Why interdental brushes are essential for good oral health

Prof. Denis Bourgeois is not only the Dean of the University of Lyon’s dental faculty in France but also a pioneer in research on oral prophylaxis, interdental biofilm management and interdental brushing techniques. He was the first to test for 19 major pathogens in the interdental biofilm known to be involved in periodontitis in young healthy adults. Furthermore, he has suggested interdental brushes to prevent interdental biofilm accumulation as well as to decrease the development of periodontal diseases and even systemic diseases. “An interdental brush can remove around 30 billion bacteria from each interdental space,” said Bourgeois during his presentation at the FDI Annual World Dental Congress in Poznan, Poland.

Despite advances in good oral health care, many patients and dental professionals remain uncertain about oral physiopathology and the concept of disruption of biofilm instead of elimination of dental plaque. According to various studies, conventional toothbrushing is not effective in removing interproximal plaque successfully. Recommendations on oral hygiene practices from dental practitioners have focused on the methods of daily toothbrushing and interdental cleaning instruments as standard for achieving and maintaining good oral health. However, uncertainty has remained about oral physiopathology and the concept of disruption of interdental biofilm.

Sixteen billion bacteria in one interdental site

So why does interdental cleaning actually matter? The anatomy of the interdental space does not allow for an efficient salivary self-cleaning mechanism and makes cleaning this area difficult. As a means of further understanding the mechanism of periodontal pathologies, Bourgeois was the first to use real-time polymerase chain reaction to quantify and qualify the interdental biofilm in healthy adults and explain the role of interdental biofilm management in preventative oral health.

In his study, an astounding approximately 16 billion bacteria were collected on average from each interdental site. Of the 19 major periodontal pathogens quantified in the study, bacteria of red and yellow complexes such as Porphyromonas gingivalis, Tannerella forsythia and Treponema denticola were recognised as the most important pathogens in adult periodontal disease. P. gingivalis was detected in 19 per cent of healthy subjects and represented 0.02 per cent of the interdental biofilm. As dental research has confirmed, P. gingivalis alone can induce alveolar bone loss, and in combination with T. denticola and T. forsythia, periodontal disease is likely to occur. This means that the interdental biofilm of even healthy individuals is composed of bacteria that could lead to periodontitis. “The effective presence of these periodontal pathogens is a strong indicator of the need to develop new methods for disrupting interdental biofilm in daily oral hygiene,” concluded Bourgeois.

Bleeding as a clinical reference

Despite good oral hygiene habits, many patients experience interdental bleeding. “As we have seen, the interdental space is a source of bacterial contamination and has an effect on overall health,” said Bourgeois in his presentation. According to the latest research, 41 per cent of young adults without periodontal disease or clinical gingivitis have experienced interdental bleeding at least once. This information should be considered critical for daily oral hygiene and interdental cleaning in particular. “There is a need to use interdental cleaning tools in order to achieve optimum oral health. If you do not use them, you could essentially stop using a toothbrush, as bleeding will occur otherwise anyway in the future.”

In a study titled “Efficacy of interdental calibrated brushes on bleeding reduction in adults: a 3-month randomized controlled clinical trial”, a test group was asked to use a standard manual toothbrush twice daily and an interdental brush daily. Based on the hypothesis that interdental brushes reduce interproximal bleeding, Bourgeois and his team instructed periodontally healthy and young individuals how to use interdental brushes daily and correctly. In addition, a calibrated colorimetric probe helped to effectively determine the interdental space and right brush size. As the study suggests, the overall interproximal bleeding was reduced by 47 per cent after one week and 71 per cent after three months. Bourgeois and his team concluded that interdental cleaning can be considered as “an effective means to help individuals maintain and/or achieve optimal oral health.”

As the general access widths of interdental spaces were mostly unknown in young adults, Bourgeois and his colleagues also assessed the distribution of these widths in this group in a study titled “Access to interdental brush”, which was presented at the FDI congress in Poland this year.

“There is a need to use interdental cleaning tools in order to achieve optimum oral health”

Conventionally, interdental brushes were only recommended for patients with large interdental spaces, while dental floss was recommended for narrow spaces. As technology advanced, so did the innovation with interdental brushes, and as a result, interdental brushes can now be used for very small interdental spaces to clean the space between teeth effectively. “Dental floss used to be the common tool for narrow spaces. However, dental floss is no longer preferred, as its use is not supported by conclusive scientific evidence. For interdental brushes, we have scientific evidence. Interdental brushes have become the best tool for cleaning interdental spaces,” said Bourgeois.

As Bourgeois concluded at the end of his presentation, “The interdental brush currently represents the primary and most effective method available for interproximal cleaning. Interdental brushes are specifically designed to clean between the teeth in accordance with the interdental space access diameter. The method of choice for interdental cleaning depends on the space permit to select the largest size that can penetrate into the interdental space and then to fill this space completely without causing discomfort or trauma.” By using a calibrated Curaprox IAP colorimetric probe, a suitably sized interdental brush will help individuals achieve optimal biofilm disruption through thorough interdental cleaning with minimal trauma.

For all studies, Bourgeois and his team selected the CPS Prime series of interdental brushes of the Swiss oral care brand CURAPROX.

More information can be found at www.curaprox.com.

Interdental brushes prove to be superior

Importantly, 40 per cent of the sites studied showed bleeding upon passage of an interdental brush. An unexpected finding was the high number of adults (65.9 per cent) with greater than 30 per cent of bleeding sites. It was observed that this did not have a significant effect on the width of the interdental space. By measuring the interproximal space, the researchers concluded that the latest generation of interdental brushes was able to access 94 per cent of interdental spaces. Over 80 per cent of the sites required a small-diameter interdental brush (0.6–0.7 mm) from the Curaprox CPS Prime series. As a result, the study concluded that most interdental spaces can be cleaned using interdental brushes, but accessibility of interdental spaces would need to be established in the dental practice by the dental professional.