### EUROPEAN DENTAL STUDENTS' ASSOCIATION



# WOMEN IN DENTISTRY

Exclusive Interview with

Dr.Effie Habsha

Founder of Women in Dentistry



EUROPEAN DENTAL STUDENTS' ASSOCIATION

2022



# **WELCOME TO THE 70th EDSA MEETING** IN PALMA DE MALLORCA, SPAIN!





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# Editor's Word

**TIAGO LEITÃO** EDITOR-IN-CHIEF Dear EDSA Family,

It's my last issue as VPPR and I can't believe it's been a year since I joined EDSA. I'm very grateful for the opportunity and all the experiences. It's been a journey I won't forget, and, as all things come to an end, my time in EDSA is days away from ending. I will carry everything I've learned with me and I will leave even happier than when I joined because we did great things together and improved so many aspects.



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To all writers who took the time to write the amazing articles featured in this issue, THANK YOU! This magazine is done by students, for students.

Being the first Portuguese on the EDSA's Board in the last 30 years is something I'm proud of and also sad about, hope my fellow Portuguese students join more EDSA, and let's make sure we don't have another 30-year gap.

*Aurora and Aliza*, together we were the dream team! Built such strong connections, and can't wait to see what the future has reserved for you. I will be there to stand and cheer for your achievements as you do for mine. Can't thank you enough! *Gosto muito de vocês! (Portuguese).* 

Thank you for your time and please enjoy the Mallorca meeting, good luck to all candidates. Hope the next VPPR keeps moving forward with the magazine and all other projects.

It was a magnificent term Team!

See you around :)

Kind regards,

Tiago Miguel Correia Leitão

# **Editor's Word**



### Aurora Fratila

And so we have reached the end of the term with this last Magazine Issue. I am personally very proud of how it turned out, and of the articles we received from dental students all over Europe. For me, having a magazine for dental students, made by dental students represents an increbily valuable opportunity for people from different backrounds to easily share experiences, ideas, even challenges and issues they face. Especially in the times we

live in, international communication is essential. I am very proud to have been able to offer a platform for this and contribute (even a little) towards a more global approach of the dental profession and it's future practitioners.

I am especially grateful for Tiago and Aliza and, coming to the end of the term, I realize how close we have become, not only as a team but also as friends. I will miss working with them on the Magazine dearly. While editing the Magazines for the past year, EDSA has grown really close to my heart, so I plan to continue my activity within the organisation. **So, until next time!** 

### Aliza Khan

#### Dear reader,

A great deal of our focus in this summer edition is women in dentistry, a topic which is often overlooked but is a subject which holds a lot of importance for myself. I look forward to you reading our article on this topic as well as our feature with Dr Habsha and find it as insightful and informative as I did. As always I hope this issue, like issues in the past, broadens your perspective as practitioners to see beyond the scope of clinical dentistry, to our role in supporting our colleagues as well as our patients.



Finally as this year draws to a close, so does my time at the EDSA magazine team. Tiago and Aurora, I'm so proud of the work we've carried out with the magazine and the friendships we've formed along the way. Above all I've enjoyed being a part of the EDSA family and look forward to contributing to future projects!





Dear EDSA family,

I hope you're reading this printed on paper on the EDSA Meeting in Mallorca. My term is coming to an end, and it makes me quite emotional to be writing my last EDSA Magazine input. I started my EDSA journey by being a co-editor of this magazine, I later became an Editor-in-Chief, which obviously makes me an infinite fan of this publication.

This year has its ups and downs, we definitely encountered negative things as well. The war in Ukraine makes my heart very heavy, it even feels unnatural that the life goes on in other countries. I wish the peace will be reached soon, so Ukraine can restore their beautiful country, which I was a visitor of couple of years ago. My heart goes to the people that are suffering.

On the more positive note, I'm glad that EDSA allowed me to meet so many inspiring people from 33 different countries. It definitely made me a better person, I got influenced by their life views and opinions.

It's an old tradition to do an interview with the president in August, therefore I won't be wasting too many words - you can read something about my presidency in that article. But take your time to read clinical and research articles too!

Let me wish EDSA all the best, and to those of you who are in Palma - have a successful meeting!

With love,

Ivana Ligusová, EDSA President

### PRESIDENT-ELECT WORD

# MARTA ADAM

Dear EDSA Family,

I am very honoured to address a few words at the beginning of our well-known EDSA

Magazine. After two years of cancelling and reducing meetings or even changing the location

last minute, we have finally achieved having a usual normal (hopefully) meeting. To begin, I

would like to welcome everyone who is currently reading this in Palma de Mallorca and

express my wish to meet all of you who are reading this online. I hope we will see each other

at our next meeting in Istanbul, Turkey.



My journey in EDSA began in 2018. when I participated in Summer Camp Dubrovnik. After being a participant, I joined the Local Organising Committees of SC Dubrovnik and EVP Zagreb, but my biggest success was joining EDSA Family, first as a delegate, then Mobility Officer, General Secretary and now becoming a President. Little did I know that one Uni trip will change my whole path in studying, dentistry and my life. Many of my colleagues and friends always ask me why I enjoy it so much and why I spend so much time working for EDSA. Until you do not experience it you are not able to feel and see how much EDSA is like an addiction. Once you join it, it is very hard to stop and get out because of the joy and excitement you are constantly feeling.

EDSA has influenced my life more than anyone can imagine. It gave me and can give you so many opportunities and experiences. You can work and participate in different projects such as research, volunteer, mobility, prevention, etc. Working in EDSA improves every skill you have from writing to public speaking. But mostly important, EDSA opens your horizons in every field of life. Having the possibility to meet colleagues and visit places and Universities all around the world allows you to learn more about yourself and your future, but also to become more tolerant and gentler to people.

At the moment, my best memory of EDSA is having an opportunity to organise EDSA Meeting in my hometown and there being elected as a future President of EDSA. In a year I will let you know if that has changed. I am very much excited to meet my new team and I am sure we will do our best to fulfil your expectations.

I wish you all a fruitful meeting and a successful year in school! See you in Istanbul, Turkey! Kind regards,

Marta Adam - President-Elect



# OCCLUSION EFFECTS ON THE FACIAL HARMONY Stefania Bagosi

There are several factors that determine how attractive a person's face is. In Science News for Students, symmetry, averageness (how similar a face is to most other faces in the population) and personal preference are big contributors. But another interesting factor is jaw alignment. As it turns out, your bite has a considerable impact on the shape of your face. Normal jaw alignment creates more symmetry and better facial aesthetics, while poor jaw alignment has the opposite effect.

#### Why People Develop Irregular Bite Profiles

In an ideal situation your teeth will sit easily in your mouth without any spaces in between or crowding, and the top teeth would slightly overlap the lower set. That's what we would classify as normal jaw alignment. Unfortunately, this is not always how everyone's bite develops. Some people develop severe malocclusion, a mismatch in tooth alignment that creates irregular contact between the upper and lower teeth. And this can manifest itself in a few different ways:

- Overbite. The upper teeth hide the lower teeth.
- Underbite. The lower teeth and jaw protrude up beyond the upper jaw.
- Open bite. The upper and lower teeth slant outward so they don't touch when the mouth is shut.
- Crossbite. One or more teeth are positioned irregularly. It explains that if any tooth or several teeth lay closer to the tongue or cheek instead of coming together, this typically constitutes a crossbite.

Reverse overjet. The lower teeth are positioned forward of the upper teeth.

According to Boston Children's Hospital, malocclusion is actually quite prevalent. Roughly 90 percent of school-aged children have some level of it. However, 10 to 15 percent have severe malocclusion that requires treatment.

#### The Impact a Person's Bite Has on the Shape of Their Face

Malocclusion doesn't just affect your jaw structure and ability to chew. It also affects your facial aesthetics. The impact of a misaligned bite in a separate article case study in Colgate labs found that if the condition isn't corrected, the face can grow asymmetrically. When your teeth are out of their proper alignment, they cause your smile and entire face to look completely different. For instance, imperfections with the lower teeth create what is known as short teeth. This throws off the normal symmetry of your face because the proportional distance between your nose and chin will look out of balance. In other cases, shifting teeth can make your face appear sunken and hollow. As teeth move, it means less internal support, causing the lower jaw to lose its definition. That's one way people develop a weak chin. This type of collapsing bite inevitably causes the jaw to move forward, making the distance between the nose and chin shorter, giving your face the appearance of premature aging. Sometimes, spaces can form when teeth shift, which adversely impacts the smile.

These changes can make some people feel self-conscious, and, sadly, many suffer from low self-esteem as a consequence. While the aesthetic effects of malocclusion can create psychological pain for individuals of all ages, it can be particularly troubling for children and teenagers when they are the targets of teasing and bullying.

#### How Can Malocclusions Develop

Perhaps the biggest reason is simply due to genetics. "If you're genetically predisposed to malocclusion, you may have limited opportunities to prevent misalignment of your teeth from developing because your genetic makeup indicates that you will inevitably experience some level of malocclusion," (H.Y. Lin et al., 2020).

If this is something that's common within your family, you'll want to tell your dentist about it so they can be on the lookout for early signs. A lot has to do with childhood habits, as well. For instance, children who suck on their thumbs, use pacifiers (especially after age three) or feed on bottles have a higher likelihood of suffering from abnormal tooth development.

Nonetheless early treatment from childhood such as dental work like braces, retainers, palatal expander and good oral health can improve Malocclusion can stem from injuries, as well. For example, being in a major vehicle accident could potentially result in damage to the jaw and affect its alignment. People who play highly physical contact sports like football and hockey are especially prone to these kinds of injuries, too. If they experience major trauma to their mouth, it can adversely impact their jaw alignment later on.

#### **The Big Picture**

As you can see, there are several issues that can lead to malocclusion. It can be from something obvious like a serious injury or something more subtle like grinding your teeth at night. Any of these causes can negatively impact your jaw alignment. If left unchecked, jaw misalignment can lead to a host of problems. The Bite Correction team outlines some of the more common ones, including:

- Teeth become harder to keep clean
- Increased plaque buildup
- Wearing on the teeth's enamel
- Periodontal issues such as gingivitis
- Increased susceptibility cavities
- An increased likelihood of needing dentures later on

In severe cases, jaw misalignment can create discomfort when chewing and speech problems. Aesthetically, poor jaw alignment can lead to changes in the face's natural shape. Even when your face is naturally symmetrical, poor jaw alignment can erode that symmetry over time. Alternatively, you could develop a weak chin, which can create the look of premature aging.

#### Correcting Severe Malocclusion With Special Treatments

Fortunately, these are conditions that can be treated, often without surgery.

Bite correction is a non-invasive procedure that effectively corrects a jaw position to unlock the natural facial profile. It can have an incredible impact on self-esteem and offers incredible cosmetic advantages.

Here are some of the specific benefits of bite correction: improved chin and facial profile for an anti-aging effect, the jaw position is idealized, healthy tooth structure, increased confidence and higher self-esteem. If you're dealing with malocclusion or improper jaw alignment, be sure to consult a dentist or oral care professional to determine whether bite correction makes sense for you.

#### A CASE REPORT

We analysed a 5 years old patient as a case who suffered from early class III malocclusion.

Background: Class III patients are characterized by a deficiency of the maxilla and/or a prognathism of the mandible and require early treatment.

Diagnosis: This case report describes the treatment of a 5-year-old patient with a skeletal class III relationship, a significant mandibular symphysis deviation towards the right side and a different height of the mandibular angles.

Management and outcome: The patient was treated with rapid maxillary expander combined with miniscrew, facemask and aligners. A functional and aesthetic occlusion in an improved facial profile was established at the end of the orthodontic treatment. Pre-treatment, posttreatment and one year retention records for the patient are presented.

Discussion: Class III patients require early treatment in order to optimize the traditional expander effects; subsequently hybrid anchorage allowed to maximize skeletal advancement. In addition, loss of space for the erupting teeth and dento-alveolar tipping were avoided. The good results of the phase I treatment and of the active retainer meant that a complex case would become relatively simple at the phase II treatment. (R. Potpeschenigg, 1075).

#### An Undeniable Correlation

It's fascinating how much of an impact a person's bite has on the shape of their face. For better or worse your entire facial aesthetics are determined in part by your jaw's alignment. If there are any major issues, this is something you'll want to get checked out and take action to correct.



# Through the example of a national well-being survey held in France, this article offers a zoom on mental health and the well-being of dental students throughout their studies.

Mental health and its importance is becoming a subject which is more and more omnipresent in daily life. This movement flows down to every dental student during their studies and their personal wellbeing. Unfortunately, COVID-19 has intertwined and impacted these topics. For these reasons, UNECD (French National Dental Students Association) has held a national well-being survey for all dental students studying in France in 2015, 2018 and more recently, 2021. This article will expose how this was executed, show some of the results and demonstrate how these results are used to make improvements in students' lives.

The most recent survey, named "Well-being, a review of our studies", was held from the 29th of May till the 14 of June in 2021 in the format of a Google Form survey. It was accessible to all dental students studying at the 16 dental schools in France and promoted on all of UNECDs social media pages. The form was composed of 35 to 48 questions, revolving around mental health and well-being during studies. Responses varied from single choice answers to multiple choice answers as well as open expressions answers for students to express their personal experiences. The period was chosen based on the end of exams, to avoid the survey correlating too much with pre-exam stress. In 2021, 1898 forms were filled out and the proportions of these answers in relation to the relevant student year groups allowed a correct representation of dental students studying in France.

To expose some results: since 2015, when asked which word best describes their mental state concerning their studies, the word stress came in first place in the students' answers. On another hand, in 2021, one student out of 5 chose enthusiasm to describe their studies and 39,4% of students use a positive denomination. Additionally, around 1 student out of two thought that their mental health and physical well-being had deteriorated since the start of the dental medicine cursus. More shockingly, 334 students expressed that in the two week period prior to filling in this survey they thought that it would be better to die or to hurt themselves in some way.

The analysis of the results used different scales to thoroughly assess the students' answers. The PHQ-9 (Patient Health Questionnaire)\* can be used to make a diagnosis of a depressive disorder and severity. In relevance to this scale, the survey presented that only 1 out of 4



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students would not present any symptoms of depression according to this scale. Using another scale, the GAD-2 score (Generalised Anxiety Disorder 2-item)<sup>\*\*</sup> It was put into evidence that 45,2% of dental students presented an anxiety disorder. For 72.2% of the students questioned, this state of mind, evaluated by PHQ-9 and GAD-2, was directly linked to their studies.



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But what things manifested these states of mind? From the most mentioned to the least, these elements impacted on university students' morale the most negatively : risk of retakes, the quality of the formation, the feeling of not being heard or taken seriously, the relationship with administrative services and the relationship between teachers and students (cf.Graph of witnesses or victims to inappropriate acts or speech from a teacher in regards to a student in the faculty). Practical work sessions and exams were also factors of stress. The survey collected different testimonials (translated to english) such as "I'm scared to do wrong, i'm scared to not validate my year, I am scared to be told off "; "We learn by being scared of bad marks, not by wanting to be better"; "I have lost all notion of stress due to a feeling of complete indifference to failing, the sensation that a quickly done formation is so strong that retaking a year would be a good opportunity"

This graph shows different types of discrimination that students in France have been a victim, or a witness to while in university. Some types of discrimination may seem to have a low percentage, however each situation is as important as the others and must be taken seriously. This survey also showed similar results for the same types of discrimination during hospital shifts.

On a more clinical point of view, concerning students from 4th to 6th year, the elements that impacted morale the most negatively were : clinical quotas, risk of retakes, the teacher to student ratio, student-teacher relationships and availability of materials. Other factors included the amount of work in the clinic and the organisation of the clinic schedule among others. More testimonials (translated to english) showed things such as : "Validation of a clinical contract seems more important that looking after the patient " ; " I'm not stressed about taking on a patient, but i'm stressed about getting derogatory comments from the teachers in front of the patient" ; " I feel more judged than accompanied".

It can be noted that this survey was put out during a particular context due the sanitary crisis of COVID-19. This health pandemic evidently impacted the formation on clinical and faculty scales. However, only 1 student out of 5 declared that COVID had an impact on the quality of their formation.

UNECD has put forward 12 propositions, in relation to these results, on how universities could improve student well-being. Some of those include : Improving human resources and materials to insure the quality of the formation ; creating "listening committees" in all the universities and make them accessible to students;



naming impartial mediators capable of flagging inappropriate behaviour ; create work groups in each university on how to evaluate clinical work, including student and university representatives ; put in place an auto-evaluation system of practical aptitudes, accompanied with explanations from the teachers; put in a system for students to evaluate the lectures and communicate the results with them so they can be actively a part of improving their formation.

To ensure that these results do not go to waste, the local associations are organising Well-being General Assemblies where university officials, teachers, heads of service, students and UNECD board members can exchange opinions on the results of this survey as well as analyse, more closely, the local results affecting their students. This is an amazing opportunity for students' voices to be heard and UNECD is there along the way to support and help them.

To conclude, UNECD considers that it is not normal for future healthcare professionals to feel so bad during their studies. The successive surveys have shown that this ill-being is very present and is not regressing. Without denying the part COVID had to play, it is not possible to assimilate these states of mind solely to it. These results are communicated to different actors in the dental world whether it be in universities, hospitals, associations or politics. UNECD has always fought for students to flourish during their university years and they continue to work so that they can. For more results, it is possible to consult the Wellbeing survey press folder on UNECD's website. To add to that, it is possible to contact the French national delegate or the Vice President of social affairs in UNECD at social@unecd.com for supplementary information on this survey.





### Cold atmospheric plasma – a new powerful weapon in the treatment of head and neck carcinoma

#### Marija Diković

#### Importance of new treatment methods

Early diagnosis of oral carcinomas have always been a challenge due to poor symptomatology at the beginning of the disease. They became a serious public health problem, with morbidity and mortality increasing every year, which can be related to the growth of the population and wide expansion of risk factors. Treatment of oral carcinomas is managed with a multifactorial approach, combining surgery, radiotherapy and chemotherapy. A patient's recovery is usually difficult and involves rehabilitation of morphology, function and orofacial aesthetics.

Although the approach is complex, time consuming and expensive, it doesn't always lead to success, especially in the treatment of tumors which are often inoperable due to their close proximity to major structures such as blood vessels and nerves. For that reason, scientists are developing management options which can be used as adjuvant or main therapy, depending on the type and characteristics of the carcinomas.

#### What is cold atmospheric plasma?

Plasma is a specific state of matter which consists of charged particles – ions, electrons and free radicals such as reactive oxygen and nitrogen species and ultraviolet radiation. Until now, it has had three main uses in medicine – as antimicrobial agents, stimulating the regenerative process in treatment of scars and apoptosis for treatment of cancer cells after surgical resection of tumors. In that way, plasma can be used as an adjuvant therapeutic method in eradicating potential relapses.

Plasma can be generated by placing a gas under an electromagnetic field. Usually, helium and argon gas are used for medical purposes. Although plasma consists of some charged particles, it is described as an electro neutral medium. The magnetic field causes the plasma to take a form, such as a beam, making it easier to manipulate when delivering treatment. The terms cold and atmospheric are used to describe plasma at room temperature and at atmospheric pressure. In nonthermal or cold plasma, only electrons maintain a high temperature, while ions and other particles remain at room temperature. This characteristic makes plasma suitable for intraoperative use in human medicine.

Plasma can be generated via different types of constructions, such as dielectric barrier discharge (DBD), atmospheric plasma jet and plasma needle. DBD and plasma jets produce diffuse plasma and are mostly used in industry, compared to the needle which is usually used in dermatology, as it generates a narrow beam.

#### **Targeting cancer cells**

The antitumor effect of plasma is still being investigated on different cell lines, for example squamous carcinomas cells of the tongue. Plasma is also being tested on normal cell lines, like keratinocytes or periodontal stem cells, so potential toxic or lethal effects can be observed.

Plasma can affect cells directly, by exposing them to the source, or indirectly by placing treated medium in the environment of the cells. For inoperable tumors, an indirect approach is more appropriate as it spears the sensitive anatomic structures from radical resections. This type of plasma treatment is also being investigated for treatment of distant metastasis.

For use of plasma on human vital tissues, specific physical parameters need to be adjusted, such as gas flow, voltage, time of treatment and distance between source of plasma and tissue or medium for an indirect approach. Mediums are used to treat cultured cells such as fetal bovine serum and usually antibiotics for prevention of contamination of cultured cells.

#### How can plasma generate oxidative stress?

Generated oxidative stress is the consequence of the action of the extremely active particles – free

radicals. Plasma contains two groups of free radicals, reactive oxygen and nitrogen species. Reactive species increase oxidative stress in tumor cells which leads them to apoptosis, while oxidative stress in healthy cells remains controlled by sophisticated regulatory mechanisms. Reactive species can either be formed intracellularly or they can be carried into the cell by medium.

Reactive oxygen and nitrogen species generate oxidative stress along with ions, which catalyze reactions. Even though ions are charged particles, their action is not attributed to charging but to catalytic, i.e. chemical action with reactive species. It has been proven that both positive and negative ions have the same role in catalysis of free radical peroxidative reactions.

At the cell surface membrane, peroxidative process occurs on lipid and polysaccharide components of membrane, while intracellular increased oxidative stress caused by free radicals is damaging DNA with the formation of malondialdehyde (MDA). Cancer cells are known to be subject to rapid uncontrolled divisions, therefore, DNA material is exposed during mitosis and is more susceptible to damage. Hydroxyl ions generated from hydrogen peroxide are responsible for chain oxidative reactions in which free radicals are formed from organic molecules. Superoxide anion and reactive nitrogen species catalyze oxidative chain reactions, with anion catalyzing aldehyde oxidation and cation catalyzing oxidative hydrolysis.

Mitochondria are considered primary coordinators of apoptosis inside the cell. Intracellular signals generated as a consequence of high oxidative stress increase permeability of mitochondria, which become edematous and transmembrane potential disarranges.

This therefore causes the release of proapoptotic

factors, which leads to activation of caspases – enzymes which play an essential role in apoptosis. Inducing controlled cell death is important for successful treatment, unlike necrosis which causes inflammation and other protective reactions of the tissue.

#### **Evaluation of plasma treatment**

To evaluate plasma treatment, it is necessary to determine viability, mobility and adhesion of the cells. Both normal cell lines and carcinoma cells can be observed. Decreased adhesion of the carcinoma cells must be followed by low viability of the cells, which prevents dissemination of viable tumor cells in the body.

Results of different research show good effectiveness of plasma in reducing adhesion, viability and mobility of carcinomas cells, with preservation of normal cell lines in both direct and indirect approach. Potential problems occur with the use of inadequate parameters, which leads to necrosis of the treated cells. Negative effects of UV radiation as a by-product are still being researched, but until now no side - effects are observed. Regenerative potential of plasma is widely used in dermatology for successful treatment of chronic wounds and different skin diseases. All of that thanks to its anti - inflammatory and tissue stimulating effect.

The complex mechanism of action of plasma is still being researched, but a new promising therapeutic method is on the horizon. Its main advantages are its non – invasiveness and possibility to be applied on complicated cases as a neo adjuvant therapeutic tool.





### **Founder of Women in Dentistry**

# DR. EFFIE HABSHA



Written by: Aurora Fratila

Dr. Effrat (Effie) Habsha is the Founder of Women in Dentistry: Work. Life. Balance.

Dr. Habsha is passionate about empowering women in the dental field and developed Women in Dentistry - an organisation powered by women-for women.

She received her Bachelor of Science degree and earned her DDS degree from the University of Toronto. She is a Fellow the of Academy of Prosthodontics, Greater New York Academy of Prosthodontics and The Pierre Fauchard Academy and holds numerous memberships in Prosthodontic organisations and societies. She lectures both nationally internationally on various and Prosthodontic topics and maintains a private practice limited to Prosthodontics and Implant Dentistry in Toronto.

Q: Why have you considered an organisation for women in dentistry necessary in the first place and what inspired you to found it?



The original reason behind it was to connect with my female colleagues. We had our first event back in 2010. It was a lecture I gave when I invited all my female referrals; after that lecture I got a lot of positive feedback from female colleagues. Being in a group full of women was amazing and it not only inspired conversations around challenges and issues we faced, but it also offered a sense of community. The idea to start the organisation started organically this way, in just being surrounded by like-minded people with similar experiences.

Because of the amazing feedback we got, we repeated the meetings the next year, and the next and it just kept getting bigger and bigger. For me, it was a way to

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connect with other women and a way to learn from their experiences...how to manage life and whether it's having kids or owning a practice, or working as an associate. That way it just developed into a really nice community of people where we bring in experts on topics not only strictly related to dentistry but also other non-clinical topics relevant to women in the dental field.

Having a young daughter myself, I felt like I didn't have a lot of female representation or female mentors when I started in dental school. Slowly, we're changing that narrative and we're changing the face of dentistry.

I usually speak nationally and even internationally and I'm still often one of the only women on the podium, but that's slowly changing. So part of what we do at Women in Dentistry (WiD) is we give a platform to female speakers. It's really about empowering and offering a platform.

Q: I think what speaks a lot to so many women when they come across WiD is the fact that you offer them a space where they can talk to people with similar experiences. When you hear that other women have the same struggles and experiences, it's more inclusive. You become part of a community and I think that's really important for all groups.

What our platform has done and is doing is putting women at the forefront and creating role models. You need to see that it can be done. Young girls need to see that you can do it all.

#### Q: Have you received any criticism over the founding of WiD and what it stands for?

Yes, absolutely. Especially in the beginning. In the early 2010s especially we received a lot of criticism questioning the reasoning

> "WOMEN ELEVATING AND EMPOWERING EACH OTHER"

behind an organisation dedicated to women. And with every new chapter and new group that we formed, that conversation always came up. I have attended congresses and international conferences where there wasn't one single female speaker. So this isn't about criticising men, all of my role models were men and there's nothing wrong with that. It's about having a space for women to connect and to discuss the challenges and issues that we face as women.

Currently leadership roles are definitely dominated by men; research has shown there's absolutely a gender disparity, but my hope is that that's slowly changing.

I don't want to be asked to speak at a podium or at a conference because I'm a woman. I want the reason for that to be because of my performance. Don't put me on a speaker panel because I have to check a box. I want to be recognized for being just as good as the men.

# women in dentistry Work. Life. Balance.

The problem is that women often don't get that exposure because they don't have the opportunities.

In the defence of organisers of such events (because I've been an organiser before) they often don't know of other people, and the first names that come to mind are male. There are a lot of accomplished, smart women out there that do good work but they're often not necessarily given the platform. I have had female speakers on our panels who have been approached by other organisations afterwards and given future speaking opportunities, because of the platform and exposure we provided. For some it may feel like a safer environment because you're among women.

It's all about empowerment; women elevating and empowering each other.

Q: What advice would you give young women studying to become dentists, or even recent graduates?

I would say that the sky's the limit in terms of capability. That you shouldn't think that you can't do something if you want something. Just do it, go for it. Find people who will support you, find a mentor, male or female, that you admire and that you can learn from. The sky's the limit.







### EFFECT OF THE FIRST DENTIST APPOINTMENT ON FUTURE DENTAL FEAR Aslı Ceren Çelik

#### Dental fear is a commonly seen phenomenon. But is it possible to prevent dental fear with a pleasant first appointment?

It is recommended by the American Academy of Paediatrics that the first visit to the paediatric dentist should take place within the first age of life. [1,2] Though some children aren't fortunate enough to be brought to the dentist within the first age of life, the first visit usually takes place at early ages of life. Since the dentist's office is a new and unknown environment for young children, this experience is often uncomfortable and children are often fearful. Making this first experience as pleasant as possible is one of the most important responsibilities of a pediatric dentist as it often has an effect on children's future oral health and compliance.

#### What is dental fear, how can a dentist play a role in overcoming dental fear, and why is it important to overcome dental fear?

Fear acts as an involuntary system that alerts people of danger. [3] An unfamiliar environment and tools, along with disturbing sounds and sharp smells in the dental office, can be alarming to children, making them anxious or upset during their first visit. Children who have dental fear may react by crying, screaming, not opening their mouth, hiding behind their parents etc. All of these behaviors lead to a difficulty in completing dental examination or treatment procedure. Building positive communication with the child, letting the child explore the tools, and explaining the procedure if the child is old enough to understand are some ways to overcome fear and anxiety. Behavioral guidance techniques play a role in meeting the needs of the individual child and help them be tolerant and flexible in their implementation. [4, 5] Behavior guidance is not an application of individual techniques created to deal with children, but rather a comprehensive, continuous method meant to develop and nurture the relationship between the patient

and doctor, which ultimately builds trust and allays fear and anxiety. [6] The patient can preview a positive photograph of a dental treatment (positive pre-visit imagery technique) or observe a cooperative patient undergoing dental treatment (direct observation technique) to reduce dental fear. Tell-show-do is another technique that can be used in reducing dental fear. The dentist explains the treatment procedure to the patient (tell), demonstrates it in a nonthreatening manner (show), then completes the procedure as explained and shown (do). Nonverbal communication, positive reinforcement, distraction, and voice control are other behavioral management techniques that can be used in allaying dental fear. Overcoming dental fear is important because children who attend the dentist regularly are more likely to have positive dental practices that lead to familiarization with dental care. This way, future anxiety can be prevented at an early age. [7, 8] In other words, regular dentist visits that are not painful or adverse for the child act as a preventive measure against dental fear. [8] On the other hand, painful or adverse visits may cause dental anxiety and these children are less inclined to attend future appointments or be uncooperative during appointments they are brought to.

This can mean their oral health or oral hygiene habits aren't monitored, leading to the possibility of further problems and need for more invasive treatment.

### What is the source of dental fear: Is it learnt or are we born with it?

A report from Townend E et al. [8] indicates that fear and avoidance behaviors arise after unpleasant experiences when undergoing various dental procedures [9].Öst and Husgahl [10] found that 68.6% of dental phobias were due to patients' traumatic experiences during dental treatment. So it can be stated that fear is learnt, and thus can be prevented. However, not every child who has dental trauma develops anxiety or fear. Davey (1989) [11] analyzed this fact and proposed the "latent inhibition hypothesis" to explain it. He stated that the earlier the child experiences dental trauma, the more likely the child is to develop dental anxiety. If a person experiences a traumatic dental experience after many pleasant dental experiences, these pleasant experiences generally compensate for the traumatic experience. So a dentist should be even more careful with a patient during their first dentist office visit.

### Does the frequency of visits affect dental fear?

Another factor for a child to develop dental fear is the frequency of visits to the dental office. The child that visits the dental office regularly becomes "desensitized", meaning they become used to the environment and procedures, and build rapport with their dentist. In other words, frequent dental office visits are important not only in maintaining good oral health but also in reducing dental anxiety.

#### Conclusion

Dental fear is a learned phenomenon. The first appointment is particularly instrumental in the development of dental fear, considering that the earlier non-adverse appointments play a role in reducing future dental fear. So a dentist should especially pay attention during a first appointment not to cause traumatic or adverse experiences.





# The impact of smoking on Oral Health Kritonas-Panagiotis Svanias

Smoking is a harmful habit that 1.3 billion people worldwide have. But how does this habit affect the oral cavity?

Oral cavity is the area of the body that receives first and foremost, all the harmful substances produced during the burning of cigarettes. Nicotine and its products modify the resistance of tissues to germs, while at the same time increasing the temperature in the mouth, reduces the flow of saliva and allows the increase of microbial mobility. Cigarette smoking is also detrimental to oral health as it increases the incidence and severity of oral periodontal diseases and pericancer, implantitis, as well as impacting negatively the dental patients' response to on therapy.However, cigarettes are no longer the most popular form of tobacco use. In recent years, tobacco smoking using a water pipe ("hookah," "shisha") and use of electronic cigarettes (ECIGs) has increased significantly. Thus, dental clinicians likely will treat more patients who are waterpipe and/or ECIG users. Both water pipe and ECIGs deliver the dependence-producing drug nicotine. This kind of smoking has been also associated with periodontitis, dry socket, premalignant lesions, and oral and esophageal cancer. Therefore, consideration of smoking behavior and recommendation of smoking cessation are important parts of dental treatment planning.

#### Mild damage in the oral cavity

The use of smoking products can cause:

Tooth Discoloration: The main cause of dental staining for smokers is nicotine and tar. The nicotine and tar from smoking seeps into the tooth's enamel through tiny pores, leaving the teeth discolored.

Thermal Injuries: due to the high temperature that develops. As far as the E-Cigarettes are concerned, these injuries are caused because of the overheated battery. They are located mainly on the palate. Nicotine Stomatitis: a lesion of the palatal mucosa which is caused by the concentrated heat stream of smoke from tobacco products. It subsides 1-2 months after smoking cessation.

Pigmentation of Oral Mucosa: having color changes in oral mucosa. These various pigmentations can be in the form of blue vascular lesions or brown melanocytic lesions.Bad Smell: that is caused by the substances of smoking

#### Serious Damage in Oral Cavity

Periodontitis: Tobacco smoking is the main associated risk factor with chronic destructive periodontal disease. No other known factor can match the strength of smoking in causing harm to the periodontium. The typical characteristic of smoking-associated periodontal disease is the destruction of the supporting tissues of the teeth, with the ensuing clinical symptoms of bone loss, attachment loss, pocket formation, and eventually tooth loss.Unlike smokers, who experience widespread periodontal destruction, the most prevalent effects of smokeless tobacco are localized to the site of placement, in the form of gingival recession and white mucosal lesions. The pathogenesis of smoking-related periodontal destruction has been attributed to alterations in the microflora and/or host response.Last but not least, the periodontal treatment is less favorable or even or even unfavorable in smokers because nicotine and carbon monoxide in tobacco smoke negatively healing.According influence wound to research if smoking is stopped before the start of the periodontal treatment, then the tissue response is much better and reaches the levels of non-smokers (Richard Holliday et al,2020).

Peri-implantitis: The oral cavities of tobacco smokers and users of smokeless tobacco products are exposed to high concentrations nicotine. Nicotine increases the production of inflammatory cytokines, which have been identified in the gingival crevicular fluid of cigarette smokers with peri-implant diseases. Therefore, it is hypothesized that nicotine and chemicals in tobacco smoke induce a state of oxidative stress in peri-implant tissues. Besides, a limited number of animal studies have assessed the effect of nicotine on osseointegration (Linden et al,2018).

Finally, the impact of vaping electronic cigarettes using nicotine-containing e-juices on implants remains unknown.

Xerostomia: Cigarettes impact the salivary glands, the first to be affected is the parotid gland whose role is secretion of watery saliva. The loss of its function is compensated by submandibular and sublingual glands which secrete mucous saliva. This explains thicker saliva in smokers.

In addition, substances from cigarette smoke destroy protective macromolecules of saliva, enzymes and proteins, and thus saliva loses its protective role. For this reason, smokers have poorer oral hygiene.

#### <u>Tobacco use and Oral Cancer</u>

Oral cancer is uncontrolled growth of abnormal cells starting in the mouth cavity leading to the formation of a tumor. Development of oral cancer occurs predominantly on the tongue, lower lip and floor of the mouth. Smokeless tobacco products have been linked to precancerous and cancers of the oral cavity for long. Evidence was available on the association between smokeless tobacco (SLT) products and oral cancers at regional but not at global level. Tobacco contains 60 toxic chemicals including carcinogens and cancer-promoting substances. As a matter of fact, these substances can cause Oral squamous cell carcinoma (OSCC) which is a pathological type of oral cancer, accounting for over 90% of oral cancers(Johnson et al,2011). OSCC molecular pathogenesis is complex, resulting from a wide range of events that involve the interplay between genetic mutations and altered levels of transcripts, proteins, and metabolites. However, many studies have shown that tobacco can cause the abnormal expression of p53,

GLUT-1, p16, DAPK, MGMT, P13K and other genes in oral epithelium, which is associated with the occurrence of OSCC.In addition, some specific viruses are thought to play a role in the development of OSCC. For example, a study showed that there is a possible interaction between tobacco and HPV16 in inducing OSCC (Gruszka et al,2015).

#### The impact of e-cigarettes

It is well known that Smoking tobacco contributes to the progression of periodontal disease. However, according to studies e-cigs with flavorings cause increased oxidative/carbonyl stress and inflammatory cytokine release in human periodontal ligament fibroblasts. Human Gingival Epithelium Progenitors pooled (HGEPp), and EpiGingival 3D epithelium.Further, e-cigarettes cause increased oxidative/carbonyl stress and inflammatory responses, and DNA damage along with histone deacetylase 2 (HDAC2). As far as the chronic effect of vaping is concerned could lead to molecular mechanisms for susceptibility (inflammatory, DNA damage and senescence responses) to the development of periodontitis, and therapeutic targets or biomarkers in determining vaping-flavoring mediated oral complications in cells and tissues of the oral cavity. So it is obvious that both tobacco and electronic cigarettes can have a disastrous effect on oral health.

#### **Conclusion**

There is extensive and consistent evidence showing the harmful effects of smoking on oral health. This includes an association between smoking, precancerous conditions and oral cancer, increased severity of periodontal disease in smokers, the negative influence of smoking on the success of certain dental treatments such as periodontal therapies, surgical treatments and placement of dental implants. For this reason dental professionals should prevent their patients from smoking and encourage them to quit it. Patients should be informed about the problems caused by smoking in the oral cavity and learn how to do a self-examination once a month, so that they can recognize the symptoms and the damage they should report to the dentist. So, since "the prevention is better than the treatment" dentists should point out the negative effects of smoking to all of their patients.



# THE MOST COMMON COMPLICATIONS ASSOCIATED WITH TOOTH EXTRACTIONS



#### May Firoozmand

Complications can arise with tooth extractions, they can be classified according to the time that they arise: peri-operative complications occur during an extraction and post-operative complications occur after an extraction.

#### **Peri-operative complications**

### Fracture or luxation of the crown of the adjacent tooth:

Luxation or dislocation of an adjacent tooth occurs when a great amount of force is exerted whilst attempting to luxate.

#### **Root fracture:**

Root fractures arise due to excessive forces applied during extraction with inadequate separation of the roots from the extraction socket. When these forces are applied, the torque generated will typically cause a fracture at the junction between the portion of the root still attached to the socket and the portion freed from the alveolar wall. This complication is hard to avoid due to the root anatomy and bone quality of the patient. Teeth more prone to fracture are: multi-rooted posterior teeth, anterior teeth with root dilacerations, teeth that exhibit curved roots, thin roots and widely spaced roots. After the tooth has been extracted, the clinician should look out for any roughened or sharp edges, if this is the case there is a high probability that fragments of the tooth are left in the alveolar socket and a curettage should be performed to remove these fragments before they induce inflammation in the alveolar socket.

### Fracture of the alveolar process, maxillary tuberosity, mandible:

Fractures within the bone are the result of using excessive force during tooth extraction. If not recognised and untreated these fractures can lead to: malocclusion, infection and paresthesia. At times the fracture of the bone is not always visible and certain clinical features can be observed intra-operatively that may indicate a fracture. A mobile alveolar mandibular segment or malocclusion are indications for an alveolar process or mandibular fracture. Patients may also experience symptoms post-operatively such as: pain, swelling, tooth displacement, mobility and persistent numbness that may indicate a fracture. The elderly are at a higher risk of a fracture due to the loss of bone density, loss of elasticity and loss of strength.

#### **Oroantral communication:**

An abnormal connection between the oral cavity and antral cavity. The formation of an oro-antral communication is common. It occurs most commonly after the extraction of the maxillary posterior teeth due to the following reasons: the anatomically close relationship between the root apex and the maxillary antrum, poor technique by the clinician and excessive force applied whilst out the extraction. Oro-antral carrying communications can vary in size; they are comprised of either small or large openings. Small openings with a size less than 5mm can heal and close spontaneously, whereas large openings larger than 5mm require surgical intervention. The most common clinical findings that may help with the diagnosis of an oro-antral communication are: leakage of air when blowing against closed nostrils, unpleasant tasting discharge, reflux of fluids or foods into the nose from the mouth and presence of bubbles within the socket.

#### Post-operative complications

#### Hemorrhage/Bleeding

Excessive bleeding can occur due to inducing trauma to the blood vessels in the region. Postoperative bleeding in healthy individuals is minimal and the formation of the blood clot happens within 6–12 hours. However, bleeding can continue and patients may complain of blood oozing from the site, traces of blood may be found in their saliva or their mouth may be filled with

blood hence the formation of the coagulum is delayed. The clinician should be informed prior to the tooth extraction if the patient has a history of blood disorders: hemophilia, blood coagulopathies etc. As these patients are more susceptible to prolonged bleeding. Bleeding is most commonly treated with the use of local vasoconstricting agents and the application of direct pressure with a gauze to the extraction site is advised to minimize the bleeding 30 minutes immediately after the extraction.

#### Edema/ Swelling:

Swelling is expected after tooth extraction. The onset of swelling is typically between 12 and 24 hours following the procedure with a peak or rise of swelling observed 48-72 hours postoperatively. Swelling usually subsides at the 4th day after the operation, if not one should seek medical advice from their clinician. Swelling can be of a delayed onset and is characterized as a painful collection of pus or swelling can be of a rapid onset that is hardened and is usually considered as a hematoma. Patients should be instructed to do the following post-operatively: the use of an ice pack after the day of the extraction to reduce and control the swelling, to elevate their head whilst sleeping and to avoid sleeping on their side, to avoid drinking with a straw and smoking as it will disrupt the formation of the coagulum, to use antimicrobial mouthwashes and administer non-steroidal inflammatories to regulate persistent pain accompanied with the swelling.

#### Pain

A very common complication which occurs immediately after the anesthetic effect wears off. Occurs mainly at the post extraction site of mandibular posterior teeth. Pain associated with dentoalveolar procedures begins with the resolution of local anesthesia (6-12 hours) and rises between 24 and 48 hours postoperatively. Pain in the maxillary posterior teeth is common due to anatomy of the bone where sharp bone spicules are easily formed especially if extraction is difficult and is performed with awkward manipulations. Uneven bone edges can injure the soft tissues of the extraction socket leading to severe pain and inflammation at the extraction site. Pain is treated with the use of non-steroidal medications.

#### complications associated with the removal of impacted teeth. It is characterized by the malformation, disruption or loss of the newly formed blood clot from the extraction socket. Poor oral hygiene and pre-existing infections have shown to increase the risk for alveolar osteitis. Patients will usually experience symptoms of: severe throbbing, radiating pain from the surgical site, malodor and trismus. Can be indicated when the new onset severe pain typically lasts 3-5 days postoperatively. The physical findings observed by the clinician are: crvpt-like socket with exposed bone, erythematous soft tissue margins, food debris, tenderness upon palpation, disintegration of the blood clot and the formation of necrotic tissue. The use of chlorhexidine containing topical gels, the administration of either local or systemic antibiotics, irrigation with warm saline and immediate packing of extraction socket with a filament gauze.

#### Trismus

Referred to as 'lockjaw' and defined as the uncontrolled inability to open the mouth or jaw due to complications arising after the extraction: muscle spasms caused by the formation of a hematoma, inflammation of the soft tissue, postoperative edema, needle injury whilst administering anesthesia. The use of muscle relaxants, oral physiotherapy and surgical decompression can all help improve trismus.

### Surgical emphysema: Submucosal or Subcutaneous

Air has collected into the tissue spaces through the extraction wound. May occur as a result of air entering the loose connective tissue whilst using an air rotor for the removal of bone or for sectioning the impacted tooth in a surgical procedure. The region tends to swell and can extend into the neck and facial area and is characterized by crackling sounds during palpation.

#### Conclusion

Thorough radiographic assessment, comprehensive clinical observation and good technique can minimize the risk of peri-operative and post-operative complications and the clinician should be aware of the medical history of the patient prior to tooth extraction so the necessary precautions can be carried <u>out</u>.

#### Dry socket (alveolar osteitis)

This is a self limiting condition and the pain can be controlled. It is one of the most common







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# The Impact of Bulimia on Oral Health

#### **Alp Arslan**

#### How Do Eating Disorders Damage Your Teeth?

Eating disorders are mental health conditions defined by abnormal eating behaviours that affect a person's physical or mental condition. Improper dietary habits with poor nutritive contents can compromise the immune system. On the other hand, an increase in sugary and acidic components when combined with repeated exposure can have a corrosive effect on the dentition. Treatment of patients with these symptoms is mostly centred around providing appropriate oral health care advice and signposting to professional dietary plans made by experts.

#### An eating disorder: Bulimia

Bulimia is one of the eating disorders which is characterized by binge eating. This refers to eating large amounts of food in a short period of time, followed by purging. The aim of this process is to expel calories eaten in the phase of binging. This may be done by intentional vomiting or taking laxatives. Bulimia is frequently associated with other mental health conditions, such as depression, anxiety, BPD and substance abuse. In individuals suffering with bulimia, harsh stomach acid from frequent vomiting wears away tooth enamel increasing tooth surface loss and the risk of tooth decay. Anorexic patients on the other hand, due to the lack of nutrients consumed, often have a weaker mandible and in turn weaker teeth. This increases their risk of early tooth loss. Purging causes stomach acid to travel through the mouth, and this acid erodes the lingual surfaces of the teeth, particularly the mandibular incisors. Erosion of the tooth's enamel, which is the protective part of the tooth, can cause sensitivity, thinning and chipping.

#### Relevance and Prevalence of Bulimia Nervosa

The symptoms of poor oral health that occur most prevalently among vomiting bulimics are dental erosion, dental caries and insufficient salivary secretions that lead to xerostomia. Dietary choices of bulimics will also have an effect on oral health. For example, it is documented that binge eating often consists of diets high in sugar which may risk dental caries.1 Additionally, drinking acidic sports beverages during physical activity can cause dental erosion. Dietary habits in combination with obsessive behavior as well as the expression and intensity of the disease are of utmost importance for oral health in patients. This connection is especially apparent between bulimic behavior and dental erosion. The acidic challenge for the teeth in bulimic patients is depending not only on the type of the diet or drinks ingested but also purging behavior caused by the gastric hydrochloric acid reaching the oral cavity.<sup>2</sup>

According to the WHO Mental Health Surveys, with a total of 24,124 participants, average estimates for lifetime prevalence of bulimia are %1. The incidence of new cases of bulimia is reported to be at least 12 in every 100,000 people per year. The estimated age of onset of bulimia in the WHO mental health survey was found to be 20.6 years.<sup>3</sup>

#### Salivary Flow Rate

To maintain oral health, saliva plays an essential role in dilutation and elimination of sugars and other substances, increasing buffer capacity and shows antimicrobial effect. Therefore, reduced salivary flow may result in a clinically significant oral imbalance. One of common symptoms of bulimia is reduced salivary flow rate. There are a range of explanations for this in addition to vomiting, dehydration due to excessive exercise and xerostomia due to medication such as antidepressants. An individual with lower salivary flow rates is less protected against dental erosion than someone with higher flow rates as a result, in part, of the neutralizing effect of saliva, but also as a result of the contribution of saliva to the acquired pellicle, which acts as a diffusion barrier against acid erosion. Patients with a salivary flow rate of ≤1 ml/min are five times more likely to develop dental erosions than those with higher flow rates.<sup>4</sup>

#### **Dental Erosion**

Dental erosion is a frequent oral finding among bulimics. Patients who self-induced vomiting were 5.5 times more likely to experience dental erosion than healthy controls. This is most likely due to the fact that gastric acid, which has a mean pH of 2.9, affects tooth surfaces severely, as it is far below the critical pH of 5.5, generally considered necessary to dissolve dental enamel.<sup>5</sup>

#### **Parotid Enlargement**

Self-induced vomiting can cause enlarged salivary glands, particularly the parotid glands. Prevalence estimates ranged between 0 and 80% of bulimia sufferers, but never in control subjects<sup>6</sup> <sup>7</sup>. Although commonly associated with vomiting, the precise causes of enlarged parotid glands among bulimics are unclear. However, there is much agreement that its effect is to cause a reduced salivary flow rate.<sup>8</sup>

#### **Dental Caries**

Data concerning the relationship between bulimia and caries experience are equivocal. Vomiting may have an effect on the risk of caries, whether directly and as a result of reduced salivary flow rate. In addition, the food choices made by bulimics during a binge, which are largely carbohydrate based, will increase caries risk. Dietary carbohydrates are required for the carious process to occur. In addition to the explanation of increased access to fermentable carbohydrate during binges, this could be explained by the finding that S. mutans are able to adapt and, thus, still remain active at a pH as low as 3.14, directly challenging the previous findings.<sup>9</sup> Despite the evidence to suggest higher and lower levels of S. mutans among bulimics, there are contradictory findings that suggest that there is, in fact,no difference between bulimics and controls. For example, Touyz et al. found no difference in S.mutans levels between the anorexic, bulimic and control groups. This study also concluded that there was no significant difference in the DMFT between the three groups.<sup>10</sup>

To conclude, vomiting may indirectly cause increased risk of caries due to reduced salivary flow rate, and may also directly increase the risk due to higher levels of S.mutans. However, the fact that some studies have not found a difference in DMFT between bulimics and control groups means this conclusion needs to be treated with caution and further research is required, with specific focus on bulimic patients to isolate the effects of vomiting. It would also be useful to analyze oral hygiene behaviors between bulimic and control groups to identify if this could play a role in differences in DMFT, or lack thereof.

The dental professional must carry out a diagnostic protocol, which includes collecting data on the patient's medical and dietary history, occupational/recreational history, dental history, and oral hygiene methods.

#### **Conclusion**

This review has shown that reduced salivary flow rate, dental erosion, parotid enlargement and possibly dental caries are common oral manifestations of bulimic patients. Though, vomiting is a focused symptom for people affected by bulimia, binge eating and other dietary habits can also have an effect on a bulimic's oral health. Dentists are in a prime position to advise bulimic patients to limit their intake of acidic food and drink, and to advise them on optimal oral hygiene post-vomiting, such as rinsing the mouth with water, chewing gum and avoiding brushing teeth immediately afterwards. Diagnosing the cause of erosive tooth wear can help prevent further damage. These should all help limit the damaging oral effects that unmanaged bulimia can eventually lead to.



# WOMEN IN DENTISTRY

#### Saulė Skinkytė

In today's world, gender equality, diversity and inclusion demonstrate beneficial progress in various aspects of life. Historically, dentistry was an exceptionally restricted field and non-inclusive towards women. Even though the number of female dental professionals accounts for more than half of all specialists, it is significantly higher compared to women representation in academic and scientific fields. These observations raise some questions. Why are women a majority in the profession and still a minority in their exposure as the researchers in spheres that directly correlate with dentistry? Are there specific limitations and difficulties for women to make decisions, understand and practice dentistry? Is this situation present due to cultural repression based on gender?

#### Women in dental research

According to a UNESCO 2015-2018 science report, women in dental research account for ½ of all researchers combined. These statistics are directly related to their underrepresentation in academic research that is mostly based on gender discrimination and bias. For instance, women are not granted full access to research funding among senior faculty and editorial boards just because of their gender [9]. The lack of proper financing results in fewer publications and the so-called cycle perpetuates. On another note, during meetings of major organisations the percentage of women speakers stands at an alarming 11 % [5]. This demonstrates that while women may participate in small continuing professional development are still events, they underrepresented as speakers in major conferences.

This fact raises a question, whether the proportion of speakers should reflect the membership of the organisation or not. However, recently the increase in the number of women dentistry students, professors and researchers has been recorded. In addition, it has been stated that some women are given opportunities to receive a scholarship for researching programmes [8] and prosthodontic organizations proposed that specifically, a minimum of 25% of speakers at the conferences should be women [11]. In this case, the effort of dealing with this long standing issue is being put in, but the problem is still clearly visible, and it needs a different approach to be dealt with completely.

# Career barriers of women dental professionals

Today, women make up between 48% (Russia) to 75% (Finland) of the dentist workforce [4]. However, these percentages do not reflect the real situation women face daily. Family, societal pressures, childcare commitments, and the pursuit of a work-life balance all affect women professionals' decisions to continue full-time academic work, research, and their partaking in leadership roles [11]. This phenomenon could be explained biologically and socially. Women are considered the primary caregivers, who are responsible for the process of child education and raising. In other words, infants require full time care that is limited by the work hours which depend on the place of dental practice (not all of them provide flexibility that is necessary for the practitioners to drop off and pick up their children).

Young women also face difficulties in hiring which is directly related to many eventually needing maternity leave. Previously mentioned factors may discourage female practitioners from taking on greater responsibilities that leads to their exclusion from strategic occupations, as well as missing out on opportunities of having greater achievements throughout their careers [8]. Besides these difficulties, women clinicians come face to face with major obstacles like discrimination, sexism from male co-workers as well. These are some of the reasons why women maxillofacial surgeons in some Middle Eastern countries were found to have different sociodemographic characteristics compared to their male colleagues [3]. To sum up, historical causes and social factors still preclude from perceiving women's importance and potential in various clinical fields, leadership and academic roles.

# Women in leadership and mentorship roles

As it was mentioned previously, even though there is an increase of women entering the dental profession, they are still underrepresented in leadership roles in major dental organizations, academia, and journal boards. A US study highlighted [11] it on editorial and advisory boards, reporting that women compose 14.8% of editorial board members. Relatively small numbers of women leaders in various organisations, higher learning institutions (deanesses, professors) prove that important voices and perspectives advocating for diversity remain unheard. In addition, the lack of peer support for female promotion through academic ranks at equal rates to their male counterparts as well as negative gender stereotypes like women being less worthy and professional were documented quite recently [5]. Despite the feminization of dentistry in many areas of the world, women's representation in the field of oral and maxillofacial surgery (OMFS) in particular is poor. Not only are women professionals less satisfied with their career, but they are overlooked in their profession as leaders and mentors [1]. It is recommended for active policies to be implemented into practice that would reduce the imbalance ensuring gender-balanced leadership in at least one aspect of the dental profession [9].

#### Solutions for better inclusion

Even though the situation is slowly improving, a number of measures can be implemented to help women progress in the field. First of all, the dominating system of dentistry should take progressive countries as examples to improve as well as it should consider requesting preapproved to be slightly altered to facilitate employees to take time off to carry out parental responsibilities. Facilitating opportunities for career development and promotion, as well as providing a supportive environment with clear career paths, while increasing the numbers of women in leadership roles acting as mentors and role models should be considered [9].



This point could be achieved by implementing strict gender discrimination policy at every workplace, providing material encouragement to employers who accept young female specialists and by setting a standard number of both dentistry practising genders that should be taken seriously. This would directly result in reduced turnover and fewer dentists seeking to leave practice, as well as increasing the visibility of women in academia and leadership [4]. Challenging the unconscious gender bias in the industry as practising inclusivity of influential women in various organisations is one method to consciously present gender balanced leadership in one aspect of dentistry [9].

Thirdly, engagement and empowerment of women in dentistry is inevitable for boosting the morale of the workforce and making everyone feel included. Focusing on emphasizing opportunities, showcasing how women bring positive changes and innovation is just as important. So far there have been several initiatives to support women in science, such as the IADR Women's Scientific Network, which focuses on issues that disproportionately affect women in relation to career development and progression [9, 11]. This organisation has strategically addressed the barriers to women researchers, and it has been proactive in developing policies to address these identified issues, including workforce pipeline, economic inequality, workplace harassment, gender bias in scholarly productivity, and work-life balance [11]. There is still a hope that by implying all the suggestions gender balance in every field of dentistry will become a reality soon.

We still live in a society that has been deeply affected by embedded gender based discrimination and even though for the last few decades vast improvements were made in the journey of making women equal to men, there is still a way to go. If we want future dentists to have equal hiring and research opportunities, to be able to show and realise their full potential as dental practitioners without any gender or stereotype based limitations, we should start with the shift of everyone's attitude and the manner through which parents raise and educate their children. For now, we are still facing the challenges of a persistent gender wage gap, lack of women leadership, unevenly balanced panels, and conferences. Reaching gender equality is an ongoing process of dealing with uncomfortable situations, coming face-to-face with reality and challenging deeply-rooted stereotypes that keep pushing us backwards. There are still many obstacles left to overcome, but the achievement of equality is closer than ever.

**EDSA MAGAZINE SUMMER 2022** 

# DIABETES MELLITUS:

Connection with periodontal disease and diabetic patient management

#### **Theo Jokas**

Diabetes Mellitus is a metabolic syndrome which disables the organism from dissolving carbohydrates, lipids and proteins. It is characterized by hyperglycemia, which results from defects in insulin production or insulin action, or both. For many years it was believed that diabetes mellitus caused a higher risk of periodontal disease, whilst making the successful daily plaque removal difficult. Today, it is well known, apart from the possible connection between these 2 diseases, that diabetes does not cause periodontal disease, but it affects the efficiency of the periodontal treatment. Several studies have also indicated that it could also affect the efficiency of an implant placement, since it can cause a variety of clinical signs in the oral cavity.

#### **Diabetes' types and characteristics**

Depending on the pathological mechanisms or the form of the disease regarding the action of insulin or other factors, Diabetes can be distinguished in 4 types: type 1, type 2, pregnancy diabetes and other particular forms. Type 1: This type of diabetes is characterized by the destruction of the pancreatic  $\beta$ -cells, which are located in the Langerhans region2. The diabetic patient suffers from insulin deficiency and requires hormone injections for life5, in order to balance the glucose levels before and after a meal. It belongs to the category of the auto-immune diseases2 and the auto-immune indicators, which usually help towards the diagnosis of this type of diabetes, are auto-antibodies produced against the auto-antigens of the  $\beta$ - cells5. In addition, 15% of the patients with DM1 develop other auto-immune diseases, such as Addison disease or malignant anemia2 . Apart from the genetic factors or the organism's reaction, several studies have indicated that some environmental factors can contribute to the impairment of the patient's condition. For instance, the intestine viruses Coxsackie and echo10 are proven to ignite the auto-immune development2.

Type 2: the clinical signs on the patients show a greater variety than all the types of DM. The prevalence of DM2 is constantly rising, as it is the type of 80-85% of the diabetic patients5. The World Health Organization estimates that 366 million people will suffer from DM2 in 2030, while the diabetic patients are around 171 million, according to WHO. Regarding Greece, DM2 drastically gains more ground, as it reaches 7-9%5 . The reduction of  $\beta$ - pancreatic cells is no greater than the first type2, but the tissues show resistance to insulin's actions, or the hormone indicates low activity, which leads to increased blood glucose5 . Another DM fact with great clinical use that can lead the endocrinologist to a further classification and a more efficient

 diagnosis of this particular type of diabetes is the increased production of amyloid in the pancreatic Langerhans regions2 . Amyloid is a 37 amino-acid peptide that is produced in both diabetic and non-diabetic patients 5,11.

- Other types: genetic faults regarding β- cells function, outer pancreas malfunctions, endocrine pathologies11.
- Pregnancy diabetes

#### Connection with periodontal disease

Periodontal disease is an inflammation of the periodontal tissues that includes lack of adhesion, periodontal pockets and gradual bone loss. Lack of adhesion is defined as the distance between the enamel-dentin joint and the deepest point of the pocket or gingival fissure8 . At the stage of advanced lesion, inflammatory factors from serum arrive at the diseased area such as immune-globulins (IgA, IgG, IgM) towards the defense of the organism13

At first sight, a possible connection between these 2 diseases is the common inflammatory factors that are produced and carried within the serum6. For instance, a significant amount of interleukins is detected in periodontal and diabetic patients. Regarding diabetes, the IL1ß is a major factor in reducing insulin production and it also leads to mass apoptosis and destruction of the  $\beta$ -cells5 . On the other side, IL6 is usually detected at the stages of periodontal disease 6,7 , so the tissue resistance can increase. Other inflammatory factors that are commonly released on both the above diseases are C-reactive protein6 , which ignites the production of more IL factors14 and TNF-a, that is one of the most important inflammatory cytokines and leads to the production of other inflammatory mediators15.

Moreover, diabetes can affect the subgingival microbiota6 by creating fruitful ground for its development, such as increasing the number of P. niegrescens, P. micros and F. nucleatum, bacteria who are also responsible for causing peri-implantitis12. The actual mechanisms affected by diabetes that alter the subgingival microbiota have not yet been clarified, and there is need for further research to be conducted.

Despite the above, it is safe to say that diabetes creates perfect conditions for the further development of periodontal disease; more specifically it decreases the efficiency of the periodontal treatment, using direct and indirect pathways8 . A recent study result provided by Quintero et al presented that a perfectly executed periodontal therapy indicated a significant decrease of Hblac levels6. This proves that the connection should be taken into consideration, because there are many pathways that could possibly link these 2 diseases.

#### **Diabetes and implants**

According to modern implantology principles, before placing an implant, it is very important for the doctor to evaluate the medical history of their patient meticulously. Among the metabolic diseases, diabetes is currently the only one that plays a major role in the implant procedure1. Although modern literature indicates a high percentage of osseointegration among diabetic patients (92-95%), patients that do not control the Hblac, glucose and insulin levels have a high risk of implant failure12. This happens for the same reason as the diabetes-related poor periodontal treatment result. More specifically, diabetes affects the post-surgical period by delaying tissue regeneration and making the organism vulnerable to multiple infections1,3,4 . Apart from the healing, diabetes can also lead to bone loss if it is not properly administered3. That is because insulin, which takes part in bone tissue creation and development, has a serious deficit in diabetic patients3. In conclusion, the dentist should take diabetes into consideration before proceeding to implant placement and refer to an endocrinologist to deal with the patient's condition.

The role of the dentist in dealing with a diabetic patient

Although controllable, diabetes is not a problem for common dental procedures, the dentist should be aware of it. Currently there is not unanimity among the scientific community for controlling diabetes7,9, but the clinician should always ask the diabetic patient for Hblac and glucose levels before treatment7. Diabetes is confirmed after the biochemical analysis results indicate blood glucose above 7.8 mmol/L (140 mg/dL) before meal or above 11 mmol/L (200 mg/dL) 2 hours after a meal2. Dental treatments that include high bleeding or infection risk should be delayed until the metabolic syndrome is administered7,1.

Regarding prosthetics, diabetes can cause xerostomia, saliva modification and even bone quality as mentioned above16 . As a result, the restraint of the removable denture may be degraded, which leads to more problems that are hard to deal with after the denture is finally delivered to the patient16.

When it comes to implant placement, if the diabetes is not controlled accordingly, the procedure must be delayed until the patient solves the problem of high glucose levels in cooperation with the endocrinologist or the pathologistl. On the other hand, if the diabetes is controllable, the patient is required to use his antidiabetic medication without postponing it for the surgeryl. In addition, since diabetic patients belong to the category of special treatments, they should also use antibiotics at least for 10 days in order to minimize post-surgical infection riskl,9.

Regarding local anesthesia which is mandatory for most of the dental procedures, the dentist should follow a special protocol to successfully anesthetize the working area whilst protecting the patient from very severe post-anesthesia events. It is suggested to use anesthetic solutions that contain noradrenaline rather than using adrenaline 17. That is because adrenaline increases the glucose levels in the serum as it competes with the action of insulin, while noradrenaline has a lower glycogendecomposing action17. It is also vital that the anesthetic solution has a low vasoconstrictor content17.

In conclusion, it is worth mentioning that diabetes is the most important among the metabolic syndromes and the dentist should always be aware of its existence. If it is controllable, the clinician proceeds as usual. If not, the treatment differs from the usual protocol as mentioned above.





# CARE AND ORAL HYGIENE IN PATIENTS WITH CLEFT LIP AND PALATE

**Nisa Yildiz** 

Cleft lip and palate is one of the most common congenital anomalies. Cleft lip and palate occur between the 4th and 10th weeks of pregnancy, when facial morphogenesis occurs, as a result of the failure of some special structures that play a role in the formation of the lip and palate(21). Cleft lip (CL) or cleft palate (CP) may occur alone or together and may be complete or incomplete, unilateral or bilateral (19).

Although the type and severity of the anomaly occur, the affected individuals have functional problems such as nutrition, speech and hearing from the moment they are born; they enter a process where they will encounter many difficulties in terms of aesthetics and social aspects (13).

Individuals with cleft lip and palate require versatile planning in the treatment process from birth to adulthood. In order for these individuals to receive an ideal health service, they should be treated with a multidisciplinary approach by a team of psychologists, speech therapists, oral and maxillofacial surgeons, pedodontists, ear-nose, throat specialists and orthodontists from birth to adulthood (15). The aim here is to provide the functional, aesthetic, psychological and social competences of the individual.

Priority in treatment is surgical repair and speech therapy (18). Treatment also includes early intervention to ensure nutrition, dental care and orthodontics, monitoring of hearing status and psychological services(10).

Surgery for cleft lip and palate is performed between the 3-18th months of the baby(12). Meanwhile, the baby is evaluated for other congenital anomalies. The first thing to do in babies with cleft lip and palate in the pre-surgical period, that is, after birth, is to meet nutritional needs. Since the child should be at a certain weight level before surgery, weight monitoring should be done in the child. Under these conditions, it is determined that the baby is ready for operations.

In children with cleft lip and palate, the nasal cavity cannot be separated from the oral cavity, so children cannot create the necessary negative pressure for sucking (18). However, due to the damaged palate surface, the child has difficulty grasping the nipple. The baby experiences fatigue due to excessive air intake, nasal congestion and excessive energy expenditure during feeding(10).

The difficulties of the baby in sucking, and then the accumulation of food residues in the nasal cavities cause chronic inflammation (17). In this situation, hearing disorders, vegetations of adenoid lymphatic tissue, problems that are important enough to constitute mental disability arise (9). Chronic inflammation is seen in the nasal and pharyngeal mucosa. Pharyngeal tonsils and adenoids are usually enlarged, often with upper airway inflammation, bronchitis, and pneumonia (5).

If left untreated, speech disorder causes serious communication disorders even in early childhood, as well as its harmful effects on physical development (3,6). Again, a permanent rhinitis is seen in children with cleft palate due to the irritation of the nasal mucosa of the food taken. The infection enters the middle ear through the Eustachian tube and causes otitis media. Thus, if the child suffers from hearing loss when he is young, he becomes deaf and mute (5). Nutritional plates are made to prevent all these and to continue nutrition. The baby is called hungry for nutritional plate control. Before mounting the acrylic plate, the sharp parts are removed and the feeding process is controlled after the plate is attached. It is checked whether there is fluid coming from the nose and gag reflexes. The parent should be told to wash the plate with plenty of water after each feeding. Plaque is checked with monthly controls and the baby's weight is monitored. In addition, the baby can be fed with a special-tipped bottle.

Reducing the cleft line both in the lip area and at the alveolar level with the nasoalveolar molding treatment before the surgery, if deemed necessary in the preoperative period, will reduce the size of the scar that will occur and reduce its negative effects on the development(14). The aim of this treatment is to ensure that the surgeon who will perform the operation achieves more successful results as a result of aligning the morphologically deformed lips, nose and alveoli and lengthening the columella. Presurgical nasoalveolar molding treatment allows effortless primary closure of lip segments in the first lip closure operation, which will be performed by reducing the cleft lines(14).

The most common problems observed during NAM treatment are irritation of the oral mucosa, gingival tissue or nasal mucosa (7). The reason for this may be excessive pressure due to the appliances used. However, we may encounter a fungal infection due to poor oral hygiene and full-time use of the appliance.This can be treated with Nystatin or Amphotericin(16).

Postoperative care is the most important task in terms of ensuring the vital functions of the baby. Saliva accumulated in the mouth should be cleaned regularly. Liquid foods are preferred for 2.5-3 weeks to feed the baby in the postoperative period(8). Postoperative pacifier use and breastfeeding should not be done for at least 1 month. At the end of 3 weeks, the patient is checked again for evaluation of recovery. Sin the postoperative treatment, regular follow-up is continued depending on the nature of the case during the rehabilitation process of the malformation. After the operation, patients are followed up in terms of function, phonation and aesthetics.

The presence anatomical and of morphological developmental disorders. especially in such patients, hinders the maintenance of good oral hygiene. The high prevalence of dental diseases in children with cleft lip and palate has been attributed to irregularity of the teeth, anatomy of the cleft area, tight repaired lips with a tendency to accumulate food in the cleft area, the effect of nasal discharge through the cleft, cariogenic microorganisms, hypoplastic defects, prolonged feeding, especially at night, and increased consumption of sugary foods(20). However, the higher incidence of supernumerary teeth and the limited dental arch area attributed to the underdeveloped maxilla may cause tooth misalignment in patients with cleft lip and palate(2).

In addition, due to the irregularity of the defect areas, the tendency to develop periodontal disease is high in patients with cleft lip and palate. Individuals with clefts are more prone to periodontal disease due to the presence of clefts in the defect areas, which causes food retention and poor oral hygiene, but the severity of periodontal disease is greater if the defect is large and includes the lip, alveoli, and palate (1).

According to the studies, the prevalence of caries was found to be higher in children with cleft lip and palate compared to the control group, and 52% of the lesions were in the upper incisors(11). In addition, patients undergoing orthodontic treatment with fixed appliances are at higher risk of developing new-onset enamel lesions due to increased plaque accumulation around the appliance attachments (2). However, a higher incidence of caries was found in the teeth adjacent to the clefts. In addition, a high prevalence of caries was inferred because of the lack of access to oral hygiene products and the limited knowledge of parents on diet and oral hygiene

In this case, the responsibilities of the dentist, necessary hygiene training, fluoridation and caries prophylaxis are carried out for the protection of all existing teeth due to tooth deficiencies. If there are unclosed fistulas, they are closed with a plate. Thus, the food coming from the nose is prevented. With this, oral hygiene measures are taken in these people with early intervention and multidisciplinary work. In addition, families with children with cleft lip and palate should also be made aware of maintaining oral hygiene. Supporting parents' acquisition of accurate information and their intention to routinely maintain oral health, despite changes in their child's or family circumstances, is potentially important for improving oral health (4).

The development of devices specifically designed for cleft area hygiene and the implementation of standardized prevention and control programs aimed at education, motivation and compliance will contribute to improving oral health in CLP children(19).





# AROMATIC DENTISTRY

AYÇA AKDOĞAN

Dental anxiety is a common and potentially distressing problem both for the patients and dental practitioners. It has been cited as the fifth-most common cause of anxiety.(1) Its effects on the lives of dental professionals, however, is often overlooked. Managing anxious patients leads to increased stress which can compromise the performance of dental professionals. Given the negative impact of dental anxiety for all involved, it is important that patients with dental anxiety are managed correctly. The most popular method of managing dental anxiety is the use of conscious sedation or occasionally, general anaesthesia. (2) However, these procedures carry risks, require additional equipment and the close monitoring of patients. So is there a natural, safe and holistic approach to combat dental anxiety in clinical dentistry?

### What is aromatherapy and how does it work?

Aromatherapy is an alternative therapy that uses essential oils as the main therapeutic agent. Essential oils are described by the International Organization for Standardization "concentrated hydrophobic liquids as containing volatile aroma compounds distilled from plants".(3) Essential oils capture the "essence" of a plant through distillation and mechanical pressing. These oils are concentrated extracts that retain, or magnify the fragrance and effect of their source. The applications of essential oils are diverse. Inhalation, local application to the skin and baths are the main methods used in aromatherapy . When inhaled, the scent molecules in essential oils stimulate the olfactory neurons. The stimuli is then processed in the amygdala, the emotional centre of the brain, as well as the olfactory centre of the brain. The sense of smell is the most primitive of all our senses and it is linked to some of the oldest and deepest parts of the brain.

As we breathe in the aromas of the essential oils, it can trigger emotional and even physical responses and allow vivid memory recall of people or places. This strong effect of the sense of smell on mood, emotions, reactions and memories offers us an important opportunity to use aromatherapy more effectively in our daily lives.

#### Aromatherapy In Clinical Dentistry

Dental anxiety is very common among dental patients. This may be associated with general dental care, the anticipation of treatment, fear of the unknown, fear of pain or the relationship with dental professionals in the dental office. A growing number of dental professionals are taking an interest in alternative medicine as an adjunct in the management of dental anxiety. Recently, one of the prominent methods in this regard is aromatherapy.

Aromatherapy is an alternative method in where surprisingly clinical dentistry, satisfactory results can be obtained in dealing with dental anxiety. Many studies this subject have supported on its effectiveness and therefore its use. One such study was conducted using orange and lavender oils at the University Clinic of Neurology, Medical University of Vienna, Austria.(4) The effects of inhaling essential oils while waiting for a dental procedure were tested. The goal of the study was to examine the effects of inhaling orange and lavender essential oils on anxiety, mood, alertness and calmness in dental patients. The study revealed that compared to control conditions, both ambient odours of orange and lavender reduced anxiety and improved mood in patients waiting for dental treatment. These findings support the opinion that odours are capable of altering emotional states and may indicate that the use of odours could be helpful in reducing anxiety in dental patients.

Another study conducted at the Best Dental Science College and Hospital assessed the effect of essential oils on dental anxiety level among orthodontic patients. The effects of various oils such as lavender. rose, and a placebo on anxiety levels were also compared. (5) The diffusive odour of lavender oil was administered through a candle warmer in the waiting room to the patients. The lavender oil was replaced by plain water in the placebo group. Patients were asked to complete a questionnaire after waiting for 15 minutes in their respective waiting rooms. The results of the study showed that anxiety scores significantly decreased for the lavender oil group . These and many similar studies have indicated that the aroma of essential oils is effective in the reduction of anxiety. In addition, recent research from Brown University by Dr. Rachel Herz reports that, "experience and not genes, determines our emotional reactions to scents". Dr. Serge Marchand, who has studied physical reactions to scent at the University of Quebec also points out that scent, when attached to memories of a positive experience, can play a role in affecting mood, pain and aid in the healing process.

#### Aromatherapy In Daily Oral Care

While essential oils should not replace normal dental care products, they can be considered an acceptable and effective addition to daily oral healthcare routines due to their antiseptic and non-toxic properties. In addition to being natural, oral health can be better reinforced with their holistic effect. Four of the most effective and commonly used essential oils for oral are coconut, health sweet orange, peppermint and clove. Clove oil in particular, is the most popular essential oil in the dental field. Clinical research indicates that clove oil can relieve dental pain and halitosis, as well as reducing gingival inflammation with its antimicrobial and anti-inflammatory properties.(6)

Peppermint has antibacterial and antifungal properties. It's one of the most widely used essential oils because of its ability to inhibit biofilm formation and reduce gingival inflammation. In addition to these properties it is also an antifungal, meaning it is effective against oral candida.(7) Finally sweet orange and coconut oils similarly also have antifungal, antibacterial, and analgesic qualities. This means it can potentially prevent caries and gingivitis as well as candidiasis.(8) It is speculated that the active ingredient in these oils is lauric acid, which reacts with compounds in saliva. It cleans as well as reduces plaque adhesion and accumulation. It also has antimicrobial properties, making it effective against caries-causing bacteria, and can help keep the oral mucosa moist—which is particularly beneficial for patients suffering from xerostomia.(9) Oil pulling and adding to the reservoir of the water flosser are the commonly preferred ways most of incorporating essential oils into the daily oral care routine.

Finally, it should be reinforced that despite the effectiveness of aromatherapy it should be regarded as a supplementary therapy used as an adjunct to routine dental practices. As with any therapy its use should be tailored to a patient's individual requirements.



### ULTRASONOGRAPHY AND ORAL CANCER

#### DILARA KILIÇ

#### What is Ultrasonography?

#### How does it work?

"Sonography" means imaging with ultrasound; "ultra" means audible. The term ultrasound means the form of sound energy beyond the audible range. Despite the fact that the Curie brothers discovered the principles and applications of ultrasound in 1880, the Dussik brothers in Austria (1937) were the first to describe the use of ultrasound imaging, and later in 1972, Kossoff in Australia and others introduced grayscale USG. According to Vincent in 1988, sonography is widely used in the diagnosis of a wide range of soft tissue abnormalities. The National Cancer Institute defines ultrasonography as a procedure that uses high-energy sound waves to look at tissues and organs inside the body. The sound waves make echoes that form pictures of the tissues and organs on a computer screen (sonogram). High-energy sound waves create real-time pictures or videos of internal organs or other soft tissues, such as blood vessels. Ultrasonography may be used to help diagnose diseases, such as cancer. It may also be used during pregnancy to check the fetus (unborn baby) and during medical procedures, such as biopsies. 

Ultrasonography is a noninvasive imaging method. It is also called ultrasound. Without making any incisions, ultrasound allows healthcare providers to "see" details of soft tissues inside your body (cuts). Ultrasound, unlike X-rays, does not use radiation.

There are mainly three categories of ultrasound imaging, including:

- Pregnancy ultrasound (prenatal ultrasound).
- Diagnostic ultrasound.
- Ultrasound guidance for procedures.

The ultrasound image is created by passing sound waves ranging from 1 to 10 million hertz through a transducer that is placed over body structures inside a body opening. The provider applies a thin layer of gel to your skin, allowing the ultrasound waves from the transducer to pass through the gel and into your body. Sound waves are either absorbed or reflected back to crystals in the transducer's head. Sound waves, for example, travel through hollow or fluidfilled areas such as the bladder and blood vessels. On the screen, these areas are black. Tissue-filled areas allow some sound penetration and refraction, resulting in a gravish-white image. As sound waves completely bounce back to the transducer, extremely hard structures, such as bone, produce a bright white image.

#### Method of detecting oral cancer

Oral cancer screening can come in many different forms. Early detection of premalignant and malignant lesions is possible thanks to clinical and histological examination. Screening can be made more efficient by focusing on the high-risk areas that account for 90% of all oral SCCs: the floor of the mouth, the ventral aspect of the tongue, and the soft palate. If radiation is part of the treatment plan for oral cancer, a dental exam beforehand is usuallv recommended, savs Cancer Treatment Center of America.When teeth or other structures in the oral cavity need to be removed, a specialist known as а prosthodontist may make prosthetic replacements to help restore appearance, comfort and function after treatment.

Although most areas of the nose and mouth can be examined without the use of a tool, physicians may use different imaging tests to examine difficult-to-see areas. Some of them are;

Magnetic resonance imaging (MRI): An MRI scan is commonly used to examine oral cancer. MRIs provide a very detailed image and may be especially useful in determining whether or not the cancer has spread to other areas of the neck or the body.

Computed tomography (CT) scan: A CT scan can reveal the size, shape, and location of any tumors, as well as identify enlarged lymph nodes that may contain cancer cells.

Positron emission tomography (PET): A PET/CT scan may be used in patients with oral cancer to determine whether the cancer has spread to the lymph nodes first, or to check the body for cancer cell spread.

Many studies have concentrated on tumor thickness in oral squamous cell carcinomas, suggesting a link to the occurrence of cervical metastasis. Accurate preoperative assessment of tumor thickness in oral cancer would provide useful information for identifying patients who require elective neck treatment. Numerous diseases manifest themselves in the oral and maxillofacial regions, and various modalities such as intraoral and panoramic radiography, USG, computer tomography, magnetic resonance imaging, and nuclear medicine methods such as positron emission tomography may be used to diagnose them.USG is a simple technique for detecting non-invasive and soft tissue diseases in the oral and maxillofacial regions. USG is useful in analyzing both normal and abnormal structures.

#### USG and Oral cancers

According to a study by Chammas et al. who concluded that intraoral sonography is useful for identifying oral tumors and measuring their thickness by intraoperative ultrasonography (IOUS) shows a good correlation with histological measurements. Study of Joshi PS. et al. 's findings of solid and mixed jaw lesions diagnosed by USG correlated with histopathological findings, which are consistent with the findings of Lauria et al., who concluded that the use of USG is important in evaluating the solid, cystic, or mixed components of jaw lesions and that the contents of the lesion correlate with histologic findings. The identification of lesion contents would aid in deciding whether to perform an incisional biopsy as a next step or to proceed with the patient's surgical treatment immediately.Gray scale USG has been shown in studies to be useful in assessing suspicious nodes for metastasis, and there is a significant relationship between node size and echogenicity. Highresolution, high-frequency linear ultrasound imaging can be used to assess the morphologic patterns of salivary gland diseases.To conclude, The findings of ultrasonography correspond well enough with histopathology. Metastasis of lymph nodes can be accurately predicted, and USG can be used as an adjunct in the diagnosis of oral and maxillofacial pathology.

Jral Cancer

# PRESIDENT INTERVIEW Ivana Ligusová

BY TIAGO LEITÃO

#### How did you get involved in EDSA?

I was starting my second year of dentistry, when my friends from Slovak Association of Dental Students told me about the existence of EDSA, and about EDSA Meetings. Around the time when I was signing up for my first EDSA meeting in Cardiff 2017, I was feeling pretty lost. The university felt draining, I felt like I don't have it under control and I don't have time to do anything but studying. I remember that the meeting in Cardiff let me completely ecstatic and inspired. I met people my age that were standing in front of the room full of people, confidently presenting amazing projects they were doing. They talked about their contact with other international associations, about mobility projects, research, prevention, and publications such as this magazine.

"I think every president should be aiming to do changes and move the association forward, otherwise EDSA would be stagnating"

All of the people were dental students like me - but many of them also spoke six languages, did professional sports, played instruments or volunteered in their city. I was completely taken aback by the fact how much you could do when you decide to work on yourself. I decided I need to start working on myself too - my mission was to become a delegate of Slovakia first, to get better at public speaking and learn a bit more about EDSA. In Amsterdam 2018 I was giving a short presentation as a delegate of Slovakia, completely stressed. A very small thing to do, but a big public speaking milestone for me, and I only got more involved ever since. First I became a co-editor of the EDSA Magazine, then I won my first elections and became a Vice-President of Public Relations (as well as an Editor-in-Chief of the EDSA Magazine), one year later I was a General Secretary, and then the President. By the time I was in my sixth year, I must say I became a different person, and I'm sure EDSA was a huge influence. I was not only studying but also working in EDSA, doing sports, reading many books and I felt way more confident and relaxed, even in public speaking situations. The university noticed my activity and I received some awards for the extracurricular work, too. The friendships I found in EDSA are one of the best in my life, and I don't know who I would be without this influence in my life. If I could give students any advice, I would tell them to say yes to opportunities like this. I don't think you will ever regret getting involved, and it can change your life tremendously.

#### "I was feeling pretty lost. The university felt draining, I felt like I don't have it under control and I don't have time to do anything but studying."

# What have been some of the biggest changes to EDSA during your time as President and also as an active member?

I think every president should be aiming to do changes and move the association forward, otherwise EDSA would be stagnating. From the things that changed this year, I would definitely mention Standing Committees, which is a new session happening on the EDSA Meetings.

EDSA Board members, delegates and meeting participants are all divided into Standing Committees (Standing Committee of Public Health, Prevention, Research, Internal, Dental Education), and they participate on the 2 hours long session. The aim of the session is to create a discussion around certain topics that are important to dental students. I believe that EDSA has a great advantage of having students from many different countries on one congress, and Standing Committees are meant for discussing and expressing various opinions. The product of the session is often a draft of policy paper, prevention campaign, newsletter etc., which is a way of including congress participants in the work of EDSA. In Zagreb, we piloted this and I think it worked very well.

I also came up with the way to make country reports more effective and interactive, by providing presentation templates in advance and giving groups of delegates specific question to answer, which started a vivid discussion.

One of the projects that launched for the first time during my presidency is the FDI ERO Scientific reward, which is definitely an achievement. I always liked how EDSA has been supporting student research, and I'm glad we added up to that this year. I came up with a concept of writing an essay of 1500-2500 words on one of the topics provided by FDI ERO, with the financial reward for the best 3 essays - and we were surprised to receive such a big number of essays.

There were definitely other things to be proud of from my years as an active EDSA member, such as EDSA registration in the Netherlands, changes in the Constitution and Rules of Procedure, being an Editor-in-Chief of the EDSA Magazine and also the new wikipedia page of EDSA.



#### What has been the best advice you've been given on being President?

Alyette Greiveldinger told me to be able to say no sometimes. She said that she sometimes had to accept there is a limit of how much you can do in a period of time.

Tin Crnić used to tell us that the university is always a priority, and that I should be tolerant to my team about that. EDSA is a student association, students are volunteering to do it and they shouldn't feel like their education is being compromised.



James Coughlan told me there will always be something "undone" on the to-do-list when being a president, and that I shouldn't stress too much about that.

"He also encouraged me to go for it, believe in myself and stand behind my opinion. James has definitely been a big influence in my life in general."



What advice will you give Marta Adam (President Elect for the 2022/23 term)?

Marta is very responsible and I don't think she needs too much advice from anyone, but knowing her perfectionism, I would like to tell her not to worry when something is out of her control. We can't force everyone to work as we'd imagine, people are still students with their own lives and we should accept that. I'm sure she will handle it amazingly, and if any problem appears, me and other past presidents will be there to help.



#### What are you most proud of during your time in EDSA?

Probably the fact that I signed up for President, won among 3 candidates and became the first Slovak EDSA President. It was a big decision that took me a lot of courage, and I hope more people from Slovakia will be in this position in the future.

"I also feel proud when I see new people signing up for EDSA Board positions, it gives me a sense of comfort and continuation."

# What are some of the biggest challenges facing dental students across Europe right now?

Definitely a lack of harmonization of studies. I consider myself European and I wish to see us having the same conditions when studying dentistry, which seems very difficult to do, due to the differences in the countries. This is what EU is striving for, and what EDSA has been hoping for as well. We don't have to have the most modern dental offices - I just wish we had the same curriculums, same amount of practice and similar educational materials.

Which brings me to another big challenge of dental students - dentistry is a fast-advancing field, which makes it harder and harder for universities to be up-to-date. There is a lack of education on digitalization and the most advanced principles of dental practice, it simply takes too much time to "get in the books".

#### What will be the biggest memory you will carry with you about EDSA?

That's a difficult question, but all of the important memories are related to EDSA friendships. I have to mention teambuilding in Budapest with my Board, when we made breakfast together, and when we went out to Karaoke bar at night. EDSA Zagreb meeting, when we lead the meeting as a Board for the first time. My first meeting in Cardiff in 2017, when we drove a seven seater car across Wales and drove on the other side of the road. CED Meetings in Brussels and Porto with Marta and Pierre. I could go on, really, but the only thing I can recommend is to go and see yourself.





#### What are your plans after your term ends?

I'll be focusing on my dental career, we're opening a dental practice with my fiancé. Dentistry is definitely a priority after my term and I can't wait to dive more into it. Also, I'm getting married, and finding the right person is definitely worth celebrating. It's been my pleasure being part of EDSA and I'm sure I will be closely following its future.

Dear Ivana, being a part of your team was amazing. Thank you for your hard work and patience. Wish you the best. Tiago









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# KEY TO PERFECT INTERDENTAL CLEANING The Curaprox Interdental Access Probe



The importance of oral hygiene in the dental practice is increasing, but dental professionals and patients are still left in the dark about correct interdental cleaning. Prof. Denis Bourgeois was among a group of researchers who conducted a study showing that the Curaprox Interdental Access Probe (Curaprox IAP), which is used to calibrate interdental brushes, is the most effective tool of all. The probe is increasingly used as a gold standard in oral prophylaxis and allows dental professionals to quickly and easily determine the exact interdental brush sizes for each patient.

According to Prof. Bourgeois, a researcher at the University of Lyon, interdental brushes are still undervalued. "They are easy to use, liked by patients, and the most effective interdental cleaning tool on the market. The majority of studies comparing the effect of interdental brushes, or floss, on the plaque index have shown interdental brushes to be significantly more effective."

Interdental brushes are most effective when their bristles maximally fill out each interdental space so as to disrupt the biofilm, but they should not be too big. So, what sizes of interdental brushes should be recommended to patients? More often it is a trial-and-error affair, with the risk of undersizing—which has an impact on efficiency—and oversizing—which has an impact on acceptability and can lead to gingival trauma.

One tool, in particular, quickly and easily measures the size of patients' interdental spaces: the Curaprox IAP. Insert it into each interdental space horizontally or at a slight angle; the colour showing next to the tooth's buccal surface corresponds to the colour of the Curaprox interdental brush that will be most effective in cleaning the interdental space.

#### No more trial and error

In their study, Prof. Bourgeois and his team proved that using the Curaprox IAP to determine the correct brush sizes leads to more effective interdental brushing than when dental professionals recommend brushes to patients based on the decision-making technique of trial and error. The study found that the brushes chosen without the probe had a diameter larger than that indicated by the probe in 23.54% of cases and a diameter smaller than the probe value in 33.41% of cases.



No more trial and error by using the Curaprox Interdental Access Probe EDSA MAGAZINE SUMMER 2022

The participants in the study were young adolescents aged 25 to 35 without periodontitis. By measuring the interproximal space, Prof. Bourgeois and his team concluded that over 80% of the sites required a small-diameter interdental brush (0.6–0.7 mm) of the Curaprox CPS Prime series and that differences occurred between anterior and posterior sites. The thinnest CPS Prime interdental brush (0.6 mm in diameter) was able to penetrate 94% of the participants' interdental spaces.

#### Instruct your patients

"A major problem with interdental cleaning has always been patient motivation," Prof. Bourgeois said. "But when dental professionals instruct their patients individually on how to brush interdentally using calibrated brushes, it easily becomes an established part of daily oral hygiene. Bleeding may initially stop patients from using interdental brushes. But when you explain to them that the bleeding is caused by inflammation, a sign of infection, they will regard bleeding as a warning sign and interdental brushing as a way to keep healthy gums. It is necessary to use a toothbrush twice a day and interdental brushes once a day. If you do not do this, you are risking your health," Prof. Bourgeois said.

The study can be accessed at https://curaproxinterdental.com/studies/

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