

# GUIDED **BIOFILM** THERAPY

CARIES AND PERIO PREVENTION AND MAINTENANCE



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

**EMS**   
MAKE ME SMILE.

# THE MINIMALLY INVASIVE WAY



# THE NEW AND MODERN WAY

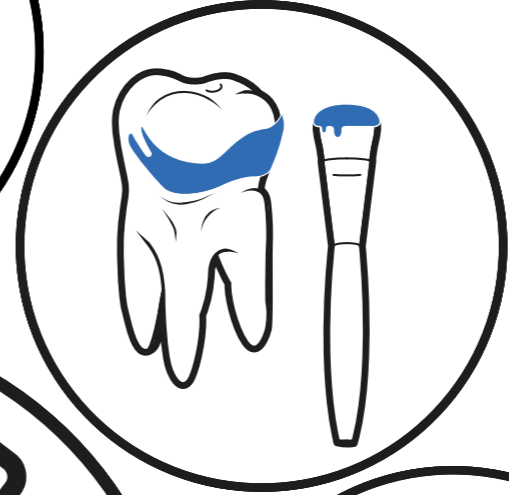


# THE 8 STEPS OF THE GBT PROTOCOL



## 08 RECALL

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

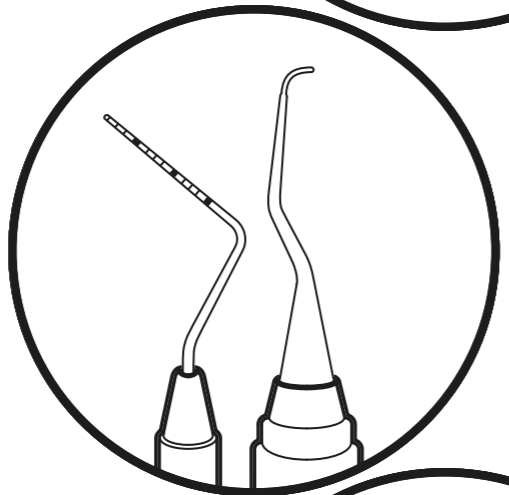


## 01 DIAGNOSE

- PROBE AND SCREEN EVERY CLINICAL CASE
- ▶ Healthy teeth, caries, gingivitis, periodontitis
  - ▶ Healthy implants, mucositis, peri-implantitis
  - ▶ Start by rinsing with BacterX mouthwash

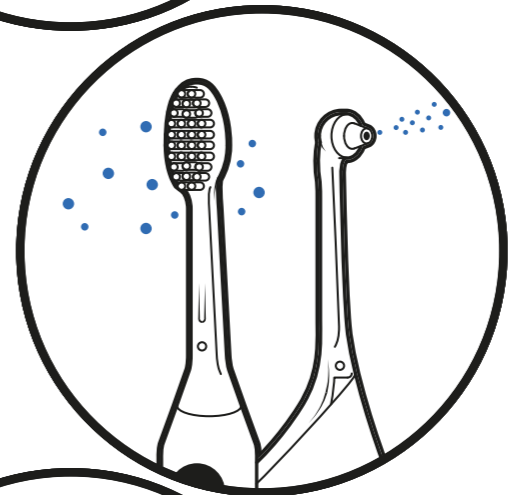
## 07 CONTROL

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



## 02 DISCLOSE

- MAKE BIOFILM VISIBLE
- ▶ Show patient disclosed biofilm
  - ▶ The color will guide the biofilm removal
  - ▶ Once biofilm is removed, calculus is easier to detect



## 03 MOTIVATE

- RAISE AWARENESS AND TEACH
- ▶ Emphasize on prevention
  - ▶ Instruct your patients on oral hygiene
  - ▶ Recommend Sonicare toothbrushes and interdental brushes or Airfloss Ultra

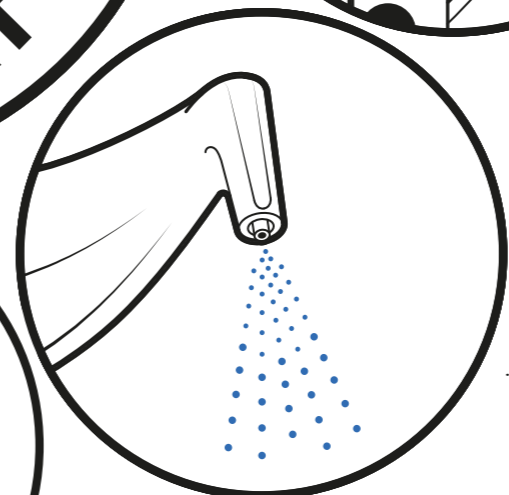
## 06 PIEZON®

- REMOVE REMAINING CALCULUS
- ▶ Use the minimally invasive EMS PS instrument supra- and subgingivally up to 10 mm
  - ▶ Clean > 10 mm pockets with mini curette
  - ▶ Use EMS PI instrument around implants and restorations



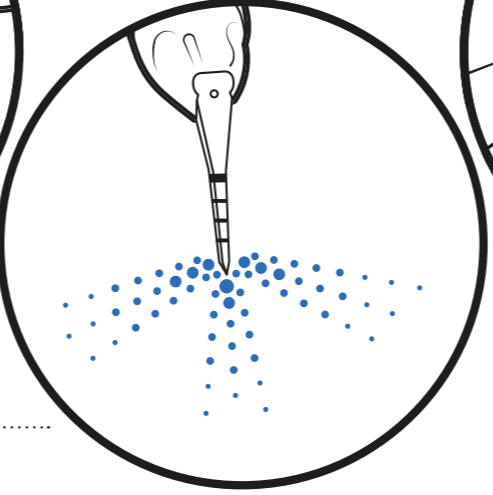
## 04 AIRFLOW®

- REMOVE BIOFILM, STAINS AND YOUNG CALCULUS
- ▶ Natural teeth, restorations and implants
  - ▶ Remove biofilm supra- and subgingivally up to 4 mm using PLUS 14 µm powder
  - ▶ Remove remaining stains on enamel using CLASSIC COMFORT powder.
  - ▶ Also remove biofilm from gingiva, tongue and palate



## 05 PERIOFLOW®

- REMOVE BIOFILM IN >4 TO 9 MM POCKETS
- ▶ Use PLUS Powder on teeth and implants
  - ▶ Also remove biofilm interdentally
  - ▶ Use depth marked PERIOFLOW® nozzle



# WHY GBT IS A...

- ▶ Dental biofilm is the main etiologic factor for caries, periodontal and peri-implant infections. Periodontitis can increase the risk of systemic diseases, such as cardiovascular and respiratory disease, arthritis or diabetes.
- ▶ Regular oral hygiene, combined with professional measures keeps the biofilm under control – for a better oral and systemic health. Axelsson and Lindhe established preventive dentistry in the 1970<sup>ies</sup> with studies and clinical protocols based on prophylaxis in “recall hours”.<sup>→1-2</sup>
- ▶ GBT follows the recommendations on Professional Mechanical Plaque Removal (PMPR) and Oral Hygiene Instructions (OHI) for Home Care of the European Federation of Periodontology (EFP).<sup>→3-5</sup>
- ▶ “Periodontal Health – for a better life!”

## DENTAL PROPHYLAXIS IS TRADITIONALLY PERFORMED IN THIS ORDER:

- 1** Removal of calculus with hand instruments and scalers, which may be painful and invasive and scratch dental and implant surfaces.
- 2** Polishing with rotary rubber cups and brushes, which is time-consuming and often messy. Many areas cannot be reached and the gingiva will be affected mechanically. Dental hygienists and assistants know that traditional cleaning can be a painful experience. For this reason, patients may not return for follow-up appointments. Now, almost fifty years later it is time for change.

1. Axelsson P. Preventive Materials, Methods and Programs: Quintessence Publishing, 2004. → 2. Axelsson P, Nyström 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:S9-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



## GUIDED BIOFILM THERAPY IS THE NEW AND STATE-OF-THE-ART APPROACH

- 1** Before removal the biofilm is always disclosed with a dye solution. Then biofilm and young calculus are easily removed with AIRFLOW<sup>®</sup> and PERIOFLOW<sup>®</sup> – supra and subgingivally.
  - 2** If needed this is followed by debridement with PIEZON<sup>®</sup> PS No Pain piezoceramic instruments.
- ▶ Guided Biofilm Therapy means that the clinician is guided by the disclosed biofilm during professional tooth cleaning procedures.
  - ▶ Guided Biofilm Therapy is truly minimally invasive and reduces the need of hand and sonic/ ultrasonic instrumentation. It is safe, effective and gentle to teeth and soft tissues, implants and restoratives.<sup>→1-4</sup>
  - ▶ GBT is also very comfortable for patients and practitioners.<sup>→5</sup> It is efficient and time saving.<sup>→6</sup> This also applies to primary caries and perio prevention in children and teenagers.
  - ▶ GBT is part of a comprehensive preventive concept – to preserve your patients’ oral health – and to make the patients feel good.

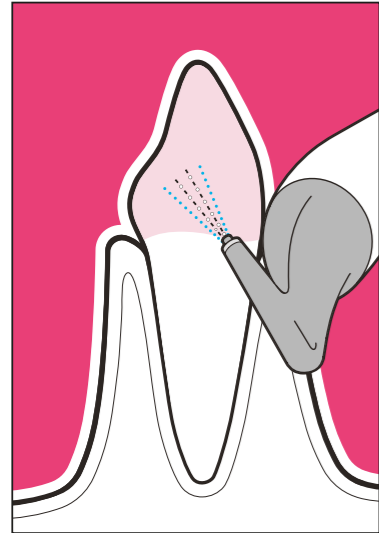
## GBT IS A CLINICALLY SOUND AND PATIENT-ORIENTED CONCEPT

- ▶ Since 1982 EMS has provided dental practices all over the world with AIRFLOW<sup>®</sup> air polishing and PIEZON<sup>®</sup> PS No Pain piezoceramic scaling technology
- ▶ In 2003 EMS invented PERIOFLOW<sup>®</sup> for subgingival biofilm removal – in combination with the AIRFLOW<sup>®</sup> powder PERIO on a glycine basis.<sup>→7</sup> This was an important paradigm shift in perio and preventive dentistry.
- ▶ In 2012 EMS added the high-tech erythritol-based AIRFLOW<sup>®</sup> powder PLUS with a particle size of only 14 µm.
- ▶ Guided Biofilm Therapy is based on the clinically proven technologies invented by EMS. It was developed in cooperation with highly respected and experienced periodontologists, cariologists and dental hygienists.
- ▶ GBT is a systematic, predictable, risk-oriented and user-friendly treatment which can be adapted to all age groups and each individual patient.

1. Wennström 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.

# WHAT GBT

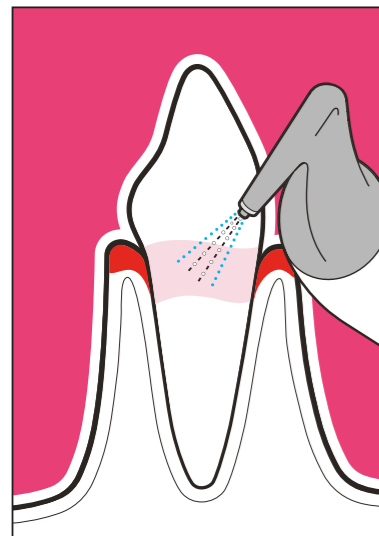
# STANDS FOR



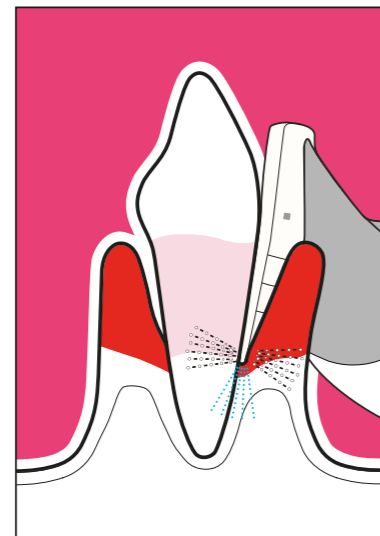
ABOVE CEMENTO-ENAMEL JUNCTION

**AIRFLOW® POWDER PLUS IS THE FIRST HIGH TECH POWDER WHICH REMOVES BIOFILM AND YOUNG CALCULUS FROM:**

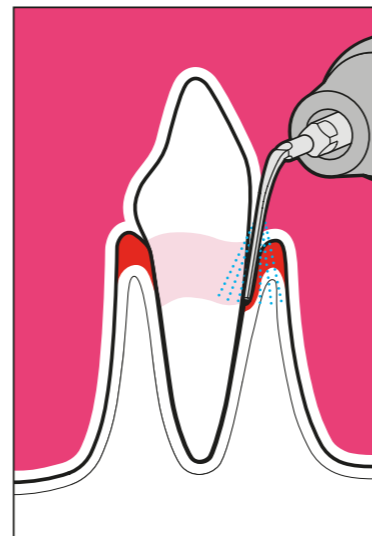
- ▶ ENAMEL
- ▶ DENTINE
- ▶ SOFT TISSUES
- ▶ TONGUE AND PALATE
- ▶ PRIMARY TEETH
- ▶ ORTHODONTIC APPLIANCES
- ▶ IMPLANT SURFACES
- ▶ RESTORATIONS



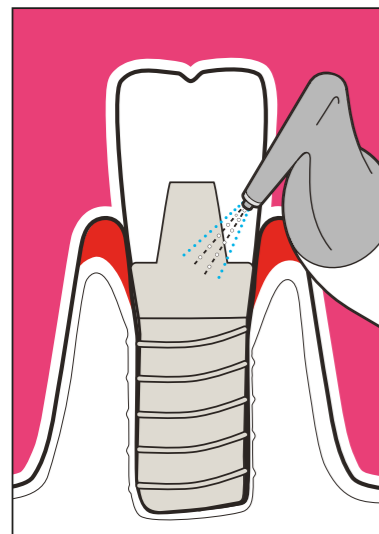
SUBGINGIVAL UP TO 4MM



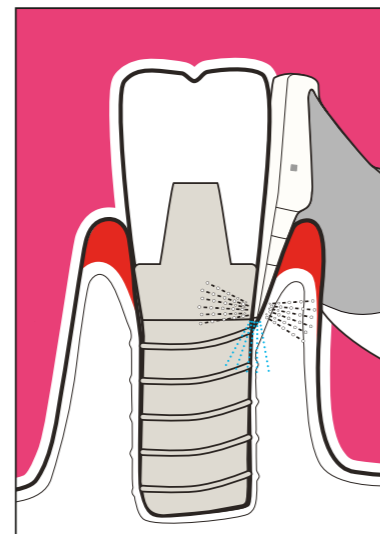
SUBGINGIVAL UP TO 9MM



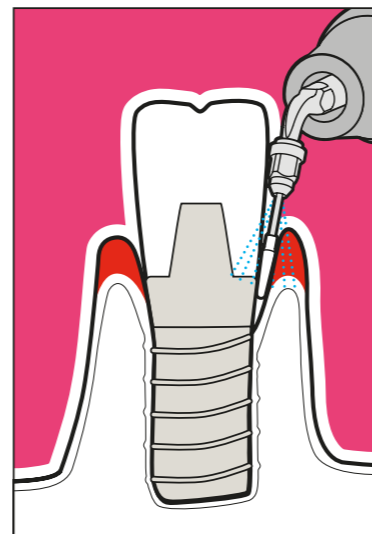
SUPRA AND SUBGINGIVAL UP TO 10MM.



SUBGINGIVAL UP TO 4 MM AROUND IMPLANTS



SUBGINGIVAL UP TO 9 MM AROUND IMPLANTS



AROUND IMPLANT ABUTMENTS

## PRESERVE HEALTHY TEETH



▶GBT steps 01 Diagnose and 02 Disclose, followed by AIRFLOW®, enable complete biofilm removal on teeth and restorations. AIRFLOW® preserves dentin and enamel in permanent and primary teeth.

▶ NO BIOFILM = NO CARIES

## DETECT CARIES AT EARLY STAGE



▶GBT step 07 Control provides more accurate and precise early caries detection. Caries often develops in areas not accessible by rubber cups or brushes, including interdental areas, fissures and fixed orthodontic appliances. AIRFLOW® cleans it all - and allows fluoride to reach the tooth.

▶ NO BIOFILM = BETTER DIAGNOSIS

## PRESERVE RESTORATIONS



▶GBT step 04 AIRFLOW® minimizes mechanical instrumentation, helping to preserve restorations for a longer time. AIRFLOW® powder PLUS is minimal-invasive to restorative materials.

▶ GBT = GENTLE ON RESTORATIONS

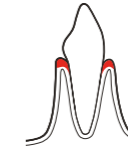
## PRESERVE HEALTHY SOFT TISSUES



▶GBT step 04 AIRFLOW® removes biofilm in a minimally invasive way. AIRFLOW® powder PLUS has been proven to be gentle on the gingiva and other soft tissues, while rotary and hand instruments may damage them.

▶ GBT = GENTLE ON SOFT TISSUES

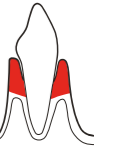
## TREAT GINGIVITIS



▶GBT step 04 AIRFLOW® easily and safely removes biofilm and young calculus from coronal surfaces and the sulcus. In the case of hard calculus the PIEZON® PS No Pain piezoceramic scaler (step 06) provides minimally invasive debridement.

▶ GBT = EFFICIENT AND PATIENT-FRIENDLY

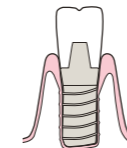
## TREAT RESIDUAL POCKETS



▶GBT step 05 PERIOFLOW® with powder PLUS maximally preserves cementum and dentin in periodontal maintenance - SPT. It removes subgingival bio-film more efficiently than hand instruments. PIEZON® PS No Pain provides minimally invasive hard calculus debridement.

▶ GBT = PRESERVE CEMENTUM

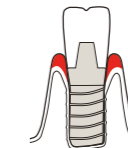
## PROTECT IMPLANT SURFACES



▶GBT steps provide a minimally invasive method to protect implant surfaces. 04 AIRFLOW® and 05 PERIOFLOW® with powder PLUS are gentle on implant surfaces, while metal instruments may scratch them.

▶ GBT = IMPLANT PROTECTION

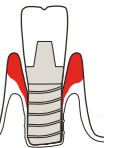
## TREAT MUCOSITIS



▶GBT steps 04 AIRFLOW®, then 05 PERIOFLOW® effectively prevent and treat mucositis. When used with powder PLUS, this protocol is efficient and minimally invasive to peri-implant tissues

▶ GBT = GENTLE ON PERI-IMPLANT TISSUES

## TREAT PERI-IMPLANTITIS



▶GBT step 05 PERIOFLOW® with powder PLUS tends to control peri-implant bleeding better than alternative methods. In the case of hard calculus the PIEZON® PI No Pain piezoceramic scaler provides minimally invasive debridement.

▶ GBT = REDUCED INFLAMMATION

# THE ORIGINAL.

## THE AIRFLOW® PROPHYLAXIS MASTER



The original from the Inventor.  
Guaranteed Swiss Precision and superb design.  
Reliability and know-how since 1981.

# THE MASTER.

## THE INDEPENDENT AIRFLOW® STATION



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



# 04 AIRFLOW®

**AIRFLOW® REMOVES BIOFILM, STAINS AND YOUNG CALCULUS. CLEANS AND POLISHES IN ONE SINGLE PROCEDURE.**

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



**DOUBLE SPRAY**  
Powder inside  
Rinsing around

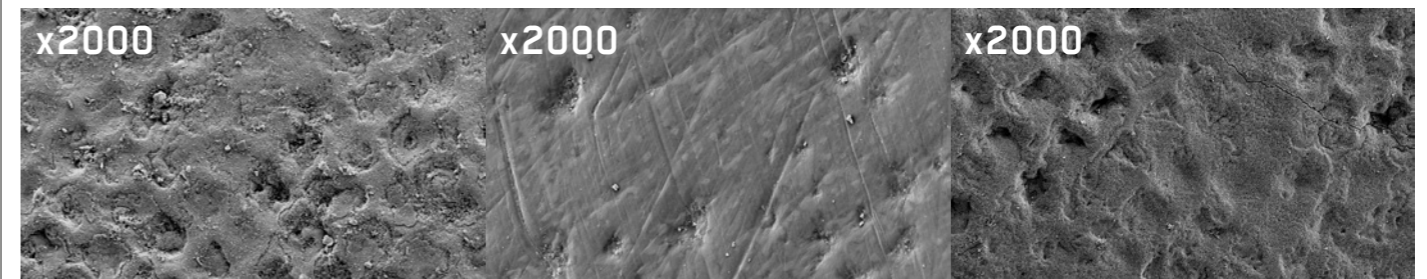
With rubber cups and polishing paste it is impossible to clean:

- ▶ Interdental spaces, especially in patients with mal-aligned teeth
- ▶ Exposed tooth necks
- ▶ Pits and fissures
- ▶ Orthodontics brackets

AIRFLOW® will remove biofilm and young calculus in all these situations. It also cleans the gingival or peri-implant sulcus to a depth of 4mm.→<sup>2-4</sup> At the same time AIRFLOW® is fast, efficient and comfortable for the patient.

1. O'Hehir TE. dentaltown.com 2014(1):94-96. → 2. Patil SS, et al. J Intern Soc Prev & Commn Denti2015;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.

# MINIMALLY ABRASIVE POWDER



**TOOTH ENAMEL SURFACE WITH RESIDUAL BIOFILM BEFORE CLEANING.**

▶ The enamel prisms of the natural tooth enamel are easily recognizable – The photo shows the remnants of the bacteria killed off with sodium hypochlorite.→<sup>5</sup>

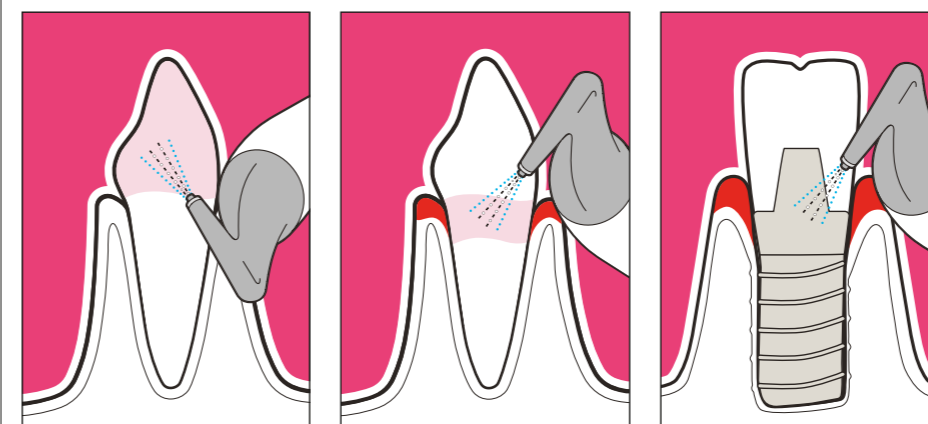
**TOOTH ENAMEL AFTER POLISHING WITH LOW-ABRASIVE PASTE (RDA 27).**

▶ The vital enamel prisms have been polished away. Pastes have caused scratches. Biofilm has been spread into natural crevices.  
▶ Overall abrasive pastes cause a loss of valuable enamel. No improvement of the dental surface.→<sup>5</sup>

**TOOTH ENAMEL AFTER CLEANING WITH AIRFLOW® POWDER PLUS**

▶ The biofilm has been completely 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 and there is no need for polishing with (abrasive) pastes. This saves enamel – and treatment time.→<sup>5</sup>

5. Camboni S, Donnet M. The Journal of clinical dentistry 2016;27:13-18.



ABOVE CEMENTO-ENAMEL JUNCTION

SUBGINGIVAL UP TO 4MM

SUBGINGIVAL UP TO 4MM AROUND THE IMPLANT



AIRFLOW® PLUS

# AIRFLOW® POWDERS

**AIRFLOW® POWDER PLUS IS THE FIRST HIGH TECH POWDER WHICH REMOVES BIOFILM AND YOUNG CALCULUS IN A MINIMALLY INVASIVE WAY FROM:**

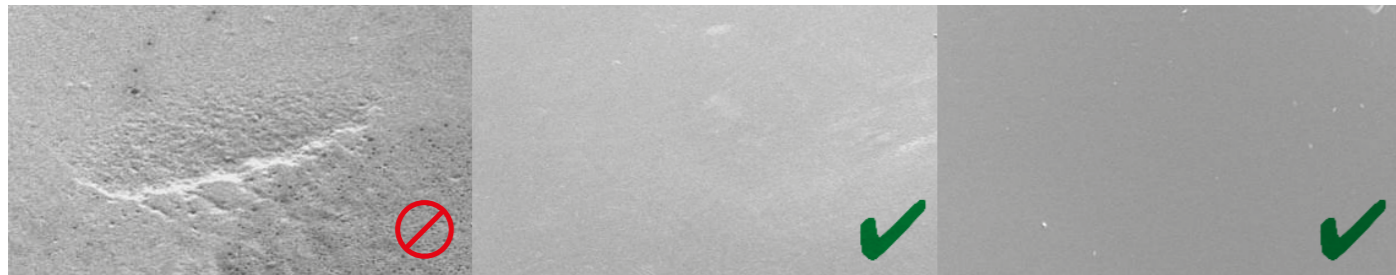
- ▶ Enamel
- ▶ Dentine
- ▶ Soft tissues
- ▶ Tongue and palate
- ▶ Primary teeth
- ▶ Orthodontic appliances
- ▶ Implant surfaces
- ▶ Restorations



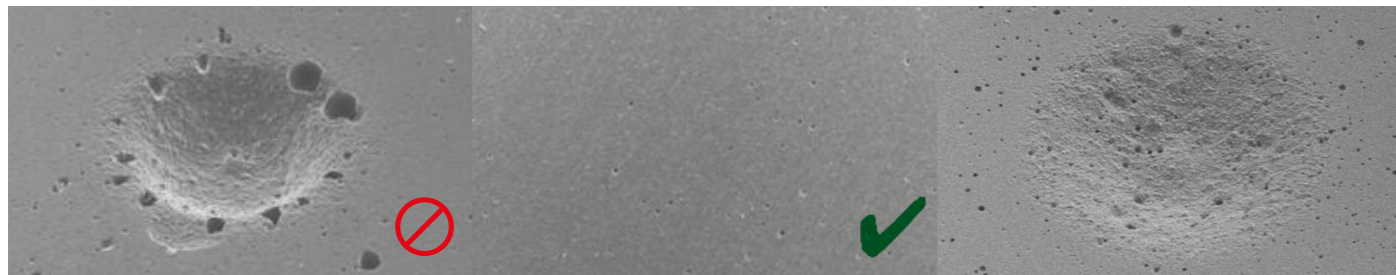
**COMPETITOR CALCIUM CARBONATE**

**EMS POWDER PLUS ERYTHRITOL**

**EMS SODIUM BICARBONATE<sup>→2</sup>**



**EFFECT OF 5 SEC AIR POLISHING ON HUMAN ENAMEL<sup>→1,2</sup>**



**EFFECT OF 5 SEC AIR POLISHING ON GLASS IONOMER<sup>→1,3</sup>**

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

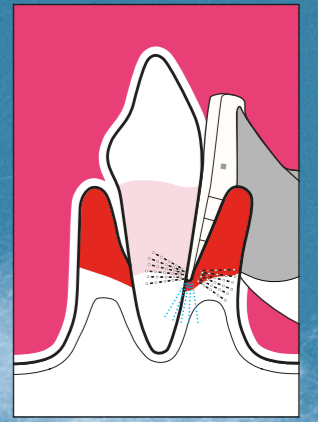
# 05 PERIOFLOW®



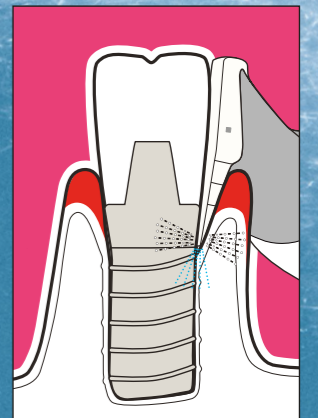
**PERIOFLOW® AND POWDER PLUS ARE INDICATED FOR**

- ▶ Subgingival biofilm removal (debridement) in >4 to 9 mm\* periodontal<sup>→1</sup> and peri-implant<sup>→2</sup> pockets
- ▶ Initial and follow-up (SPT) periodontal therapy<sup>→3</sup>
- ▶ Prevention of mucositis / peri-implantitis<sup>→4</sup>
- ▶ Initial and follow-up treatment of mucositis / peri-implantitis<sup>→5</sup>

**3  
POWDER  
SPRAYS  
+ water rinsing**



**SUBGINGIVAL UP TO 9MM**



**SUBGINGIVAL UP TO 9MM  
AROUND IMPLANTS**

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



# 06 PIEZON® PS NO PAIN

**AFTER USING AIRFLOW®, REMOVE REMAINING SUPRA AND SUBGINGIVAL CALCULUS WITH THE PIEZON® NO PAIN\* PS INSTRUMENT.**

►Linear movement of the PS Instrument = no damage to tooth surfaces and soft tissues. Minimally invasive to root cementum. Dynamic power setting.

►“EMS Perio Slim instrument had the best interproximal and subgingival access.”\*\*

\*No PAIN: when used in accordance with EMS instructions and/or the training by the Swiss Dental Academy.

\*\*CRA, Clinical Research Associates, USA

# THE INSTRUMENT



COURTESY OF PROF. MAGDA MENSI

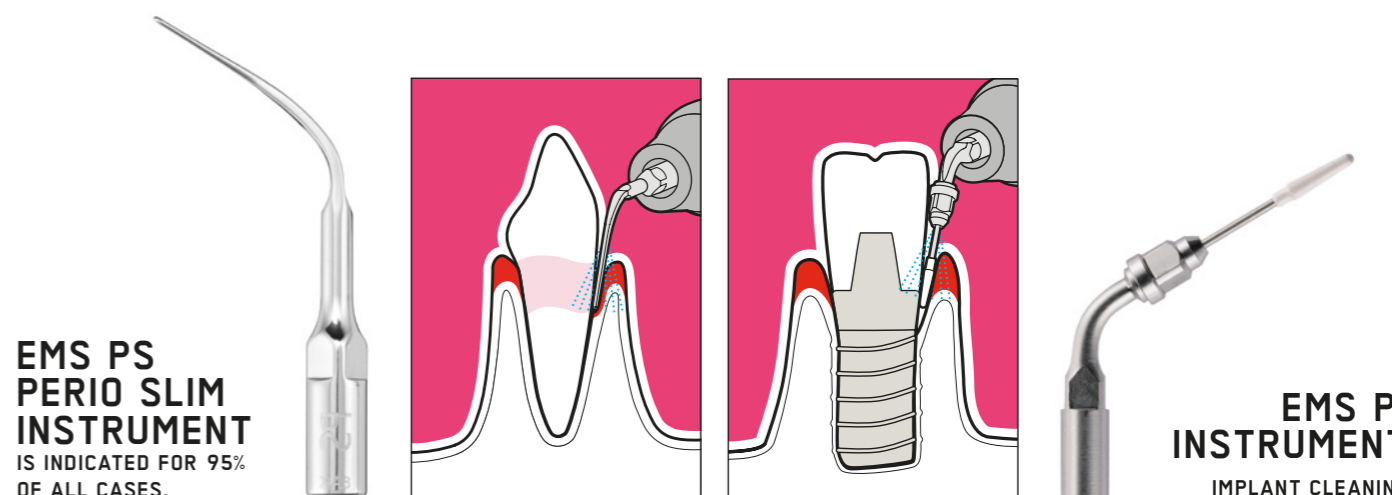
## SUBGINGIVAL CALCULUS REMOVAL WITH EMS PIEZON® PS INSTRUMENT



## ACCURATE CARIES DIAGNOSIS



COURTESY OF DR. WOLFGANG GUTWERK



# GBT IS COOL...\*



“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**

“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**

\*“AIRFLOW® is cool – super cool.”  
**MORRIS MEYER (9 YEARS)**

“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**

“I do not want to do without Airflow technology or Airpolishing 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 NATTERER**

“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. NoPain with PS tip, Plus powder) of EMS.”

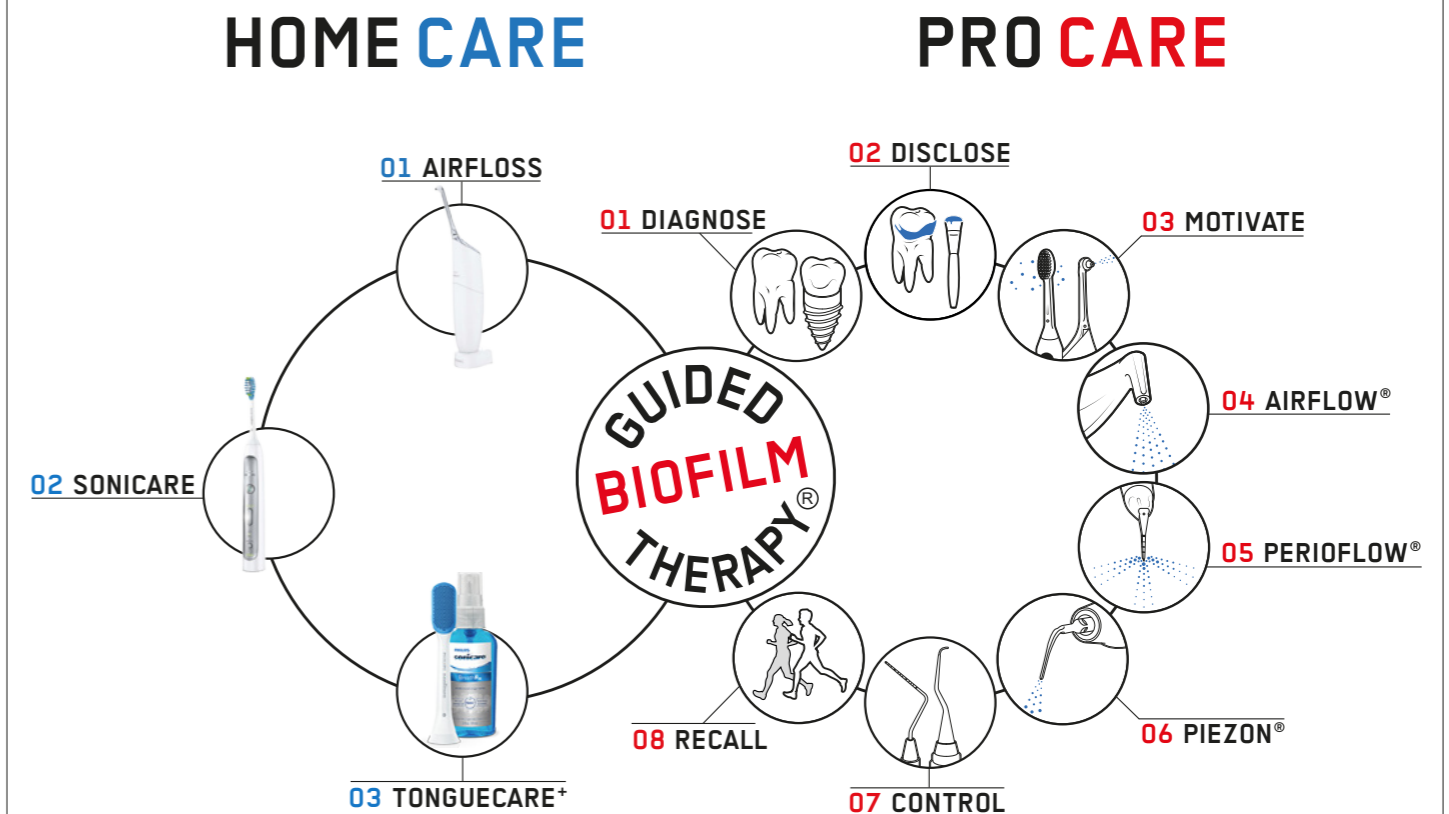
**DR. NADINE STRAFELA-BASTENDORF**

# ALSO FOR HOME CARE



## EMS AND PHILIPS COOPERATE

- The European Federation of Periodontology (EFP) Consensus: Combining home and professional care is a must to preserve natural teeth and implants.
- EMS and Philips have harmonized their concepts to optimize oral care.



## EMS RECOMMENDS PHILIPS SONICARE BECAUSE OF ITS SONIC SPEED AND ITS MINIMALLY INVASIVE EFFICIENCY.

- For interdental cleaning Philips AirFloss may be an option. It is an easy-to-use device based on air-water micro-burst technology for interdental areas. AIRFLOSS – as efficient as Dental Silk but easier to use.
- Philips Sonicare Tonguecare – effective cleaning of the tongue.

**PHILIPS**

**EMS**

# SMILE IS IN THE AIR

“I FEEL  
GOOD”

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Electro Medical Systems.  
[ems-dental.com](http://ems-dental.com)

**EMS**   
MAKE ME SMILE.