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THE PRE-DENTAL SOCIETY AT UC BERKELEY PRESENTS...

The Pre-Dental Press

— Established 1959 —



MARCH 9--Despite the rain, Cal Pre-Dental Society members volunteered for the semesterly Berkeley Project, a large community service event run by the Berkeley Project, a student-run organization dedicated to serving the Berkeley community.

Letter to the Editors

Dear readers,

We present you with our final issue of the Pre-Dental Press for the spring semester of 2019. Both of us had a great time compiling the articles contributed by all of you, and we would also like to extend our thanks to our Publicity committee members Annie La, Annie Lee, Eve Zhong, Gabby Polyakov, Veronica Wong, and Will Choi for their contributions to the Pre-Dental Press, as well as all of the work they have done to help us organize the Dental Health Awareness Week. It was a joy working with you all! Thank you, Cal PDS, for such a great semester of fun and community service. Both of us are extremely elated to have been your Publicity officers for this school year, and we hope you enjoy reading this issue whilst looking back on all of our memories that we've made. Good luck on your future endeavors, we made it to the end of the semester!

With love,
Chelsea Huynh and Lauren Ho-Tseung

Members Educate Kids at Annual Eggster Learning Festival

By Chelsea Huynh

On April 7th, as a part of the Dental Health Awareness Program (DEOP), Cal Pre-Dental Society members joined many other educational booths at the 25th Annual Eggster Egg Hunt and Learning Festival to educate kids on the importance of oral hygiene. Our curriculum featured the importance of diet on oral health. There was an interactive activity where passerbyers matched foods to specific food groups on the MyPlate, which is the current standardized food pyramid diagram. Kids were also actively engaged in learning how to brush their teeth and floss by practicing on a tooth model.



UOP Dugoni Discovery Day

Date: April 27, 2019



Cal PDS members attend UOP's Dugoni Discovery Day! Go to page 8 to read about Lauren Ho-Tseung's experience at the event!

Dental Health Awareness Week

(4/15 - 4/19)



Monday: Wisdom Day

Tuesday: Common Diseases + Dental Hygiene

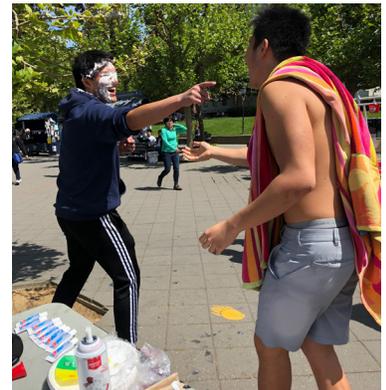
Wednesday: Dental Community Outreach

Friday: Pie a Pre-Dent Day



By Chelsea Huynh

Every year, Cal Pre-Dental Society organizes a Dental Health Awareness Week (DHAW) during the spring semester to educate the campus community on oral health. This year, under Publicity officers Chelsea Huynh and Lauren Hotseung, the Publicity Committee planned and led DHAW during the week of April 15. Each day consisted of different fun activities that accompanied a curriculum of various topics, ranging from wisdom teeth removal to common oral diseases.



oral health care statistics

EVE ZHONG



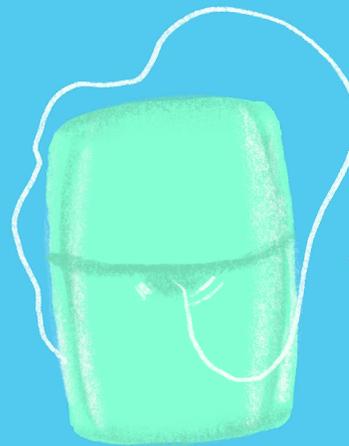
16% American children and 31.6% adults had untreated dental caries in 2014



almost 50% of all Americans have experienced some form of gum disease



average brushing time is 45-70 sec (recommended 2 min)



40% people floss daily 20% do not floss at all



only 64% Americans have dental insurance



75% Americans use their toothbrush longer than they should (recommended 3-4 months)

oral health care statistics

CONTINUED

Though there has been a rise in dental education in the United States, many patients do not follow through with the suggested practices of brushing, flossing, and routine checkups.

These data compiled from Centers for Disease Control and Prevention (CDC), American Dental Association (ADA), and the Academy of General Dentistry shed light on the state of oral health in the United States.

In many cases, oral health problems can be mitigated relatively easily, starting from daily maintenance at home. The ADA recommends brushing twice a day around 2 minutes per session and flossing once a day to sustain optimal oral health. Maintaining the cleanliness of the toothbrush is imperative as well. The ADA advises that people replace their toothbrushes every 3-4 months. Additionally, it is also ideal to avoid storing toothbrushes in airtight containers, as this can cause bacterial build-up.

Furthermore, biannual visits to the dentist can prevent diseases such as gum decay and cavities. People who fail to pay visits to their dentist are less likely to have healthy teeth and gums and are at a greater risk of losing teeth as they age.

SOURCES

<https://www.txdentalcenter.com/blog/2019/01/03/oral-health-care-statistics-195673>

<https://www.nidcr.nih.gov/research/data-statistics>

<https://www.interdent.com/gentle-dental/resources/7-crazy-statistics-about-oral-health/>

Sacramento DEOP Trip



By: Annie La

Upon the unprecedented publication of the U.S. Surgeon General's report on oral health in 2000, significant changes have been implemented in California and across the nation to further spread the understanding of the connection of maintaining good dental hygiene and oral health with one's mental and physical health among the public as well as facilitate a collaborative effort among the policy makers and the health professionals. According to the report, tooth decay, a chronic and preventable oral disease, is prevalent among the California youth population. By further differentiating the different groups that make up the youth population, they find that low-income and minority children suffer two times more tooth decay than children from financially stable households, and it concludes that "dental caries is highly correlated with low income, limited education, and social disadvantage." While many educational and outreach programs have improved to lessen the gap between economically advantaged and disadvantaged children since then, a more recent report Status of Oral Health in California: Oral Disease Burden and Prevention 2017 by the California Department of Public Health predict that California will have 53.6% of kindergarteners and 70.9% of third-graders affected by tooth decay surpassing the "Healthy People 2020 Target" of 30% and 49% respectively.

More action is required to decrease the percentages of youth affected by tooth decay.

are limited to the type of dental service we can contribute to the community. While we do not have the means to treat those affected with dental caries, we have the knowledge and experience to contribute through community outreach as a preventive measure. This semester, through our Dental Education Outreach Program (DEOP), our members visited a range of local daycare and elementary schools.

With our two-day spring break DEOP trip to Sacramento on March 25th and 26th, we

reached our goal of extending outreach to communities beyond the bay area once again. Thanks to our trip coordinators and DEOP officers Chris Lee and Betty Birbo, our DEOP interns Autumn Lee and Nelia Moezizi, and our participants, we visited 32 elementary classes, educated 625 students, and provided 625 students with a care package consisting of a tooth brush, toothpaste, and printed reminders about healthy brushing and flossing habits as well as lyrics to our child-approved brushing song.



Above:
Back row left to right Annie La, Neil Ming, Albert Samson, Xuehao Ma, Austin Nguyen, and Chris Lee.
Front row left to right Autumn Lee, Nelia Moezizi, Naomi Chau, and Vanessa Tsan.

Images courtesy of Chris Lee, Autumn Lee, Naomi Chau, and Nelia Moezizi

We targeted the under-served elementary schools in the city—Witter Ranch Elementary on day one and Leataata Floyd Elementary on day two—in hopes of reaching out to those with minimal access to basic dental care products and dental educational programs.

More specifically, both schools have a majority minority student population, and 53% of students from Witter Ranch are low income and 98% of students from Leataata Floyd are low income.

We are very grateful for all the faculty and staff for contributing to the welcoming atmosphere and to the receptive students for their high energy and participation. It was refreshing to engage with the children and hear their dental-related stories ranging from their visits to the dentist and their tooth fairy encounters. Especially memorable was hilarious response of the 5th grade students to our explanation of the importance of flossing when the students simultaneously began the flossing dance move. In addition, it was an especially grounding experience to face the reality that not all groups are experiencing the same level of improvement in access to dental care almost two decades following the General Surgeon's Report. An especially heart-breaking experience from the trip was learning that one student was not able to put her new knowledge of flossing to practice since she did not have access to any floss at home. Realistically, our efforts will not make instant changes, but we are hopeful that we are investing in healthy future generations.



On a lighter note, the trip was a good bonding experience for our members. Being in the capital city of the US, we made sure to do some exploring in the evening following the intense presentation schedule. We rewarded ourselves for a day of hard work with a stop at the most popular ice cream parlor in Downtown Sacramento, Gunther's Ice Cream, had a time to relax at the Airbnb with a home-cooked meal, among other activities with our pre-dental peers. Before packing our bags for our drive back to Berkeley, we made sure to snap a picture before the State Capitol.

Our main intention for the trip is to leave a lasting impression on the students as role models, demystify daily dental hygiene expectations, and establish good habits in the children from the start. And I believe we achieved just that from the trip.



California Department of Public Health. Status of Oral Health in California: Oral Disease Burden and Prevention in 2017, 2017. "Explore Leataata Floyd Elementary School in Sacramento, CA." GreatSchools.org, www.greatschools.org/california/sacramento/4709-Leataata-Floyd-Elementary-School/. "Explore Witter Ranch Elementary School in Sacramento, CA." GreatSchools.org, www.greatschools.org/california/sacramento/13684-Witter-Ranch-Elementary-School/. U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.

Dugoni Discovery Day 2019

By: Lauren Ho-Tseung

Driving home from Dugoni Discovery Day, I felt more excited about Dentistry than ever before. The excitement could have come from how amazing the students were, how helpful the staff was, or great it felt to drill on the plastic teeth. The activities started in the Sim-Lab where the dental students made “decay” on the plastic teeth, and we were instructed to clean it out. At Berkeley, we are exposed to many different dissections and hands-on activities but I have never had the chance to attempt dental procedures which made this very new and exciting. The Dental student at my station explained how to hold the tools, how to measure depth, and how to control the speed of the drill. After everybody had the chance to drill and fill their cavities, we headed out for our campus tour. The students leading our tour were so passionate and excited to share everything about their experiences at UOP. It was so refreshing to hear advice from current dental students because we all realized they were in our shoes as an undergrad not so long ago! We got to see the clinic, as well as the ortho, pedo, and endo departments and much more. Along the way, they answered questions regarding student housing, community outreach, student involvement, the application process and more. My favorite part of the tour was seeing all of the amazing technology being used in the clinic at UOP. It is so great to see that students are given the chance to learn about where dentistry is heading and preparing for the future of the field. After the tour there was a presentation that explained and answered questions about admissions and what UOP offers. I left this incredible day feeling so grateful to be on the path to enter such an amazing career full of the most down to earth and driven people who always want to give back and help others!

UoP discovery day taught me so much about what becoming an excellent dentist actually entails. We all know that it takes “brain smarts”, or rather immense and rigorous academic strength to get accepted into a dental school and eventually become a Doctor of dentistry, but something that Dean Nadershahi broached was the concept of “heart smarts”. This involves having a deep sense of empathy, the ability to accept different backgrounds and cultures of all sorts, and being respectful and informative in a comprehensible and clear way. I am so grateful I had the privilege of meeting Dean Nadershahi in person, attending his lecture, touring the beautiful campus and labs, learning more about specializations & more. I look forward to attending UoP discovery day again next year.

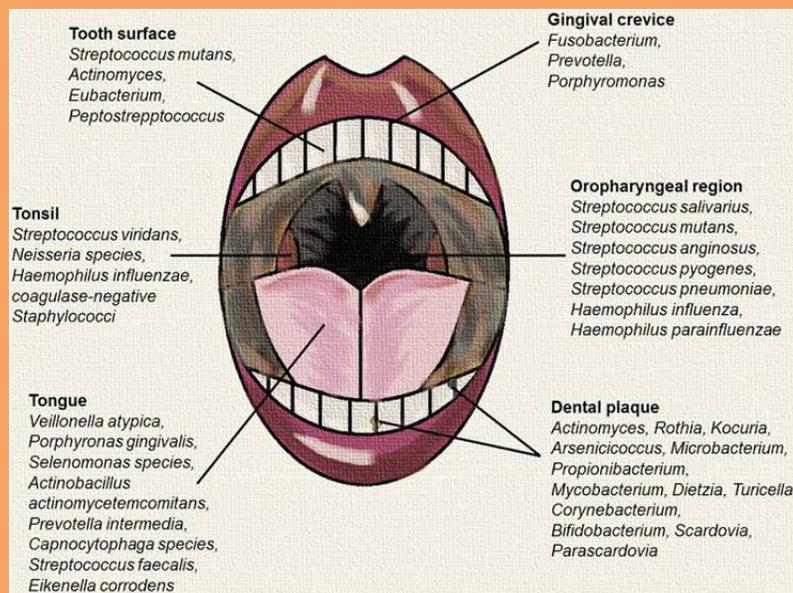
-Autumn Lee, 2nd Year



Tis a Small World After All: tracking the plaque agents inside a mouth

By: Will Choi

Ever heard of face mites? An average number of those little critters are estimated around thousand millions on a single full grown adult's face, and face mites constantly spawn eggs within facial pores, causing zits and pimples. Today, the researchers of microbiome genetics, have initiated an extensive project on the lineage of face mites in order to figure out the time of ethnicity differentiation across the continent. Unlike this relatively new approach to an underestimated face mites however, dental plaque is a microcosmic body with study going all the way back to Leeuwenhoek's first discovery of bacteria. And now in 2000s, new taxon-taxon association within binding transitions between microbiome has been introduced to the field of research. A technique known as FISH, or Fluorescence in situ hybridization, targets the rRNA of the bacterium of interest; the same method by far can nearly identify any microbiome detectable. Images acquired through FISH then shows specific and distinguishable distribution of the organisms, yet cannot display the full structure of the microbiota. Nevertheless, since spectral imaging of Fluorescence does allow the spatial reconstruction of the microbiota (Streptococcus spp., Actinomyces spp., and Fusobacterium nucleatum when we look at dental plaque specifically), one can eventually tell each member of the amazingly complex set of various bacterium. As for the means of collecting samples and data storage, do refer to the paragraph written under the MATERIALS AND METHOD.



Jessica L. Mark Welch and others, "Biogeography of a Human Oral Microbiome at the Micron Scale," Proceedings of the National Academy of Sciences 113, no. 6 (February 9, 2016): E791-E800, doi: 10.1073/pnas.1522149113.

The New Boundaries of Dentistry, a documentary about the future of dentistry
Synopsis by Gabrielle Polyakov:

Science of smiling, something that is pushing the boundaries further than most other fields. Today, researchers all over the world are working on ways to keep us all smiling. Now surgeons all over the world can transform a family's life using machines no bigger than a suitcase. Science is going to extraordinary lengths to create the smile of the future.

Dr. Miguel Stanley, practicing advanced dentistry for over 20 years. Works with one of the most advanced and most exciting technologies on the market, and always eager to see how the latest breakthroughs can change lives. Believes in a short amount of time, dentistry will be accessible to everyone around the world because of these new technologies that are getting smaller, smarter, faster, and cheaper.

Dr. Stanley went to Uganda where 93% of population suffers from tooth decay, but slowly technology is making a big difference by helping to improve lives. A family lives in a small village where the closest dental clinic is many kilometers away. The mother had a small infection between her two front teeth. It could have been easily treated in dental care, but since she couldn't access it, this resulted her in losing seven of her teeth. It was very painful at first, had trouble eating, didn't want to go outside or open her mouth. She says she doesn't like to smile or laugh anymore. Having her teeth back, she would be able to smile and be happy again. We take for granted how fast and easy it is to have access to dental care to quickly prevent pain, discomfort, and even embarrassment. But for many like this mother, teeth loss is common and permanent.

One day, a trip to the dentist will include a quick injection into the gum of a recently lost tooth, and a week later you will see the beginning of the growth of a brand new tooth. Sharks are immune to the loss of teeth. Sharks can regrow new teeth, and solving how this happens can help many people around the world. Sharks and humans have the same genes that make teeth, yet the difference is that sharks continue to remake teeth while humans only have 2 sets. The aim of a particular research is to see if we can turn that gene on in humans in order to reactivate the process of teeth regeneration. This involves gene editing using CRISPR. The key to this process is a tiny protein found in bacteria which has the ability to read DNA, and alter it like a tiny pair of molecular scissors. You can program the recognition element so you only hit the genome you want to touch. It is mostly good for knocking genes out, but you can do it very precisely and knock specific genes out. This is already used clinically, most notably, helping immune cells to attack cancers. Gene editing can alter the world of dentistry, allowing us to grow lifelong perfect teeth. Stronger and more resistant to disease and decay.

This new research is not able to help the mother just yet, but cutting edge science, along with a dentist can restore her smile today.

Wisdom teeth removal Story Time



By Thanh Tieu

You know, I've spent a lot of time getting to know my dentist. Before, I frequently ate a lot of candy, and had to show up for fillings from all the cavities I got. Then, I shadowed him for four years in high school. However, I live in Socal, so I left my shadowing after I decided to move up to the Bay to go to Cal. Nowadays, I just come for my biannual checkups.

Except for when my jaw dislocated this spring break.

Usually, I visit my dentist twice a year: once during thanksgiving, and sometime in May. However, the pain in my jaw was so discomforting, that I scheduled an emergency appointment with my dentist within two hours of it hurting. I self-diagnosed it to be because of my wisdom tooth growing and pushing all of the space available for my other teeth in a direction it shouldn't have been heading towards, and my dentist likewise, agreed. I noticed this technicality right before I decided to go eat Dim Sum, and much to my friends' dismay, was showing off how I couldn't align my teeth properly while eating hot and delicious commodities such as Xiu Mai; the bottom of my jaw jutted outwards and leftwards of where it should have been. I wasn't having the best time eating some of my favorite foods either.

My parents work in the daytime, and although I have a driver's license, had no car. I decided to ask one of my friends, Minh-Khoi, to take me to my 10 AM appointment.

It was one of the larger mistakes I made that break.

I did not expect my dentist and he to get along so buddingly. I believe it had to do with him being able to converse fluently in Vietnamese with my dentist about computer science engineering (his major) and politics. Either way, Minh-Khoi was allowed to sit in the operating room while I would get my tooth pulled.

It was one of the more embarrassing times of my life. Minh-Khoi recorded everything onto Snapchat, and all of my friends back home got to see and laugh at me in pain. They commented on how odd it was I grabbed the suctioning tube and did it for my own saliva; in my defense, I used to work there. Minh-Khoi laughed at how often I raised my hand and yelled small slights of discomfort to my dentist while he was removing it; in my defense, I have a low pain tolerance. I am proud to say I haven't cried regardless at the dental office since I was eight.

Even afterwards, my dentist gave Minh-Khoi a free X-ray after I got mine for "being a lively and interested audience in dental care."

I'm never letting him drive me to my dental appointments again.

Oral Health in College Students



When we think of vulnerable groups of people in oral healthcare, we don't always think of ourselves. After all, we are independent young adults, supposedly at the pinnacle of youth and health, seemingly in control of our diets and lifestyles. However, a few factors actually make college students more susceptible to oral health problems than before.

The first of these problems is just a change in habits. In freshman year, there are so many new things to adjust to that maintaining our former oral hygiene routine might be nowhere near the top of our lists. With no parents to (strongly) remind us to brush our teeth twice a day, we may not remember. If you've overslept for your 8 am, you're most likely going to roll out of bed and run to class, not pack up your toiletries and head to the communal dorm bathroom to brush your teeth. Something simple to do to help with this is to keep a small toothbrush in your backpack and brush in-between classes if you weren't able to in the morning.

Alcohol, tobacco, and marijuana usage are other problems. Many students are encountering or using these substances for the first time in college. Alcohol leads to a reduction in saliva production in your mouth, leading to dry mouth and

fostering an environment ideal for bacterial growth. Tobacco and marijuana cause stained teeth, gum inflammation, and even oral cancer. They also weaken the immune system. Since students are often drinking or smoking in party settings, away from their dorms and apartments, they may not have access to their toothbrush for several hours or even overnight, which is when the teeth and gum are at prime time to start their decay.

One last problem is that students may not be getting their check-ups regularly. We should be getting cleanings twice a year, which we may have been getting in high school. However, in college, we might not have time to figure out our school's health insurance plans or may be waiting until our breaks to get cleanings. But regular cleanings are more important than ever, since our habits and circumstances make us more at risk for oral health problems than we were before. Make sure you keep up with visits to your dentist!

Finally, here is a reminder to my fellow pre-dents on how to maintain oral hygiene in college. If we want to be oral health professionals and want to give advice to our future patients about how to maintain their health, the least we can do is listen to ourselves!

TIPS:

- Brush 2 times a day for 2 minutes each, spending 30 seconds on each area of the mouth
- Brush the outer, inner, and chewing surfaces of the teeth
- At the end of brushing, gently brush the tongue, roof of mouth, and insides of cheeks
- Floss once a day
- Replace your toothbrush every 3-4 months
- Eat a balanced diet, limiting the consumption of sugar, coffee, alcohol, and tobacco/marijuana



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