By Jordan

A majority of the people asked, confirmed that their teeth are more important than other high interest personal care categories, for example, hair and even sun care. The reason for this is that we need our teeth to be healthy and strong in order to have a good quality of life, like eating, throughout our lifetime. In the past, it was an assumption that as we age our teeth get weaker and fail. That is not the case for today’s older adults who are keeping their natural teeth longer than ever before. More and more people are even keeping their teeth throughout their lifetime.

What many people do not know, is that the risk of cavities increases with age. One of the reasons is dry mouth, a common side effect of many prescription medications. About 40 percent of the population has a black or white spot on their teeth that could cause tooth damage. Another reason is that nerves inside the teeth become smaller and less sensitive. By the time you feel pain from a cavity, it may be too late.

So how can we best take care of our teeth, so that they last our lifetime?

The answer lies in daily care and regular visits to the dentist or hygienist. Follow the dentist’s recommendations and brush twice a day, and use, at least once per year, a professional product of choice to clean where a toothbrush cannot reach. Fluoride strengthens the enamel and reduces the risk of decay, so it is important that the toothpaste contains the recommended amount of fluoride. Dentists also recommend a soft toothbrush that has good much in order to clean basins and difficult areas in the mouth properly. Diet and lifestyle also affect teeth and gums, so to stop smoking and minimizing the intake of alcohol and other acidic sugary drinks are important steps to make. By daily removing plaque on and around teeth, as well as along the gum line, teeth and gums have the best chance of keeping their function and health.

There are several factors that affect our brushing results. How we brush and how long we brush are two of the most central Dentists recommend brushing for two minutes to get the best results, but few people actually do this. 50% of health care recommendations are not practiced. People also have a bad conscience when it comes to brushing their teeth. They know they should brush better and put more effort in to keep their teeth healthy for life. Another study shows that men are notably less likely to brush in the morning.

75% of women brush their teeth the recommended twice a day versus 60% of men. Women are also flousting more frequently than men.

Here are a few suggestions for taking care of the teeth:

- Use a toothbrush that feels comfortable to hold. These are different shapes and sizes. In a study it was found that the design of the toothbrushes affected the way people brushed and that people had a preference for how they brushed. If you hold the toothbrush in a light grip (not claw fingers around the toothbrush), you can rotate the brush and turn the handle a few times when you brush, you most likely prefer a slimmer, precision style handle. On the other hand, if you prefer a thicker handle you probably have a more static power grip.
- The size of the head comes in different sizes and the preference is also very personal. The important thing is that you can easily brush around your mouth in order to reach and properly clean all areas, especially the back molars.
- How the bristles are shaped can affect performance. Dentists recommend soft bristles that are gentle to teeth enamel and to your gums. It’s important that the toothbrush leaves you feeling clean and does not irritate the soft gum tissue.
- It’s important that you do not share your toothbrush and keep it hygienic between brushing sessions. The toothbrush must stand upright and leave the bristles to air dry for best results. If travelling, keep bristles protected from the other items in the toilet bag. A travel cap or case is recommended. Make sure you are using your toothbrush and not your tongue.

Keeping our teeth strong and healthy is important and it’s our daily efforts that help us achieve that.

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By Dr David Alexander, Singapore

With the Minamata Convention on Mercury signed in 2013 and its proposed phase-out of mercury containing products, including dental filling, dentistry has entered a new era in which new and less harmful filling materials than amalgam are increasingly being used. This year at IDEM, an entire symposium will be dedicated to that topic. Scientific programme director Dr David Alexander spoke with presenter Prof. Hien Ng from the University of Queensland in Australia about the post-amalgam era and its impact on dental practice.

Dr David Alexander: Why is now the time to be organising such a detailed symposium on dental restorative materials?

Dr Hien Ng: The scope of the Minamata Convention is much wider than its main objective to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. In 2014, the FDI World Dental Federation issued a policy statement on dental amalgam, supporting the recommendations of the Minamata Convention, which in 2013 called for a phase-down of amalgam. As this material has been one of the mainsprings of dentistry for over 150 years and as there has never been a larger impact on the way dentistry is practised every day, there is a need to start preparing today.

Surely with all the various tooth-coloured restorative materials available we are already in the post-amalgam era?

You are right, with the wide choice of tooth-coloured restorative materials and their improved performance, we are well equipped to tell the post-amalgam era in dentistry. However, the call by the FDI and United Nations Environment Programme (UNEP) for a global ban on dental amalgam was a still important tool in many parts of the world. This is mainly because of its perceived low cost, long track record and high technical tolerance. There are billions of amalgam restorations still in service and the search for the ideal tooth replacement material is still ongoing.

In preparation for the eventual removal of amalgam, the FDI policy statement sets out that resources should be allocated to research and development of alternative restorative and preventive strategies. In the post-amalgam era, the profession has to focus on both the prevention of decay and prevention of the management to dental diseases. Briefly, how did the United Nations treaty on limiting the use of mercury come about?

It started with the realisation of the negative impacts of mercury on the environment and health. The Minamata Convention was adopted in 2013 to address this issue in 2001. By 2009, it had become clear that there was enough evidence to recommend reducing the use of mercury globally. However, by ingeniously rerouting that there was insufficient voluntary action, it was decided to step up the response and to pass an international law, known as the UN intergovernmental agreement on mercury. This was the birth of the Minamata Convention, which was finally signed in 2013. Today, over 182 nations have signed it.

As far as dentistry is concerned, what will be the main changes in everyday practice?

The main changes include focusing on managing dental diseases, early detection and empowering patients to take charge of their care. When repair is required, the focus should be on maximum preservation of tooth structure. This can be achieved only with the use of adhesive dentistry and not amalgam.

In order to gain public confidence, dental practitioners should demonstrate their commitment to safe handling practices, to oral health education and to treatment that is based on sound evidence. Additionally, each country has to establish the selection and application of these new technologies. A benefit for every member of the dental team will be seen in patient satisfaction, as the aesthetics and longevity are so much greater now. The symposium will address restoring a single tooth as well as the entire dentition, and re-establishing a healthy oral environment.

What are the major learning outcomes of the whole-day symposium?

By the end of the symposium, participants will have gained practical knowledge of how to use effective, evidence-based and patient-centred preventive and restorative solutions in the everyday practice of dentistry.

We have assembled a panel of international experts from dentists, scientists and clinicians to share their knowledge and clinical expertise. We hope to enable a greater understanding of the opportunities for oral health and dental practice in the shift towards the post-amalgam era of dentistry.

By attending the symposium, will dentists be able to gain sufficient knowledge and skills to initiate changes in their practice?

The secret to success in responding to this call to action is to focus on preparing for the new era. The symposium is intended to provide participants with an understanding of the rationale behind the phase-down of amalgam, and participants will gain detailed knowledge on tooth-coloured restorative materials, learn new skills on the selection and application of new materials, and be able to communicate the significance of the changes to members of the dental team and patients. At the end of the day, participants will feel ready and empowered to embark on this dental journey towards a more healthy and efficient dental practice.

Clearly, the environment is at the heart of the treaty and the consequent changes in the practice of dentistry, but what do you see as other benefits to both the dentist and, of course, the patient?

The phase-out of dental amalgam with its associated mercury has been well documented. These materials have such high performance and are now very popular.

The main objective of this symposium is to bring together a group of experts and researchers to provide the latest information to the participants, as well as to dentists and clinicians. The list of speakers includes eminent dental leaders, scientists and clinicians who can ensure that each participant will benefit.

Thank you very much for the interview.

Interview: “The focus should be on maximum preservation of tooth structure”
Expert Clean, the best from Jordan
Where the magic happens

What goes on behind the scenes at Philips? We find out how in-lab research and years of innovation helped create Philips Zoom! whitening

By Philips

Tooth whitening has been at the forefront of cosmetic dentistry for years – centuries, even. Its history can be traced back thousands of years, long before the toothbrush was invented, and certainly before dentists were around.

Philips has been at the centre of this journey for years. Away from oral healthcare, the first Philips’ patent dates back to 1905 – an invention by Gerard Philips to extend the burning time of a light bulb. The company has been innovating light research ever since, so you can bet Philips knows a thing or two about adapting light for optimum tooth whitening.

Six shades lighter

Last month, Aesthetic Dentistry Today attended a live demonstration of Philips Zoom! Whitening in its lab, learning about the science behind and basic colour theory along the way.

Dr Nigel Young, lead research scientist at Philips, says that when it comes to whitening, patients want something that works – which may sound obvious. But most of the time, patients are looking for ‘instant gratification’, and often, home whitening will not last as long, or be as effective, as professional chairside whitening.

Here’s where Philips comes in: Zoom! is an in-office tooth whitening procedure, with a blue light-activated system. The action of the lamp activates the stains on the teeth and makes them react faster with the hydrogen peroxide. Essentially, this means that whitening lasts longer: set at the optimum pH level (approximately eight), and with the incorporation of amorphous calcium phosphate (ACP) in a dual barrel syringe, Zoom! ensures that teeth are not damaged and that the patient does not experience sensitivity.

The process is cool, too. The team wants to debunk the myth that heat activates whitening (which only causes dehydration and ‘fake’ whitening). It achieves up to six shades of whitening with 6% hydrogen peroxide, in compliance with EU regulations – and only blue light-activated whitening can achieve this. But how?

The face lift

In basic colour theory, yellow light naturally absorbs blue. (Think of yellow light as the ‘stains’ on teeth.) The energy absorbed by the chromophore (which is yellow) excites its bonds, making them easier to break – called photobleaching. Once excited, the bonds are more likely to interact with peroxide, which breaks the network of double and single bonds, and decolours the molecule. Blue light greatly enhances the reaction rate.

Light-cured restoratives work on the same principle a yellow pigment (camphorquinone) is added to the restorative (so little is required that it still appears white). The light absorbed by the pigment activates the chromophore and that energy causes a set of fast cross-linking reactions that solidify the restorative.

Dr Zaki Kanaan, a dentist in London and a past president of the British Academy of Cosmetic Dentistry, describes tooth whitening as a ‘scalpel-free face lift’.

According to Dr Kanaan, it is the most common treatment in practice, increasing revenue and offering patients a choice; home tooth whitening is still the ‘gold standard’, he says, but if you don’t offer tooth whitening in practice, someone else will.

Zoom! can be done in 90 minutes, but Dr Kanaan is quick to point out that one session will not be enough. It reduces what you have to do at home, and that’s important to patients, he says. It helps kick-start the process, and patients who really want this procedure will be happy to watch a 90-minute film while they have it done.

He adds, ‘It offers huge PR and marketing potential, too – patients come in to practice and ask for Zoom! by name, showing they trust it as much as professionals.’

Myths about whitening

• Heat does not accelerate whitening
• Hydrogen peroxide is not activated by blue light (as it is colourless)
• Dehydration actually causes ‘false’ whitening
• Home care whitening has a place, but it can take longer to achieve ideal results
• Zoom! does not harm enamel or exacerbate tooth sensitivity.

Safety first

Tooth whitening is a complex mix of chemistry and physics, and Philips has ensured that it works with the right researchers to understand the process behind whitening.

Philips works with four of the world’s top 10 universities and partners with leading academic institutes in the UK for oral healthcare, including the Eastman Dental Institute and King’s College London.

Dr Young says the lab at Philips headquarters in Cambridge is ‘where the magic happens’. The team assessed Philips’ Zoom! whitening here, looking at pH levels, sensitivity tests, experiments in a dark room, as well as ensuring extracted bovine and human teeth were not dehydrated to skew results. In vitro testing of coffee, tea and red wine stains on extracted human teeth were also conducted.

Follow-up, Dr Young says, is essential, the team has been researching this area and product since 2012, and made ‘absolutely sure that Zoom! was safe and effective for use.’

The only way is up

Philips is keen to invest, research and innovate in oral healthcare, maintaining its position as one of the key figures in the dental industry. The company aims to improve the lives of three billion people by 2025 on a daily basis, and bring this healthy living into prevention, diagnosis and therapy.

Dr Young also emphasised Philips’ role in future oral healthcare, saying: ‘Our aim is to push oral healthcare to the forefront of general wellbeing. The main question we ask ourselves is: how can we make people more aware of how to take care of their body?’

‘We came to Cambridge for a reason – we work with some of the best researchers in the world, and we hope to continue this learning and innovating long into the future.’

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Program duration:
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Credit transfer:
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Research engineer Zeynep Sabah Bagwell prepares Zoom! on extracted human teeth

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