Children are not getting dental check-ups early enough, global survey shows

By DTI

GENEVA, Switzerland: Maintaining a healthy mouth is crucial to keeping it functioning correctly and to maintaining general health and well-being. Ahead of World Oral Health Day, celebrated annually on 20 March to raise global awareness of the prevention and control of oral disease, the FDI World Dental Federation asked parents around the globe how they cared for their children’s oral health growing up. Their responses suggested room for improvement.

The survey, carried out online in ten countries and completed by 11,552 adults in total, found that only 13 per cent of parents with children aged 18 and under had taken their child to the dentist before their first birthday—the recommended age for the first dental visit. Most parents first had taken their child to the dentist when he or she was between 1 and 3 years old (24 per cent) or between 4 and 6 years old (22 per cent). Alarmingly, 20 per cent of parents reported never having taken their child for a dental check-up.

“It’s worrying to learn that most children are not getting a dental check-up at the recommended age,” said FDI President Dr Kathryn Kell. “Good oral health habits start early. Parents should visit the dentist after their child’s first tooth starts erupting as a preventive measure to avoid risk of developing early childhood caries. Oral disease can impact every aspect of life and is associated with many general health conditions. This World Oral Health Day, we want people to make the connection between their oral health and general health and understand the impact that one has on the other. Knowing how to protect your mouth and body at all ages contributes to a better quality of life.”

Half of the parents who had taken their child to the dentist identified the reason as being a regular dental check-up. However, while this was the most frequent answer in the UK (82 per cent), Sweden (77 per cent), Argentina (65 per cent), France (63 per cent), the US (63 per cent), Australia (56 per cent) and China (54 per cent), the most reported response for having gone to the dentist in Egypt, the
Philippines and Morocco was pain or discomfort in their child's mouth (56 per cent, 43 per cent and 38 per cent, respectively).

More than 43 per cent of the parents said that they personally ensured that their child's teeth were brushed before bedtime to avoid oral disease—a key message promoted by the FDI. The survey also found that 40 per cent of parents supervised their child's toothbrushing twice a day and 38 per cent of them said they limited sugary foods and drinks in their child's diet to prevent oral disease. Only 36 per cent reported personally having cleaned their child's teeth from as soon as the first tooth erupted, and just 8 per cent mentioned having encouraged their child to wear a mouth guard when playing sport.

The FDI recommends practising good oral care, avoiding risk factors such as an unhealthy diet—particularly one high in sugar—and having regular dental check-ups to protect oral health and general health at all ages. Parents should start cleaning their child's teeth before bedtime with the eruption of the first tooth, supervise toothbrushing twice a day with a small amount of fluoride toothpaste, and schedule regular dental check-ups, starting no later than the first birthday.
“The oral environment becomes more hostile with age”

An interview with Prof. Hien Ngo

Professor Hien Ngo has extensive experience in private practice, research and education. Over the last 30 years, he has been active as an international speaker on cariology, minimal intervention and restorative dentistry. At present, his focus in research revolves around the clinical management of caries, especially in elderly and medically compromised patients and the interactions between glass ionomers and the oral environment. Dental Tribune Asia Pacific had the opportunity to speak to him prior to his presentation at IDEM 2018 in Singapore about the concept of “lifelong oral health” and the major demographic change in ASEAN countries.

Dental Tribune Asia Pacific: The term “lifelong oral health” was used by the FDI World Dental Federation in one of its policy statements. What does it mean?

Prof. Hien Ngo: Previously, edentulous among older individuals was accepted as a norm. However, with recent advances in preventive and restorative dentistry, the FDI stated, “The goal of reaching old age with a full set of teeth is feasible if preventive measures and oral healthcare are accessible throughout life.”

The key term here is “throughout life” because a good oral health foundation in childhood is the key determinant of oral health at a later stage in life.

Lifelong Oral Health was the title of a policy statement that was adopted by the FDI General Assembly in August 2017. It identified the four pillars supporting lifelong oral health as oral health promotion, risk assessment, disease prevention and early diagnosis and intervention at all stages of life. These four pillars will form the framework for discussing clinical cases during the Silver Wave symposium at IDEM.

There is a global phenomenon of population ageing on an unprecedented scale. What is the situation in South East Asia?

Aging is universal and there is no exception among ASEAN countries. It is expected that the percentage of the population aged

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“Ageing is universal and there is no exception among ASEAN countries.”

over 60 will more than double in the next 30 years. By 2050, 2 out of 10 people in the region will be aged over 60. However, the pace of change is much faster in Singapore than in neighbouring countries. It is predicted that by 2050, 4 out of 10 Singaporeans will be over 60 while this ratio will be 2 out of 10 in Indonesia and approximately 5 out of 10 in Thailand and Vietnam.

The Australian Institute of Health and Welfare proposed a broad classification for this group: active and capable, limited activity and capability and very limited activity and capability. For the last two groups, you may need to modify your practice to allow accessibility, or there is the option of referring them to specialised public institutions and specialists.

For clinicians, the care pathways for elderly patients are more complex, as damage to their dentition is cumulative, so its manifestation is much more severe later in life. The oral environment also becomes more hostile with age. Root caries, which are rare in younger individuals, are common in the older patients.

When these conditions are coupled with either severe health or mental illness, then referral to a specialist in geriatric dentistry could be required. Gerodontology is now a recognised dental specialty, however, specialists in this field are still not common in ASEAN countries. The engagement of international bodies such as the FDI and WHO on the concept of lifelong oral health will encourage healthy discussions and policy developments to ensure that preventive measures and oral healthcare are accessible.

What is happening in this field during the IDEM conference in Singapore?

Singapore recognised the importance of this major demographic change and has made large investments to ensure that lifelong oral health is delivered to its population.

With the Silver Wave Symposium at IDEM 2018 on Saturday 14 April, there will be a full day dedicated to managing the ageing population and patients. Six international speakers and clinicians will be brought together to discuss the management of oral health issues, of the ageing population, and of older individuals. The day will start with discussions on the changes that were made in the public health and education institutions, then move on to clinical issues. The day will be clinically oriented and discussions will be patient focused. The symposium will be supported by The Silver Wave booklet, which will be distributed during IDEM.
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Study shows toothpastes do not protect fully against erosion and hypersensitivity

By DTI

BERN, Switzerland: Over the years, more and more toothpastes have been released on to the market claiming to aid with one thing or another—with a particular focus on dentine hypersensitivity and dental erosion. However, in a new study, researchers have shown that, out of nine analysed toothpastes, none were capable of mitigating enamel surface loss, a key factor in tooth erosion and dentine hypersensitivity.

Conducted at the University of Bern in Switzerland with the participation of a researcher supported by a scholarship from the São Paulo Research Foundation, the researchers tested eight toothpastes claiming to be anti-erosive and/or desensitising, and one control toothpaste, all of which are available from pharmacies in Brazil and Europe. To simulate the effect on tooth enamel of brushing once a day with exposure to an acid solution for five consecutive days, the study used human premolars donated for scientific research purposes, artificial saliva and an automatic brushing machine. The physical analysis consisted of weighing the abrasive particles contained in the toothpastes, measuring their size and testing the ease with which the toothpaste mixed with artificial saliva could be spread on the tooth surface.

According to the results, all of the analysed toothpastes caused progressive tooth surface loss in the five-day period. “None of them was better than the others,” Indication will depend on each case. The test showed that some [toothpastes] caused less surface loss than others, but they all resembled the control toothpaste [for this criterion]. Statistically, they were all similar, although numerically there were differences,” said lead author of the study Dr Samira Helena João-Souza, a PhD student at the Department of Restorative Dentistry at the University of São Paulo’s School of Dentistry in Brazil.

“The study, titled “Inhibition of Porphyromonas gingivalis, Fusobacterium nucleatum and Streptococcus mutans on the Tooth Surface by Wine and Grape Polyphenols,” was published online in the Journal of Agricultural and Food Chemistry on 21 February. A German study, published in the European Journal of Preventive Dentistry, also concluded that none of the tested toothpastes were suitable for the prevention of enamel erosion.

Wine polyphenols may prevent caries and periodontal disease

By DTI

WASHINGTON, US: Evidence suggests that sipping red wine has several health benefits for the body, possibly because of the beverage’s abundant and structurally diverse polyphenols and probiotic strains.

Now, a study, published through the American Chemical Society, has reported that wine polyphenols might also be good for oral health by preventing the adhesion of bacteria that could cause periodontitis and other diseases.

Conventionally, some health benefits of polyphenols have been attributed to these compounds being antioxidants, meaning they likely protect the body from harm caused by free radicals. However, recent research indicates that polyphenols might also promote health by actively interacting with bacteria in the gut. Study author Dr. M. Victoria Moreno-Arribas, Director of the Instituto de Investigación en Ciencias de la Alimentación, Madrid, Spain, and her colleagues aimed to investigate whether wine and grape polyphenols would also protect teeth and gingiva, and how this could work on a molecular level.

The Spanish researchers studied the effect of two red wine polyphenols, as well as commercially available grape seed and red wine extracts, on Porphyromonas gingivalis, Fusobacterium nucleatum and Streptococcus mutans bacteria, which are associated with dental caries and periodontal disease. Working with cells that model gingival tissue, they found that the two wine polyphenols—caffeic and p-coumaric acids—in isolation were generally better than the total wine extracts at reducing the bacteria’s ability to adhere to the cells.

When combined with Streptococcus dentisani, which is believed to be an oral probiotic, the polyphenols had an even better anti-adhesive capacity. The researchers also showed that metabolites formed when digestion of the polyphenols begins in the mouth might be responsible for some of these effects.

The study, titled “Inhibition of oral pathogens adhesion to human gingival fibroblasts by wine polyphenols alone and in combination with an oral probiotic,” was published online in the Journal of Agricultural and Food Chemistry on 21 February.
ADIA and BDIA to sign agreement and strengthen ties

By DTI

SYDNEY, Australia: Seeking to strengthen existing ties, the Australian Dental Industry Association (ADIA) and the British Dental Industry Association (BDIA) have signed a cooperative agreement in March. Formalising their informal working relationship of more than 50 years, the new agreement is intended to aid in mutual interests through the sharing of information, working with regulatory offices and promoting their respective members’ products overseas.

“The dental industry in Australia and Britain jointly understand the importance of the role that industry has in supporting dental professionals to deliver optimal oral health. This is achieved through the investment by dental product manufacturers in new and innovative patient treatment options and in this area there is so much that the ADIA and BDIA membership can learn from each other,” said ADIA CEO Troy Williams.

ADIA and the BDIA share the policy objective of achieving convergence of the regulations for the market approval of medical devices. According to ADIA, given that in Australia and in Britain the regulatory framework for the approval of medical devices is based upon that of the European Union, the two organisations will benefit owing to a broad understanding and different perspectives on the same regulatory approach.

“In the context of Brexit it’s likely that, in many respects, Britain’s dental product regulatory framework may eventually look increasingly like that of Australia. We expect that in the coming years, just like in Australia, the regulations will be based heavily upon those of Europe but with some opportunities for important changes that reflect local conditions,” said BDIA Chief Executive Edmund Proffitt.

As part of their collaborative work, both organisations will be hosting national pavilions at key international dental trade shows, such as the International Dental Show in Cologne in Germany and the International Dental Exhibition and Meeting in Singapore. The agreement was signed at ADX18 Sydney, Australia’s premier dental event and the nation’s largest healthcare trade show.

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VladMiVa—

success comes with persistence

By VladMiVa

VladMiVa, a large Russian holding company that unites a number of Belgorod-based companies and is invested in the development and manufacturing of materials, tools and equipment for dentistry, celebrated its 25th anniversary in 2017.

Prof. Vladimir Chuev, who is also a doctor of technical sciences and a professor and general manager of VladMiVa, interviewed the founder and general manager of VladMiVa, Vladimir Chuev, who is also a doctor of technical sciences and a professor and the head of the Department of Medical and Technical Systems at Belgorod State University (BSU).

Prof. Vladimir Chuev, tell us the story of how your enterprise began. Prof. Chuev: The critical moment when people are “on the edge” is often a decisive moment. Someone drops his hands and someone starts to act despite of their fears, difficulties and main future. In 1992, the state funding for the laboratory that I directed was stopped, but our developments were of an applied nature, so we could try to find use for them. I decided to create a commercial enterprise, invest the own savings in it and convinced almost all my colleagues to stay and work with me. Our first development was very successful. In the same year, 1992, we received a silver medal from the USSR Exhibition of Achievements of the National Economy for the technology we developed to manufacture amalgam fillings. The next important step was the development of a technology for the production of dental cements for the Voronezh-based enterprise, Raduga-R. Our first success inspired our small team.

VladMiVa consists of a group of companies. What kind of companies are they and which idea unites them? We very quickly realised that focusing only on technological development is not very promising business. Therefore, in 1994, the commercial department began its work. We started with direct sales on 2 m² of exhibition space—that seems ridiculous today—but we managed to find our customers and see a clear picture of real consumer demand. In 1998, JSC «VLADMIVA» EXPERIMENTAL PLANT was opened.

The idea of “Development—Production—Realisation”, upon which we set the foundation of the company’s activities, was soon realised. Between 2001 and 2002, we mastered the production of dental equipment and diamond burs and by 2009 we had produced more than two hundred kinds of products and our consumers are not only in Russia, but also in more than 50 countries around the world. The main activities of the company today include the development and manufacturing of medical products for dentistry, providing raw materials for their development, pharmaceutical production, the production of modern disinfectants for medical institutions, developing veterinary medicine and consumer services.

Do you participate in programs with state support? What is the role of science and education in your work? The first aid that we received from the state was a small grant for the development and manufacturing of dental cements, which was not only a place to confirm the high quality of our materials, but also a prime example of a world-class dental centre. The holding company today also includes Trade House, our own transport company with branches across Russia.

Over the past 25 years, the number of employees has grown from four to four hundred, we produce more than three hundred kinds of products and our consumers are not only in Russia, but also in more than 50 countries around the world. The main activities of the company today include the development and manufacturing of medical products for dentistry, providing raw materials for their development, pharmaceutical production, the production of modern disinfectants for medical institutions, developing veterinary medicine and consumer services.

What about your employees today? How do you solve their social problems? Today, our companies employ a total of 400 people of different professions. Of course, like any other company, we experience a shortage of skilled employees, such as technologists, but this does not diminish the quality of our work. We value each of our employees. Even in the most difficult times of crisis, we do not delay the payment of wages. We also never refuse payments on sick leave or on paid leave. We have developed a corporate program of material assistance to employees who are in difficult socioeconomic situations.

Furthermore, at the Department of Medical and Technical Systems at BSU, the nominal audience of VladMiVa was opened and five scholarships were awarded to the best students. Our dental centre is also a clinical base for these students. We want to realise one more idea, which is to further educate our young employees.

Employees of VLADMIVA company

VladMiVa’s activities and products have not only been recognised nationally and by the Commonwealth of Independent States (CIS) countries, but also in the global dental market, the company is known as the largest manufacturer of dental materials and instruments in Russia. On the night of the anniversary, we interviewed the founder and general manager of VladMiVa, Vladimir Chuev, who is also a doctor of technical sciences and a professor and the head of the Department of Medical and Technical Systems at Belgorod State University (BSU).

Prof. Vladimir Chuev, tell us the story of how your enterprise began. Prof. Chuev: The critical moment when people are “on the edge” is often a decisive moment. Someone drops his hands and someone
All our employees also receive dental care on preferential terms. We have also built a new plant with a work environment that meets all the modern requirements of labour protection.

For 25 years, we have formed corporate traditions, such as joint holidays and excursions where the families of our employees participate and we can enjoy children’s performances and competitions.

VladMiVa products have a high quality. Can they keep up with, or even replace, the imported goods?

In 2011, our production received a Certificate of Compliance with the requirements of International Standards (ISO 13485:2003). Later, we obtained the right to label our products with the mark of European conformity (CE), which means compliance with EU standards. In 2014, JSC «VLADMIVA» became one of the first 25 enterprises that have the right to label their products as “Russian nanotechnological products”, which is a confirmation of the high quality of our products.

Out of our three hundred products, more than 190 are in demand on the foreign market. In Russia, we have to overcome the phenomenon of “Westernism” in dentistry and persuade consumers through systematic participation in exhibitions, conferences and seminars that “Made in Russia” means quality.

We are always pleased to offer to Russian dentists a large selection of dental materials, including prophylactic, restorative or treating materials, as well as materials for paediatric dentistry, biomaterials for the regeneration of bone tissue and various tools, of excellent quality, at a reasonable price.
“From a patient to a fan”

An interview with W&H Marketing Director Anita Thallinger about the company’s new image campaign

One could describe them as everyday heroes: the dentists and dental professionals who, through their dedication, professional skill or simply a friendly smile, manage to transform dental appointments into positive experiences for their patients. They do this simply because they care and want to ensure their patients feel comfortable. This is precisely the focus of W&H’s new image campaign, “From a patient to a fan”, which aims to put the spotlight on dentists and their teams. In this interview, W&H Marketing Director Anita Thallinger talks about the background, objectives and challenges of the company’s new advertising campaign.

In February, the new W&H image campaign was launched in dental markets worldwide. What objectives were set for the new campaign?

Anita Thallinger: One of the objectives of the new campaign, of course, is to draw the attention of the world of dentistry to W&H and to distinguish the company from the competition. Moreover, we want to show dentists and their practice teams that W&H is there for them as a solutions provider and does its utmost to support them in overcoming their day-to-day challenges.

W&H’s new image campaign does not focus on the company itself, but on dentists and their teams. Why did you choose this approach?

We want our customers to know that W&H values their work, dedication and skills. As a manufacturer of innovative dental solutions, it is our aim to provide users with products that offer added value. As practice teams need to give patients their undivided attention throughout the entire treatment process, W&H sees its primary task as being to optimise and facilitate the workflow. Our innovative products are not only high in quality, but also intuitive, reliable and above all precise in their functioning. Our goal is to support dentists and their teams and offer them products that meet these requirements.

The new campaign features smiling dentists and patients. What makes your current campaign different from that of your competitors?

At first glance, the new image campaign seems to take a very traditional approach compared with our previous campaign. However, W&H is known for its slightly tongue-in-cheek advertisements. This is evident in the current campaign from the names given to the dentists in the ads.

If someone is exceptionally good at something, or becomes synonymous with something, he or she becomes the epitome of it, thereby gaining fans. W&H has applied this approach in the new campaign. In the eyes of patients, the dentists pictured in the advertisements become Dr Phil Good, Dr X. Pert, Dr I. Novativ, Dr S. Mile, Dr I. Trust or Dr Sue Perstar, and thus become the living embodiment of trust, well-being, expertise, happiness and innovative spirit.

Instead of using models, you put W&H employees at centre stage for the campaign. Why did you opt for this approach, and how did your colleagues feel about the photo shoot?

At W&H, the concept of togetherness plays an important role. Our employees are in contact with at least one area of dentistry every day. They enjoyed the chance of perspective and putting themselves in our customers’ shoes. For the photo shoot itself, we were able to find three dentists in Salzburg in Austria who offered their modern facilities as sets. The dentists and their assistants were also on hand to offer advice during production, that is why the images look authentic. I think the fun that all the participants had in the process is evident from the emotion in the photos.

Have you already received some initial feedback on the image campaign from your customers and partners? What has the response been?

We carried out a survey involving around 100 dentists during the development phase. The concept in itself, the idea with the names and many other aspects were put to the test and received excellent feedback across the board. So, we are looking forward to an exciting year.

Thank you very much for taking the time to answer our questions.
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How fine-structure feldspathic ceramic can bestow a natural smile

By Dr Babak Varzidieh & Ludger Schlütter, Germany

The smile dwells only on the lips, but laughter has its place and its grace among the teeth, noted the French scholar Joseph Joubert in the nineteenth century. Tooth morphology, surface texture, the interplay of colour and light, as well as tooth position, all have a decisive effect on laughter. However, for rehabilitation of the aesthetic zone, the smile line and the gingival margin must be taken into consideration in the treatment plan in order to make the patient’s smile complete. Often, a matter of millimetres determines whether something is perceived as aesthetic or not.1

As a result, meticulous planning and consistent and active involvement of the patient are even more important in developing the final treatment result.2 This is the only way for the final restoration to be harmoniously integrated into the overall appearance and invisibly attractive to the observer. In the following case, this could only be achieved by an interdisciplinary, orthodontic, microsurgical and restorative procedure.3

Case description

A 28-year-old female patient presented to the dental practice stating that she was dissatisfied with the aesthetics of her maxillary anterior. At the age of 8, she had had a bicycle accident that led to a crown fracture without pulp involvement of teeth #11 and 21. Up to this point, the accident had significantly affected the patient’s appearance. Up to her 20th birthday, dentists had tried to stabilise the situation with composite. In the end, teeth #11 and 21 were restored with porcelain-fused-to-metal (PFM) crowns (Fig. 1).

At first glance, the crowns seemed dull without any interplay of light, and showed exposed metallic crown margins. Furthermore, the restorations were oversized in the incisal area and did not match the remaining teeth or the face of the young woman. In general, the central incisors appeared to have shifted in the vestibular direction and had left the dental arch. The vitality test was positive. Massive diastemata could be seen between teeth #11 and 21, as well as between teeth #21 and 22. On the mesial surface of tooth #12, an attempt had been made to cosmetically compensate for the tooth gap with composite. A palatal splitting of teeth #11 and #21 with a retainer wire was visible through the gap. A resorption at tooth #12 interrupted the harmonious course of the gingival margin. In the vestibular area, generalised decalcification could be seen, indicating fixed orthodontic treatment. Functional disorders were not diagnosed. Habitual intercuspation and centric occlusal position did not show any deviation. Moderate bone loss could be seen at teeth #11 and #21 in radiographs. The young woman had already visited numerous dental practices and several dentists had even warned her that little could be done. Her expectations and psychological strain were correspondingly high.

Orthodontics and wax-up

After eight months of orthodontic treatment using a multi-band appliance, teeth #11 and 21 were harmoniously integrated into the dental arch. During the course of the therapy, it was possible to reduce the diastema and level the asymmetrical tooth position for the subsequent restoration. A model of the maxilla was created using an anatomical impression and could be idealised with a wax-up on the maxillary incisors (Fig. 2). The course of the gingival margin was subconsciously corrected through labial trimming. A key was made of this target state with kneading silicone. The PFM crowns were slit and removed at the next session. The stumps were prepared again, and the incisors were then restored with a splinted temporary to fix the orthodontic made of pre-coloured VITA Y2 TCo- lor LL1 light (VITA Zahnfabrik). The high-strength material ensures a high stability, and its opacity reliably covers discolorated dentine areas. The framework was to be veneered with the fine-structure feldspathic ceramic VITA VM 9 (VITA Zahnfabrik) to ensure a natural and youthful interplay of colour and light of the restoration. Similar to this and in the same operation, extremely thin veneers were to be layered on teeth #12 and 22, also with VITA VM 9, to guarantee the structural harmony of the four adjacent layers.6

Plastic microsurgery

Even after the orthodontic treatment and the idealising temporal restoration, gingival flaws could still be seen at tooth #11. Together with the patient, the decision was made for a microsurgical correction of this vestibular recession. In the course of the gingival management, a free mucosal graft was harvested from the palate. After the minimally invasive surgical preparation of a mucosal pocket at tooth #11 vestibularly, the autologous connective tissue was plasticly positioned (envelope technique) for optimal healing, the fixation was performed with microsurgical single-button sutures. The consistent proximal splinting of the temporary on the incisors also allowed a tension-free coronal fixation of the gingival area through double-crossed sutures (Fig. 3). After the gingival architecture had stabilised as described, the tooth shade determination and preparation followed.

Highly aesthetic material selection

The decision was made for a splinted restoration of teeth #11 and 22 to relieve the tooth functionally and to ensure a long-term fixation of the orthodontic result at the same time. In order to produce highly aesthetic work, the dentist and dental technician decided on a zirconium dioxide framework (Fig. 5). For optimal healing, the fixation was performed with microsurgical single-button sutures. The consistent proximal splinting of the temporary on the incisors also allowed a tension-free coronal fixation of the gingival area through double-crossed sutures (Fig. 3). After the gingival architecture had stabilised as described, the tooth shade determination and preparation followed.

Three-dimensional colour space

In order to prevent the teeth from drying out and thereby to avoid determining a basic tooth shade that was too light, the tooth shade was determined with the VITA Toothguide 3D-MASTER (VITA Zahnfabrik) before the preparation (Fig. 4). This method allows an absolutely precise tooth shade determination in three quick and systematic steps, since the complete 3D tooth shade space can be reproduced here. In the first step, the basic value is determined. Then, the correct chroma is selected and the hue is matched. This shade-taking procedure with a larger shade spectrum has especially proven its worth in the highly aesthetic area. In this case, the tooth shade determination was oriented to the opposing dentition and the remaining teeth #12 and 22. A mixture of SM (60 %) and SM (20 %) was determined for the veneering on teeth #12 and 22 (Fig. 5). For teeth #11 and 21, the decision was made for a larger portion of SM in the mixing ratio in order to achieve a fresher effect and to compensate for the opaque zirconium dioxide framework.

Preparation in enamel

Owing to the initial caries, a classic veneer preparation was carried out on teeth #12 and 22. In doing so, careful attention was paid to the retention in enamel and to the removal of demineralised areas in order to ensure optimised adhesive bonding during the course of treatment.7 Teeth #11 and 21 were cleaned just before impression taking. The minimally invasive preparation on teeth #11 and 22 was performed with a fine-grain torpedoshaped bur and a flame-shaped bur. The iso-gingival preparation margin showed a considerable chamfer and stretched from the vestibular area into the interdental areas, then tapered out straight in the palatal direction. The incisal area was only slightly rounded off. The impression was taken with Aq-
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usal Ultra (Dentsply Sirona). This was used as the basis for creating a master model with heat-resistant stumps at teeth #12 and 22 (Fig. 6). The silicone key based on the wax-up was now used to create a splinted temporary also with structure directly in the patient’s mouth. The temporary was cemented in the crown area with Temp-Bond (Kerr), and the veneers were temporarily fixed with spot etching.

**Natural-looking layering**

The heat-resistant stumps were fabricated with the metal-free investment material Cosmotech VEST (GC). This investment material has a coefficient of thermal expansion (CTE) of 13 for metal–ceramic restorations, which prevents tension and cracks during the firing processes in the furnace. The CTE of the stump surface was adjusted to a CTE of 9 through a double-connector firing with VITA AKZENT Plus GLAZE (VITA Zahnfabrik). This way, a uniform and harmonious layering of the maxillary anterior could be carried out with VITA VM 9. A palatal silicone key was used to transfer the morphology of the wax-up to the layering and ensure a position-stable layering (Fig. 7).

In the course of the first and second dentine firing, the dentine core was created using a mixture of BASE DENTINE 1M2 and 1M1 and the mamelon structures using strongly fluorescent and beige MAMELON 1 (MM1). This determined the length of the veneer, and an alternating layering in the incisal area could be carried out on this basis. The edges were created using blue EFFECT ENAMEL 10 (EE10). The remaining vestibular proportion was layered in the incisal edge using a mixture of EE2 (pastel), EE3 (pink-translucent), EE9 (bluish-translucent) and a minimum proportion of EE7 (orange-translucent). After the enamel firing, subtractive changes in shape were made with a conical diamond tip. A correction firing subsequently allowed additive compensation for morphological and colour flaws.

The surfaces were now able to be finished with a fine-grain, diamond-coated flame-shaped bur. The edges were given fine details at the same time. The restoration...
surfaces were then rubber-coated. A worn diamond flame-shaped bur served to create perikymata in the surface texture. The sunshine yellow VITA AKZENT Plus EFFECT STAINS (ES04) were only used to make slight characterisations interdentally in the cervical area before the final glaze firing. No glazing or finishing agent was used, in order to maintain the detailed surface texture. VITA VM 9 already allowed a homogenous surface without microporosity during the layering. For this reason, only minimal final polishing was done with pumice and a goat hair brush after the glazing firing (Fig. 8).

**Fully adhesive seating**

The temporary was removed for the final seating. The preparation areas were cleaned with a powder jet and reworked with a one-gloss polisher (SHOFU). The feldspathic ceramic veneers for teeth #12 and 22 were conditioned with 5% hydrofluoric acid and silane after a careful try-in of all restorations. The lumen of the veneered zirconium dioxide framework at teeth #11 and 21 was sandblasted with aluminium oxide. Teeth #11 and 21 were seated first. The excess of the self-adhesive cement RelyX Unicem (3M ESPE) was hardened with the polymerisation light and then exfoliated. The subsequent polymerisation occurred chemically with the catalyst that was mixed in. The veneers were seated with Variolink (Ivoclar Vivadent).

The preparation areas on teeth #12 and 22 were adhesively pretreated with the acid-etch technique. Composite cement was selected in the shade neutral for seating. After the cement application, the extremely thin veneers were placed without pressure. The excess was removed analogously to the splinted crowns. Remaining cement residue was selectively removed from all restorations with a sharp scalpel. No rotating instruments were used at all, in order not to damage the surface texture of the restorations. Habitual intercuspal contact and protrusion were checked with articulating paper to ensure functional integration of the restorations. After minimum selective grinding with a fine, diamond-coated instrument without any pressure, the polishing was done with ceramic polishers (NTI) to seal the surface again and prevent microcracks. Finally, impressions were taken for the fabrication of a splint for long-term functional relief of the periodontium and restorations and to support lasting treatment success.

**Haute couture for the mouth**

The initial situation could only be optimally treated with an interdisciplinary treatment concept and the active involvement of the patient. The treatment result shows a highly aesthetic rehabilitation harmoniously integrated into the patient’s overall appearance. A confident smile appears on the patient’s lips, emphasising her personality (Figs. 9 & 10). The interaction of red and white aesthetics appears natural and original (Figs. 11 & 12). Feldspathic ceramic, a natural product with a balanced interplay of colours and light, ensures a natural appearance. The patient’s graceful smile found a new home in the ceramic layering (Fig. 13).

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