

Issue 005 | April 2023

 DENTAL  
DIARIES

QUARTERLY  
MAGAZINE

HONG KONG & MACAU EDITION

2023

# Lifestyle

Coffee: One of the most popular beverages in the world

# R

ework of  
Failed Implants

Static, Dynamic  
or maybe both?

HONGKONG

## ITI FORUM

Clinic  
Start-up  
Package

## The Digital Wax-up:

THE FIRST STEP OF THE DIGITAL JOURNEY!

TAKE A BREAK  
SIT BACK  
RELAX



Practicing dentistry at the highest standards today is a challenge. As dentists we have to stay on top of a rapidly changing science, decide among growing technological innovations and new products and serve patients with ever changing needs and expectations. All these, while striving to maintain work-life balance in difficult times for all can be tough and it is no surprise that dentistry is among the most stressful professions.

At the Dental Diaries, we aspire to support dentists of Hong Kong and Macau on every step. Every quarter, our editorial team will gather the most up-to-date news in the dental field, short scientific articles and case studies, together with lifestyle information, suggestions and ideas to balance a busy working life with some fulfilling personal time. We also want to foster a network, by sharing messages, news and classified ads for the local dental community.

We hope that every time you receive the latest Dental Diaries, you will not only gain professional knowledge, but it would also make your break a little bit more relaxing!

“  
**What is**  
Dental Diaries?  
”



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Lecture, Hands-on

**Implants In The Aesthetic Zone – Live Surgery And Hands-On!**

Prof. Nikos Mattheos  
DDS, Odont, Dr.

Date &amp; Time: 20-21 May 2023, 9:00 am - 5:00 pm

FEE: \$15,000 (Live Surgery & Hands-on)  
\$12,000 (Live Surgery)



ITI Study Club Meeting

**Bone Augmentation: Surgical Technique Exchanges**

Dr. Cheung Chi Hang, Alex

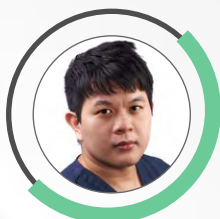
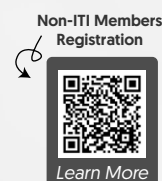
BDS [HK], MDS [Pros] [HK], MPro RCSEd, FCDSHK [Pros], FHKAM [Dental Surgery]

Dr. Hui Sheung Yu, Bosco

BDS [HK], MDS [OMS] [HK], MOMS RCSEd, FCDSHK [OMS], FHKAM [Dental Surgery]

Date &amp; Time: 18 May 2023, 7:30pm - 9:30pm

FEE: FOC for ITI Members  
\$500 for Non-ITI Members



ITI Study Club Meeting

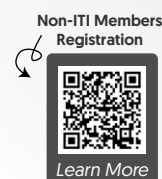
**Gadgets: A Craftsman Who Wishes To Practice His Craft Well Must First Sharpen His Tool**

Dr. Tang Chun Lok, Ernest

BDS [HK], MDS [ImplantDent] [HK]

Date &amp; Time: 15 Jun 2023, 7:30pm - 9:30pm

FEE: FOC for ITI Members  
\$500 for Non-ITI Members



Lecture, Hands-on, Live Surgery

**Straumann® Pro Arch Concept For Edentulous Patients**

Dr. Chu Kai Yu, Aaron

BDS [HK], MClinDent [Pros] [Lond], MSc [Implant Dent] [HK], DImplantDent RCS Eng, MFGDP [UK], MGD [CDSHK]

Dr. Tang Chun Lok, Ernest

BDS [HK], MDS [ImplantDent] [HK]

Date &amp; Time: 22-24 Jun 2023, 9:00am-6:00pm

FEE: Regular Price \$15,000  
Early Bird Price \$12,000 (Ends 15 Apr 2023)



Webinar

**2023 ClearCorrect Online Masterclass - Dealing With Posterior Cross Bites**

Dr. Gabriel Dolci & Dr. Ingrid Ledra

Date &amp; Time: 14 Jun 2023, 7:30pm - 9:00pm

FEE: FOC



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Dr. Alex Fibishenko

Oral Implantology & Dento-Facial Surgery

Date: 30 Jul – 4 Aug 2023





## 2023 ClearCorrect Online Masterclass

in collaboration with PUSH Education 

# Webinar: Vertical challenge

### Part I: deep bites

12<sup>th</sup> April 2023 (Wednesday) | 7:30 to 9pm SGT

#### Speakers:



**Dr. Ingrid Ledra**



**Dr. Gabriel Dolci**

#### Learning objectives:

- The horizontal patient & deep bite.
- Strategies for deep bite correction.
- Protocols and auxiliaries: using bite ramps, going hybrid and much more!
- Troubleshooting & case examples.

### Part II: open bites

10<sup>th</sup> May 2023 (Wednesday) | 7:30 to 9pm SGT

#### Speakers:



**Dr. Alexandre Bottrel**



**Dr. Gabriel Dolci**

#### Learning objectives:

- The vertical patient & open-bites.
- Selective intrusion as the main strategy to solve open bites.
- Engagers, buttons & elastics to optimize extrusion.
- Troubleshooting & case examples.

Enquiries: [courses@cde.hk](mailto:courses@cde.hk)



## Adopting A High-Efficiency Monitoring Equipment To Meet The Guidelines Of Sterilization

To further safeguard the safety and interests of patients, the Department of Health has issued a new regulation (Cap. 633 Private Healthcare Facilities Ordinance) to all private healthcare institutions, which takes effect from July 2022. The license of those private healthcare facilities is required to comply with relevant codes of practice.

Under the Ordinance, all reusable medical supplies and equipment used in invasive medical procedures must be properly sterilized in accordance with sterilization procedures, and the relevant records shall be provided to the Department of Health on a regular basis.



### AUTO-READERS/INCUBATORS



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# Static, Dynamic or maybe both?



Pro. Nikos Mattheos



Pro. Atiphan Pimkhaokham

**Computer Assisted Implant Surgery has helped us increase accuracy of implant placement and empower a new era of immediacy, even in cases of complex surgeries. Although most modern systems of guided surgery or implant navigation can reduce deviation to less than a millimetre, the legendary “zero miss” remains elusive. At the same time, we start to see a divergence between dynamic and static systems, with each having its own strengths and weaknesses. So what if we could combine static and dynamic guided surgery in one? Would the supplementary strengths bring us closer to the zero miss?**

**In today’s article by Profs. Mattheos and Pimkhaokham will discuss a recent clinical trial and what we can learn while chasing the zero miss in guided implant surgery!**

Computer Assisted Implant Surgery (CAIS) can help us achieve highly precise implant placement and that is by now a fact well established by more than 200 clinical trials [Pimkhaokham et al 2022]. Either as static or dynamic, guided implant surgery can reduce the deviation of the implant platform at placement to about 1mm or less as has been assessed in multiple clinical scenarios from single implant to fully edentulous patients. Although CAIS has significantly improved accuracy of implant placement in comparison to freehand surgery, all studies have shown comparable clinical outcomes for static and dynamic systems. Furthermore, neither static nor dynamic have completely eliminated errors. However, as static and dynamic CAIS systems utilise very different technologies and workflow, it becomes apparent that each has its own limitations and suffers from different sources of error.

## What are the most common sources of error?

Fit and stability of the surgical guide is probably the most important source of error in the static CAIS. [Chackartchi et al., 2022]. Furthermore, the material used and the manufacturing protocol of the surgical guide can allow for different extent of elasticity [Mouhyi et al., 2019]. Depending on the operator’s ergonomic position, patients’ anatomy, mouth opening and the implant site location, the elasticity of the guide might allow for deviation towards specific directions. Even the actual design of the guided surgery implant system can also influence clinical accuracy. Sittikornpaiboon et al., 2021 tested 5 different surgical guide designs and came up with significant differences in accuracy, with the most accurate model being the “sleeve in sleeve” design with or without lock. Static CAIS tends to have more “systemic” influence on accuracy, as an inaccurate guide will affect all implants placed in the case of multiple sites. Dynamic CAIS on the other hand does not require the use of a guide, so it eliminates such a “systemic” influence. Still, accuracy can be affected by other systemic sources of error such as imprecisions in calibration and system configuration, registration of the drills and implants, interruptions in signal transmission or operator’s experience and learning curve.

## Could static and guided CAIS supplement each other?

As the limitations of each technique differ, could we increase accuracy by combining both static and dynamic in the same procedure? Could the combination of the two compensate for each other’s deficiencies and increase accuracy of implant placement beyond the current standards?

Well, we tried this for you and here we come with some answers. We conducted a randomized clinical trial with 120 patients who received a single implant each. All implants were planned virtually in the same way, then patients were randomized in 4 groups:

- a) *Static alone*
- b) *Dynamic alone*
- c) *Static and Dynamic combined*
- d) *Control group, where the implant was placed freehand.*

How can you combine static and dynamic? Well, that was not too difficult actually. All you have to do is to plan for the static, print the guide accordingly and then export the virtual plan in the dynamic CAIS software. At the day of the surgery you can register and calibrate the guided surgery drills in the dynamic CAIS and you are ready to go [Fig 1,2]. In the surgery the operator will place the surgical guide and continue with the drills as usual, only now with the visual aid of the correct angle and depth also displayed in real time.



Figure 1. How does combined static and dynamic surgery look like in the clinic?

a) the registration process is conducted as usual, with registration of the handpiece (a) and then the jaw at 4 points (b). Then a 3D printed surgical guide is placed, supported by at least 4 natural teeth and the Osteotomy preparation commences (c) as per static CAIS protocol. with the drills and handle sleeves through the surgical guide (c and d), Design of the guide with a single tooth gap (e) and Straumann guided surgery set (f))

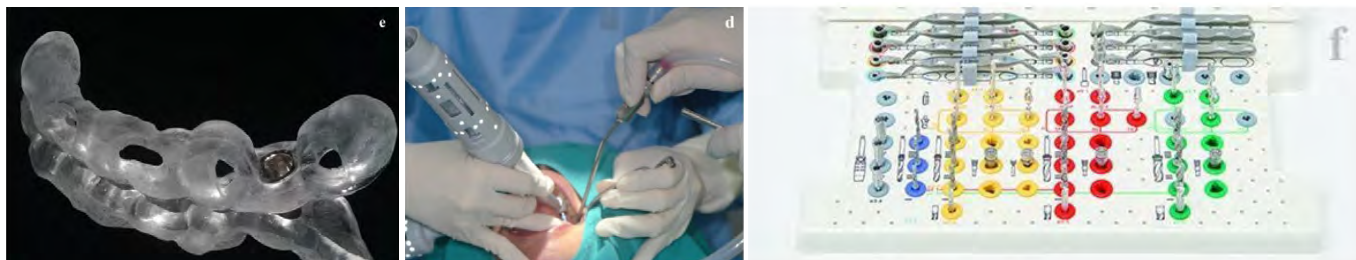


Figure 2. The static CAIS guide is designed with at least 4 teeth support, but without covering the full arch (a), as space is required for the jig with the jaw fiducial markers of the IRIS dynamic CAIS system (b). The static CAIS system used was by Straumann with the drills and handle sleeves through the surgical guide (c).

### Can you modify the position when you are drilling through the guide?

Now one might wonder if this setup really makes sense, as you cannot modify the position of the implant through the surgical guide. Well, you actually can. Remember we said that one common source of deviation is the elasticity of the surgical guide, combined with the "leeway" or gap between the sleeve and the drill and the operator's ergonomic position. Using the real time feedback from the dynamic system helped realise such an error when it happens and compensate for it. We found that particularly important in correcting the angle. The "leeway" of the surgical guide can still allow for angle deviation of as much as 7°-8°, even when the drill has reached its final depth, without the operator being aware of it. By visualizing this error, the operator could correct accordingly thus reducing significantly the final deviation (Fig 3).

Correcting the angle is actually a very important parameter. In reality there are only two main parameters in 3-dimensional deviation of the implant position: platform and angle. We also measure the deviation at apex, but in reality this is just a surrogate of angle deviation: It amplifies the deviation at platform by the implant length. The bigger the angle deviation and the longer the implant, the bigger the apex deviation would be. But for 0° angle deviation, the apex deviation will be exactly as much as the one in the platform and this is elementary geometry.

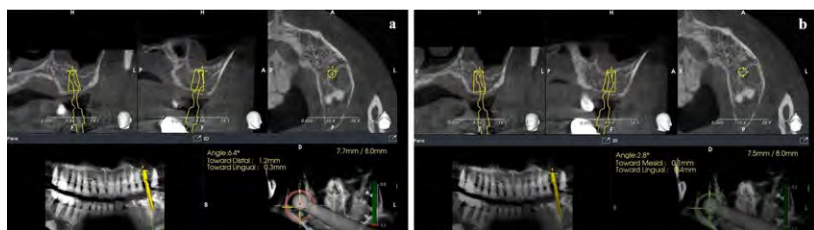


Figure 3 a,b. The dynamic CAIS system allows for real time feedback with regards to the deviation of the drill from the optimal depth and angle in two ways: a) numerical (degrees of angle deviation and mm of distance from optimal depth) b) color coded directional angle deviation (0-2.9 degrees: green/ >3 degrees: red). When the visual feedback from the navigation system suggests deviation (a) the surgeon has the possibility of adjusting the angle in real time (b).

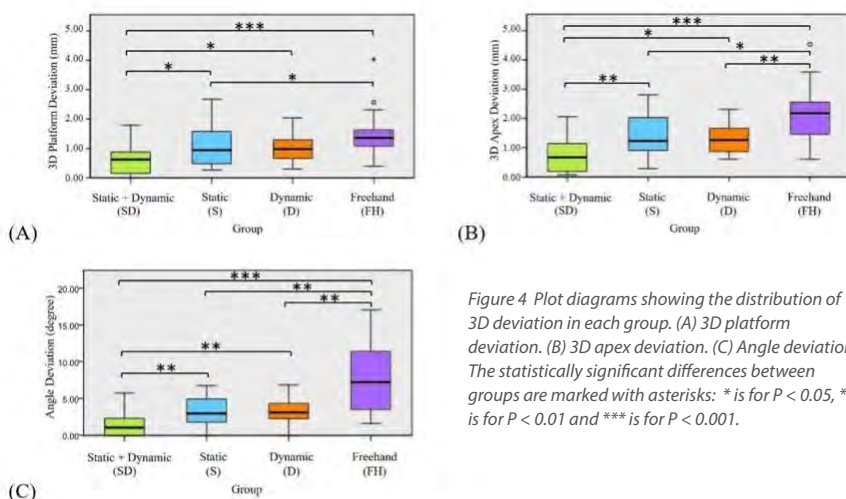


Figure 4 Plot diagrams showing the distribution of 3D deviation in each group. (A) 3D platform deviation. (B) 3D apex deviation. (C) Angle deviation. The statistically significant differences between groups are marked with asterisks: \* is for  $P < 0.05$ , \*\* is for  $P < 0.01$  and \*\*\* is for  $P < 0.001$ .

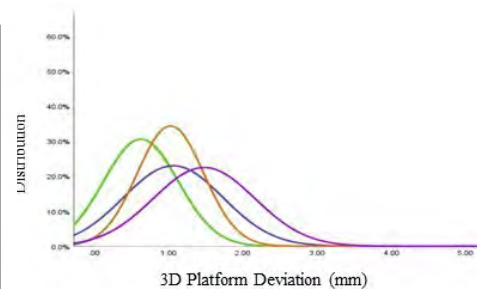


Figure 5. Bell Curves showing the distribution of the extent of deviation for platform, in the 4 groups. The closer to the vertical axis is the peak of the curve, the more precise are the implants placed. Note how the green curve (Static + Dynamic) is the closest to the vertical axis while the freehand (purple) the furthest. Although the dynamic (brown) and the static (blue) appear to have the same average deviation, the dynamic curve is less spread, which might imply less placements with much deviation.

## Did it work?

The final result: combining static and dynamic CAIS lead to the smallest deviation recorded so far, with an average 3D platform deviation of  $0.62 \pm 0.50\text{mm}$ , which was some 40% less than the typical average of around 1 mm we could get with static or dynamic alone. In terms of angle, the mean was  $1.24 \pm 1.41$ , which was about half of the average 30 that static or dynamic alone would offer [fig 4]. Maybe the most important message comes actually by studying the frequencies, rather than the average, and there one could see that the combined static and dynamic had achieved a significant portion of the placements with an ultra-high accuracy, at least when compared to other methods [Fig 5, 6].

You can read the actual study by Yotipibulwong et al recently published in Clin Oral Impl Res.

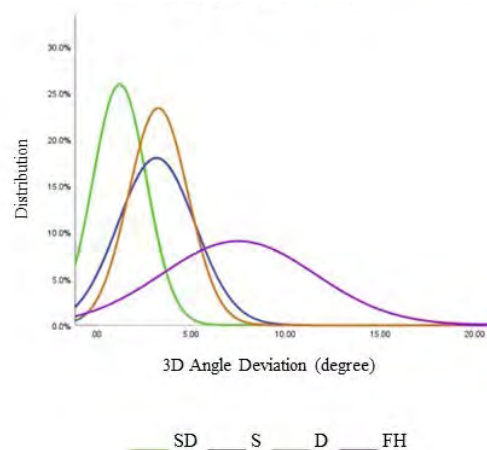


Figure 6. Likewise as above for the angle deviation. The superiority of the combined and dynamic is more visible here.

## Lessons for clinical practice

Exciting results at least from a research perspective and a statistical point of view, but of course one might have multiple readings. It was true that by combining two cutting edge technologies in the hands of experienced operators we could push the margins of accuracy even higher. It remains also true that despite the best of our efforts, we could not eliminate the biggest part of the deviation. It appears that somewhere there between the 0.65 and 0.75 mm lies the “hard core” of the “systemic” or workflow cumulative error, which is no longer influenced by the actual surgery. Discrepancies in the algorithm of the CBCT, the STL and the treatment planning software that renders everything, imprecisions in the design or the 3D printing of the guides as well as limitation of our own measurement methods, it can all add up to an error which is difficult to further suppress.

The combination of the two could bring implant placement to the highest level of accuracy seen so far, but how important would this be in clinical terms? Although increased accuracy is always desired, the costs related with combining the static and dynamic CAIS would make such a surgery a rather expensive exercise.

Not surprisingly, to get the average deviation down from 1 to 0.7 mm would require twice as much the costs and effort it took to get it from 2 to 1 mm, with either static or guided alone. Cost/effectiveness would be here the main determinant and it would require assessment of different clinical scenarios and multiple aspects of the treatment. For most clinical applications, an average deviation of about 0.9-1mm could be sufficient. On the other hand, in extensive and complex procedures such as for example in cases of full arch immediate implant placement and restoration with pre-fabricated prosthesis the increased accuracy of 0.2 - 0.4 mm might be a worthy investment.

Technology is evolving fast and new frontiers are being constantly opened. With regards to accuracy of implant placement with CAIS, I think we have reached the borders of the current technologies. It would take some out-of-the-box development to push accuracy drastically higher. But beyond accuracy, there remain many frontiers waiting to be explored when it comes to computer assisted implant surgery... Moving on..!



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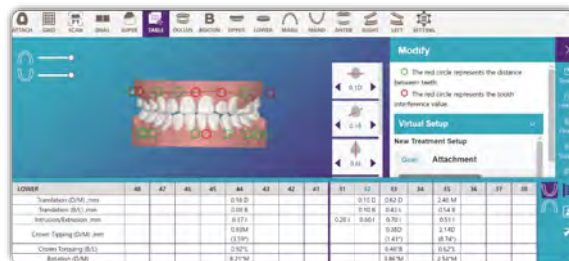


## New Design Software - Trio iDesign

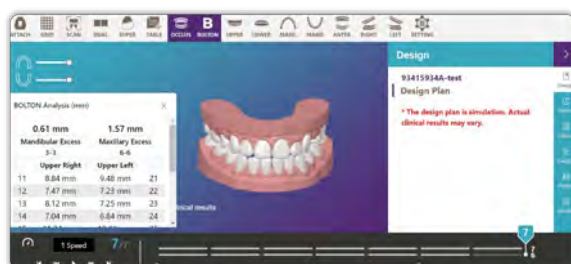
The new design software is fully integrated with our new 3D visualisation software. Doctors will be able to review simulations with all treatment details, tooth movement table, IPR, and Bolton analysis. Furthermore, doctors will be able to move the individual teeth themselves if they want to make minor adjustments to the treatment plan.



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# Dental Industry News

## Managing Tough Discussions with Patients

Dr George Wright, deputy director at Dental Protection, explores some of the factors that contribute to a difficult interaction and some basic strategies for handling tough discussions. The first step is to understand what makes the interaction 'difficult'.

The source of any difficulty lies in one or more of four interrelating domains – the patient, the dental professional, the patient's condition, and the systems in which we work. The more domains that come into play, the more difficult it is to manage the interaction effectively.

One of the most effective strategies is to recognise our own reaction. Our automatic reaction may be telling us things like 'this person is a nuisance'. But it is possible to be empathetic with a patient even if you disagree with what the patient is saying. The beauty of empathy is that it can be applied to situations even where you are uncomfortable. Conveying empathy is a powerful way to increase the feelings of support of patient experiences.

Reframing is a technique used in psychology where a therapist might ask a patient to consider a different explanation for their concern knowing that doing so may well reduce their distress. By doing so, you can demonstrate to the patient that you have actively listened to their concerns, and it allows you to check understanding. From here, it may be helpful to inform the patient of your position, clearly stating the reasons and respectfully explaining any boundaries. As a result, patients are more likely to feel they are in control of the situation and are more accepting of the resolution they have jointly reached.

## Brushing Teeth by Robots?

A shapeshifting micro-robot may one day act as a toothbrush and dental floss in one. The technology, developed by the Pennsylvania University could direct blocks to sweep away dental plaque from the teeth, or slip between teeth like a length of floss. In both cases, a catalytic reaction drives the nanoparticles to produce antimicrobials that kill harmful oral bacteria.

According to ACS Nano, experiments using this system on mock and real human teeth showed that the robotic assemblies can conform to a variety of shapes to nearly eliminate the sticky biofilms that lead to cavities and gum disease.

"Nanoparticles can be shaped and controlled with magnetic fields in surprising ways," says Mr Edward Steager, a senior research investigator in Penn's School. "We form bristles that can extend, sweep, and even transfer back and forth across a space, much like flossing. The way it works is similar to how a robotic arm might reach out and clean a surface. The system can be programmed to do the nanoparticle assembly and motion control automatically."



## 3 Self-taught Dentists Accused of Practicing Without License

Three men in Houston are accused of practicing dentistry without a license. They are charged with felony unlawful practice of dentistry, according to documents filed for the Harris County District Attorney's Office.

According to the Office, the men have been practicing dentistry without a license required and issued by the Texas State Board of Dental Examiners. 1 of

them told police that he was self-taught and had been practicing for about a year and previously worked in a dental lab.

They were reported by a patient who was alarmed by the unsanitary conditions in the 'clinic' according to the television station.

"The results could be life-threatening," Thomas O'Brien, a dentist in Houston told the television station. "You can end up with a mouth deformity of sorts. Teeth don't grow back. If you fracture someone's tooth, it's got to come out. Not only can it kill you, but it can also alter your lifestyle. Proper sterilization of equipment is critical, and I would bet money they're not properly sterilizing instruments."

## New Dental Monitoring APP For Teen

Dental Monitoring has rolled out an APP update aiming to help increasing the engagement of patients and users. This new feature offers users a fun and interactive experience – key to enhancing motivation and compliance, especially for teenagers.

The game-like features to the design can change patient behaviour by rewarding them for keeping up with treatment. Adding fun and goal-based elements to a regular task will make that task for the targeted group more competing.

Users can then unlock badges in the APP for activities like taking scans on time, treatment milestones, getting consecutive GOs, treatment anniversaries, and sharing the badges they earned for social media.

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# Caring for patients with stage IV Periodontitis: Responsibility and Challenges for the dental profession in Hong Kong.

“

**Despite progress in both diagnostics and therapeutics, Periodontitis remains the main cause for loss of teeth in adults in Hong Kong. As the treatment is often neglected in the early stages of the disease, many patients end up with a “terminal” periodontitis later in life, a condition that can have serious implications to their health and quality of life, but also pose significant challenges to the dental team who will devise the treatment. Today we discuss the implications of stage IV Periodontitis for patients and clinicians with Dr. Pelekos, Assistant Professor and Programme Director of Periodontology at the University of Hong Kong!**



**MUDr. George Pelekos**



## Is Periodontitis still a major health challenge?

Unfortunately it is. Periodontitis is actually the sixth-most prevalent health condition globally. According to the Global Burden of Disease (2017) the prevalence of severe periodontitis was 11% affecting approximately 743 million people and contributing to 5 million years lived disability. As one of the major causes of tooth loss in adults that eventually leads to impaired masticatory function, periodontitis compromises dietary habits and nutritional intake [Kossioni 2018], psychosocial confidence and overall quality of life [Ferreira et al. 2017]. There is a dose-dependent relationship between the severity and extent of periodontitis and its negative impact on the quality of life, i.e., a more severe stage of periodontitis will impose a greater impact on the quality of life [Buset et al. 2016]. There is also a growing body of evidence associating periodontitis and systemic diseases. Periodontitis is independently associated with multiple chronic noncommunicable diseases of aging, including cardiovascular diseases [Tonetti & Van Dyke, 2013] and diabetes [Sanz et al., 2018] and may even increase the risk of mortality in selected populations [Sharma et al., 2016].

## What is the situation in Hong Kong?

Hong Kong is no different to the global status, if not somewhat worse, as we have a high number of elderly population, many of whom belong to vulnerable or underprivileged groups. The problem however seems to start already from young age: in the first published study on the oral health of Hong Kong city's 18-year-olds, healthy gums were only 2% of the group [Lu et al. 2013]. Unsurprisingly like elsewhere in the world, the periodontal condition deteriorates with age among Hong Kong people. Moving to the adults, only 1% of 35- to 44-year-old people had healthy gums. Eighty per cent of them had bleeding gums surrounding at least half of their teeth, and 40% had deep pockets. In the elderly population (over 65 years old), it was found that almost all (97%) of them had bleeding gums, and more than half (60%) presented deep pockets. Hence, the periodontal status indicates that people in Hong Kong need professional general and specialist periodontal care.

## What is the stage IV Periodontitis and what are the challenges associated with these patients?

Stage IV Periodontitis is a term introduced in the latest consensus workshop in 2018 to describe the most advanced stage of the disease. It is characterised by severe attachment loss, tooth loss resulting in <20 remaining teeth (<10 opposing pairs) masticatory dysfunction tooth mobility grade  $\geq 2$ , severe alveolar ridge defects; and occlusal collapse (tooth drifting, flaring). In the earlier presentation of stage IV periodontitis patients, there often are teeth that can be successfully treated, maintained, and remain functional for many years, therefore timely treatment is critical. Such treatment includes comprehensive periodontal therapy and often complex intervention such as regenerative surgery and rehabilitation with implant-supported fixed prostheses aiming at improving masticatory function, provide support for the remaining teeth and in some cases speech and aesthetics. So, it's clear that there are major differences between the treatment of periodontitis in general and the treatment strategies and interventions required for the terminal stage. Most of the currently available evidence in the management of Stage IV Periodontitis is of low strength and is mostly based on expert opinion. Considerable time and efforts are needed from clinicians and patients. Added to this is the financial burden imposed from the treatment required. Therefore, it is not uncommon for these patients to either delay or postpone treatment, or resort to symptom-driven management. In turn, this leads to a vicious circle of disease progression and uncontrolled tooth loss, with growing negative impact on their quality of life and possibly systemic health.

## What are the essential competences for the dental team in order to offer proper care to such patients?

As we discussed, patients at this stage of the disease suffer from multiple problems and there is high risk for rapid deterioration of the masticatory function. Consequently, complex treatment strategies have to be employed, which most likely go beyond the surgical periodontal therapy but also include prosthodontic interventions with or without dental implants and even orthodontics. Not to underestimate the behavioural aspects of treatment are significant, as patients have to share the burden of responsibility with clinicians and often make significant changes in

their mindset and approach towards a healthy lifestyle. It becomes apparent that a wider multi-specialist team approach is essential and the early and comprehensive plan of the treatment might make the difference between success or failure and further down break of oral function. There is a lack of prospective studies related the changes in masticatory function and patient-reported outcome measures after each step of periodontal and rehabilitative therapy [Gennai et al. 2022]. We hope our work in Hong Kong can soon add more to our abilities to treat these patients effectively.

## You have recently received a major grant to design care for stage IV patients; tell us more about your plans!

Very recently, my team from the division of Periodontology and Implant Dentistry at the University of Hong Kong was awarded by the **Azalea (1972) Endowment Fund** the total amount of HK\$11 million to launch a project that will allow us to treat more than 100 underprivileged Stage IV Periodontitis patients of Hong Kong. This treatment will of course take place under a very carefully organised team of multiple dental specialists in the Institute of Advanced Dentistry (IAD /HKU). We believe that this project, upon completion, will have a big social, educational and research impact both on

local and international level. We will be able to deliver cutting edge care to a large number of patients in need, but at the same time we will improve our understanding of the effectiveness of periodontal and implant rehabilitation in stage IV periodontitis. At the same time we will disseminate this knowledge to all stakeholders in the society, not only raising awareness towards the importance of early treatment but also training many cohorts of new dentists and specialists who will then continue delivering care for many years in all sides of Hong Kong.



Case of generalised stage IV grade C with preoperative panoramic radiograph and intraoral photos

Postoperative intraoral views after non-surgical periodontal treatment and periodontal regenerative surgeries [in teeth # 36 , 46] stabilised periodontal condition followed with guided dental implant treatment[# 13 14 area] for the functional rehabilitation of the dentition.



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# The Digital Wax-up: The First Step Of The Digital Journey!

Just like a journey of one thousand miles begins with a single step, so every digital workflow start with one wax-up. The digital wax-up, as is conventionally known the 3D reconstruction of the final treatment outcome, is what will set the tone for every procedure that follows and will determine to a great extend our course of actions. There is therefore no need to emphasize how important it is to make this first step in the right direction!

The conventional build up with wax, was one of the earliest challenges dentists and technicians had to face already from the first undergraduate year. Melting and carving wax to make the perfect tooth anatomy was what offered to all of us the first deep understanding of the 3Dimensional tooth shape and how it relates to the rest of the oral tissue. Today the conventional wax-up is increasingly becoming a relic of the past, as sophisticated dental schools are already placing heavy emphasis in training student in the 3-dimensional digital reconstruction of missing teeth and the related skills [Figure 1] [1, 2]. However, make no mistake: the digital wax up is certainly no less of an art, or less of a challenge that the conventional wax melt and curve!

Most planning software today would offer a digital wax-up possibility by means of ready-made CAD teeth libraries that one can

directly use. Such libraries allow for rough dimensional changes to fit the edentulous space, but when used like that they can rarely represent the proper tooth morphology, which can vary tremendously between individuals. Think of the suit you buy at Zara or H&M and compare it to the tailor-made one. A ready-made suit would fit in most cases more or less fine if you get the right size, but it would never completely tick all boxes. Fine in the neck but somewhat long at sleeves, good length but a bit loose at waistline. Whether you truly need a tailor made one depends on your standards but also on the seriousness of the occasion. Most would be fine with a ready-made jacket for everyday commuting to work, but would you like a less than optimal suit in your wedding photos?

Likewise, the digital wax up is a critical first step to set the direction in your entire treatment. Make sure it has the perfect fit for what you want to do. A ready-made tooth from the library would do the job as a "placeholder" but it would rarely represent the proper anatomy for the case you work and in particular the optimal mix of convexity and concavity you need to create the perfect emergence profile for aesthetics and sustainability. Studies have shown a clear tendency greater contour increase for digital wax-up created that way [3]. Furthermore, it is also shown that both the software used and the experience level of the designer can significantly influence the final outcome in terms of precision and symmetry, especially in veneers [4].

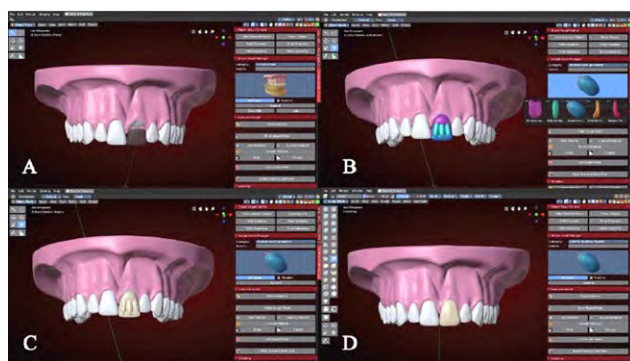


Figure 1: learning tooth morphology, is no longer a matter of wax curving in sophisticated dental schools. Essential CAD skills and digital wax up is already in use to teach students the 3-dimensional tooth morphology! (from Mino et al 2022)

Conclusively, digital wax-up is the critical first step in every digital workflow and it can seriously impact your final outcome. Do not leave it up to the rough approximation or ready-made teeth. A small investment to the work of an expert designer might be the wisest move towards the perfect outcome. An expert digital designer will have the knowledge and the tools to create the optimal emergence for sustainability and aesthetics. Even more, in the case of implant therapy the design can extend to the optimal shape of the implant supracrestal complex [5] and thus direct the optimal implant depth and position.

You can find many quality designers at [www.dentfish.com](http://www.dentfish.com) [6], ready to help you with optimal tailor-made digital wax-up for a speedy and cost effective digital workflow!

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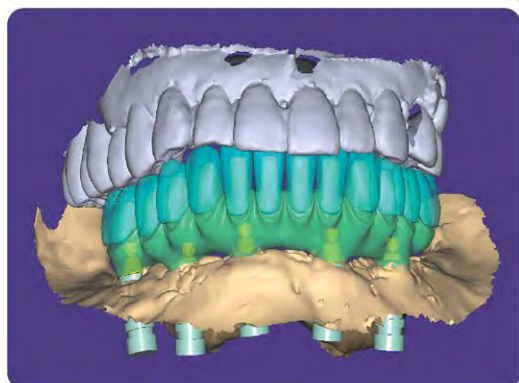
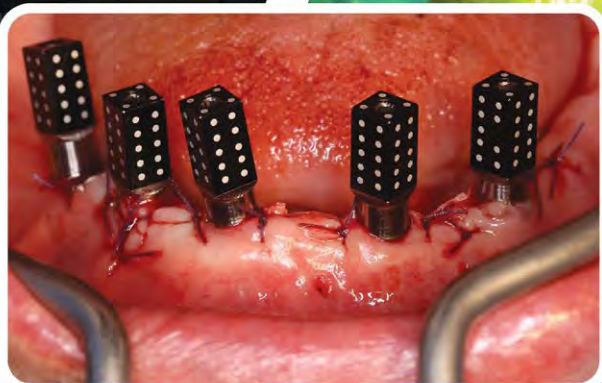
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# A Reliable Bonding Protocol for Single Tooth or Complex Restorations

Consistent systems for isolation, etching, and adhesion deliver strength and longevity



**Dr. Devin McClintock**

Although the saying, "Practice makes perfect," may be an exaggeration, deliberate practice can lead dentists to placing restorations with consistency, reliability, and longevity. Good clinical dentistry that delivers on these three principles hinges on the development of good systems, and the development of those systems should begin with a focus on single tooth restorations. Once a dentist's systems for single tooth restorations have been refined, they can be scaled up to be applied to more comprehensive and complex cases. This article presents a bonding protocol system that can be scaled from single tooth dentistry to full-mouth rehabilitation and is applicable to both indirect and direct restorative procedures.

One of the most common frustrations voiced by clinicians regarding bonding procedures is the lack of reliability. However, this is often a result of operator error.<sup>1</sup> Good bonding protocols begin and end with rubber dam isolation. Because restorative dental materials are hydrophobic, ensuring an isolated field should be the first step in every bonding procedure.<sup>2</sup>

## Case Report

A patient presented to the practice for the final restoration of tooth No. 5, which had previously been prepared, including an immediate dentin sealing procedure, and then fitted with a provisional restoration.<sup>3</sup> After the provisional restoration was removed, rubber dam isolation was achieved, clamps were placed [B4 Clamps, Coltene], and the bonding surface was cleaned with 27  $\mu$ m aluminum oxide particles at 40 psi [PrepStart™, Zest Dental Solutions] (Figure 1).<sup>4,5</sup>

When cementing indirect restorations under rubber dam isolation, it is essential to ensure adequate visualization of and access to the margins. The use of accessory clamps helps to accomplish this task. Although most rubber dam clamps in circulation are designed for endodontic procedures, the ones used in this case were selected because they are designed for restorative procedures, allowing for tight approximation and inversion of the rubber dam around the tooth being isolated. Prior to starting a bonding protocol, clinicians should remove all remnants of provisional cement and debris and confirm the passive fit of the final restoration. If a restoration is not able to seat fully, the clamps should be adjusted, and the restoration should be tried in again until the fit is confirmed (Figure 2). Once passive fit is confirmed and adequate inversion and isolation are maintained, the bonding protocol may commence.

To provide the necessary microretention for successful bonding in this case, the tooth was etched with a high viscosity phosphoric acid etchant [Select HV® Etch w/ BAC, BISCO] and thoroughly rinsed (Figure 3). The high viscosity of this material facilitates precise placement and reduces the risk of it running onto the dentin and adjacent teeth, which makes it ideal for the selective etch technique. After rinsing, it is critical to not overdry the etched tooth. The excess water needs to be removed to achieve the highest possible bond strength, but care should be taken to prevent desiccation.

Following etching, the bonding protocol continued with the placement of a universal adhesive [All-Bond Universal®, BISCO]. Two separate coats were applied, and for each, the adhesive was scrubbed onto the preparation for 10 to 15 seconds using a microbrush to ensure adequate impregnation of the material into the tooth surface (Figure 4). Once the second coat was completed, the adhesive was air thinned for 10 seconds to evaporate the solvent.<sup>6</sup> Excess solvent should be evaporated by thoroughly air-drying with an air syringe for at least 10 seconds; there should be no visible movement of the adhesive (Figure 5). After the solvent was completely evaporated, the surface exhibited a uniform, glossy appearance, and the adhesive layer was then light cured for 10 seconds.

Because the final restoration in this case was being delivered using rubber dam isolation, the adhesive surface was at minimal risk for contamination during the time that the intaglio surface of the final restoration was treated for delivery. Understanding the requirements of the restorative material being used is essential for proper preparation of the intaglio surface. In this case, a lithium disilicate [IPS e.max®

CAD, Ivoclar] restoration was fabricated in house using an intraoral scanner (Planmeca Emerald® S, Planmeca) and a milling machine (Planmeca PlanMill® 40 S, Planmeca). The intaglio surface of the restoration was etched for 90 seconds with a 9.5% buffered hydrofluoric acid gel [Porcelain Etchant [9.5% HF], BISCO] and then copiously irrigated. Next, the intaglio surface was cleaned with the high viscosity phosphoric acid etchant for 30 seconds and copiously irrigated again to remove any potential contaminants. A silane primer [Bis-Silane™, BISCO] was then applied, and the restoration was placed in a dark box for 30 seconds. Silane is a coupling agent that is used to improve both the mechanical and chemical bonds between porcelain restorations and resin cement. Furthermore, it helps to protect restorations from contamination.

For final delivery, a dual-cure universal adhesive resin cement [Duo-Link Universal™, BISCO] was applied to the intaglio surface of the restoration, and it was seated using light finger pressure (Figure 6). A clean microbrush was then used to remove the excess cement from around the margins on the buccal and palatal aspects to ensure that the restoration was fully seated. Once complete seating was confirmed, a curing light was used to tack cure the buccal and palatal aspects for approximately 3 seconds each while maintaining finger pressure. All of the visible excess cement was removed, and the interproximal contacts were verified (Figure 7). The restoration was then fully light cured for 20 seconds on both the buccal and palatal aspects. Because the universal adhesive resin cement used is a dual-cure material, the restoration was allowed to fully chemically cure for 5 minutes before the clamp and rubber dam were removed and all of the remaining excess cement was removed with a scaler and the margins were finished [DET3F FG Fine Needle Diamond, Brasseler] (Figure 8).



## Conclusion

Good restorative dentistry stems from good systems, and good bonding stems from good isolation. Without one, clinicians cannot have the other. Maintaining control during all procedures allows clinicians to provide patients with consistent and reliable restorative outcomes. Whether a case involves delivering a single porcelain restoration or an entire arch, establishing and staying true to good systems is how clinicians optimize patient care.

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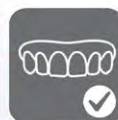
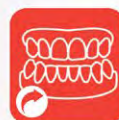


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for another try in or finish

# My Leap of Faith into Biomimetic Dentistry

Every crisis presents an opportunity. During the summer of 2019, as demonstrations in the city saw MTR closures and patient cancellations, I spent an increased amount of time browsing my Instagram. Aside from the obligatory cute puppy posts and viral dance steps, the algorithm was directing me more and more towards dentistry posts. I had been on IG a few years by then, and many of these newer clinical photos were not your standard juicy surgical shots, or 4-4 veneer cases (the ones where the post-op always looks 2/3rds of a stop brighter). These photos were unfamiliar to me for their novel cavity preparations (often completely non-retentive), red markings (what I now know to be caries detector dye) and heroic attempts to save teeth with huge carious lesions or cracks - teeth I would usually be readying my extraction forceps for. The more I went down this rabbit hole, the more I realised these weren't isolated cases of someone "trying out" treatments - it was a group of dentists following a certain philosophy. They called it "Biomimetic Dentistry". From this new wave of dental IG accounts, a couple in particular stuck out to me. They were a father-son duo of dentists from Utah in the United States, Drs David and Davey Alleman. Even though their pictures were not perfectly lit, and the rubber dams weren't in that baby blue shade that soothes my OCD, the descriptions under each post elevated their accounts above all others. The science behind each clinical step was described in numbered bullet points. I felt myself gradually intrigued by their explanations as I trawled through the posts, yet still wanting to know more. I always wish to stay young at heart, so I did what any respectable millennial would - I hit them with a direct message.



**Dr. Adrian Ho**

They got back in touch with me promptly, and it just so happened that they were launching a "Mastership Programme" for Biomimetic Dentistry soon. They offered me a place on the inaugural class, scheduled to begin at the end of 2019. Now, this was a fairly sizeable sum being asked from me by someone I had never met, whose exchanges with me were completely limited to Instagram. I did some due diligence with Google searches, and a week later I decided to take the plunge.

## So, what is Biomimetic Dentistry?

The term was coined by Pascal Magne and it is the concept that the natural tooth structure provides ideal physical and functional properties, and that the aim of restorative treatment should be to mimic the natural tooth as closely as possible. There is a strong emphasis on adhesive dentistry and a deliberate move away from traditional materials that rely heavily on mechanical retention (E.g. amalgam and gold). In order to mimic the natural tooth structure, Dr Alleman breaks it down into his "six lesson approach":

- **Establishing the concepts of caries removal (including the use of caries detector dye)**
- **Establishing the concepts of crack removal**
- **Optimising the adhesive complex with immediate dentine sealing and resin coating**
- **Reduction of stress, by controlling C-factor and use of deep margin elevation**
- **Preparation design and cementation principles for adhesive restorations**
- **Occlusal considerations**

Simply put, you must first prepare the tooth to accommodate an ideally bondable surface, then take steps to ensure the hybrid layer is as secure as possible. Finally, we must recognise the factors that are most likely to stress and compromise the hybrid layer and tooth structure, and mitigate their effects.

I had been aware of the six lesson approach from reading through Instagram, but it still seemed quite vague to me. Having just enrolled on the course, I was sent some preparatory videos and articles and the concepts became easier to understand. With more than 10 other students from all over the world, the course was conducted purely online. This turned out to be a blessing - as we all know now, the world would become heavily affected by COVID shortly afterwards. Every fortnight we were given 10+ articles, which would help us better understand the upcoming seminar topic. Each seminar would

be conducted on Zoom, and was based off each lesson from the six lesson approach. There was usually over an hour of Q&A after each seminar - I was at a particular disadvantage here as I never participated live, due to the time difference. However, students were also assigned monthly calls with Dr Alleman, and I saved up all my questions to ask him directly. In fact, the main bulk of information dissemination and learning was done through the WhatsApp chat group, so ideas and uncertainties could be addressed between students and the course leaders.

As I run a solo practice, I had free rein to implement Biomimetic Dentistry immediately. Especially whilst the course was ongoing, I documented my cases very closely with clinical photography and radiographs. There was definitely a steep learning curve, as many aspects of biomimetic dentistry involved relearning many of the most routine procedures (such

as a simple class I restoration]. The hard work implementing Biomimetic Dentistry into my practice was that my dental assistants had to first understand why we needed to alter the existing status quo, and the adjustments necessary to achieve that. Wholesale changes to treatment workflows, materials and scheduling all had to be undertaken in those early days. Since then, I have consistently stuck to Biomimetic restorative principles for all my patients. Seeing these cases 3 years on, I feel I have addressed several issues with my pre-Biomimetic work. In the very least, I have much more confidence in my caries and crack removal, moisture control and adhesion. On the other hand, I have been providing far more indirect restorations. As such, treatment times and lab fees have increased and I have had to make adjustments with regards to fees.

Despite the rapid spread of Biomimetic Dentistry around the world, thanks to social media and as a trending topic amongst hands-on courses, Hong Kong has largely been insulated from this movement. At the time of writing, 304 participants from 47 nations had undertaken the Biomimetic Mastership by Drs Alleman since its inception in 2020. Aside from myself, no other practitioners have been from Hong Kong and China. Of course, there are other educational resources on offer for Biomimetic Dentistry. However, a closer look into the locally available continued professional education courses suggest that this trend hasn't carried over to our part of the world.

Given my personal experience, I would strongly recommend my colleagues in Hong Kong to consider discovering more about Biomimetic Dentistry. Certain controversies still exist for me. For

example, I would still like to see a lot more clinical data comparing the outcomes of mineral trioxide aggregate pulp capping versus the Biomimetic concept of deep caries removal endpoint. The beauty of Biomimetic Dentistry is that there are many principles that apply to various stages of restorative treatment - you do not need to dive in at once. You can cherry pick and start off gradually, slowly incorporating more into your daily practice as you see cases come back and feel more comfortable with results. As mentioned, there is a teething period, even if you are in a position to make all the necessary decisions. It may be a bigger challenge for associate dentists who must follow existing protocols at their clinic. I have heard of many graduates of the Mastership programme opting for a "Partially Biomimetic" compromise. With this in mind, I recently offered a locum position to a young dentist, whose interest in Biomimetic Dentistry had also been piqued through Instagram. I acted as a mentor to explain the clinical steps. At the same time, he had the appropriate materials, staff and cases to his disposal. In the end, I felt it was a meaningful activity for both of us.

As an introduction, I would recommend following the Instagram accounts of Dr David Alleman [david.alleman.dds] and Dr Davey Alleman [davey\_alleman\_dmd]. If you prefer printed press, "Biomimetic Restorative Dentistry" by Magne and Belser is a beautifully put together book on the subject. And once you are on your Biomimetic journey, please contact your Peak salesperson to find out the most suitable materials to help you on your way!

#### Case 1



Figure 1. Use of caries detector dye. It is surprising how much gets missed by tactile sensation alone.

#### Case 2



Figure 2.a. Mid caries excavation with use of caries detector dye.



Figure 2.b. After preparing the "biobase", ready for impression taking.



Figure 2.c. Fabrication of chairside indirect composite restorations on a silicone dye.



Figure 2.d. Following cementation and adjustment of "semi-indirect" restoration with heated packable composite.

#### Case 3



Figure 3.a. Isolation following removal of secondary caries under an existing crown.



Figure 3.b. Following cementation of new lithium disilicate crown using heated packable composite.

#### Case 4



Figure 4.a. Patient presents complaining of tooth chipping. The diagnosis is secondary caries.



Figure 4.b. The "biobase" after implementing the Biomimetic principles of immediate dentine sealing and deep margin elevation.



Figure 4.c. Following cementation of indirect composite restoration with heated packable composite.

#### Case 5



Figure 5.a. Embedding Ribbon fibres into the composite layers at the cavity base to reduce C-factor stresses. The tooth is gradually filled with the Biomimetic principle of "decoupling with time", to further reduce polymerisation stress on the hybrid layer.



Figure 5.b. The coronal portion is restored incrementally, cusp-by-cusp.



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# Rework of Failed Implants

## General recommendations from Dr. Pedro Rodrigues

- Remove implants as atraumatically as possible
- Remove contaminations
- Bonereduction (sinuslift if necessary)
- All steps should be prosthetic driven
- Platelet-rich fibrin (PRF) to improve soft tissue healing conditions

Dr. Rodrigues graduated in 2002 and earned a master's degree in oral rehabilitation in 2010. Additionally, Dr. Rodrigues spent four years working in the Dr. Paulo Malo clinic in Porto. Since 2010 Dr. Rodrigues has given international courses, with live surgeries and training in implantology. Dr. Rodrigues has treated more than 1,000 full-arch cases with immediate rehabilitation on four implants and has developed his own treatment approach.



**Dr. Pedro Rodrigues**  
BChD, MChD (MFOS),  
Private practice, Porto, Portugal

### Clinical case

#### Initial situation



#### Patient information

|                                 |                                               |
|---------------------------------|-----------------------------------------------|
| Age                             | 46                                            |
| Jaw                             | Maxilla                                       |
| Health status                   | Good                                          |
| Height of smile line            | High                                          |
| Bone type                       | Soft                                          |
| Infections at implantation site | Yes                                           |
| Bone anatomy defects            | Very atrophic because of a previous reduction |
| Risks                           | No                                            |

#### Additional difficulties

|                                                                                 |
|---------------------------------------------------------------------------------|
| Moderate resorption in the maxilla and limited bone due to the failed treatment |
| Soft bone quality                                                               |
| Augmented vertical dimension                                                    |

#### Provisional prosthesis



#### Treatment

- Fixed immediate rehabilitation on four implants
- Bonereduction
- Tilting of the implant due to lack of posterior bone height

**Temporary restoration:** acrylic provisional prosthesis

**Planned final prosthesis:** one-piece titanium milled bar with acrylic teeth

#### Materials used



Straumann® BLX Ø 4.5 mm  
RB SLActive® 10 mm, 16 mm,  
Roxolid®



Screw-retained abutments,  
straight, GH 2.5 mm  
Screw-retained abutments,  
30° angled, GH 4.5 mm

“

*"I'm very impressed by the simplicity of the surgical protocol, the implant behavior in soft and hard bone, very easy to handle, and the possibility to obtain high primary stability even in softer bone types. Making the treatment even more repeatable and predictable, offering the possibility to expand the number of patients."*

*Dr. Pedro Rodrigues*

### My experience

### Clinical case



Initial clinical situation  
Transition line is visible while smiling



Initial clinical situation without  
fixed prosthesis



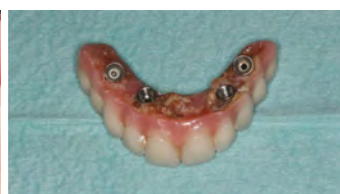
Initial clinical situation  
with fixed prosthesis



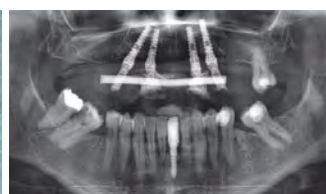
Occlusal view



Initial clinical situation  
Frontal view



Old prosthesis



Initial clinical situation  
Preoperative panoramic radiograph



Treatment planning

## Clinical case



Initial clinical situation  
Transition line is visible while smiling



Initial clinical situation without  
fixed prosthesis



Initial clinical situation  
with fixed prosthesis



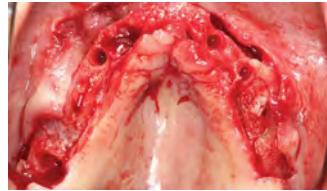
Occlusal view



Gingival flap elevated



Extracted failed implants



Occlusal view after the extraction  
of the failed implants



Transparent guide to measure  
the bone reduction



Transparent guide after the bone reduction



Transparent guide after the bone reduction



Straumann® Pro Arch Guide in place



Four Straumann® BLX Ø 3.75 mm  
RB SLActive® 16 mm Roxolid® implants



Four Straumann® BLX Ø 3.75 mm  
RB SLActive® Roxolid® implants in place



Placement of the anterior  
Screw-retained Abutments



Screw-retained Abutments in place  
Alignment with the transparent guide



Screw-retained Abutments in place  
Alignment with the transparent guide



Screw-retained Abutments in place  
Frontal view



Screw-retained Abutments in place  
Occlusal view



Platelet-rich fibrin (PRF) placement



Placement of non-engaging Titanium  
Copings on the anterior and  
posterior abutments.



Provisional prosthesis on the articulator



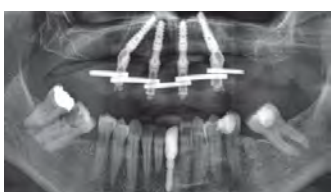
Finished provisional prosthesis



Finished provisional prosthesis



Provisional prosthesis in place  
Final prosthesis will be placed six months later



Postoperative radiograph



One month after the surgery



One month after the surgery



One month after the surgery

# Coffee:

## One of the most popular beverages in the world

Coffee is not only a beverage, but an energy provider. In the contemporary world, coffee has become a daily need for people, and it may soon become the most popular drink in the world. People love coffee not just because of the smell it provides, but also the feel after tasting, which is the energy that caffeine provides that can also release stress.

## Coffee

can be broadly defined as specialty or commercial quality. From a consumer standpoint, the most obvious difference between commercial and specialty coffee is packaging: Commercial coffee is served in small instant coffee bottles, or ground and packed in cans, or knocked over plastic bricks. Specialty coffee is stored or shipped as whole beans, either in pound bags or loose, and must be ground before brewing.

Specialty coffee is a semi-finished product of a multicultural, transoceanic cuisine. By the time coffee is consumed, it has undergone at least seven important processes performed by seven potentially independent parties residing in two to four regions of the world. Unlike fine wine, which is often bottled by the same people who grow the grapes and produce the wine, coffee is not bottled, purchased, opened and enjoyed by the consumer.

Admittedly, the once-clear distinction between specialty and commercial-grade coffee has become a bit blurred. As more consumers buy specialty coffee and fewer shoppers buy commercial coffee, commercial coffee companies try to capture the boutique market with a variety of compromises, from Apathetic cans of "French Roast Coffee" to supermarket chains themselves to decent whole Bean coffee label for sale.



## Preparation

In the botanical sense, coffee beans are not beans at all. They are twin seeds of a red (and sometimes yellow) fruit, about the size of the tip of a pinky finger. Growers call these coffee fruit coffee cherries. Before coffee can be shipped and roasted, the beans or seeds must be separated from the fruit. Nature has been very generous with the packaging of coffee beans, and removing the three layers of husk and layer of pulp surrounding the seed is a complex process. When done right, coffee looks better, tastes better, and costs more.

### How to prepare in the best way:

Coffee berries are selectively harvested when ripe. On the same day, remove them from the skin to expose the flesh. The pulp-covered beans are then subjected to controlled fermentation in tanks. The loose fermented pulp is then gently washed from the beans before they are dried, and the final skins are now dry and crumbly then peel off by machine.



## High-grown milds, Brazils, robustas

High-grown milds, Brazils, and robustas are the three categories which the world's coffee production divided by coffee buyers.

High-grown milds and Brazils coffees both come from the species of plant belonging to the coffee arabica. Arabica coffee is the variety sold to the world through coffee. It still grows wild in Ethiopia and was first cultivated commercially in Yemen, at the southern tip of the Arabian Peninsula. Coffee lovers later brought Arabica coffee around the world, just as the spread of European wine grapes formed the basis of the world's wine industry.

The differences between the Arabica coffees that make up the high-grown milds varieties and the Brazil varieties are twofold: the altitude at which they are grown and the level of care taken during picking and preparation. Arabica coffee trees are not frost tolerant and do not thrive in extremely high temperatures. This means it grows best in certain mountainous areas with good moisture in the tropics. Highland grown mild Arabica coffee is grown at altitudes of more than 2,000 feet above sea level, often between 4,000 and 6,000 feet. They are made from fruit that is picked only when ripe and carefully prepared. Responsible specialty coffee roasters use only the best high-grown mild coffees.

## Enjoy life, drink beautiful coffee

Ethiopia is one of the best places which produce the best coffee beans. Below will introduce some coffee beans from Ethiopia and the cooking method.



**Worka Site**  
Roaster: SEY  
Region: Ethiopia  
Variety: yirgacheffe  
Landrace  
Process: washed  
Flavour: jasmine, lilac  
floral, riped peach



**Martin Ramos**  
Roaster: SEY  
Region: Colombia, Huila  
Variety: V. Colombia  
Process: washed  
Flavour: red currant-like  
acidity, mango, tropical  
sweetness

**First, use 50g water to do the blooming, which aim to wet all the coffee and let the coffee to release all gas. If the coffee beans are too fresh, use a longer blooming time(40-45s). The rest pour can use circular centre pour. Pouring time of each pour should be around 10s. The time slot is just a reference as different beans in different process affect the brewing time. Therefore, each pour can start right after the coffee liquid dropped down.**



# A Great Comeback for ITI FORUM HONG KONG!

Last February, ITI Hong Kong staged the great “comeback”, bringing back on stage local and international speakers to debate the digital implant dentistry. ITI members and guests enjoyed a cutting-edge scientific programme and lively panel discussions, but also friendly chats over a glass of wine and dinner!



Dr. Jeannete Chua, periodontist and ITI fellow from Malaysia opened the forum with two very hot themes in implant dentistry “digitisation” and “immediacy”. Through her very wide clinical experience she reviewed how the digital workflow has really transformed immediacy, and then through many practical examples she presented concrete and solid advice on how to incorporate digital dentistry with focus in immediacy



Two presentations followed by local ITI members,

Dr. Aaron Chu and Dr. Bosco Wong. Dr. Chu presented on his current digital protocols on fully edentulous patients and his journey of learning and growing into the clinical protocols, reviewing best practices and mistakes. Dr. Wong a long-standing ITI fellow and former study club director closed the session with a presentation on his growth into the digital workflow, discussing patient cases but also research evidence illustrating the current level of accuracy and precision with digital implant dentistry.

A lively panel discussion erupted with the audience not shying away from asking some tricky questions! This way the panellists had to share their experience in multiple areas, from feasibility and risks of immediacy in the posterior sites, to tips and tricks of the entire digital workflow.



In the second half, professor Atiphan Pimkhaokham, presented the evolution of computer assisted implant surgery and discussed its place in the digital workflow. Through clinical cases and some cutting edge research, he made a convincing case of what guided surgery can offer today, but also the differences between the two main current techniques: static and dynamic. Although both can help clinicians achieve similar level of accuracy, they utilise different technologies and workflow, thus they offer a different array of indications and limitations. At present, dynamic navigation offers many advantages but comes with the significant start-up cost of the navigation device. As devices become rapidly cheaper however, dynamic navigation might soon enter the mainstream practice and dominate the market of guided surgery.

The closing presentation came from an international-local, professor Nikos Mattheos, who was obviously delighted to be on stage after having counted 930 days away from Hong Kong! He presented how the new paradigm in implant dentistry is not this of osseointegration and wound healing, but rather the design of a whole new organ, a system where human tissue, mechanical components and bacteria work together to secure long term healthy and sustainable clinical outcomes. In this paradigm we have for the first time the opportunity to envision the whole treatment outcome in detail already from the start and design the intervention steps as well as all components for the individual needs. This potential however comes with great responsibility, as we now need to understand well the impact of our design and how it affects the clinical outcomes in the long term. He then went on to review current research including some of his own yet unpublished data, defining the new principles and guidelines for the design of implant prosthesis and components.

The forum ended late into the Saturday evening, but the innovative presentations and the lively discussions will certainly stay long with all those who attended! Certainly until the next one, which will be coming again soon!



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### CLINICAL CASE



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| BO-682030   | Jason® membrane 20 x 30mm | \$1,265 |
| BO-683040   | Jason® membrane 30 x 40mm | \$1,955 |

### CLINICAL CASE



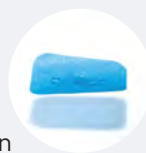
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**DR. HOWARD GLUCKMAN**

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| BO-682030   | permamem® membrane 20 x 30mm | \$1,265 |
| BO-683040   | permamem® membrane 30 x 40mm | \$1,955 |

### CLINICAL CASE



### Case Of The Month

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cerabone®, permamem®, Ridge augmentation / reconstruction

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### TECHNICAL INFORMATION



Prof. Giovanni Zucchelli's technique for the treatment of gingival recession

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|--------------|------------------------------------------|---------|
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| NI-0110-010  | Straumann® XenoFlex 6 x 6x 6mm, 100mg    | \$950   |
| NI-0110-025  | Straumann XenoFlex 7 x 8 x 9mm, 250mg    | \$1,200 |
| NI-0110-050  | Straumann® XenoFlex 9 x 10 x 11mm, 500mg | \$2,000 |
| NI-0110-25S  | Straumann® XenoFlex Syringe, 250mg       | \$1,200 |
| NI-0110-050S | Straumann® XenoFlex Syringe, 500mg       | \$2,000 |



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| BO-1511     | cerabone® Small Granule 500-1000micron, 1.0cc | Starting from \$920   |
| BO-1512     | cerabone® Small Granule 500-1000micron, 2.0cc | Starting from \$1,380 |
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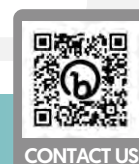
### Increased Patient Comfort & Compliance

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|---------------|-------------------|------------------------|
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## THANK YOU

for reading the 5<sup>th</sup> edition of the Dental Diaries. We hope you enjoyed your time with us. Please send us any valuable **advice, feedback or enquiries** via the following contact:  
+852 2101 1085 | [enquiry@dental-diaries.com](mailto:enquiry@dental-diaries.com)



### DENTISTS POSITIONS

**Aspire Dental Care (Kwun Tong)** is seeking a part-time or full-time dentist. We are a place to perform dentistry you are proud of, on patients you'd like to see, along with a team you are happy to be around. Send your CV to [9723 8367](tel:97238367) or [hello@aspiredentalcare.hk](mailto:hello@aspiredentalcare.hk)

**EC Healthcare is seeking Dentist (Welcome New Graduates).** Interested parties please email your full resume with your last and expected salary to [tonytsoi@echealthcare.com](mailto:tonytsoi@echealthcare.com) or WhatsApp [6655 6953](tel:66556953).

**IMPLANT PRACTICE (Kwai Chung, Mong Kok, Sheung Shui)** looking for dentists to handle prosthetic treatment for implant patients. Excellent opportunity for dentists to learn and start implant treatment. Monthly income \$150,000 to \$200,000 or more. Please whatsapp CV to [9202 9771](tel:92029771)

Part-time Dentists are invited to join our busy clinic in Tuen mun. Well-equipped clinics, and a huge patient pool, please WhatsApp [5328 1449](tel:53281449) Ms. Chan or email to [onedentalcliniclab@gmail.com](mailto:onedentalcliniclab@gmail.com).

**A University Clinic (Clearwater Bay)** is seeking an experienced Part-time Dentist. RETIRED dentist is also welcome to join our team. Interested please contact Ms. Wong at [2810 0573](tel:28100573) or apply to [esec@bjdental.com](mailto:esec@bjdental.com).

Part-time or full-time dentists (Mong Kok, Sham Shui Po, Chai Wan or TKO) were invited by our group. We have six clinics, with more than 150 years of history in total. very large patient pool. Basic 5000hkd per day or 50-60% commission, the higher is your salary. Please WhatsApp [9099 0795](tel:90990795)



### HYGIENIST POSITIONS

Working Location: Ngau Tau Kok Form 5 graduate with at least 1 year working experience of DSA. Please send your CV to [katy.chow@poleungkuk.org.hk](mailto:katy.chow@poleungkuk.org.hk) or call [2390 2711](tel:23902711).

**醫思健康誠聘牙科助護**，主要負責接待；接聽電話；協助醫生完成簡單診症工作及處理行政工作。有興趣者請發送您的完整簡歷以及最後和期望的薪酬至 [recruit@echealthcare.com](mailto:recruit@echealthcare.com) 或 WhatsApp [6655 6953](tel:66556953)。

**康健牙科誠聘全職牙科助理** (火炭 / 沙田 / 佐敦)，主要負責前枱登記及協助醫生診症。有意應徵者請電郵你的履歷及要求薪金至 [hadmin-nurse@townhealth.com](mailto:hadmin-nurse@townhealth.com) 或 whatsapp至 [9830 4733](tel:98304733)。

**卓健醫療服務有限公司誠聘牙醫助護** (將軍澳 / 中環 / 銅鑼灣)，主要負責負責協助牙科手術及治療，工具檢查/消毒，保持診所衛生清潔。有興趣者請發送您的完整簡歷至 [hrd@qhms.com](mailto:hrd@qhms.com)或致電 [94326660](tel:94326660)

**EC Healthcare** is seeking full-time Dental Hygienist. Interested parties please email your full resume with your last and expected salary to [recruit@echealthcare.com](mailto:recruit@echealthcare.com) or WhatsApp [6655 6953](tel:66556953).

New graduates are welcome. PT/FT. Please send your CV to [onedentalcliniclab@gmail.com](mailto:onedentalcliniclab@gmail.com) or WhatsApp [5328 1449](tel:53281449) Ms Chan.

**Concord Dental Care Centre** is seeking DSA. Interested parties please email to [admin@conrad-dental.com](mailto:admin@conrad-dental.com) / WhatsApp [6159 5770](tel:61595770) / Call [21542 221](tel:21542221).

**Quality HealthCare** is seeking a full-time Dental Hygienist (Lantau Island / TST). Interested parties please email your resume with your expected salary to [hrd@qhms.com](mailto:hrd@qhms.com) or WhatsApp [6110 7628](tel:61107628).

