

# GUIDED BIOFILM THERAPY

CARIES AND PERIO PREVENTION AND MAINTENANCE



NEW  
EDITION  
2019

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

**EMS**   
MAKE ME SMILE

# MINIMALLY INVASIVE MAXIMALLY PREVENTIVE



**NO PAIN**<sup>1</sup>

AIRFLOW® +  
PERIOFLOW® +  
PIEZON PS® +

1. MAKE BIOFILM VISIBLE
2. AIRFLOW® FIRST
3. PS INSTRUMENT FOR REMAINING CALCULUS
4. LESS POWDER 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"**

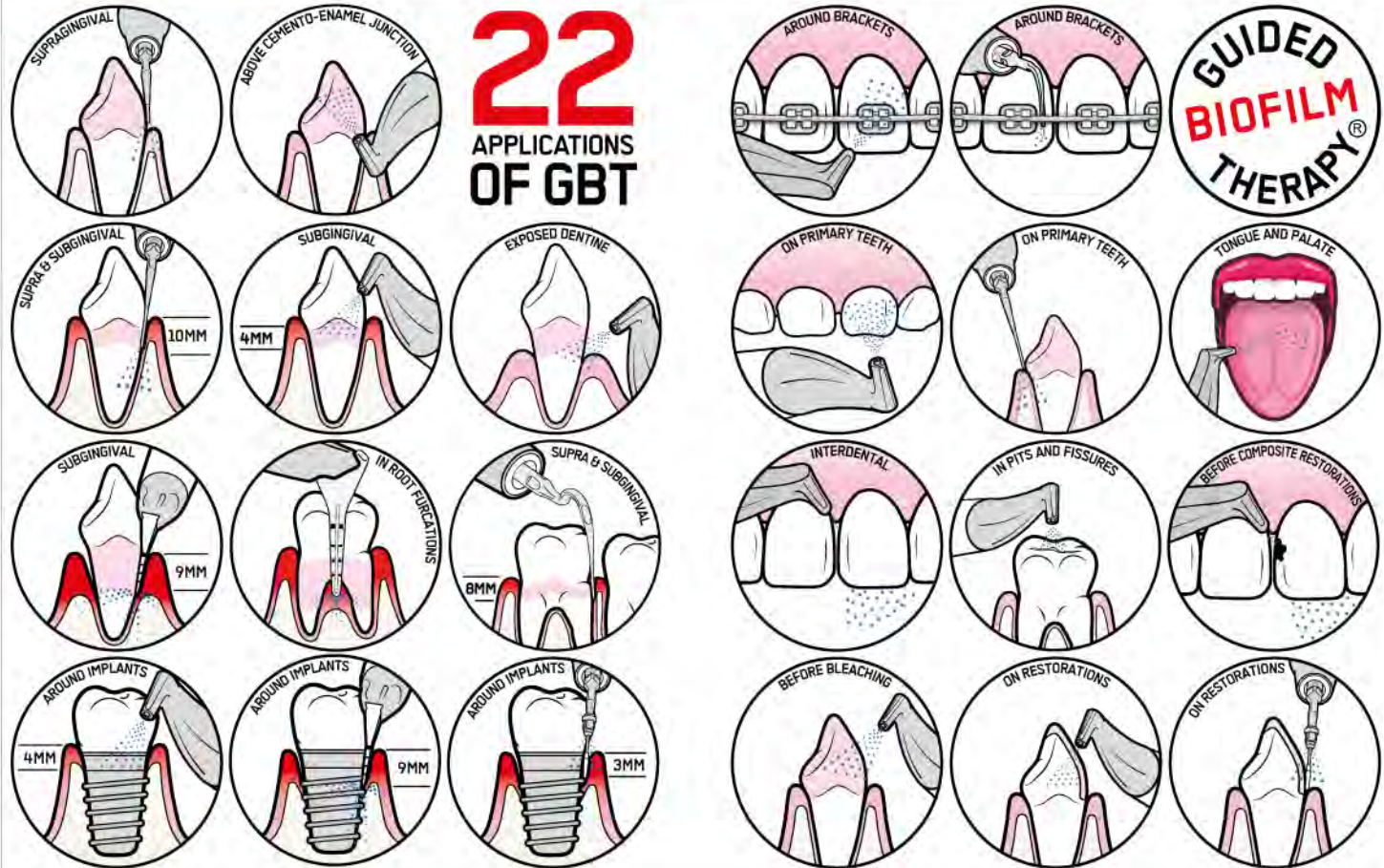
- ▶ ONLY THE VERY BEST FOR MY PATIENTS
- ▶ ONLY THE SWISS ORIGINALS



# GBT SAVES TEETH, IMPLANTS AND MUCH MORE



**22**  
APPLICATIONS  
OF GBT



# THE GBT COMPASS AND ITS 8-STEP PROTOCOL



## 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®

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



## 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 14 µm Powder
- ▶ Also remove biofilm from gingiva, tongue and palate
- ▶ Remove remaining stains on enamel using AIRFLOW® CLASSIC Comfort Powder



# THE AIM OF GBT IS

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



## 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



BEFORE DISCLOSING



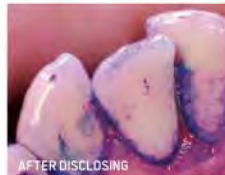
AFTER DISCLOSING



AFTER GBT



BEFORE DISCLOSING



AFTER DISCLOSING



AFTER GBT

Photos: Courtesy, Prof. Magda Mensi

## CARIES DETECTION

Accurate caries detection requires clean teeth. Here, the EMS Biofilm Discloser shows the presence of biofilm, interdental 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.



BEFORE DISCLOSING



AFTER DISCLOSING



AFTER GBT

Photos: Courtesy, Beverly Watson

## 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.



AFTER DISCLOSING



AIRFLOW®



PERIOFLOW



PIEZON®

Photos: Courtesy, Prof. Magda Mensi

## 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.



Photos: Courtesy, Dr. Gleb Assev

## 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.



Photos: Courtesy, Dr. Gleb Assev

## 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.



Photos: Courtesy, Prof. Mapla Messa

## 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.





# WHY GBT IS THE...

# GAME CHANGER



- ▶ 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".<sup>1-2</sup>
- ▶ 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).<sup>3-5</sup>
- ▶ "Periodontal Health for a Better Life!"

## PROFESSIONAL TOOTH CLEANING PATIENTS DO NOT LIKE IT AND CAN BE A PAINFUL EXPERIENCE 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.

## 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.<sup>1-4</sup>
- 5 GBT is very comfortable for patients and practitioners.<sup>5</sup> It is efficient and timesaving.<sup>6</sup> This also valid for primary caries and perio prevention in children and teenagers.

## SMILE IS IN THE AIR



- 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 sealing 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. 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 20 years of maintenance. *Journal of Clinical Periodontology* 2004;31:743-757. | 3. Tonetti MS, Chapple ILC, Jansen S, Sanz M. Primary and secondary prevention of periodontal and peri-implant disease. *Journal of Clinical Periodontology* 2015;42:S1-S4. | 4. Tonetti MS, Eickholz J, Jansen JA, Papapanou P, van der Velden L, Armitage G, et al. Principles in prevention of periodontal disease. *Journal of Clinical Periodontology* 2015;42:S5-S11. | 5. Sanz M, Baumer A, Dalupelli N, Dommisch H, Faccina R, Koyama E, et al. Effect of professional mechanical plaque removal on secondary prevention of periodontitis and the compliance of surgical and periodontal preventive measures. *Journal of Clinical Periodontology* 2015;42:S214-S220.

1. Wenstrom JL, Dahlin 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. Rana V, Mehrota A, Arora T, et al. In vivo cleaning potential of three implant debridement methods: Simulation of the non-surgical approach. *Clinical Oral Implants Research* 2017;28:151-155. | 3. Bühler J, Anagnostou M, Weiger R, Walter C. A systematic review on the effects of air polishing devices on oral tissues. *International Journal of Dental Hygiene* 2016;14:35-28. | 4. Barnes CM, Casey D, Watanabe H, et al. An in vitro comparison of the effects of various air polishing powders on enamel and selected aesthetic restorative materials. *The Journal of Clinical Dentistry* 2011;25:76-87. | 5. Sakami M, Sasaki M, Mitsu D, 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;79:1033-1040. | 6. O'Hair JE. How subgingival air polishing will turn dental hygiene upside down. Interview with Prof. Dr. Thomas Flemmig. *dentaltown.com* 2014;94:16. | 7. Fleming TF, Arushanov D, Dabbert J, et al. Randomized controlled trial assessing efficacy and safety of glycine powder air polishing in moderate-to-deep periodontal pockets. *Journal of Periodontology* 2012;83:44-52.

# PROBABLY THE **BEST** PROFESSIONAL

# TOOTH CLEANING **EVER...**



## 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 44 year old patient has a significant lack of oral hygiene. Disclosing agent reveals massive subgingival biofilm.

Courtesy: Dr. Glibor Jovanovic

## 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.

## 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.

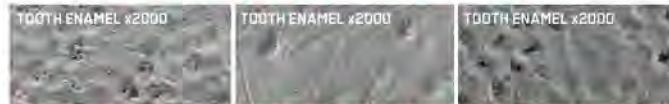


### THE GLASS PLATE TEST:

Touch the glass plate with the PS instrument in 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.<sup>1</sup>
- ▶ 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.<sup>1</sup>
- ▶ 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.<sup>1</sup>

<sup>1</sup> Carlsson S, Dornat M. The Journal of Clinical Dentistry. 2016;27:15-18.



# 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 access<sup>1</sup>
- ▶ Crowded teeth
- ▶ Exposed dentine

### SUBGINGIVAL

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

### ORTHODONTICS

- ▶ Around orthodontic brackets



<sup>1</sup>Clinical Research Associates, Newketter.

# THE SWISS ORIGINAL.

# THE SWISS MASTER.



## 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 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.**

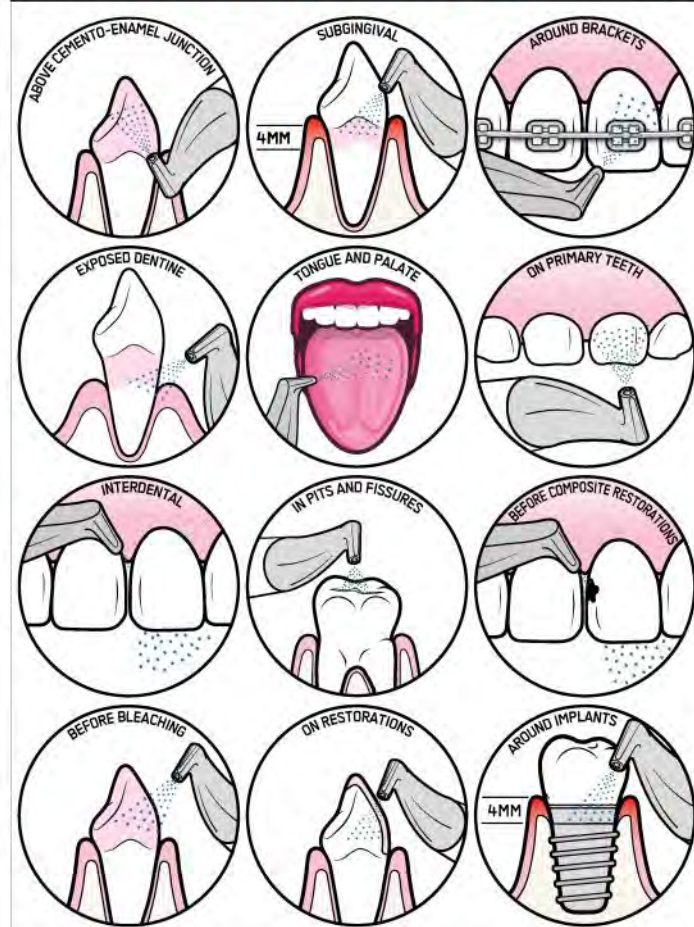
- ▶ After the use of AIRFLOW® no extra polishing with rubber cups/paste is necessary any more.
- ▶ Dental practices using AIRFLOW® and GBT have more and happier recall patients.
- ▶ Professional prophylaxis is becoming an important economic factor.<sup>1</sup>



- ▶ AIRFLOW® removes biofilm and early 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.
- ▶ Fine tune the air pressure/power for all clinical situations.

1. O'Neil TC. *dentaltown.com* 2014;19:496. | 2. Patel SS, et al. *J Intern Soc Prev & Communit Dent* 2015;6:457-462. | 3. Fleming TF, et al. *J Periodontol* 2007;78:1002-3010. | 4. Bötti 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 study<sup>1</sup> 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.<sup>2</sup>

► 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.



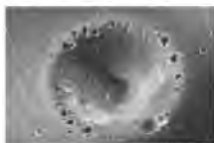
OSSPRAY  
CALCIUM SODIUM  
PHOSPHOSILICATE<sup>1</sup>

EMS AIRFLOW® PLUS  
POWDER ERYTHRITOL<sup>2</sup>

EMS SODIUM  
BICARBONATE<sup>3</sup>



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, complementary 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 Formula 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-0B2	DV-04B	DV-04B/ 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	-9.1	-8.1	-6	-6	
Teeth	Stains and early calculus	✓	✓	✓	✗	
	Enamel	✓	✓	✓	✓	
	Enamel white spots	✓	✗	✗	✗	✓
	Pits and fissures	✓	✗	✗	✗	✗
Soft tissues	Dentine	✓	✗	✗	✗	
	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 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

**AIR-FLOW® PLUS**  
SUB + SUPRAGINGIVAL  
EMIS

1. Sculhan A, et al. Quintessence Int 2013;44:475-477. | 2. Schwarz F, et al. Quintessence Int 2016;47:293-296. | 3. Flemmig TP, et al. J Periodontol 2012;83:444-452. | 4. Muller N, et al. J Clin Periodontol 2014;41:883-885. | 5. Riben-Grundstrom C, et al. J Clin Periodontol 2015;42:462-468

# FIRST TO GO SUBGINGIVAL



## NEW PERIOFLOW® NOZZLE

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

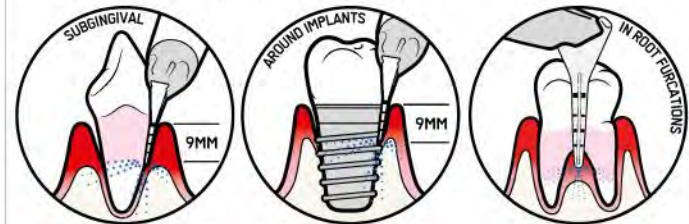
EMS' main concern was to limit risks of emphysema.

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 PAIN<sup>1</sup> 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.<sup>2</sup>
- ▶ 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 MENSÍ



**CALCULUS REMOVAL WITH EMS PIEZON® PS INSTRUMENT**



## PS - THE ONE AND ONLY





# 07 CARIES CHECK

# AND EARLY TREATMENT



## CARIES DETECTION REQUIRES CLEAN TEETH



The following dental surfaces are most at risk for caries<sup>1,2</sup>:

- 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

## 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<sup>3,2</sup> 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 TO IMPROVE ORAL HEALTH



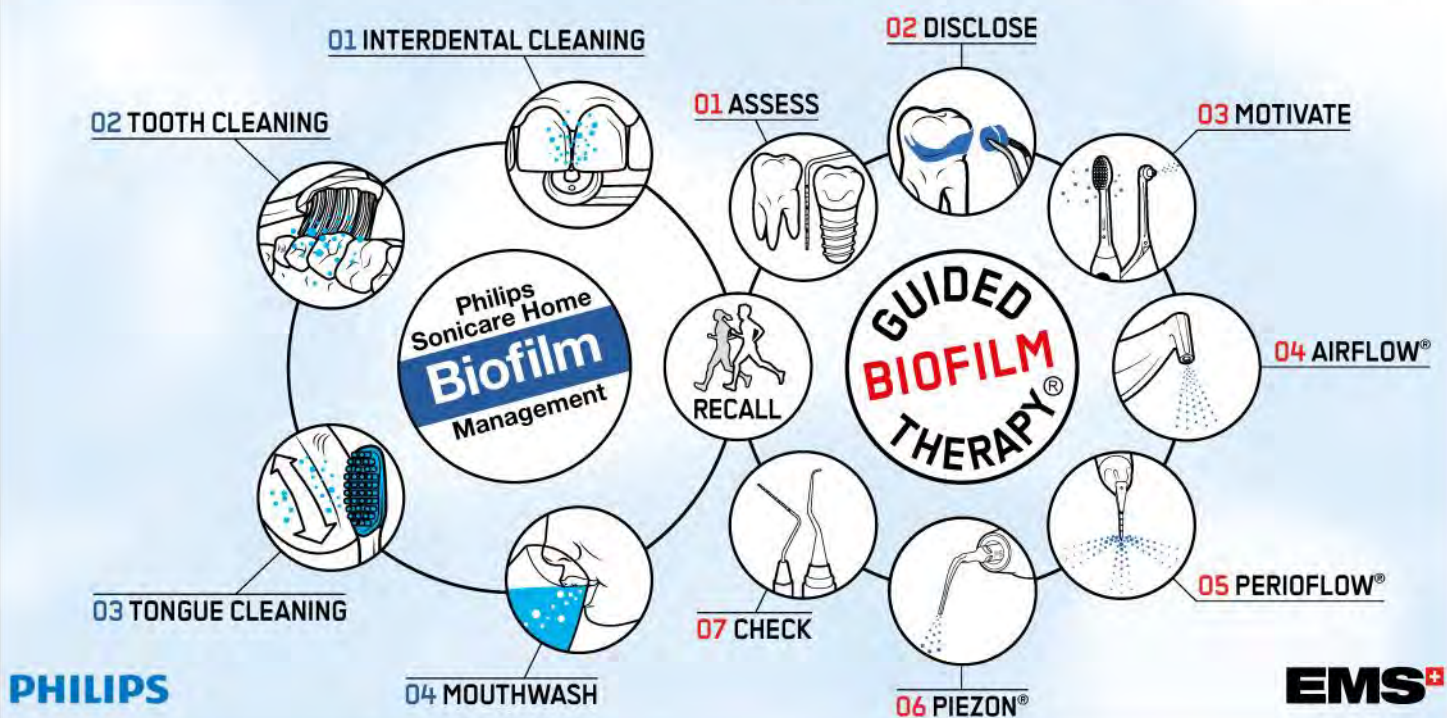
► Philips and EMS have decided to combine forces to improve the oral health of patients as any successful Prophylaxis is based on two pillars: Homecare and Professional Oral Care.

► 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.

► 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...\*

## PATIENTS AND USERS ARE FANS



"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**

"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**

"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**

"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**

"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**

"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 (19 YEARS)



# CLINICAL EVIDENCE



## 01 ASSESS

Anamnesis: review the case history<sup>1</sup> of your patient and raise awareness of caries promoting and reducing factors<sup>2</sup>.

Pre-rinse with BacterX<sup>®</sup> Pro<sup>3</sup>.

After patient and clinician preparation<sup>4</sup>, perform the periodontal probing and screening<sup>5</sup>.

## 02 DISCLOSE

Apply disclosing solution<sup>6,7</sup>, then rinse with water.

## 03 MOTIVATE

Show your patients the disclosed biofilm<sup>8,9</sup> and provide appropriate oral hygiene instruction<sup>10</sup>.

EMS recommends Philips Sonicare<sup>8,9</sup>.

## 04 AIRFLOW<sup>®</sup>

Remove stains<sup>11</sup>, biofilm<sup>11,12</sup> and early calculus supra- and sub-gingivally up to 4mm on natural teeth<sup>13</sup>, implants<sup>14</sup>, restorations, orthodontic brackets<sup>15</sup>, dentine<sup>16</sup> and soft tissues<sup>17,18</sup>.

## 05 PERIOFLOW<sup>®</sup>

Remove biofilm in 4-9 mm periodontal and peri-implant pockets<sup>11,12,19,20</sup>.

## 06 PIEZON<sup>®</sup>

Remove calculus<sup>20,21</sup> on natural teeth up to 10 mm subgingivally<sup>22,23</sup> with PS Instrument NO PAIN<sup>24</sup> and on implants up to 3 mm subgingivally with PI Instrument.

## 07 CHECK

Check for any remaining biofilm, stains and calculus. Diagnose caries<sup>25</sup> and other dental hard-tissue defects, treat with fluoride<sup>26</sup> and inform the patient on personal preventive measures<sup>27</sup>.

## 08 RECALL

Schedule next recall appointment adapting recall frequency to individual risk<sup>27,28</sup>.



1 ADHA – Standards for clinical dental hygiene practice (page 6)  
*American Dental Hygienists' Association, adapted March 2009, revised 2010 /* *Zeitschrift für Zahnärztliche Hygiene*, 2010, 84, 1-3

2 A health history assessment and/or intake multiple data points that are collected through a written document and an oral evaluation. The process helps build a rapport with the patient and reveals key elements of the health status. Information is collected and discussed in a routine that varies according to need and complies with the Health Insurance Portability and Accountability Act (HIPAA).<sup>1</sup> Link

3 WHITE PAPER ON DENTAL CARIES PREVENTION AND MANAGEMENT: A summary of the current evidence and the key issues in controlling this preventable disease (pages 2-253)  
*ADA World Dental Federation 2016 /* *Pinto N, Siro F*  
Risk assessment must be considered as an essential component in the clinical decision-making process in dental practices to determine the appropriate level of patient care. Link

3 REDUCTION OF SALIVARY BACTERIA BY PRE-PROCEDURAL RINSES WITH CHLORHEXIDINE 0.12%  
*Journal of Periodontology* 1991, 62(11) / Yoshida AS, Kawanishi SA, Nishimura ML  
Five procedural rinses with CHX had a profound and sustained effect on the aerobic and facultative flora of the oral cavity, which may contribute to a variety of dental benefits. Pre-procedural rinsing may also be of value in protecting patients and dental professionals during dental manipulations. Link

4 AEROSOL-A HEALTH HAZARD DURING ULTRASONIC SCALING: A clinico-microbiological study  
*Indian Journal of Dental Research* 2016, 31(7) / Singh A, Sahoo Manojkumar RG, Singla D, Bhattacharya DC, Gurbaj A, Chandra N  
The aerosols and splashes 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. Link

5 ADHA – Standards for clinical dental hygiene practice (page 7)  
*American Dental Hygienists' Association, adapted March 2009, revised 2010 /* *Zeitschrift für Zahnärztliche Hygiene*, 2010, 84, 1-3

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 Facial Orthopedics* 2010, 143(2) / Peng J, Wu J, Gu W, Wu W, Chen J, Jiang Y, Tian Y, Foyell M, Mei L  
The use of tongue coating during the review of dental cleanliness enhanced the oral hygiene of patients treated with fixed appliances. Link

7 EFFECTIVENESS OF PLAKE INDICATORS AND AIR POLISHING FOR THE SEALING OF FISSURES AND FISSURES  
*European Journal of Paediatric Dentistry* 2016, 11(1) / Bhatti BS, Bhatti M, Zafar S, Yousaf A, Pirmans J  
Electrical agent is a must before cleaning pits and fissures. Air polishes ensure complete removal of plaque from the tooth before placing a sealing material. Link

8 IN VITRO TOOTH CLEANING EFFICACY OF ELECTRIC TOOTHBRUSHES AROUND BRACKETS.  
*European Journal of Orthodontics* 2010, 32(6) / Schäfers M, Sener B, Schmidt M, Pfeiffer T, Arth T. Link

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, March 30; No. 14(3) / Delavand M, Ward M, Sanaei S, Ardekani M, Pouri MG, Mollaei KR, Mollaei JL. Link

10 CLINICAL COMPARISON OF THE STAIN REMOVAL EFFICACY OF TWO AIR POLISHING POWDERS  
*European Journal of Dental Education* 2017, July-Sept 11(2):379-374 / Sibiha NB, Khalil A, Shetty S, Mahalingam B, Manjunath B  
The PI air-polishing biofilm powder removed dental stains as effectively as the 50µm powder. Plaque handling and patient acceptance were comparable between grain sizes of 50 and 30 µm. Link

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* 2012, 43(10):1163-1167 / Hage FT, Hildebrand F, Sahl HG, Blumenthal CA, Strömberg A  
The new erythritol powder applied with an air-polishing device may be considered a promising possibility for repeated instrumentation of nonfused pockets during supportive periodontal therapy. Link

12 BIOFILM REMOVAL AND ANTIMICROBIAL ACTIVITY OF TWO DIFFERENT AIR-POLISHING POWDERS: AN IN VITRO STUDY  
*Journal of Periodontology* 2014, 85(8):1117-1122 / Liang L, Dai F, Bao M, Bordin M, Kawanishi C, Du Yongli E, Tianhui J  
Biofilm removal with air polishing could be achieved with the introduction of erythritol and chlorhexidine as seems to be a good alternative to the traditional glycine treatment. Link

13 AIR POLISHING: A REVIEW OF CURRENT LITERATURE  
*The Journal of Dental Hygiene* 2012, 85(4) / Greenwell SL, Seneff M, Shihsheng Y  
The effect of air powder polishing on hard and soft tissues, restorative materials, dentures, orthodontic appliances and implants as well as health care and contraindications to air polishing are discussed. Link

14 IN A NEW MULTIPLE ANTI-INFECTION NON-SURGICAL THERAPY IN THE TREATMENT OF PERI-IMPLANTITIS: A CASE SERIES  
*Journal of Endodontics* 2017, 43(6) / Almetwally M, Saeed K, Caba R, Felfel A, Grawood MJ, Mousalmani C  
Within the limits of this study, the MANSIT protocol showed improvement of clinical parameters for the treatment of periimplantitis, which was accompanied by up to 12 months. Link

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 LIQUID FIBROBLASTS  
*PLoS One* 2012, 7(9):e44112 / Hage FT, Nitschmann R, Dörner H, Mouton RP, Cagnon A, Pater L, Lueder A, Sander A, Birk S  
Comparing to total dentin minimization the attachment of microorganisms and of air-polishing with erythritol powder from additional loss results in a smooth surface with overall the residual biofilm that promotes the reformation of periodontal liquid fibroblasts. Link

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, 35(4) / Brown CA, Dwyer A, Robinson JI, Simonsen L, Schaller JR, Chen H  
Air polishing powders available with standard air EMS system and EMS indirect bioactive powder. Link

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) / Sudaoka A, Shimada M, Ito T, Imai K, Imai T, Imai Y, Lanyon G, Platten G, Schrage P, Schorrock G, Wagner T, Watanabe M, Kawaguchi T  
Subgingival air polishing with glycine powder is different. Fast, comfortable and safe. Link

18 RANDOMIZED CONTROLLED TRIAL ASSESSING EFFICACY AND SAFETY OF GLYCINE POWDER AIR POLISHING IN MODERATE-TO-DEEP PERIODONTAL POCKETS  
*Journal of Periodontology* 2012, 83(12):1442-1447 / Parnes DS, Aronson D, Lindner D, Bollen M, Mavrou G, Lemos RL  
The results indicate that nonaggressive applied glycine powder air polishing is more effective in removing subgingival biofilm in moderate-to-deep periodontal pockets than scaling and root planing. Furthermore, full-mouth glycine powder air polishing results in a beneficial shift of the oral microflora and appears to be well tolerated. Link

19 SUBGINGIVAL AIR-POLISHING WITH ERYTHRITOL DURING PERIODONTAL MAINTENANCE: randomized clinical trial of twelve months  
*Journal of Clinical Periodontology* 2015, 42(5) / Bollen M, Bollen R, Canalis JA, Mandel A  
Repeated subgingival air-polishing reduced the number of pockets >4 mm similar to ultrasonic instrumentation. It was safe and reduced pain. Link

20 TREATMENT 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(11) / Björndal BS, Pihlar Vidler G, Thorenson MC, van der Weijden F  
In untreated periodontal patients, the ultrasonic tip removed the pocket deeper than the pressure-controlled probe and the Greenstick. Link

21 SUBGINGIVAL DEBRIMENT OF PERIODONTAL POCKETS BY AIR POLISHING IN COMPARISON WITH ULTRASONIC INSTRUMENTATION DURING MAINTENANCE THERAPY  
*Journal of Clinical Periodontology* 2011, 38(9):839-847 / Watanabe D, Dahlström G, Sandberg E  
This short-term study revealed no significant differences in clinical or microbiological outcome between subgingival air polishing and ultrasonic instrumentation of moderate deep pockets in supportive periodontal therapy patients. Link

22 A CLINICAL COMPARISON OF THE EFFICACY AND EFFICIENCY OF TWO PROFESSIONAL PROPHYLAXIS PROCEDURES IN ORTHODONTIC PATIENTS  
*European Journal of Orthodontics* 2010, 32(7) / Høegh L  
In orthodontic patients, use of air polishing as a first-line prophylaxis and effector to improve stain and dental plaque is comparable to rubber cup and gauze. Link

23 IN-VITRO STUDY OF SURFACE CHANGES IN FUSED ORTHODONTIC APPLIANCES  
*Journal of Clinical Orthodontics* 2009, 73(7) / Gonzalez H, Sklarin J, Ecker D, Bollen M  
Air polishing is recommended for the treatment of fused brackets. Use of glycine and bioactive biofilm powders are available on metal and ceramic brackets. When plaque and biofilm are not allowed to reaccumulate due to its lower abrasiveness. Scaling and root planing ensure greater treatment and subsequent plaque accumulation. Link

24 PAIN PERCEPTION DURING DEBRIMENT OF HYPERPLASTIC TEETH ELICITED BY TWO ULTRASONIC SCALERS  
*Journal of Endodontics* 2017, 43(10) / Miller S, Bader H, Ecker D, Wimmer G, Rappner-Schöckner L  
Both ultrasonic devices elicited very small pain increases during debritment of highly hyperplastic teeth and can therefore be recommended for supportive periodontal therapy. Link

25 FDI – Promoting Oral Health Through fluoride  
*FDI World Dental Federation, revised August 2017* Link

26 EXPOSURE TIME OF ENAMEL AND DENTINE TO SALIVA FOR PROTECTION AGAINST EROSION: A study in vivo  
*Caries Research* 2008, 42(5) / Høegh L, Hauge H, Bollen M, Sklarin J  
Salivary pH levels showed a clear proportionality to erosion depth. Contrarily exposing these in vivo discs against fast particle-abraded tooth erosion protection to individuals who intake acidic drinks at frequencies of 11 or less. Link

27 ADHA – Clinical Practice Guidelines for Recall and Maintenance of Patients with Teeth-Borne and Implant-Borne Dental Restorations  
*American Dental Hygienists' Association /* *British Act, Dentures* 1985, Clarendon JL, Rowland TF, Allen CA, Green AJ, Platt HL, Wright GS, Chhabildas ND, Curtis LA  
Benefits for recall regimen, professional ultrasonication regimen and at-home maintenance regimen for patients with teeth- and implant-borne restorable and fixed restorations. Link

28 DENTAL RECALL: special interest in dental routine dental examinations – appendix G  
National Collaborating Centre for dental Care, 2004/04/29; *Chambers et al*  
Guidelines to select the appropriate recall interval for an individual patient. Link

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



# SMILE IS IN THE AIR

"I FEEL  
GOOD"

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MAKE ME SMILE.

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