GUIDED BIOFILM THERAPY

PRESS ARTICLES AND CLINICAL EVIDENCE 2024 - VOL. 2

Osteocytes (original magnification ×3000).

Gruber R, Stadlinger B, Terheyden H. Cell–to–Cell Communication: Cell Atlas Visual Biology in Oral Medicine, 1st Edition, Quintessence Publishing, Berlin, © 2022 EMS Private Label edition; SEM images: eye of science.

SDA
SWISS DENTAL ACADEMY

GBT IN THE PRESS

GBT IS A SYSTEMATIC, MODULAR AND EVIDENCE-BASED PROTOCOL FOR PREVENTION, PROPHYLAXIS AND THERAPY.

We encourage you to explore the latest articles published globally in dental magazines about Guided Biofilm Therapy from April to June 2024.

THE CLEANING EFFECT IS BETTER, AND IT IS MUCH MORE PLEASANT FOR THE PATIENTS. GBT IN ORTHODONIC PREVENTIVE TREATMENT

- DZW, Die ZahnarztWoche, Germany


"The cleaning effect is better and it is much more pleasant for the patients"

INTERVIEW OF THE SUISSE GBT CERTIFIED PRACTICE MATTIOLA & PARTNER AG (OWNER AND DENTAL HYGIENIST) AND HOW THEY SUCCESSFULLY OFFER GBT WITH 3 AIRFLOW® PROPHYLAXIS MASTER

- Dentastic, Switzerland


"If prophylaxis is that great, then I'll treat myself to it more than once a year!": Positive patient reactions after a year of Guided Biofilm Therapy (GBT)

GBT IN NON-SURGICAL THERAPY OF PERI-IMPLANT DISEASES: A PROVEN CONCEPT FOR THE DENTAL PRACTICE

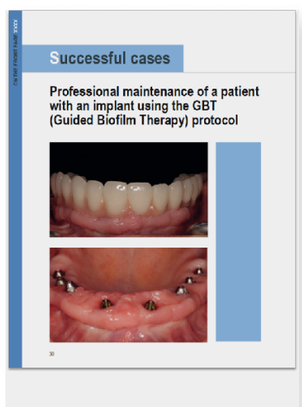
- Teamwork, June 2024, Germany


A proven concept for the dental practice

CME

CASE STUDY: PROFESSIONAL MAINTENANCE OF A PATIENT WITH AN IMPLANT USING THE GBT PROTOCOL

- Maxilaris, May 2024, Spain


Successful cases

Professional maintenance of a patient with an implant using the GBT (Guided Biofilm Therapy) protocol

AIR-FLOWING® ON NATURAL TEETH

1. AIR-POLISHING FOLLOWED BY ULTRASONIC CALCULUS REMOVAL FOR THE TREATMENT OF GINGIVITIS: A 12-MONTH, SPLIT-MOUTH RANDOMIZED CONTROLLED CLINICAL TRIAL

Mensi M, Scotti E, Sordillo A, Dalè M, Calza S
Int J Dent Hyg. 2024 Apr 30.
https://pubmed.ncbi.nlm.nih.gov/38689395/

CLINICAL RELEVANCE

- Guided biofilm therapy is proven to be as beneficial as conventional therapy in relation to improvement in Bleeding on Probing (BoP) and Plaque Index over a 12-month period in patients with gingivitis. However, GBT had a significantly better patient compliance with regards to comfort, quality and cleanliness. In addition, a shorter treatment time was observed by the clinicians.

2. IMPACT OF AIR-POLISHING WITH ERYTHRITOL ON EXPOSED ROOT DENTIN: A RANDOMIZED CLINICAL TRIAL

Kruse AB, Burkhardt AS, Vach K, Hellwig E, Woelber JP, Schlueter N, Ratka-Krüger P
Int J Dent Hygiene. 2024; 00: 1-10.
https://onlinelibrary.wiley.com/doi/10.1111/idh.12835

CLINICAL RELEVANCE

- In line with GBT, an additional polishing step with a rubber cup and paste is not necessary after the use of AIR-FLOWING® with erythritol powder on exposed dentin surfaces.

3. AIRFLOWING AS AN ADJUNCTIVE TREATMENT FOR PERIODONTITIS: A RANDOMIZED CONTROLLED TRIAL

Alsuwaidi, S.; Almatrooshi, A.; Shah, M.; Hakam, A.; Tawse-Smith, A.; Alsabeeha, N.H.M.; Atieh, M.A
J Periodontol. 2024; 1–12.
https://eurekamag.com/research/093/150/093150325.php

CLINICAL RELEVANCE

- Combining subgingival instrumentation (SI) with AIR-FLOWING® (EAF) exhibited a higher reduction in Full Mouth Bleeding Score (FMBS) and Periodontal Probing Depths - PPDs (≥5 mm) compared to those in SI alone at 3 and 6 months.
- Patient-reported outcomes specifically in the psychosocial domain of the General Oral Health Assessment Index (GOHAI) at 6 months clearly favored the SI/EAF group.
- EAF contributes to patient acceptance to treatment and future commitment to regular maintenance, which are paramount to successful periodontal treatment.

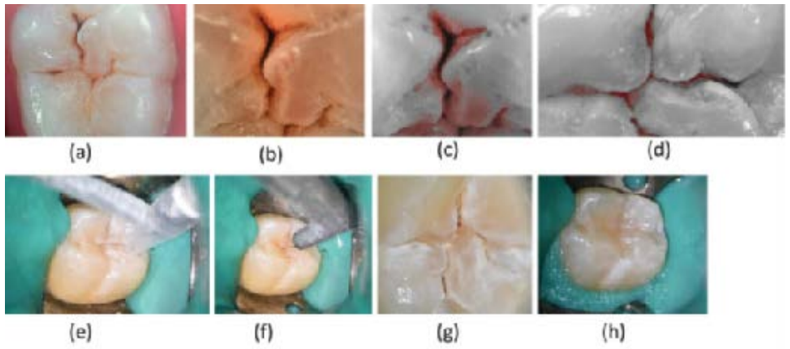
AIR-FLOWING® IN CARIES DIAGNOSIS

4. PREVENTIVE MANAGEMENT OF CARIOUS LESIONS: FROM NON-INVASIVE TO MICRO-INVASIVE OPERATIVE INTERVENTIONS

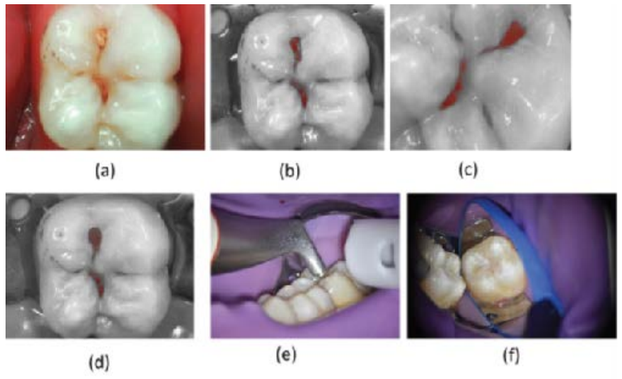
Tassery, H., Miletic, I., Turkun, L. et al.
Br Dent J 236, 603–610 (2024)
https://www.nature.com/articles/s41415-024-7292-0#citeas

CLINICAL RELEVANCE

- This article explores the principles of preventive, non-invasive, and micro-invasive treatments for early carious lesions. The importance and use of a disclosing agent, followed by AIR-FLOWING® with PLUS powder during professional teeth cleaning to remove biofilm predictability before clinical detection and diagnosis of caries, especially in interproximal and occlusal spaces, have been highlighted.



Non-cavitated occlusal fissure management in a high caries risk/susceptible patient – preventive fissure sealant. a) Daylight view. b) Macro view. c) Same view in fluorescence. d) Residual active biofilm in the deep part of the fissure in caries mode. e) Sylc powder cleaning step. f) Erythritol powder cleaning step. g) Microscopic view in daylight. h) Sealant application.



Occlusal fissure pattern with small, clinically evident cavitation in a high caries-risk/susceptible patient – sealant restoration. a) Daylight view, suspicious cavitated lesion and colored fissures. b) Red fluorescence signal revealing the active biofilm. c) Macro view in caries mode of C50 camera. d) Drilling and cleaning to remove part of the red signal. e) Last cleaning with erythritol powder. f) Mineral enriched composites as sealant.

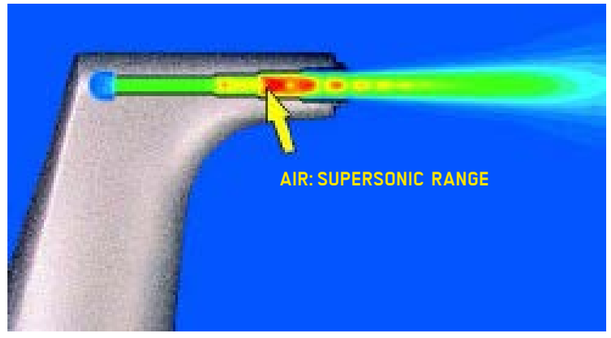
AIRFLOW® PLUS POWDER

5. THE SPECIAL ROLE OF PROPHYLAXIS POWDER IN PROFESSIONAL MECHANICAL PLAQUE REMOVAL – BECAUSE POWDER ISN'T SIMPLY POWDER

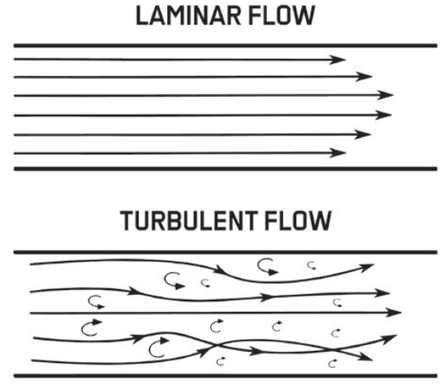
Marcel Donnet
QUINTESSENZ ZAHNMEDIZIN | Volume 75 • Issue 1 • January 2024
https://www.quintessence-publishing.com/deu/de/article-download/5215617/quintessenz-zahnmedizin/2024/01/the-special-role-of-prophylaxis-powder-in-professional-mechanical-plaque-removal-because-powder-isn-t-simply-powde

CLINICAL RELEVANCE

- The need and relevance of using the right powders during a professional teeth clean has been reemphasized here with focus on the AIRFLOW® PLUS powder.
- AIR-FLOWING® terminology as an integral part of Guided Biofilm Therapy has been restated, in addition to powder consumption and safety.



Simulation of the AIRFLOW® in an optimized handpiece (AIRFLOW® Max): the highest acceleration is in the supersonic range (600 m/sec.; see red coloring). This takes place inside the handpiece – with a correspondingly reduced noise level.



With the patented "laminar AIRFLOW® technology", the air-water-powder mixture exits the nozzle at a regulated and constant flow rate. This makes biofilm management more efficient and more comfortable for patients.

AIR-FLOWING®

ON IMPLANTS

6. EFFICACY AND SAFETY OF ERYTHRITOL AIR-POLISHING IN IMPLANT DENTISTRY: A SYSTEMATIC REVIEW

Delucchi F, Ingegnieros L, Pesce P, Baldi D, Canullo L, Bagnasco F, Zunino P, Menini M
Int J Dent Hyg. 2024 Jun 2
https://pubmed.ncbi.nlm.nih.gov/38825804/

CLINICAL RELEVANCE

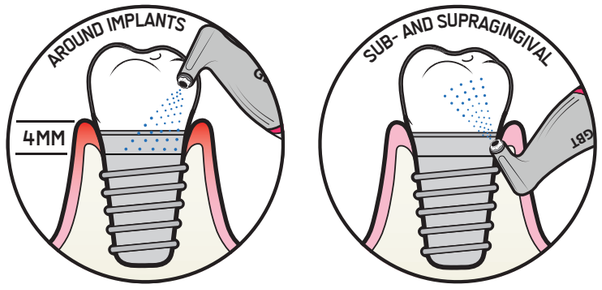
- AIR-FLOWING® with PLUS Powder showed promising results for professional oral hygiene in implant-supported restorations. The systematic review states that it is effective and safe without causing any significant surface alterations for removing biofilm from titanium dental implants. It also suggests that AIR-FLOWING® could offer a novel strategy for preventing and treating peri-implant disease.

7. ERYTHRITOL POWDER AIRFLOW FOR THE TREATMENT OF PERI-IMPLANT MUCOSITIS: A RANDOMIZED CONTROLLED CLINICAL TRIAL

Corbella S, Radaelli K, Alberti A, Francetti L, Taschieri S
Int J Dent Hyg. 2024 Apr 24.
https://pubmed.ncbi.nlm.nih.gov/38659293/

CLINICAL RELEVANCE

- This study demonstrated that supra and subgingival biofilm removal with erythritol powder (PLUS) was as effective as traditional use of ultrasonics, manual instruments and CHX gel in patients with mucositis over a period of 12 months. AIR-FLOWING® can be used as an alternative to adjunctive treatments with CHX. GBT also had a taste advantage with respect to patient reported outcomes and higher success rate in terms of bleeding reduction.



8. THE CLINICAL EFFICACY OF POWDER AIR-POLISHING IN THE NON-SURGICAL TREATMENT OF PERI-IMPLANT DISEASES: A SYSTEMATIC REVIEW AND META-ANALYSIS

Huang N, Li Y, Chen H, Li W, Wang C, Ou Y, Likubo M, Chen J.
Jpn Dent Sci Rev. 2024 Dec; 60: 163-174.
https://pubmed.ncbi.nlm.nih.gov/38828461/

CLINICAL RELEVANCE

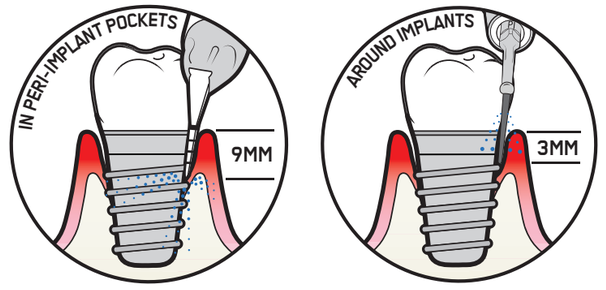
- This systematic review showed that in the management of nonsurgical peri-implant diseases, AIR-FLOWING® moderately reduced short-term Plaque Index (PI) and Plaque Score (PS) for peri-implant mucositis. It also demonstrated a similar reduction in long-term bleeding on probing (BoP) and bone loss for peri-implantitis compared to the control group.

9. EFFECT OF GLYCINE SUBGINGIVAL SANDBLASTING ON THE INCIDENCE OF PERI-IMPLANTITIS AND EXPRESSION OF INFLAMMATORY FACTORS IN GINGIVAL CREVICULAR FLUID IN PATIENTS WITH TITANIUM-NICKEL-CHROMIUM ALLOY PORCELAIN-FUSED-TO-METAL CROWNS

Pan, T., Liu, S., Liu, Q., Zhang, M., & Zhu, L
Science of Advanced Materials. (2024)
https://api.semanticscholar.org/CorpusID:268629470

CLINICAL RELEVANCE

- Erythritol subgingival AIR-FLOWING® enhanced the periodontal condition of patients with titanium-nickel-chromium (TiNiCr) alloy porcelain-fused-to-metal crown (APC) restorations, reducing the occurrence of peri-implantitis and the levels of inflammatory cytokines in Gingival Crevicular Fluid (GCF).



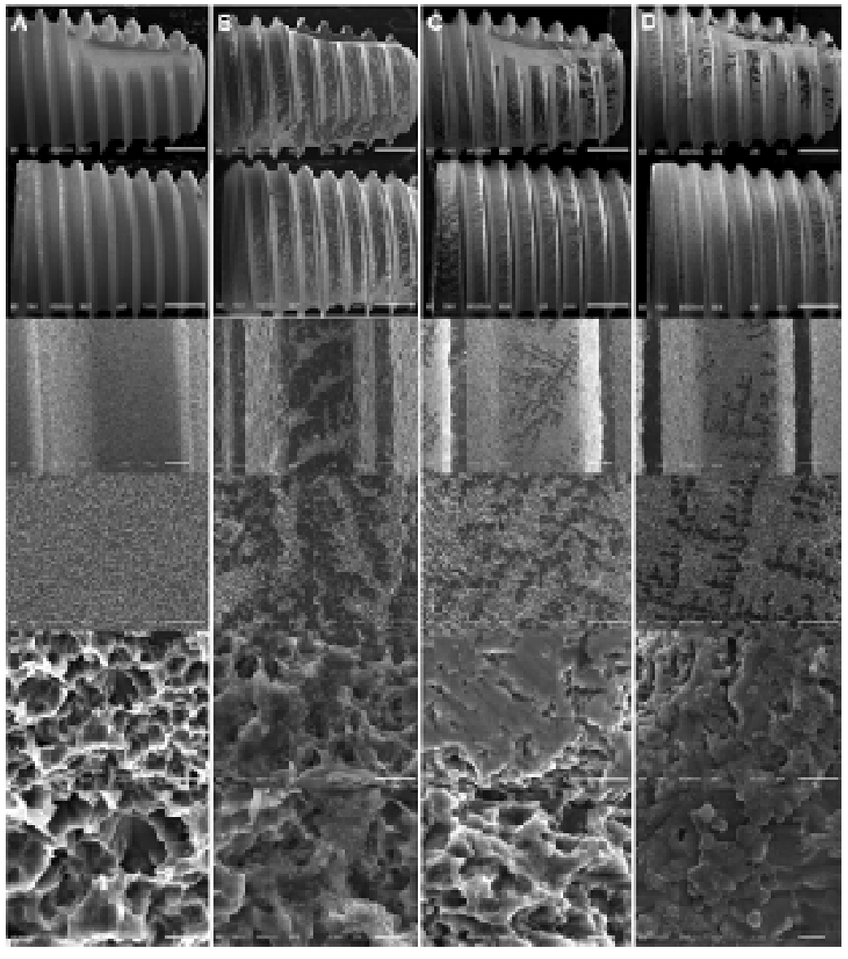
AIR-FLOWING®

10. EFFICACY OF BIOFILM REMOVAL ON THE DENTAL IMPLANT SURFACE BY SODIUM BICARBONATE AND ERYTHRITOL POWDER AIRFLOW SYSTEM

Pujarern P, Klaophimai A, Amornsettachai P, Panyayong W, Chuenjitkuntaworn B, Rokaya D, Suphangul S
Eur J Dent. 2024 Mar 31
https://pubmed.ncbi.nlm.nih.gov/38555648/

CLINICAL RELEVANCE

- For biofilm removal, AIR-FLOWING® with erythritol AIRFLOW® PLUS Powder is as effective as sodium bicarbonate.
- GBT promotes highly comfortable treatments, hence using only AIRFLOW® PLUS Powder is recommended especially around dental implants.



Scanning electron microscope images of the three study groups. Untreated implant (A), Implant with no treatment (control) (B), Implant treated with sodium bicarbonate powder (AIRFLOW® Powder classic comfort) (C), Implant treated with erythritol powder (AIRFLOW® PLUS Powder) (D).

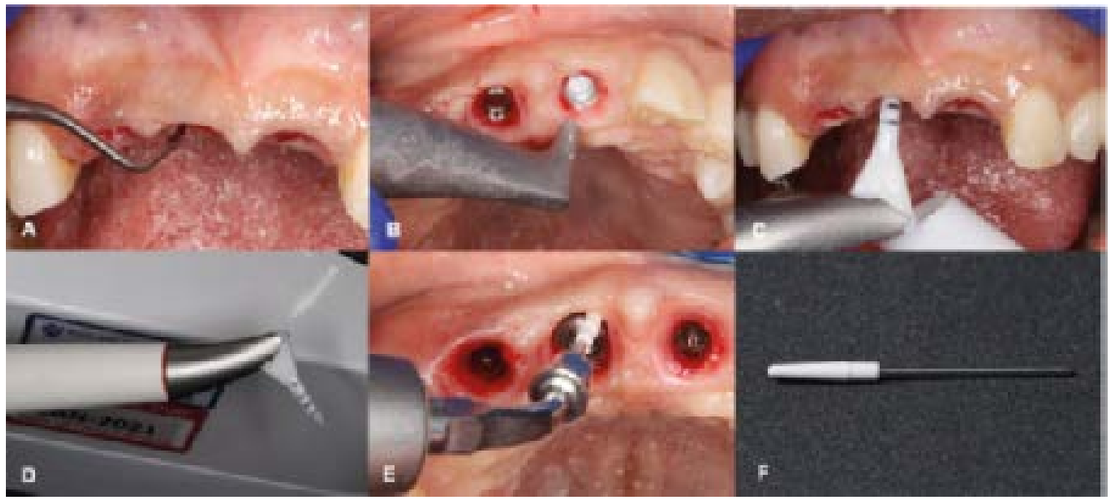
ON IMPLANTS

11. MAINTENANCE OF PERI-IMPLANT HEALTH IN GENERAL DENTAL PRACTICE

Perussolo, Donos, N
Br Dent J 236, 781–789 (2024).
https://www.nature.com/articles/s41415-024-7406-8

CLINICAL RELEVANCE

- This review focuses on the advantages of AIR-FLOWING® around implants that include predictability in biofilm removal, safety on the surfaces and accessibility. Clinical examinations, professional removal of supra and sub-marginal biofilm, comprehensive OHI coupled with motivation and a healthy lifestyle are all keys factors for maintaining peri-implant health.



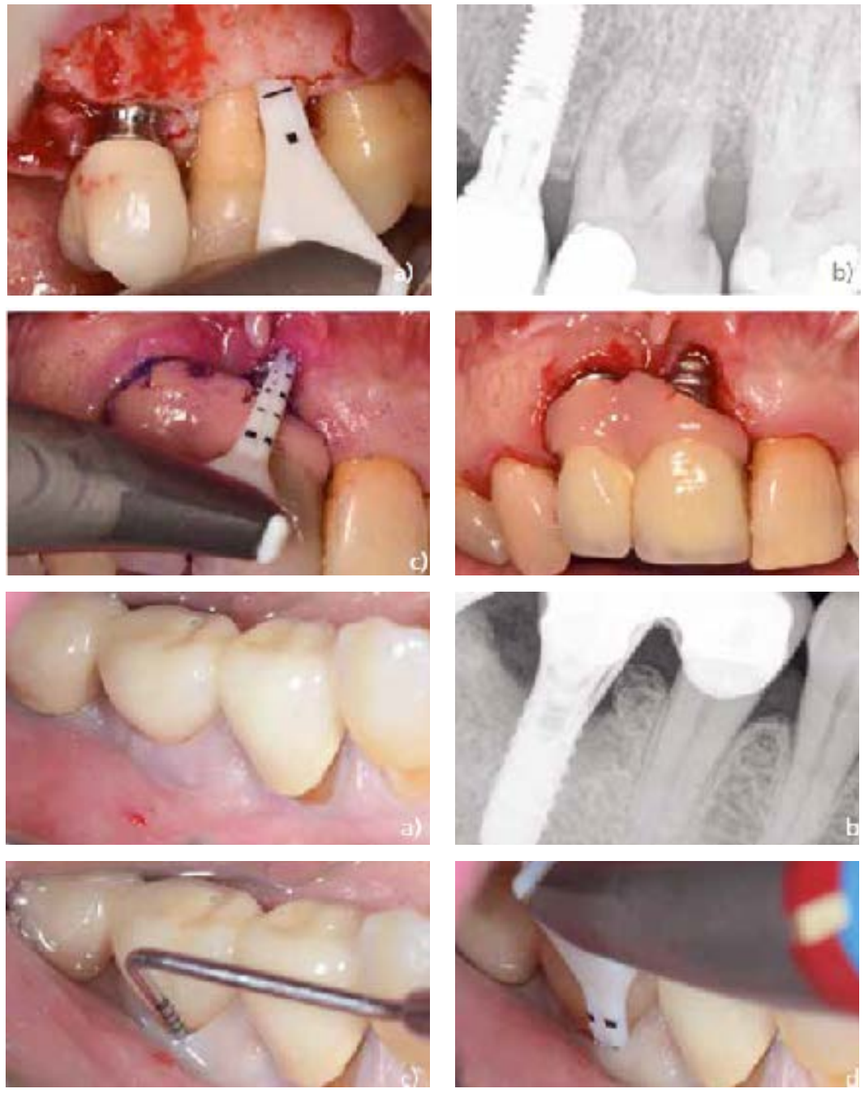
AIR-FLOWING®

12. THE USE OF AIR ABRASIVE DEVICES FOR IMPLANT SURFACE DECONTAMINATION

Regidor E,Amerio E, Derks J, Ortiz-Vigon A
Perio Clinica, 02: 2023/27
https://www.researchgate.net/publication/380753203

CLINICAL RELEVANCE

- AIR-FLOWING® has a favorable balance between effective decontamination of the implant surface, while ensuring safety and preserving the implant surface characteristics.



ON IMPLANTS

13. IN VITRO EVALUATION OF SURFACE ROUGHNESS OF TITANIUM ABUTMENTS AFTER AIR POLISHING WITH DIFFERENT ABRASIVE POWDERS

Roberto PFA, Luís HS, Oliveira SA
Int J Dent Hyg. 2024 Jun 9.
https://pubmed.ncbi.nlm.nih.gov/38852151/

CLINICAL RELEVANCE

- AIR-FLOWING® with erythritol powder does not cause any surface alterations or morphological damage and maintains the integrity of titanium abutments in comparison to sodium bicarbonate powder.
- In line with GBT, erythritol-based powders are preferred to prevent biofilm formation, enhancing implant maintenance.

14. THE IMPACT OF PERI-IMPLANT DISEASES ON THE GENERAL STATUS OF PATIENTS WITH CARDIOVASCULAR DISEASES: A LITERATURE REVIEW

Hofer, A.M.; Dadarlat-Pop, A.; Mester, A.; Nasui, B.A.; Popa, M.; Picos, A
Life 2024, 14, 665
https://www.mdpi.com/2075-1729/14/6/665

CLINICAL RELEVANCE

- Peri-implant mucosal inflammation is a significant contributor to the vascular disease burden of an individual. Use of specialized dental technologies – AIR-FLOWING® – which which are safely applied around the implant not only help to preserve the surface but are also highly comfortable for the patient. Periodical oral and radiographic examination in addition to early detection and diagnosis of peri-implant inflammation need to be performed to ensure primary and secondary prophylaxis using Guided Biofilm Therapy.

THE GBT COMPASS AND ITS 8-STEP PROTOCOL

01 ASSESSMENT AND INFECTION CONTROL

ASSESS EVERY CLINICAL CASE AND IMPLEMENT HYGIENE MEASURES

▸ Start by rinsing with BacterX® Pro mouthwash ▸ Assess teeth, gingiva and periodontal tissues ▸ Assess implants and peri-implant tissues

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 the importance of prevention ▸ Instruct your patients in oral hygiene ▸ EMS recommends interdental brushes or dental floss as well as electric or manual toothbrushes and AIRFLOW® erythritol toothpaste for daily home care

04 AIRFLOW® MAX

REMOVE BIOFILM, STAINS AND EARLY CALCULUS

▸ Use AIRFLOW® MAX 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

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

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 MAX Instrument around implants up to 3 mm subgingivally and on restorations

07 CHECK

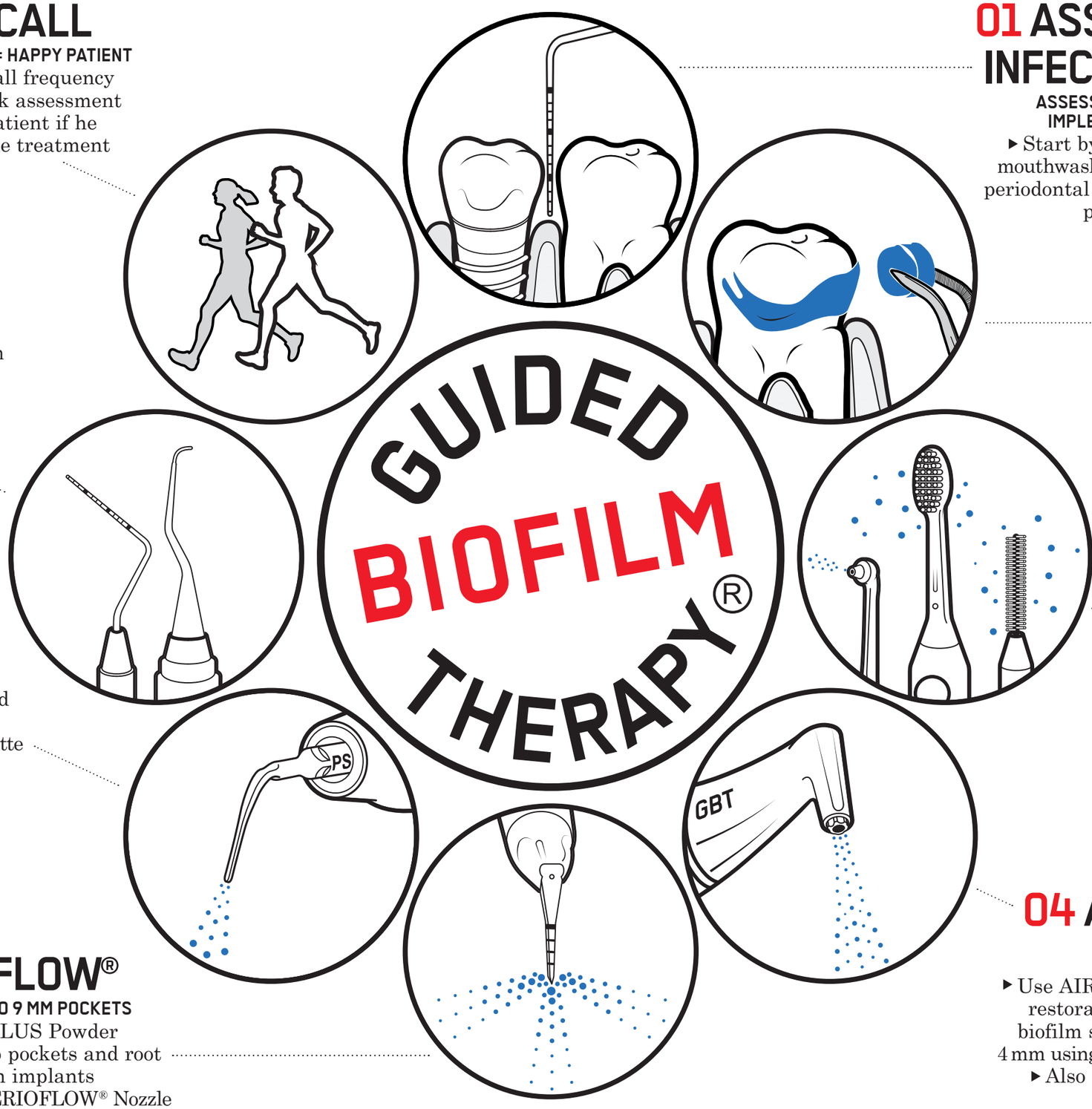
MAKE YOUR PATIENT SMILE

▸ Do a final check for remaining biofilm
▸ Ensure calculus is fully removed
▸ Accurately diagnose caries
▸ Protect with fluoride
▸ No polishing anymore

08 RECALL

HEALTHY PATIENT = HAPPY PATIENT

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



GUIDED BIOFILM THERAPY®

"I FEEL GOOD"

E.M.S. Electro Medical Systems S.A.
Ch. de la Vuarpillière 31
1260 Nyon - Switzerland
Thank you for your feedback: GBTclinicalcases@ems-ch.com

SDA SWISS DENTAL ACADEMY