Product Guide

Implants

Guided Biofilm Therapy – Avoid Rolling the Dice with Implant Health

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In a bid to curb the rising rates of peri-implant mucositis and peri-implantitis, clinicians worldwide have been on the hunt to identify the ideal way to maintain implant health and reduce disease incidence. This is directly related to the difficulties associated with the management of periimplantitis as treatments are often regarded as arduous, frequently invasive, and generally unpredictable. It is well-documented that plaque accumulation is the primary aetiological factor for peri-implant mucositis (Pontoriero et al, 1994), with studies showing that plaque removal leads to peri-implant mucositis reversal and resolution (Salvi et al, 2012). Furthermore, peri-implant mucositis has been identified as the precursor for periimplantitis (Heitz-Mayfield & Salvi, 2018). The glaring reality in today's clinical environments is that prevention is better than cure. From thence came the motivation to reduce the incidence of disease, treat reversible peri-implant mucositis and minimize the conversion to irreversible periimplantitis through regular monitoring and maintenance. Maintenance therapy was coined with the term "Supportive Peri-implant Therapy (SPIT)" (Heitz-Mayfield et al, 2018). The SPIT approach has been supported by evidence that patients attending regular preventative maintenance programs demonstrated significantly lower conversion rates from peri-implant mucositis to peri-implantitis than those who did not attend regularly after 5 years' follow-up (Costa et al, 2012).

SPIT involves clinical scrutiny of the periodontium, peri-implant tissue conditions and prosthesis, early diagnosis and management of disease, determining risk, reinforcement of preventive practices, removal of the plaque biofilm, and motivating patients for regular recalls. But what is the best method for plaque removal? While most treatment modalities are primarily based on therapies for targeting periodontal disease, the parameters to consider are different in the case of dental implants. The removal of the plaque biofilm needs to be completed efficiently and effectively without altering the implant surface. Scratching or altering the implant or abutment surface's topography, chemical composition or having surface residues, can result in a detrimental effect on the plaque-retentiveness and biocompatibility of the instrumented surface. My research thesis was specifically designed to inspect this very issue. Using a myriad of microscopy techniques in the Nanoscience Hub at the University of Sydney, I took to comparing the effect and effectiveness of ultrasonics, sonics, curettes, polishing cups, and EMS AIRFLOW® devices including their different material makes (titanium, stainless steel, and plastic) on titanium and zirconia abutment surfaces. Ultrasonic, sonic and AIRFLOW® devices were demonstrably superior to curettes and polishing cups in debridement efficacy. For titanium abutments, all stainless steel sonic, ultrasonic and curette devices increased surface roughness significantly, meanwhile, titanium curettes and ultrasonic tips resulted in either increased roughness or surface alterations. Turning to zirconia abutments, both stainless steel and titanium ultrasonics and curettes caused surface chemical alterations. Plastic tips, curettes and polishing cups induced surface alterations and left remnants behind on both abutment types. Comparatively, AIRFLOW® achieved the highest probability of effective plaque removal whilst providing the lowest risk of altering surface roughness, chemical composition or leaving surface residues for both abutment types alike.

Figure 1. Peri-implant mucositis is often characterised by oedema, erythema, bleeding on probing and occasionally, draining sinus formation with suppuration; however there is no concomitant bone loss.

The Guided Biofilm Therapy (GBT) protocol is designed to embrace the principles of SPIT. It is a step-by-step guide to prompt clinicians to probe and assess implants, complete plaque disclosure, educate and motivate patients, use AIRFLOW® technology to debride the implants, and to recall regularly. Indeed, equipped with the latest technology and backed by robust scientific evidence, we find ourselves well-positioned to maintain implants' health for the long-run and do away with gambling our implants' longevity. **Bite**

Dr Marina Kamel uses the EMS AIRFLOW® Prophylaxis Master device. Please visit professional.airflowdentalspa.com.au/ for more information.