

Incisaal edge

*Leaders
& Mentors
Edition*

Fall 2023



Student Research Group
University of Texas Health Science
Center at Houston School of Dentistry

In This Issue

ABOUT THE THEME

To have a mentor means to have someone guiding you on this exciting and long journey toward becoming a dentist. Along the way, we may experiment with and find ourselves enjoying various research projects.

Come with us as we take you on a journey exploring the impact our mentors have had on us.

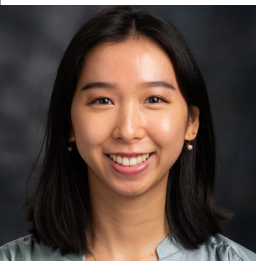
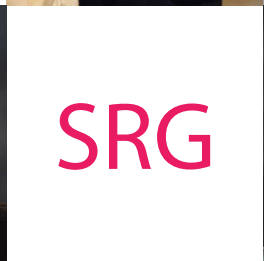
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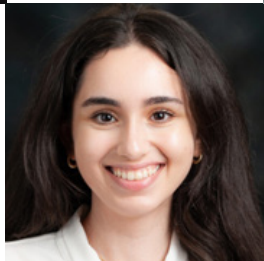
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As I was deciding on the theme that would encompass this edition of the newsletter, I could not help but reminisce on how far I had come since starting my dental school journey. From being a first year focusing on didactics to now entering my third year where I am in the clinic treating patients and being a mentor to the class below me, I cannot say the journey has been easy. During times of uncertainty, I think about all my past and present mentors and how their leadership shaped me.

As dental professionals, we are meant to be leaders in oral health and be mentors in guiding our patients towards healthy habits along with reaching out within the communities we serve. However, there are times of doubt and stress within one's personal and professional life which is more so true for any student dentist. It is during these times that we look to our leaders and mentors who came before us for guidance. It is under their tutelage that we are able to become the best versions of ourselves and guide the next generation. For this edition of Incisal Edge, those of us from the Editorial Board acknowledge and appreciate the work of the students from the class of 2025 and 2026 who wanted to share their knowledge and opinions with the goal of being future leaders and mentors in the pursuit of oral health and overall health.

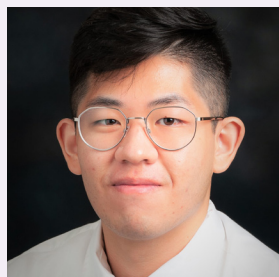
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A Letter From the Editor

Want to get involved? [Incisal Edge](#) is always looking for interested writers and designers! We also want to hear from you!

Please send requests and feedback to Brandon.M.Pham@uth.tmc.edu

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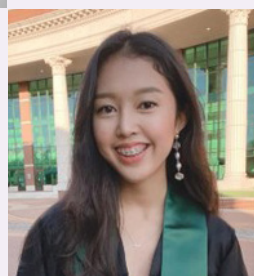
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Student Spotlight

Every year the AADOCR holds an annual meeting and exhibition for dentists, oral, and craniofacial health professionals/researchers to provide the opportunity to present and open a discussion for the latest developments in each individual's respective areas of research. This provides critical thinking and innovative ways to further progress the sciences involving the oral and craniofacial region. The annual meeting also provides the chance for health professionals/researchers to interact with other colleagues from across the country. At the 52nd Annual Meeting & Exhibition of the AADOCR held on March 2023 in Portland, Oregon, dental students from the UTHealth School of Dentistry presented their research that they have worked diligently on while maintaining their academic careers to further advance the oral health care field and to become future leaders in the field. As such, the student research group would like to acknowledge those recognized and awarded at the meeting.

COLBY ALLEN '25

AADOOCR BLOC TRAVEL GRANT AWARD



"I was pleasantly surprised to receive the award from AADOOCR! My mentor recommended applying for the award and I am glad she did!"

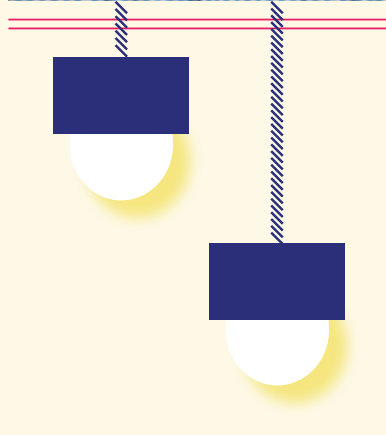
JACKSON VALENCIA '23

AADOOCR STUDENT RESEARCH DAY AWARD

ROLE OF SUPERIMPOSITION BASIS ON EVALUATION OF ACCURACY OF 3D-PRINTED DENTAL



"Dr. Kasper is a wonderful mentor and researcher. I was honored to receive the award in recognition of our work together."



MARYAM BALDAWI '25

GERT FELLOWSHIP: OUTSTANDING REGIONAL REPRESENTATIVE



AMY TRAN '26

AADOOCR BLOC TRAVEL GRANT AWARD

ESSENTIAL ROLES OF PARATHYROID HORMONE-RELATED PROTEIN (PTHrP) IN THE FORMATION OF THE MANDIBULAR CONDYLAR CARTILAGE (MCC)



"Last summer was my first time participating in research and I was super excited to be able to present at AADOOCR. I was very honored to get selected for the AADOOCR travel grant. It made the trip less stressful, and I was able to enjoy every part of the meeting."

Students

In

Research



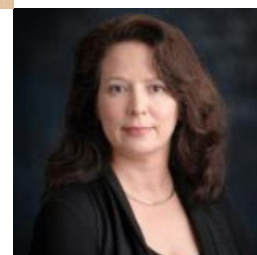
KRISTINA MATHAI
Writer '23

The Summer Research Program at UTSD grants students the opportunity to propel their education and challenge themselves in attaining higher scientific achievement. Under the leadership of their faculty mentors, the students in this program have been able to secure the necessary professional and technical skills of a researcher. I had the privilege of interviewing four inquisitive, committed students about their experiences training under their mentors from this past summer. While each of them carries various levels of familiarity in research, they share the common experience of acquiring career advice and invaluable insight from their esteemed faculty mentors.

Julian Fernandez (CO '26) is from the small town of Roma, TX and attended The University of Texas Rio Grande Valley where he earned his bachelor's degree in biology. While he didn't do research during his undergraduate career, he was fortunate enough to continue his interest in microbiology through his research project with Dr. Gena Tribble. Under her direction, they studied the relationship between coaggregation bacteria behavior and periodontal disease. During this time, Julian propelled his dental education by learning about the organisms of the oral cavity, which would later be reinforced during his didactic lectures in the first semester. Julian was grateful to work with Dr. Tribble as she knew he didn't have a background in research and still made it a comfortable experience for him. He appreciates Dr. Tribble's humor and relatability and that she made his introduction to research an ideal learning experience. In the future, Julian is interested in participating in a more clinical-based project and would be open to working again with Dr. Tribble or with another faculty member who resonates with him.



DR. GENA TRIBBLE
JULIAN'S MENTOR





Stephanie Hoang (CO'25) graduated from Layola University New Orleans with a bachelor's degree in biology as well. Stephanie was involved in research during her undergraduate career where she participated in the MedSURP program and was paired with dental school faculty. Coming into dental school, she was familiar with research and continued to foster this interest by participating in the 2022 summer research program with Dr. Wanida Ono. While investigating the potential of salt-inducible kinase (SIK) inhibitors as a treatment option for primary failure of eruption, Stephanie grew to value how the material we memorize for boards can be applied and better understood through research, describing research as the "best way to help [her] learn." During their time together, Dr. Ono reminded Stephanie about the importance of giving a project adequate time to develop before introducing a novel proposal to the world. Dr. Ono inspired her to "go big or go home" when it comes to gathering and presenting research. Overall, Stephanie also gained an admiration for those who pursue research full-time due to the years they spend on their project before introducing it to the world.



DR. WANIDA ONO
STEPHANIE'S MENTOR



Andrew Tran (CO'24) attended the University of St. Thomas where he graduated with his bachelor's in biochemistry and was involved in research in the chemistry department. During the summer of 2022, Andrew studied the effects of betel nuts on liver cells under the guidance of Dr. Alan Myers and Dr. Danielle Wu. Andrew gained an appreciation for our professors in general as we don't often witness their expertise in other fields besides what they teach in class. He expresses his gratitude for Dr. Myer's humor and feedback as well as Dr. Wu's reminder on the importance of being meticulous in cell culture protocols. Through this addition to his dental school experience, Andrew was prepared to shift to the clinical aspect of dentistry by remembering the importance of the basic sciences as well as the systemic connection to oral health. In regards to the overall impact of the summer research program and the mentorship he received, Andrew shares a meaningful truth: "We're not just dentists, we're clinician scientists."



DR. DANIELLE WU

ANDREW'S MENTORS

DR. ALAN MYERS



DR. SALLY SHENG
AYUSHI'S MENTOR

Lastly, **Ayushi Dalal (CO '23)** graduated from the University of Houston and got involved in research for the first time during her first year at dental school. Ayushi shared her most recent summer research experience where she conducted a literature search on periodontal indices in the pediatric population under the guidance of Dr. Sally Sheng. What Ayushi found most notable about her mentorship was Dr. Sheng's eye for detail and that she encouraged Ayushi to be independent in her research. This was a new avenue for Ayushi as she notes that she was previously involved in academic research and was now exploring periodontal indices. Because of this, she mentions that she had some hesitations when it came to literature searches; however, Dr. Sheng was supportive, understanding, and helpful in guiding her through the steps. As for continuing to participate in research after graduation, Ayushi expresses that "if given the opportunity, I would love to."

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The role these mentors played had a significant outcome on the long-term goal of establishing their trainees as eventual independent researchers. They took the time to share their expertise, oversee the students' work, and assist the students in procuring the essential qualities to conduct research. Whether it was through gaining confidence in collecting quantitative data, performing a cell cultures study, or conducting a literature search, each student received memorable lessons and advice from their faculty mentors that they will carry with them throughout their dental careers.

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The **IMPACT** of mentorship on dental leadership style

Mentorship, one of the greatest gifts that one could ever receive, is paramount in both dental school and throughout the field of dentistry as a good mentor has the power to both inspire and sculpt leaders of the future. Many styles of leadership and mentorship exist, the most common of which are briefly defined below.

Coach: Recognizes strengths and weaknesses, helps people set goals and provides a lot of feedback.

Visionary: Manages through inspiration and confidence.

Servant: Focuses on helping team members feel fulfilled.

Autocratic or Authoritarian: Makes decisions with little or no input from others.

Laissez-faire or hands-off: Delegates tasks and provides little supervision.

Democratic: Considers the opinions of others before making a decision.

Pacesetter: Sets high standards and focuses on performance.

Bureaucratic: Follows a strict hierarchy and expects team members to follow procedure.

"I alone cannot change the world, but I can cast a stone across the water to create many ripples."

-Mother Teresa



JOHN MCQUITTY
Writer '23

In this article, we will hear from a few of UTSD's great leaders as well as from students who describe the way that mentorship has impacted their dental careers and future leadership styles.

Dr. Cooley: Coaching with elements of servant and democratic leadership

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Dr. Quock: Servant with aspects of democratic leadership

The mentors that had the greatest impact on Dr. Quock were servant leaders, people who genuinely wanted to help but never expected anything in return. These individuals displayed superior communication skills, were transparent, and heavily relied on feedback from their team. Dr. Quock's leadership style has largely been shaped by his mentors, incorporating many elements of servant leadership with some aspects of democratic leadership. He has found that, in his experience, this approach leads to happy, effective teams.

Dr. Cooley's leadership style was also informed by his mentors, many of whom were servant leaders. He explains that his leadership style incorporates strong coaching influence with elements of servant and democratic leadership, a style that has been particularly effective throughout his career. However, he cautions that one needs to be careful with using a coaching leadership style as it can lead to burnout—"You have to put your heart and soul into it."—Dr. Cooley

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Dr. Gardner: Coaching with aspects of servant, autocratic, and democratic leadership

Dr. Gardner employs a leadership style characterized by aspects of servant, autocratic, and democratic leadership. She recounts that throughout her dental career, she had mentors for different things, all of whom shaped her leadership style. She also conveys the importance of adapting one's leadership style to any given situation, explaining that different situations require different approaches to get to the most ideal conclusion, and leadership is no different. All leadership styles have weaknesses, but careful, situational adaptation can allow us to compensate for those weaknesses.

Brock Kittle, CO '25: Servant Leadership

Brock explains that ultimately, he would like to adopt a servant-style of leadership as he believes it is incredibly important to put people first, both patients and employees. He explains that his time shadowing Dr. Surles was hugely influential and allowed him to begin to visualize how he wanted to lead.

What's your mentorship style?

Nathan Neal, CO '25: Coaching with aspects of democratic leadership

Nathan describes that his leadership style is primarily coaching with aspects of democratic leadership, a leadership style that has largely been informed by his mentor, Dr. Robert A. Neal DDS. Nathan explains that while Dr. Neal incorporates laissez faire elements, he also does not lose productivity due to his high expectations. In parallel, he also maintains a nurturing environment, often being described as a "life coach." Ultimately, Nathan would also like to foster a similar productive, yet nurturing environment in his future practice.

The power of mentorship to shape one's future leadership style is profound. An individual's leadership style is often an amalgamation of viewpoints, sculpted by past experiences and his or her own personality. Taking the time to know your stance on leadership and mentorship fosters growth, both professionally and personally,

In closing, I'll leave you with some of my favorite leadership quotes.

"You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make."

-Dr. Jane Goodall

"A leader is best when people barely know they exist, when their work is done, their aim fulfilled, the people will say: we did it ourselves."

-LAOTZU

"A good leader is a person who takes a little more than their share of the blame and a little less than their share of the credit."

-John C. Maxwell

"There could be no definition of a successful life that does not include service to others."

-President George H.W. Bush

"Great leaders must have two things: a vision of the world that does not yet exist and the ability to communicate that vision clearly."

MENTORSHIP & THE ROAD TO SPECIALIZING



DR. IAN CASTELL

UTSD ENDODONTIC RESIDENT
INTERVIEWEE

Dr. Ian Castell is from Brownsville, Texas. He majored in Biomedical sciences and graduated from the University of Texas Rio Grande Valley in 2016. He then attended UTHealth School of Dentistry at Houston and graduated in 2020. He has now returned for his endodontics residency. Dr. Castell's interest in healthcare sparked in high school. Initially leaning towards becoming an MD, Castell decided to explore different aspects of the healthcare field. It wasn't until one of his college mentors asked if he had considered dentistry that his curiosity was awakened. Dr. Castell applied to various dental schools, but he gravitated towards UTHealth School of Dentistry at Houston because of the family atmosphere the school contained. During dental school, he did his pre-doctoral research with Dr. David Jaramillo on the effectiveness of the GentleWave endodontic irrigation system. Castell continues to work with Dr. Jaramillo, focusing on the efficacy of laser irrigation systems. Dr. Castell's journey inspires me because he is an example of a first-generation success story in dental school from where I am from, the Rio Grande Valley.



JULIAN FERNANDEZ
Writer '26

Specializing

Dr. Castell kept an open mind during dental school about residency options. His interest in endodontics began in the spring of D2 year and came as a surprise. He found to enjoy the lecture and lab portion of the endodontics course. As a former retired chess player, he saw parallels between chess and endodontics. Like chess, he found endodontics to be a mind game where focusing was needed to approach tough cases with different strategies and tactics. Due to his hard-working personality, he realized he enjoyed working on more complex cases that kept him engaged. After working for two years as a general dentist, he found that the more involved he was, the more motivated he became, and that is how he discovered that endodontics was the right fit for him. After dental school, Dr. Castell found a preference for endodontic procedures and focusing on his patients more intensely. Important factors he finds for a student to be able to specialize are class rank, shadowing and externships, conducting research, and having mentors in your field of interest.

Closing Thoughts & Advice

For students interested in endo, Dr. Castell advised them to do the best they can in dental school to achieve a high rank upon graduation. He also finds it essential to approach faculty with questions or an interest in a specific area. You can find a mentor or somebody to participate in research with that can benefit you in that field. Specifically for a residency in endo, emphasis is placed on outside experience before allowing applicants to join programs. Most programs prefer a minimum of 1-2 years of experience before admission. If you want to specialize in endodontics, work for a couple of years, or get into a good AEGD/GPR program. Houston has a competitive endodontic program. General advice for dental school includes, if things don't go your way on an exam or practical, focus on how to be better instead of competing with others. "Do your best and forget the rest."

Mentorship

Castell considers himself to have had multiple mentors throughout his life. His pre-dental mentor was Dr. Joel Martinizes, an orthodontist he shadowed and worked for in undergrad. His mentors in dental school included Dr. Leticia Guajardo and Dr. Jaramillo, who continue to mentor him. During his working years in private practice, his mentor was Dr. Anthony Villareal, a general dentist. While working under Dr. Villareal, Dr. Castell remembers specific events that he found difficult during his career that Dr. Villareal helped him through. This included when he was stuck with a challenging extraction, and Dr. Villareal would step in to help him and explain how to improve. He was very thankful for that. Dr. Castell finds himself grateful for the guidance he has received throughout his journey. As a result, he has never felt lost or confused, which has made his journey more manageable. If there wasn't a mentor to help, there was Google and the Student Doctor Network (SDN) for guidance. Dr. Castell doesn't believe everyone needs a mentor, but having one helps ensure you are on the right path. In his opinion, the qualities of a good mentor include someone knowledgeable, communicative, and patient. He believes he has these qualities and continues strengthening them as he continues his residency in endodontics. He hopes to one day be able to mentor others in his field of choice.



Impact of Mental Health on Oral & Overall Health



FRANCESCA SCALISE
Writer '26



Background

Globally, mental health issues are on the rise. Yet, mental health in the scope of public health wasn't definitively outlined until 1948 [1]. Perhaps because of this slow progression, then, many have been lured into indifference on the topic. For so long we have separated the mind and the body when they are rather intricately integrated.

This link is not one-sided. Not only do individuals experiencing long-term ailments such as cardiovascular disease or diabetes tend to develop mental health issues such as depression, but those suffering with depression also have an increased risk of developing physical health issues and premature mortality [2]. With a link so distinct, how can we, as health professionals, ignore this? After all, depression has been ranked as the leading cause of disability worldwide for years.

The Connection

The correlation between mental health and physical health extends even to oral health. It seems that individuals with severe mental illness also experience an endless string of risk factors that contribute to the development of poor oral health: poor nutrition, lack of oral hygiene due to apathy, substance abuse (leading to xerostomia), and more. Even the secretion of saliva from the parotid gland is found to be altered in those with bulimia. All these risks contribute to dental caries, erosion, periodontal disease, edentulism, and even oral cancers. Self-neglect perpetuates many of these patients, leading them to avoid hygiene. Oppositely, those with bipolar affective disorder brush and floss excessively, leading to dental abrasion. Erosion is coupled with the purging actions of bulimic patients. Many of the medications used to treat depression, anxiety, schizophrenia, and more lead to xerostomia (dry mouth), which exacerbates susceptibility to caries. The correlations seem never-ending [3].

It's clear to see: oral health is dependent upon mental health. But what about the other way around? Does an impaired oral health condition affect mental health? The link is subtle but striking. Without diving too deeply into the pathophysiology behind these mechanisms, it has been seen that gingival inflammation resulting from periodontopathogens cause the release of certain inflammatory mediators such as IL-6 or TNF-alpha, which cause the liver to elevate C-reactive protein and further act on target organs such as the heart and brain, leading to cardiovascular disease, autoimmune responses, and more [4].

Effective Leaders and Mentors in Public Health

Truly, then, the interplay between oral, systemic, and mental health is not to be ignored. With mental health issues on the rise, what can we do as dental health professionals to mitigate this and act as mentors for both our peers and patients?

Firstly as dental health professionals, we should thoroughly evaluate the mental health and various risk factors of our patients. Rather than skimming through health history, it is imperative to truly understand our patients and how any risks affects their overall health. In addition, we may work to reduce any barriers to care, whether financial or social. Both marginalized communities and those struggling with mental illness often hesitate to reach out for care, and so accessibility to care may be the best course of action in treating these patients.

Although these are proposed solutions, we currently have no protocols addressing patients with mental health issues that impact their oral health. Dr. Ana Neumann, a professor at the School of Dentistry, affirms this. She highlights the importance of learning to understand what is within our realm as dentists; we should not act as psychologists, but we indeed should be aware of the problem at hand. Dr. Neumann advocates not only for the necessity of educating the future of dental professionals in school regarding the links between oral health and mental health, but also in taking the initiative to raise awareness within our own student organizations. National Suicide Prevention Week is quickly approaching this September, and as trailblazers for the future of dental professionals, we must be invested in the cause of improving healthcare as a whole. Whether it is bringing in specialists in psychology or psychiatry to help screen our patients or focus on formulating connections between patient and provider, it is imperative that we take actions to address this growing issue.

Dr. Ahmad Naraghi works within the clinic at UTSD. As he sees a growing number of patients presenting with mental health issues affecting their oral health, he highlights the importance of empathy as a provider and as a mentor. He states that, above all, people just want to be heard and receive affirmation that their feelings are real. Accomplishing this requires prioritizing our long-term relationships with our patients. It is difficult as students seeing patients for no more than 2 or 3 years, but as we transition into private practice, we are much more capable of seeing patients long term. With this, we are more perceptive to acute changes (stress, anxiety, or trauma) affecting the oral health of our patients (bruxism, hygiene neglect, etc). Dr. Naraghi also mentions that, as dentists, we have quite an important role in that we can reduce “trigger points” for many patients. For example, the restoration of teeth lost by victims of domestic violence takes away a reminder of trauma that may contribute to diminished mental health. This further strengthens the bond between patient and provider, and provides routes of mentorship that may have been previously overlooked.

Besides being advocates for our patients, it is important to take care of ourselves as healthcare providers due to the demands of our profession. Just as we are mentors for our patients, we must also take into account the health of our peers to become effective providers and improve oral health and overall health.

Future Endeavor

With the recent proposal by UTHealth Houston for a School of Behavioral Health Sciences, we may see advances in protocols for addressing mental health issues among patients both in the general medicine sphere as well as within dentistry. It is our duty as health professionals to adapt to an ever-changing environment, and by doing this with a full heart and focused mind, the future of dentistry is truly bright.



DR. ANA
NEUMANN



DR. AHMAD
NARAGHI

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A Healthy Diet is the foundation of a Healthy Life



BRENDA NAVARRO
Writer '26



Dentistry, like the rest of healthcare disciplines, has advanced significantly in recent years. From the incorporation of new technologies such as digital scanners to the growing use of evidence-based dentistry to improve the accuracy of diagnosis and treatment, the profession has slowly moved towards its goal of strengthening the bridge between oral health and overall health. That is, to demonstrate that systematic health begins in the mouth. A clear example of this, then, is a person's diet.

"You are what you eat." A well-known phrase used for generations as an attempt to raise awareness of one's eating habits, when used as a question by healthcare providers, has the power to provide helpful information about a person's overall health. With the growing number of diets in the population aimed to reach specific nutritional goals, it is important to assess their impact on a person's health. Vegetarianism is a prime example of this. Whether for religious, economic, weight-loss, or ethical reasons, vegetarianism has gained popularity in the past 20 years. In The United States, for example, as high as 10-15% of the population in 2022 identified themselves as vegetarians or vegans compared to 1% in 1994 [1]. The diet consists of the complete -or partial, in the case of part-time vegetarians- omission of meat products. As such, those practicing this diet focus on plant-based meals that include fruits, beans, grain, and vegetables. Because of this, vegetarian diets have many health benefits. For one -due to its low-fat content- this diet often promotes weight loss and lower cholesterol levels. As a result, prevention of chronic conditions such as cardiovascular disease and even cancer is also seen [2].

Multiple articles exist to provide in-depth information on these and other benefits. But like most things, the vegetarian diet also has its disadvantages. Surprisingly, these are related to oral health.

So, how exactly does vegetarianism impact oral health?

As discussed before, a vegetarian diet focuses on plant-based products like fruits, vegetables, and legumes, which are considered alkaline foods. That is, they have a relatively high pH. Beef, chicken, fish, eggs, and other dairy products, which are often avoided as part of this diet, on the other hand, are considered acidic. They have a low pH. In dentistry, pH and saliva are two of the most important factors when it comes to assessing oral health. Normally, the saliva's pH range is 6.2 to 7.6. Such a neutral pH promotes oral health by preventing the demineralization of tooth structures. The consumption of different foods, such as sugars and other fermentable carbohydrates, as well as bacteria like streptococcus mutans that can consume these products and release acidic substances, can lower the pH. If the pH decreases to 5.5, demineralization of hard tissue occurs, leading to an increased risk of caries and other problems.

Now, if an acidic pH is, in fact, responsible for dental problems, how can an alkaline diet, such as vegetarianism, be disadvantageous to oral health? The answer is fluoride.

Fluoride is known for its anti-cariogenic properties. It reduces demineralization by forming fluorapatite crystals that are more resistant to pH changes than regular hydroxyapatite crystals in dental tissue [3]. Because of this, fluoride regulation in the body is crucial in maintaining oral health. People are exposed to fluoride through food, fluoridated water, and other supplements. Most of the fluoride consumed goes to hard tissues of the body, such as teeth and bone. Furthermore, the excretion of fluoride is regulated by the kidneys through pH. Because fluoride is a negatively charged ion, it relies on positively charged hydrogen ions to be reabsorbed once freely filtered. Acidity and alkalinity, then, play a role in this process. An alkaline diet, such as the classic vegetarian diet, promotes fluoride excretion. The lack of acidity, or hydrogen ions found in meat and other dairy products, makes it hard for fluoride to form hydro-fluoride complexes and be reabsorbed. As such, the excretion of this anion increases [4]. Lower levels of fluoride in the body then lead to less availability of the anion to promote the formation of fluorapatite crystals, thus making the teeth more susceptible to lower pH and, as a result, demineralization. A study conducted this year compared three different diets, including vegetarian. Among its findings, it was proven that people that followed a vegan or vegetarian diet were more prone to dental erosion than those on an omnivore diet [5]. While the fluoride mechanism discussed above might be able to explain these results, there is still a lot of research left to be done.

Closing Statement

It is important to note that, as mentioned, a vegetarian diet does offer many benefits when it comes to overall health. And this article does not attempt to discredit any of them. However, in a society where new ideas and habits are introduced weekly, it is crucial to explore high-quality evidence to learn about, both, their advantages and disadvantages. Only then will we as professionals ensure the best care for our current and future patients.

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