iTOP - Harp instead of rock guitar

By Rolf Kufus, Switzerland

I n prophylaxis, the individual approach is as important as the training aspect. iTOP, which is Curaprox prophylaxis training, therefore considers "prevention" to be more than just using fluoride toothpaste.

When Rolf Kufus, a Zurich dentist, talks about prevention, he emphasizes the demands that prevention makes on dentists and patients alike. He compares it to music: "In most cases, prophylaxis means that the guitarist in a heavy metal band suddenly has to learn to play the harp. This is not something you learn overnight, and especially not without a teacher."

Oral health is a pleasure. Just like a delicate ripple on the 47 strings of a harp, iTOP teeth cleaning means saying goodbye to the coarse scrubbing by a rock guitarist with his few chords.

Right through from cleaning interdental spaces to the proper use of the single tuft and the efficient method with a soft, densely-bristled toothbrush based on the modified Bass method: iTOP is a three-step tutorial for beginners and advanced learners, for dental professionals. With toothbrush, single tuft brush, interdental brushes and dental floss in hand, participants learn

By Hansjoerg Reick, USA

A s Hansjoerg Reick describes his career and involvement in Oral-B and Procter and Gamble's Professional Care Technology, his enthusiasm and interest are obvious. When asked what he considers his greatest personal achievement since joining Oral-B in 1996, he will tell you that it has been helping people achieve better oral health.

"Oral care has been an area of growth and great innovation, an exciting business to be in and a great opportunity to create better products," Hansjoerg recalled.

With research and development facilities throughout the world, all Procter and Gamble's innovative oral care products are developed by global teams in multiple technical centers and with experts from different disciplines.

This involves working in close collaboration and partnership with all stakeholders - dental practitioners, universities, product research and development, marketing, clinical and consumer research, engineering and quality assurance.

Hansjoerg and his team "tap into the expertise and understanding of all technical centers worldwide, bringing together all of the innovators in research, development, clinical and consumer testing. In this way," he added, "we can create truly global and superior products."

Big stride forward

In his opinion, the most innovative toothbrush development has been the creation of a small, round brush head with an oscillating-rotating motion. The basic innovation for this product happened shortly before Hansjoerg joined the company. "This was revolutionary and a completely different cleaning approach, everything else at the time was either a manual or power brush that mimicked manual brushing motions," he said.

When asked how the research and development team had come up with the idea, Hansjoerg will tell you that it was a dentist-inspired solution. The research team developed the oscillating-rotating power brush by analysing the most effective cleaning mechanisms available in the dental industry and elsewhere - how brushes and bristles worked, and in what directions the bristles went depending on the motion of the brush.

"What the team discovered was that a rotational side-to-side brush movement was necessary for the bristles to reach all areas of the teeth from all angles, especially in hard-to-reach areas. This novel design was tested extensively in the laboratory, in clinical trials and by dentists in practice before it was introduced. "It has been independently reviewed and determined to be superior to manual brushes - especially in the critical lingual and interproximal areas, and other areas with difficult access. This design provides the best cleaning efficiency by surrounding and adapting to the morphology of the teeth," Hansjoerg said.

"It offers a superior clean experience and benefit for users. In fact, a 2005 Cochrane collaboration study found that only oscillation-rotation brushes were consistently superior to manual brushes for plaque and gingivitis reductions.

"In a more recent systematic review in 2011, significantly greater plaque and gingivitis reductions were again found only with oscillation-rotation brushes compared to manual brushes, confirming these earlier findings. After I joined Oral-B, we built on this innovation by adding pulsations to the oscillating-rotating technology to create the 3D Professional..."
Announcing one day iTOP seminar and hands-on training

Event: 7th Dental Facial Cosmetic International Conference in Dubai

Venue: Jumeirah Beach Hotel, Dubai, UAE

Date: 13th of November 2015

Lecturer: Dr. Franka Baranovic Huber, Switzerland

Objectives:
- To establish right criteria in choosing oral health tools
- To discuss mechanical control of biofilm
- To discuss failures in modern dentistry concerning prevention
- To show clear difference in using interdental brush vs. floss

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Care generation,' he added.

Project development
For Hansjoerg and his colleagues, the biggest objective is to have more and more people use a power brush and also enjoy the experience.

‘A key part in our success has been our partnership with dental practitioners, our dental advisory board and universities.

‘With their involvement in all stages of product development, we have been able to build on our research, knowledge and experience. We still do that today,’ he said, ‘all the while working on developing the ideal toothbrush for patients and consumers.

The goal is set high for new products during development: better performance and novel benefits, with a continuous stream of innovations at an affordable cost for dental professionals and consumers.

‘All of this is only possible because we invest into cutting-edge technologies; for instance, using specially-developed brushing robots enables us to improve product designs 24 hours a day. At our robotic centre we can test validated parameters to reliably reproduce and test brushing movements with prototype brushes early on.

‘Prior to conducting the robotic tests, we cover the models with a coloured plaque substitute and then we determine the results of brushing by using a visual system and computer-based analyses to calculate the results.

‘In this way we can simulate plaque removal and calculate plaque reductions for all areas of the teeth. This leads to fast-cycle learning experiments and provides confidence in our results before running long-term and expensive clinical studies.

‘We also use mechanical testing to rapidly perform quality assurance, simulating twice-daily tooth brushing over an extended period of time, to determine the durability of our power brushes,’ said Hansjoerg.

Key Milestones
A global team and partnership with dental professionals has led to a continuous stream of new products.

Key milestones have included a series of brush heads with different designs for various clinical needs and benefits, such as the Floss Action brushes that focus on interproximal cleaning and a brush head that is shaped like a polishing cup for optimal stain removal and whitening.

Specialty brushes also became available, including extra soft brushes, orthodontic brushes and interproximal brushes. Handles that are more ergonomic and that offer different features to encourage greater use and a more pleasing experience were also introduced. Along with providing brushes offering a superior clean, the other focus is on improving the sensory experience.

‘Research shows that people naturally don’t like to, and often don’t, brush for as long as two minutes. If you give people a brush they like to use, they will use it more, their compliance will increase and overall cleaning and oral health will improve,’ said Hansjoerg.

From this standpoint, innovations have been introduced that improve both performance and the sensorial experience for patients. The Professional Care brushes include a unique 3D mechanism with both the oscillating-rotating movement and a small pulsating motion for superior plaque and biofilm removal.

One study in which dental hygienists used a professional brushing technique, showed that by using the Professional Care brush and toothpaste they were able to remove as much plaque as they did when using a rubber polishing cup and the same toothpaste.

Just two minutes of brushing with the Professional Care brush resulted in a 94% reduction in plaque, while 10 minutes of brushing reduced plaque by 99% compared to 95% for 10 minutes’ use of a rubber polishing cup. In testing, its use has also resulted in greater reductions in gingivitis than use of a manual brush.

In addition, the pulsations add a pleasing sensation that helps drive use and compliance. A recent milestone has been the development and introduction of Procter and Gamble’s Professional Care brushes with in-use feedback. In addition to the well-established two-minute timer that gives a signal during brushing and when two minutes have elapsed, a novel pressure sensor was introduced that helps the user develop good habits.

The pressure sensor gives visual guidance on the right amount of pressure to use when brushing: if too much pressure is used, a red light appears on the brush. This helps the user learn to apply only the right amount of pressure – in just 30 days, 67% reductions in excessive brushing pressure were found when patients used this brush.

The ultimate sensory experience comes from the Smart Guide series. Hansjoerg described it as: ‘a remote display with interactive feedback to achieve best brushing results. The Smart Guide interacts with the user during brushing and a final “smiley face” appears after two minutes of brushing. It’s a reward for a job well done!’

The Future
Hansjoerg said, ‘I am still in oral care development because it is very rewarding – there is plenty of opportunity for future product improvements to help patients and consumers improve their oral health.’

Fast forward 10 years and Hansjoerg sees a clear and continued commitment to the delivery of the best-performing power brushes – brushes that people will like using because of the experience itself. All products will be global and there will be a range of products for everyone.

He added, ‘It’s a great job!’

The full list of references is available from the publisher.

About the Author
Hansjoerg Reick is the associate director of research and development of Global Oral Care Advanced Technologies and Innovation at Procter and Gamble. He has a diploma in Mechatronics, Engineering, and lives in Cincinnati, Ohio.
over several days how prophylaxis is more than mere fluoridation. That it means efficient and atraumatic brushing, individual training and even tailored coaching. Prophylaxis can also be a pleasure – and can motivate: Yes, my teeth are clean, my gums are healthy!

Train and train once again

iTOP is individually trained oral prophylaxis, that rejects the thinly-spread “watering-can” principle in favour of individually tailored prevention. Every mouth is different, and because the individual approach often means “scrub less” that is also the training aspect that iTOP alumni such as Rolf Kufus emphasize in particular. How else are we to compete against the force of habit, which so often causes us to brush our teeth incorrectly from childhood on - with too much pressure from too hard a toothbrush and dental floss where only an interdental brush is of use? “Patients with tooth-cleaning damage such as exposed tooth necks are unaware of being ill but instead they feel they’re doing everything right,” says Rolf Kufus. “And nobody wants to intentionally destroy their mouth. These are all simply wrongly trained habits.” Catherine Schubert, dental hygiene specialist and iTOP instructor, knows how detrimental these habits can be: “All too often, I see patients who are still suffering from bleeding gums even after ten years of treatment because they were not educated and trained. This bleeding could so easily be stopped.” (Cf. box).

Implants - the failures of prophylaxis

Rolf Kufus realigned the prophylaxis concept for Personalized Dentistry in his practice after his first iTOP course. “People are living into their 90s nowadays. It’s better without tooth repair. Today, there is an ever-increasing number of patients who view prevention as an essential part of the Hippocratic oath - namely the obligation to dental health as a whole. This also changes the role of dental hygienists who are shedding their role as “abrasive cleaners” and are turning into partners and fitness trainers for the oral health of patients.

Ultimately, iTOP also changes the role of a dental practice, moving away from repair towards prevention – without losing sight of profit orientation.

Dental care is fun like this

Dental hygiene professional and iTOP instructor Catherine Schubert on the:

- three most common mistakes in dental hygiene:
  Cleaning in the wrong place: the toothbrush is not close enough to the gums, with the result that its bristles cannot reach the sulcus.

Brushing with too hard a toothbrush: if the toothbrush bristles are too hard, the patient automatically moves the brush away from the gums and simultaneously causes brushing damage.

Brushing with too much pressure: together with cuts by flossing (and resulting recession of the gums), one the most frequently corrected errors.

- three most easily achievable improvements:
  Using an interdental brush: iTOP graduates learn with surprising speed just how efficiently the spaces between the teeth can be cleaned.

Feeling rather than intellect: DH professionals mainly instruct patients using a model. In iTOP courses, they learn on each other how atraumatic tooth cleaning actually feels.

Brushing perceived as pleasure: bleeding disappears in an instant thanks to a change in brushing technique and a soft brush. Dental care and its results create happiness.
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Infection control in an era of emerging infectious diseases

It’s critical to remain vigilant in ensuring an infection-free environment

By Eve Cuny, LSA

More than three decades have passed since the emergence of human immunodeficiency virus (HIV) as a global pandemic. More than any other infection, it is possible to single out HIV as the primary stimulus for changing infection control practices in dentistry. Prior to the mid-1980s, it was uncommon for dentists and allied professionals to wear gloves during routine dental procedures. Many dental clinics did not use heat sterilization, and disinfection of surfaces was limited to a cursory wipe with an alcohol-soaked gauze sponge. This was despite our knowledge that hepatitis B virus (HBV) had been spread in clusters in the offices and clinics of infected dentists and that dentists were clearly at occupational risk for acquiring HBV.

Plenty of reasons to remain vigilant

Today, many take safe dental care for granted, but there is still reason to remain vigilant in ensuring an infection-free environment for providers and patients. HIV has fortunately proven to be easily controlled in a clinical environment using the standard precautions. These standard precautions include the use of personal protective attire, such as gloves, surgical masks, gowns and protective eyewear, in combination with surface cleaning and disinfection, instrument sterilization, hand hygiene, immunizations and other basic infection control precautions. Sporadic reports of transmission of blood-borne diseases associated with dental care continue, but are most often linked to breaches in the practice of standard precautions.

Once-rare viruses now in headlines

Emerging and re-emerging infectious diseases present a real challenge to all health care providers. Three of the more than 50 emerging and re-emerging infectious diseases identified by the Centers for Disease Control and Prevention and the World Health Organization (WHO) include Ebola virus disease (EVD), pandemic influenza and severe acute respiratory syndrome. These previously rare or unidentified infectious diseases burst into the headlines in the past several years when they exhibited novel or uncharacteristic transmission patterns.

Concern about emerging infectious diseases arises for several reasons. When faced with a particularly deadly infectious disease such as EVD, which can spread through contact with an ill patient’s body fluids, health care workers are naturally concerned about how to protect themselves if an ill patient presents to the dental clinic. With diseases such as pandemic influenza and severe acute respiratory syndrome, which may be spread via inhalation of aerosolised respiratory fluids from a patient coughs or sneezes, the concern is whether standard precautions will be adequate.

In addition to standard precautions, treating patients with these diseases requires the use of transmission-based precautions. These encompass what are referred to as contact, droplet and airborne precautions for diseases with those specific routes of transmission. Transmission-based precautions may include patient isolation, placing a surgical mask on the patient when he or she is around other people, additional protective attire for care providers, and in some cases, the use of respirators and negative air pressure in a treatment room. In most cases, patients who are contagious for infections requiring droplet or airborne precautions should not be treated in a traditional dental clinic setting.

Treatment delay can be best policy

Updating a patient’s medical history at each visit will assist dental health professionals in identifying patients who are symptomatic for infectious diseases. Patients with respiratory symptoms, including productive cough and fever, should have their dental treatment delayed until they are no longer symptomatic. Additionally, health care professionals who are symptomatic should refrain from coming to work until they have been free of fever without taking antipyretic medication for 24 hours.

In most cases, a patient with symptoms as severe as those experienced with EVD will not present for dental care and therefore extraordinary screening and protection protocols are not recommended. If a patient is suspected of having a highly contagious disease, he or she should be referred to a physician, hospital or public health clinic.

Protect yourself and patients with vaccinations, proper hand hygiene

Dental professionals should take action to remain healthy by being vaccinated according to accepted public health guidelines, understanding that the recommendations may differ according to country of residence. Performing hand hygiene procedures at the beginning of the day, before placing and after removing gloves, changing gloves for each patient, wearing a clean mask and gown or laboratory coat, and wearing protective eyewear are all positive actions that help prevent occupational infections.

In addition, cleaning and heat sterilization of all instruments and disinfection of clinical surfaces ensure a safe environment for patients. There is solid evidence that dental care is safe for patients and providers when standard precautions are followed, but patients and dental health care workers are placed at risk when precautions are compromised and breaches occur.

References


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