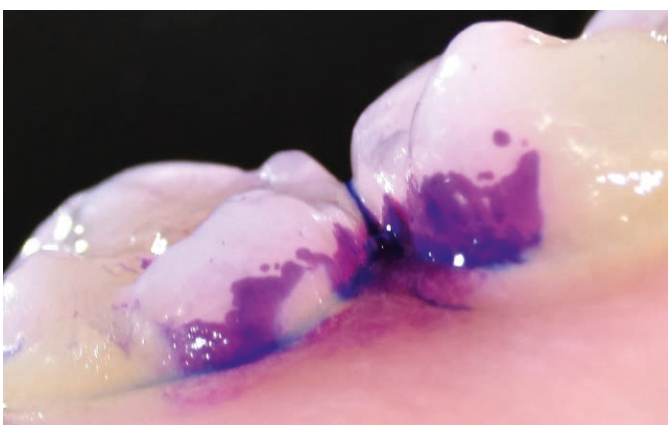
Courtesy, Prof. Dent. Hervé Tassery, Marseille/France

The width of occlusal fissures of cavities is often less than 100µm. This is less than toothbrush bristles and any hand instrument.

Disclosing + AIRFLOW sequence supporting early caries treatment:

- ▶ After an initial biofilm disclosure, the fissure is cleaned with AIRFLOW® PLUS 14µm Powder.
- ▶ If needed, enlarge the fissure with 40µm CLASSIC Comfort Powder and polish with PLUS Powder.
- ▶ Burs can be used selectively in addition to AIRFLOW® if the lesion is still present.
- ▶ Clean with AIRFLOW® erythritol prior to sealing enables optimal adhesion.

AIRFLOW® BEFORE COMPOSITE RESTORATIONS

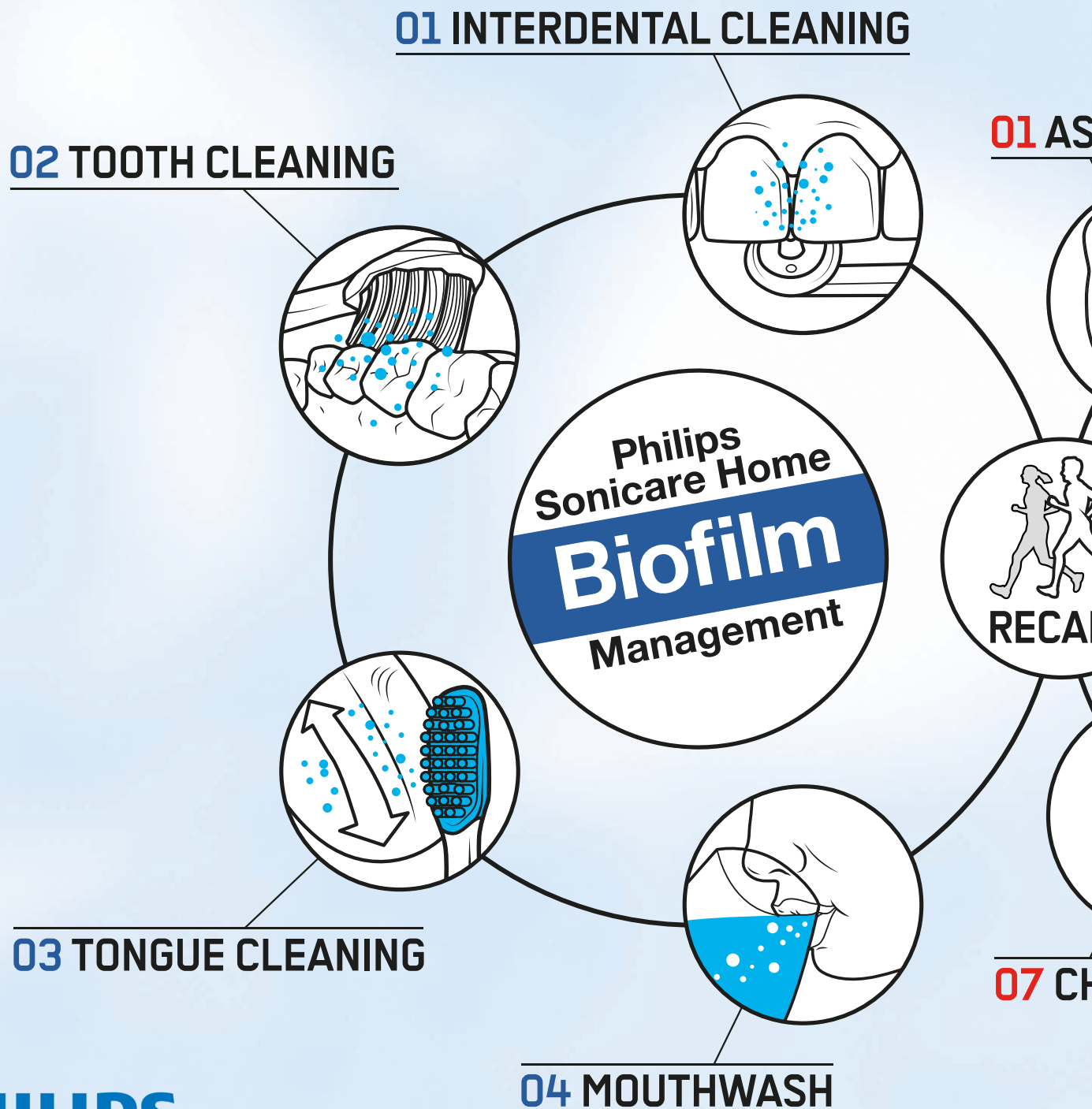


Courtesy, Prof. dent. Hervé Tassery, Marseille/France

EMS AND PHILIPS COOPERATE

► Philips and EMS have decided to combine forces to improve the oral health of patients as any successful Prophylaxis is based on two pillars: Homecare and Professional Oral Care.

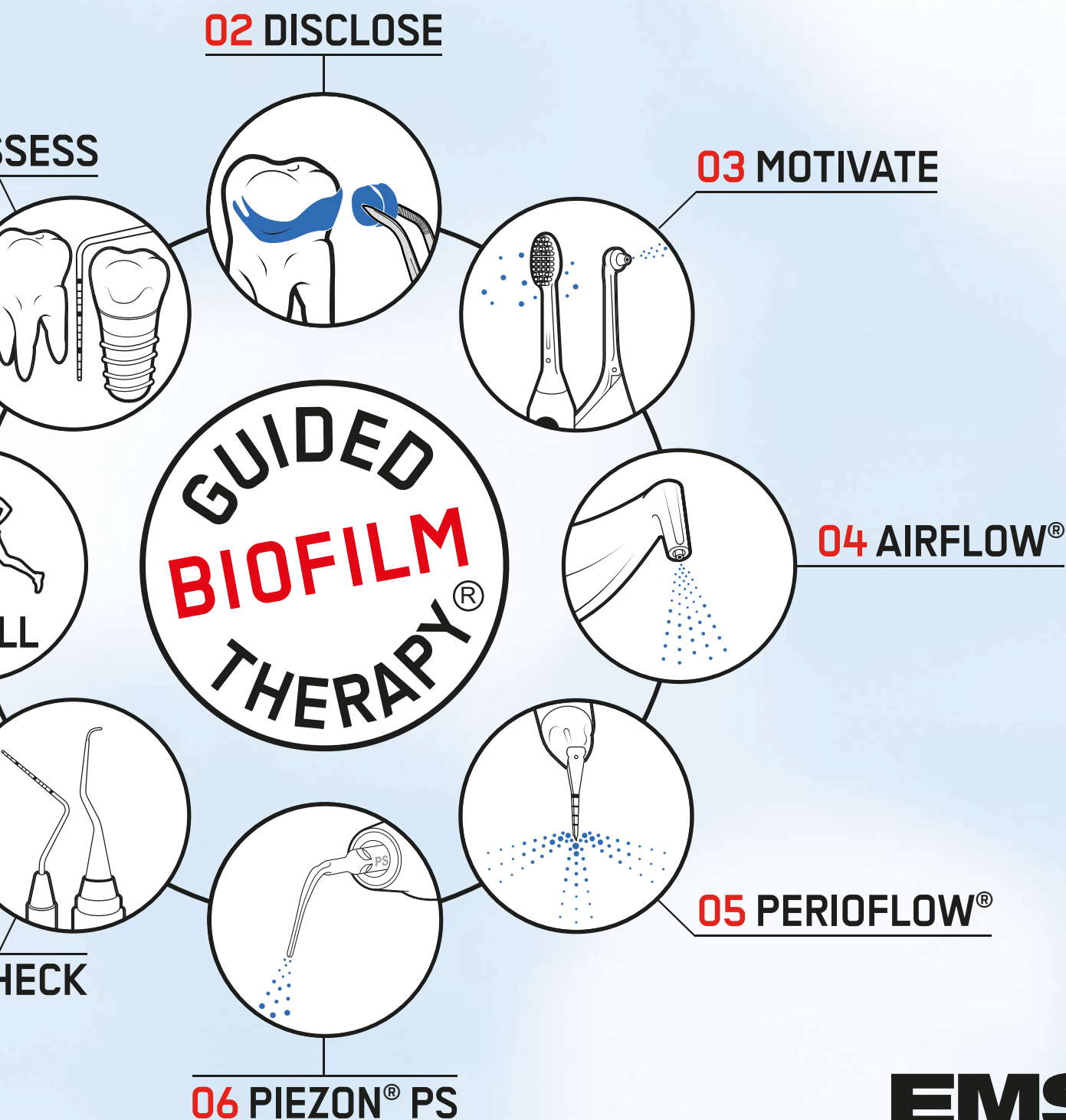
► Many years ago both companies envisioned the future importance of Prevention and Prophylaxis and consequently focused their efforts to continue offering better oral healthcare – Philips for Dental Care at Home and EMS for Dental Professionals.



TO IMPROVE ORAL HEALTH



- ▶ GBT is a modern clinical protocol for Professional Tooth Cleaning. Philips joins GBT with its Homecare Oral Hygiene Consultation.
- ▶ For many years Philips and EMS have been leaders in oral healthcare, so today's cooperation was predictable and logical.
- ▶ This will help Patients and Dental Professionals to maintain and to improve oral health daily in a modern, efficient, gentle and pain-free way. In the spirit of: „Healthy Mouth - Healthy Body“



GBT IS COOL...*

“I do not want to do without Airflow technology or air-polishing in my everyday work. Gentle on substance, clean, pleasant for patients and quicker, particularly in the interdental spaces. The results are accordingly good. Less inflammation, and the tooth necks are no longer sensitive after treatment.”

**PETRA NATTER,
DENTAL HYGIENIST**

“I’m so happy with GBT, I could not accept any other tooth cleaning method anymore. Due to GBT I see my dentist regularly and gladly for my prophylaxis. And each time I leave the office I’m happy with my clean and brilliant white smile! To me prophylaxis with GBT has become a great experience and I dearly recommend it!”

SABINE PAVICIC, PATIENT

“Patients started to book in particularly with me. They thought I was more gentle than the other hygienists and their mouths were feeling better than ever.

The bosses had also noticed a seemingly higher standard of treatment being delivered with lower bleeding scores and cleaner mouths coming from my surgery.

They thought it was me. They thought I was more skilled. A better motivator.

An exceptional communicator.

It wasn’t me. It was the AIRFLOW®.”

**FAYE DONALD, BEST UK DENTAL HYGIENIST 2014
AND 2017**

“The devices of the company EMS helped us very much to simplify the procedure protocol of our “prophylaxis sessions”, to make it more gentle on substance and more patient-friendly (less pain). After more than 3 years, prophylaxis has become a technically and economically very important part of our dental practice thanks also to the scientific and technical competence (e.g. NO PAIN with PS tip, PLUS Powder) of EMS.”

**DR. NADINE STRAFELA-BASTENDORF,
DENTIST**

“Due to the small particle size of the product, especially the Plus powder, there is practically no traumatic gingivitis anymore... We were able to increase turnover in the area of prophylaxis by approx. 50 percent from 2015 to 2016, which is surely also due to the now much more pleasant treatment.

The reactions were positive without exception.”

DIRK PALME, DENTIST

“With the EMS devices, we can motivate our patients in terms of prophylaxis. Through a pleasant feeling in the mouth – WELLNESS factor. Removal of stains – BEAUTY factor. 100% plaque removal – HEALTH factor.”

MICHAELA GRUL

PATIENTS AND USERS ARE FANS



**"AIRFLOW[®]
IS COOL -
SUPER
COOL."
MORRIS MEYER (9 YEARS)**

CLINICAL EVIDENCE

01 ASSESS

Anamnesis: review the case history¹ of your patient and raise awareness of caries promoting and reducing factors².

Pre-rinse with BacterX[®] Pro³.

After patient and clinician preparation⁴, perform the periodontal probing and screening⁵.

02 DISCLOSE

Apply disclosing solution^{6,7}, then rinse with water.

03 MOTIVATE

Show your patients the disclosed biofilm^{6,7} and provide appropriate oral hygiene instruction⁶.

EMS recommends Philips Sonicare^{8,9}.

04 AIRFLOW[®]

Remove stains¹⁰, biofilm^{11,12} and early calculus supra- and subgingivally up to 4mm on natural teeth¹³, implants¹⁴, restorations, orthodontic brackets¹³, dentine¹⁵ and soft tissues^{16,17,18}.

05 PERIOFLOW[®]

Remove biofilm in 4-9 mm periodontal and peri-implant pockets^{11,17,18,19}.

06 PIEZON[®]

Remove calculus^{20,21} on natural teeth up to 10 mm subgingivally^{22,23} with PS Instrument NO PAIN*²⁴ and on implants up to 3 mm subgingivally with PI Instrument.

07 CHECK

Check for any remaining biofilm, stains and calculus. Diagnose caries² and other dental hard-tissue defects, protect with fluoride²⁵ and inform the patient on personal preventive measures²⁶.

08 RECALL

Schedule next recall appointment adapting recall frequency to individual risk^{27,28}.



1. NO PAIN applies when used in accordance with EMS instructions and/or training by the Swiss Dental Academy

1 ADHA – Standards for clinical dental hygiene practice (page 6)

American Dental Hygienists' Association, adopted March 2008, revised 2016 / Stainbach P, Smith M, Burch S.

"A health history assessment includes multiple data points that are collected through a written document and an oral interview. The process helps build a rapport with the patient and verifies key elements of the health status. Information is collected and discussed in a location that ensures patient privacy and complies with the Health Insurance Portability and Accountability Act (HIPAA)."

2 WHITE PAPER ON DENTAL CARIES PREVENTION AND MANAGEMENT: A summary of the current evidence and the key issues in controlling this preventable disease (pages 23-25)

FDI World Dental Federation 2016 / Pitts N, Zero D.

Risk assessment must be considered as an essential component in the clinical decision-making process in dental practice to determine the appropriate level of patient care.

3 REDUCTION OF SALIVARY BACTERIA BY PRE-PROCEDURAL RINSES WITH CHLORHEXIDINE 0.12%

Journal of Periodontology 1991, 62(11) / Veksler AE, Kayrouz GA, Newman MG.

Pre-procedural rinsing with CHX has a profound and sustained effect on the aerobic and facultative flora of the oral cavity, which may contribute to a variety of clinical benefits. Pre-procedural rinsing may also be of value in protecting patients and dental professionals during dental manipulations.

4 AEROSOL, A HEALTH HAZARD DURING ULTRASONIC SCALING: A clinico-microbiological study

Indian Journal of Dental Research 2016, 27(2) / Singh A, Shiva Manjunath RG, Singla D, Bhattacharya HS, Sarkar A, Chandra N.

The aerosols and splatters produced during dental procedures have the potential to spread infection to dental personnel. Therefore, proper precautions should be taken to minimize the risk of infection to the operator.

5 ADHA – Standards for clinical dental hygiene practice (page 7)

American Dental Hygienists' Association, adopted March 2008, revised 2016 /

Stainbach P, Smith M, Burch S.

A comprehensive periodontal examination is part of clinical assessment.

6 EFFECT OF VISUAL METHOD VS PLAQUE DISCLOSURE IN ENHANCING ORAL HYGIENE IN ADOLESCENTS AND YOUNG ADULTS: a single-blind randomized controlled trial

American Journal of Orthodontics and Dentofacial Orthopedics 2014, 145(3) / Peng Y, Wu R, Qu W, Wu W, Chen J, Fang J, Chen Y, Farella M, Mei L.

The use of images showing the severe consequences of biofilm accumulation enhanced the oral hygiene of patients treated with fixed appliances.

7 EFFECTIVENESS OF PLAQUE INDICATORS AND AIR POLISHING FOR THE SEALING OF PITS AND FISSURES

European Journal of Paediatric Dentistry 2010, 11(1) / Botti RH, Bossù M, Zallocco N, Vestri A, Polimeni A.

Disclosing agent is a must before cleaning pits and fissures. Air polishers ensure complete removal of plaque from the tooth before placing a sealing material.

8 IN VITRO TOOTH CLEANING EFFICACY OF ELECTRIC TOOTHBRUSHES AROUND BRACKETS

European Journal of Orthodontics 2010, 32(5) / Schätzle M, Sener B, Schmidlin PR, Imfeld T, Attin T.

9 THE EFFECT OF USE OF A SONIC POWER TOOTHBRUSH AND A MANUAL TOOTHBRUSH CONTROL ON PLAQUE AND GINGIVITIS

The Journal of Clinical Dentistry 2017 Mar;28(1 Spec No A):A1-6 / Delaurenti M, Ward M, Souza S, Jenkins W, Putt MS, Milleman KR, Milleman JL.

10 CLINICAL COMPARISON OF THE STAIN REMOVAL EFFICACY OF TWO AIR POLISHING POWDERS

European Journal of Dental Education 2017 Jul-Sep;11(3):370-375 / Shukla HR, Mathur A, Shetty N, Makhijani B, Manohar B.

The 40 µm sodium bicarbonate powder removed dental stains as efficiently as the 65-µm powder. Powder handling and patient acceptance were comparable between grain sizes of 65 and 40 µm.

11 CLINICAL OUTCOMES FOLLOWING SUBGINGIVAL APPLICATION OF A NOVEL ERYTHRITOL POWDER BY MEANS OF AIR POLISHING IN SUPPORTIVE PERIODONTAL THERAPY: a randomized, controlled clinical study

Quintessence International 2013 Nov-Dec;44(10):753-61 / Hägi TT, Hofmänner P, Salvi GE, Ramseier CA, Sculean A.

The new erythritol powder applied with an air-polishing device can be considered a promising modality for repeated instrumentation of residual pockets during supportive periodontal therapy.

12 BIOFILM REMOVAL AND ANTIMICROBIAL ACTIVITY OF TWO DIFFERENT AIR-POLISHING POWDERS: AN IN VITRO STUDY

Journal of Periodontology 2014, Nov;85(11) / Drago L, Del Fabbro M, Bortolin M, Vassena C, De Vecchi E, Taschieri S.

Biofilm removal with air polishing could be achieved with the combination of erythritol and chlorhexidine as it seems to be a good alternative to the traditional glycine treatment.

13 AIR POLISHING: A REVIEW OF CURRENT LITERATURE

The Journal of Dental Hygiene 2013, 87(4) / Graumann SJ, Sensat ML, Stoltenberg JL. The effect of air-powder polishing on hard and soft tissues, restorative materials, sealants, orthodontic appliances and implants, as well as health risks and contraindications to air polishing are discussed.

14 A NEW MULTIPLE ANTI-INFECTIVE NON-SURGICAL THERAPY IN THE TREATMENT OF PERI-IMPLANTITIS: A CASE SERIES

Minerva Stomatologica 2017, 66(6) / Mensi M, Scotti E, Calza S, Pilloni A, Grusovin MG, Mongardini C.

Within the limits of this study, the MAINST protocol showed improvement of clinical parameters for the treatment of peri-implantitis, which were maintained for up to 12 months.

15 A BIOFILM POCKET MODEL TO EVALUATE DIFFERENT NON-SURGICAL PERIODONTAL TREATMENT MODALITIES IN TERMS OF BIOFILM REMOVAL AND REFORMATION, SURFACE ALTERATIONS AND ATTACHMENT OF PERIODONTAL LIGAMENT FIBROBLASTS

PLoS One 2015 Jun 29;10(6):e0131056 / Hägi TT, Klemensberger S, Bereiter R, Nietzsche S, Cosgarea R, Flury S, Lussi A, Sculean A, Eick S.

Compared to hand instrumentation the application of ultrasonication and of air-polishing with erythritol prevents from substance-loss and results in a smooth surface with nearly no residual biofilm that promotes the reattachment of periodontal ligament fibroblasts.

16 AN IN VITRO COMPARISON OF THE EFFECTS OF VARIOUS AIR POLISHING POWDERS ON ENAMEL AND SELECTED ESTHETIC RESTORATIVE MATERIALS

The Journal of Clinical Dentistry 2014, 25(4) / Barnes CM, Covey D, Watanabe H, Simeich B, Schulte JR, Chen H.

Air polishing powders compatible with enamel are EMS glycine and EMS sodium bicarbonate powders.

17 A PARADIGM SHIFT IN MECHANICAL BIOFILM MANAGEMENT? SUBGINGIVAL AIR POLISHING: a new way to improve mechanical biofilm management in the dental practice

Quintessence International 2013, 44(7) / Sculean A, Bostendorff KD, Becker C, Bush B, Einwag J, Lanoway C, Platzer U, Schmage P, Schoeneich B, Walter C, Wennström JL, Flemmig TF.

Subgingival air-polishing with glycine powder is efficient, fast, comfortable and safe.

18 RANDOMIZED CONTROLLED TRIAL ASSESSING EFFICACY AND SAFETY OF GLYCINE POWDER AIR POLISHING IN MODERATE-TO-DEEP PERIODONTAL POCKETS

Journal of Periodontology 2012 Apr;83(4):444-52 / Flemmig TF, Arushanov D, Daubert D, Rothen M, Mueller G, Leroux BG.

The results indicate that supragingivally applied glycine powder air polishing is more efficacious in removing subgingival biofilm in moderate-to-deep periodontal pockets than scaling and root planing. Furthermore, full-mouth glycine powder air polishing may result in a beneficial shift of the oral microbiota and appears to be well tolerated.

19 SUBGINGIVAL AIR-POLISHING WITH ERYTHRITOL DURING PERIODONTAL MAINTENANCE: randomized clinical trial of twelve months

Journal of Clinical Periodontology 2014, 41(9) / Müller N, Moène R, Cancela JA, Mombelli A.

Repeated subgingival air-polishing reduced the number of pockets >4 mm similar to ultrasonic debridement. It was safe and induced less pain.

20 PENETRATION DEPTHS WITH AN ULTRASONIC MINI INSERT COMPARED WITH A CONVENTIONAL CURETTE IN PATIENTS WITH PERIODONTITIS AND IN PERIODONTAL MAINTENANCE

Journal of Clinical Periodontology 2008, 35(1) / Barendregt DS, Van der Velden U, Timmerman MF, Van der Weijden F.

In untreated periodontitis patients, the ultrasonic tip penetrated the pocket deeper than the pressure-controlled probe and the Gracey curette.

21 SUBGINGIVAL DEBRIDEMENT OF PERIODONTAL POCKETS BY AIR POLISHING IN COMPARISON WITH ULTRASONIC INSTRUMENTATION DURING MAINTENANCE THERAPY

Journal of Clinical Periodontology 2011 Sep;38(9):820-7 / Wennström JL, Dahlén G, Ramberg P.

This short-term study revealed no pertinent differences in clinical or microbiological outcomes between subgingival air polishing and ultrasonic debridement of moderate deep pockets in supportive periodontal therapy patients.

22 A CLINICAL COMPARISON OF THE EFFICACY AND EFFICIENCY OF TWO PROFESSIONAL PROPHYLAXIS PROCEDURES IN ORTHODONTIC PATIENTS

European Journal of Orthodontics 1999, 21 / Ramaglia L.

In orthodontic patients, use of air polishing is a lot more safer, efficient and effective to remove stains and dental plaque in comparison to rubber cup and pumice.

23 IN-VITRO STUDY OF SURFACE CHANGES IN FIXED ORTHODONTIC APPLIANCES FOLLOWING AIR POLISHING WITH CLINPRO™ PROPHY AND AIRFLOW®

Journal of Orofacial Orthopedics 2009, 70 / Benedict W, Shervin V, Dieter D.

AIRFLOW® is unproblematic due to minimal increase in friction. Use of glycine and sodium bicarbonate powders is suitable on metal and ceramic brackets. When plastic brackets are used, glycine is recommended due to its lower abrasiveness. Sodium bicarbonate causes greater roughness and subsequent plaque accumulation.

24 PAIN PERCEPTION DURING DEBRIDEMENT OF HYPERSENSITIVE TEETH ELICITED BY TWO ULTRASONIC SCALERS

Clinical Oral Investigations 2017, 21(5) / Müller S, Huber H, Goebel G, Wimmer G, Kapferer-Seebacher I.

Both ultrasonic devices showed very small pain intensities during debridement of highly hypersensitive teeth and can therefore be recommended for supportive periodontal therapy.

25 FDI - Promoting Oral Health Through Fluoride

FDI World Dental Federation, revised August 2017

26 EXPOSURE TIME OF ENAMEL AND DENTINE TO SALIVA FOR PROTECTION AGAINST EROSION: a study in vitro

Caries Research 2006, 40(3) / Wetton S, Hughes J, West N, Addy M.

Salivary pellicle offered proportionately greater protection to enamel than dentine. Cautiously extrapolating these in vitro data suggests that pellicle should offer erosion protection to individuals who imbibe acidic drinks at frequencies of 1 h or less.

27 ADHA - Clinical Practice Guidelines for Recall and Maintenance of Patients with Tooth-Borne and Implant-Borne Dental Restorations.

American Dental Hygienists' Association / Brida AS, Daubert DM, Garcia LT, Kosinsky TF, Nenn CA, Olsen JA, Platt JA, Wingrove SS, Chandler ND, Curtis DA

Baseline for recall regimen, professional maintenance regimen and at-home maintenance regimen for patients with tooth- and implant-borne removable and fixed restorations.

28 DENTAL RECALL: recall interval between routine dental examinations – appendix 6

National Collaborating Centre for Acute Care. 2004 Oct. A Azaripour et al

Guideline to select the appropriate recall interval for an individual patient.

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"I FEEL
GOOD"

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