To floss or to brush—that is the (interdental) question

By Marc Chalupsky, DTI

LEIPZIG, Germany: Should dental floss still be used as a tool to combat plaque, cavities and periodontal disease? After almost 40 years, the US Department of Health and Human Services and Department of Agriculture have removed their recommenda-
tion to use dental floss from their latest Dietary Guidelines for Americans. And the dental world discussed a recent report which made worldwide headlines and concluded that no scientific evidence has proven the effectiveness of flossing. So: What are alternatives for dental professionals? Dental Tribune Online posed these questions to three dental hygienists.

For a long time, dental professionals have recommended daily flossing as a necessary part of health care. However, the Associated Press reviewed 25 prominent studies that compared the combination of toothbrushes and floss and their effectiveness in plaque removal. As Dental Tribune Online reported earlier, the investigation found only weak and unreliable evidence. According to the article, some studies were not valid since they included very few participants and had a short duration of only a couple of weeks. When asked for a statement, dental floss manufacturers were not able to provide scientific evidence even though many of the previously mentioned studies were funded by this industry. In the meanwhile, manufacturers have already announced new funding for comprehensive research to determine the effects of flossing on oral health. As periodontal disease and cavities develop over months and years, future research will have to focus on a larger study population over a longer period in order to measure periodontal health effectively. In the meantime, how should dental professionals deal with this issue? Do they have an alternative to dental floss?

Are interdental brushes another solution?

According to Swiss oral health care provider Curaden, not cleaning interdentally would be going too far. Choosing a suitable interdental cleaner and using the proper technique are always important. Floss is appropriate for anterior teeth, where long, flat approximal surfaces and narrow spaces make access with an interdental brush difficult. Ideally, one should use dental floss for the narrow interdental spaces between the anterior teeth and interdental brushes for the posterior teeth. According to the Swiss company, interdental brushes are very effective and extremely easy to use compared to dental floss, but must be used gently in order not to injure the gums. Interdental brushes help prevent build-up of plaque between teeth and that causes bleeding gums, gingivitis and periodontitis and dental caries. In addition to interdental brushes, the company produces toothbrushes and toothpastes under its CURAPROX brand and supports educational prophylaxis training called STOP for dental professionals.

CEO and owner of Curaden Ueli Breitschmid said: “Since 1972, our company has been the pacesetter for dental floss. But if you use a fine interdental brush, it will take away more of the bacterial plaque. Interdental brushes should be the preferred tool if you want to clean your gums at least in the posterior region.”

Individually trained oral prophylaxis is the key

According to dental hygienist Cath-erine Schubert, the space below the contact area should be the focus. “We need to carefully differentiate between gum disease and dental caries. Interdental brushes are more effective for the prevention of gum disease owing to their space-filling properties. However, a thin shaft and long, flat bristles are necessary to reach below the interdental contact point where caries mostly develops. Interdental brushes can prevent interden-
tal caries if applied correctly, which is below the interdental contact point. Of course, floss also cleans below the contact point. However, using floss just because it is normal, without thinking about the right technique, will not lead to the prevention of caries. At the same time, using an interdental brush without proper instruction will not lead to the pre-
vention of gum disease. After all, it is not a government or institution that should decide about one’s oral hygiene; but the dental professional needs to choose which cleaning tech-
nique is most efficient for each of his patients. Individually trained oral prophylaxis has always been the key to one’s health.”

Elizabeth van der Ham, a South Af-
rican dental hygienist, agrees that one has to choose carefully between flossing and interdental brushing. “Dental floss throughout the years has been a saving grace for many patients overcoming oral health issues. Clinical observations over many years of floss usage in patients is strong evidence that floss indeed does have a place in the oral hygiene regimen. Discarding the use of it total-
ly would be irresponsible to say the least. In 1969, Prof. Harold Low and others did the famous ‘Experimen-
tal gingivitis in man’ study. The out-
come was that gingivitis disappears within two weeks if the tooth struc-
ture is sufficiently cleaned. There-
fore, there are three criteria we as dental professionals need to adhere to when selecting a treatment option for our patients: the regime needs to be acceptable to the patient, it has to beatraumatic to the soft and hard tissue of the oral cavity, and it should be effective in removing biofilm and plaque to establish a healthy status quo in the oral cavity.”

However, no matter what interden-
tal cleaner one chooses, almost every tooth has to be treated uniquely. “Flossing is more acceptable in the anterior and difficult crowded areas of the mouth. The interdental brush has easier access in the posterior re-
gions that are more difficult to reach. Flossing is not as effective in the mo-
lar regions because of the concave-
shape of the root structures. Flossing is also more technique-sensitive and greater dexterity needs to be applied when doing it effectively and without damage. Interdental brushes need to be selected with careful consider-
ation of the tooth and interden-
tal shape and size,” stated Van der Ham. “Most importantly, patients need to be constantly educated and their oral hygiene regime adjusted to their individual needs and prefer-
ences.”

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Subgingival air polishing: A new method

The latest supra- and especially subgingival air polishing techniques, with innovative powders offer new prospects in periodontal treatment and implant maintenance

By Dr Franck Simon and Dr Jérôme Liberman, France

Teaching our patients correct oral hygiene techniques is an obvious and essential part of our treatment of periodontal disease. Controlling the bacteria is essential and the aim of the etiological treatment phase of periodontitis is to remove all the elements that contribute to maintaining or developing inflammation. These include tooth plaque, traumatic occlusion, calculus and supra- and subgingival biofilm.

Increasingly less aggressive instrumentation has been developed to remove biofilm from the root surface. Root planning that causes irreversible removal of cementum has evolved toward a concept of decontamination of the root and the periodontal pocket. Manual curettage can be substituted by ultrasonic micro-inserts. More recently, the new supra- and especially subgingival air polishing techniques, with innovative powders, appear to offer new prospects in periodontal treatment.

Non-abrasive powder

The same applies for implant maintenance. Peri-implant cleaning is very difficult to achieve. Indeed, it is difficult to find effective biofilm removal instrumentation that doesn’t cause deterioration of the implant surface. UGAF1s as well as conventional mechanical instrumentation has been shown to damage titanium (Kawashima, 2007).1 Air polishing seems to be the most suitable technique, provided that a non-abrasive powder is used for the implant surface. However, only limited clinical success has been achieved with early generations of air polishing devices due to limited access to the subgingival area.

The “Air-Flow” (EMS) method now allows the spraying of a glycine-based powder (“Air-Flow Petro”) of fine grain size (25 μm) or a new extra fine powder, “Air-Flow Plus” (14 μm), containing erythritol and 0.3% chlorhexidine subgingivally. The latter powder is particularly interesting because it causes superior effectiveness in the elimination of bacterial biofilm compared to powders of larger grain sizes (Tragò et al., 2014).2

The very small particle size has the advantage of striking the tooth surface (dentine or cementum) as well as the implant surface with minimal impact per particle. The effectiveness against biofilm is due to the large number of sprayed particles as well as the combined action of the erythritol and the chlorhexidine.

Recently, a Japanese study has shown that this polol inhibits biofilm formation, notably with an action on Porphyromonas gingivalis. This gives the powder, if retained, a possible effect on the treated periodontal pockets and a preventive action against periodontal disease (Fushimi et al., 2013).3

This powder can be used supra-gingivally or subgingivally thanks to the handpiece (“Penio-Flow”) combined with the disposable tips. This provides delivery of powder to the bottom of the periodontal pockets with a duration of action of only five seconds per site (Figure 1).

Figure 1. Disposable tip (“Penio-Flow”) with three horizontal outlet openings for the air-powder mixture and a vertical outlet opening for water.

Figure 2a. 8 mm pockets on 12 and 22 with a mobility of 2 on 12 were found at the initial consult in 2011.

Case No 1

A 25-year-old patient presented with generalised aggressive periodontitis; (Figures 2a-c). Periodontal treatment was performed with ultrasonic debridement and povidone-iodine irrigation. Following this, air polishing using powder containing glycine was performed in each session (Figure 2d-f).

Throughout the orthodontic phase, the patient underwent maintenance cleanings with supra-gingival air polishing and subgingival treatment of the most sensitive sites (Figures 2g-j). Peri-implant treatment is performed with ultrasonic debridement and povidone-iodine irrigation.

Case No 2

A 30-year-old patient was referred for periodontal assessment. Bacterial plaque was found in the area of the crown and interdentally. Clinical examination revealed periodontal pockets of 6-8 mm in the cuspid area and in the palate area from the incisor-canine block to the maxilla. It also revealed a purulent exudate in the vestibule of 12 and 22 (Figures 3g-j). There was a 12-class on the occlusal plane with retro palatal bite. In accordance with parafunction, apical swelling was found. Swallowing re-education sessions were conducted by a speech therapist.

After initial periodontal preparation, three non-surgical cleaning sessions were conducted in the maxilla under LA. The removal of hard subgingival deposits was carried out with ultrasonic micro-inserts and povidone-iodine irrigation. Following this, air polishing using the use of a glycine-based powder (“Air-Flow Plus”) was carried out supra-gingivally. All pockets deeper than 4 mm were treated with the handpiece (“Penio-Flow”) and specific tips.

At four months, a decrease in pocket depth of 2-3 mm and an absence of bleeding on probing was found. A maintenance phase was established with supra- and subgingival air polishing every four months. More than a year after initial treatment, the situation is stable (Figure 3d-f).

Case No 3

A patient presented with periodontal abscess. The abscess has been brought under control. A temporary restoration was put in place to secure 12 to 23. Orthodontic treatment could then begin under good conditions.

Case No 4

Evidence of bruxism was also discovered with only posterior contacts. An anterior contact was destroyed in April 2013 (Figures 4a-b). From the occlusal aspect, an important class II was found with only posterior contacts. Evidence of bruxism was also discovered and associated with atypical swelling. Initial therapy involved the construction of a nocturnal splint as well as occlusal equilibration conducted at the same time. Following this, the patient underwent two sessions of periodontal debridement including the use of ultrasonic scalers and subgingival air polishing (Figures 4c-f).

Case No 4

The patient presented with a chronic
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References:

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Cleaning is Key: How hygiene improves our quality of life

By Dentsply Sirona

The merger of DENTSPLY and Sirona at the beginning of the year created the largest manufacturer of technologies, equipment and consumables in the dental sector. The company is now working together as one combined force to develop solutions for the current challenges in dentistry, including products for enhanced hygiene safety in practices. The recently published edition of the customer magazine VISION also focuses on this topic, where international experts take a closer look at the various facets of hygiene. The in-depth discussions clearly show that the scope of this issue extends far beyond germ-free dental practices.

"Hygiene is important and desirable because it protects us and other patients against infection and promotes health," explained Jeffrey T. Slovin, CEO of Dentsply Sirona. "It affects all aspects of our lives and requires our constant attention – everywhere in the world." Because this issue is so prominent in the dental industry, the latest edition of VISION, the customer magazine from Dentsply Sirona, focuses on and emphasizes the significance of dental hygiene.

Hygiene is of central importance when it comes to health. A prime example here is water, which is used for cleaning, personal hygiene and drinking water. Water was long considered to be harmful, but then until the 19th century that scientific studies highlighted the cleansing effect of water, which, in turn, had a fundamental impact on society’s approach to hygiene. VISION traces this history and takes a look at the activities in clinics, which were initially a "dirty business," as infection protection based on hygiene and disinfection did not emerge until the middle of the 19th century. Hygiene, what was treated back then as an innovation, is now standard practice and its working conditions are now the norm, especially in dental practices.

Practice hygiene: High-quality standards do not mean higher expenses

This starts with the treatment center. The transmission instruments must be kept germ-free, but the hygiene and infection control team at the treatment centers...
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from Dentsply Sirona support this goal. Intelligent, automated rinsing programs satisfy the stringent hygiene requirements for instrument and suction tubes as well as for water hygiene, making everyday working life easier. VISION offers a historical overview of how treatment centers have changed through the years.

Hygienic instrument reprocessing has also undergone major developments. In Panama, the state health authorities are prescribing the use of Dentsply Sirona’s DAC Universal, the combined autoclave for mechanical instrument processing, in all clinics; a measure that is unique in the world.

Hygiene in all spheres of life

Hygiene is not just a term that is associated with germs and infection protection. A key element of practice life is radiation hygiene; X-rays must not endanger the patient’s health unnecessarily. In this edition of VISION, Marco Ahonen, a dentist based in Helsinki, explains how to combine a safe, reliable diagnosis with radiation protection. According to Ahonen, the secret lies in embracing technical advances and applying them to practice workflows.

We are also faced with hygiene-related issues in other spheres of life too – this is often not apparent at first glance; take company and process hygiene for example. A report in this edition of VISION looks at how Mr. and Mrs. Ritter (he is an OMS surgeon and she is an orthodontist) took over a joint practice in a clearly structured manner and transformed it into a specialist center.

Not just clean, but also safe and quick

CEREC Zirconia, the new way to produce full zirconia restorations in a single visit, is characterized by its safe, quick workflow. In this edition of VISION, power-user Dr. Michael Skramstad shows how the process can be implemented in the practice and the patient-friendly results that can be achieved.

In addition to user reports, the international customer magazine VISION offers the dentists, practice teams and dental technicians in its readership numerous suggestions and tips for day-to-day practice life, while offering an entertaining read. VISION is published in German and English, and can be requested free of charge from http://www.sirona.com/topics/vision/en/ as a print or e-paper edition.
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