

DECEMBER 2019 Newsletter



TEL AVIV UNIVERSITY
אוניברסיטת תל אביב



ALPHA OMEGA

The Maurice and Gabriela
Goldschleger School of
Dental Medicine

Founded by the Alpha Omega
International Fraternity



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English Editing: **Irene Emodi**

Photos: **Michal Arbel**

Graphic Design: **Tali.studiotal@gmail.com**

Production and Editing: **Dr. Alona Emodi-Perlman and Michal Arbel**



Prof. Ervin Weiss

LETTER FROM THE FORMER HEAD OF SCHOOL

Dear friends and family of the Tel Aviv University School of Dental Medicine

The future of our School is brighter and shinier than in the past 20 years, perhaps even more than ever. During my term in the past 5 years our Dental School underwent changes, quantum leap changes. From a dormant, barely surviving, average dental school we transformed to become a leading innovative dental educational institute.

We are the first Dental School teaching digital workflow to undergraduate students as their first treatment choice. The first crown our students are preparing, in their first patient, the first crown in their career, is fully digital. We teach them how to use intra-oral scanner, digital planning using CAD /CAM software and chairside coloring and glazing. In a way we go back to the "old fashioned" education where students worked at the laboratory to fabricate crowns from A to Z for their patients. What a difference! now they are doing it digitally!

We believe that the future dentist should again master all stages of the treatment workflow, including the technician's work. The dentist of the future should be the source of knowledge for the dental technicians, and not vice versa.

Recruiting 4 new young investigators to the School,

each establishing his own independent research laboratory, is another brick in the wall of building a contemporary Dental School. I believe that these extremely talented and ambitious researchers will be the initiators for establishing "The Dento-Facial Research Institute". The already ongoing research projects will increase our reputation as a leading Dental School. Although it is not a primary target, their research activity indirectly contributes to the reduction of the School's deficit.

Another major change we see is the attitude of the TAU administration towards the Dental School. Only five years ago, the University refused to make any major investment in the School, except for basic maintenance. Today, for the very first time, and due to the successful intervention of our new Head of School, Prof. Shlomo Matalon, the University agreed to match any funds raised by us, to invest in renovating dental units of the undergraduate students. This is a major commitment of the University.

Reducing the negative balance (deficit) of the Dental School, from more than \$US 5m. a year to less than \$US 2m. a year, helped too. This was achieved by significantly increasing the number of students, from 35 to 70 students per class, without increasing the teaching manpower.

During my term, I was extremely lucky to be surrounded by an outstanding and devoted administrative team. Their sensitivity, wisdom, and talent made the routine daily work a pleasure. Much of the goals set during my term could not have been achieved without their help. This team, headed by Michal Arbel and Revital Lusky, is recognized now as one of the most important assets of the School.

At the end of my term, I look back cautiously, making "HESHBON NEFESH", taking stock of unachieved goals. Opening an international undergraduate program is one of them. I am convinced that the establishment of this program, aiming to bring foreign dental students to Israel, mainly from EU countries, will further balance the budget, and open a new era in the history of our Dental School.

" It's all about the day after...."

MESSAGE FROM THE FORMER HEAD OF THE SCHOOL

I will conclude my letter by citing the Golden Circle WHAT, HOW and WHY of Simon Sinek.

Everyone knows WHAT we do here, we are teaching dental students, offering dental care, and performing the best research.

Most of us even know HOW we do it. Things that make us special, things that set the school apart from other dental schools.

But only few of us seldom a stop to think WHY we are doing what we are doing.

WHY is not about making money or succeed. That's a result.

WHY is a purpose, a cause or a belief.

WHY is the very reason for our existence!

For me the WHY is striving to elevate the standards of dental education and dental care in Israel. The WHY is to raise the level of dental care both professionally and ethically for the generations to come. This is our obligation and our responsibility, because there is

nobody else out there to do it.

The WHY is also TIKUN OLAM, to set a better world through dental education and dental care. We are determined to practice it by:

Providing dental care to the underprivileged population at the special care clinics

Educating AKIM students to train them in a new profession.

Providing dental care to youngsters living in the streets and giving them a chance to return to society.

WHY is the very essence of the existence of our School.

Thank you for supporting us and the Dental School and thank you for the opportunity you gave me to serve our common causes.

Sincerely Yours

Ervin Weiss

MESSAGE FROM THE NEW HEAD OF SCHOOL



Prof. Shlomo Matalon

No longer than a decade ago the existence of TAUSDM was uncertain. Much has happened and a lot has been done since, and nowadays the school's existence is not only assured but it is bustling with activity, energy and renovation. 153 dental students fill the dental clinics, 68 residents complete their postgraduate education in the various clinical fields of the dental profession, 30 Msc and PhD students complete their advanced degrees in basic sciences, faculty and staff are planning new academic programs. So much is happening that it simply cannot be summarized in one short notice.

Previous Heads of the School, Profs. Ilana Eli and Ervin Weiss have worked hard to put the school on the right track and we are all grateful for their leadership and achievements. Yet, there is still a lot to be done.

Everyone in TAUSDM is committed to excellence. Excellence in oral health care, excellence in research by which the frontiers of dentistry are advanced, excellence in teaching and education by which future generations of Israeli children and adults are assured of the highest quality of care and scholarship and last but not least, excellence in reaching out to communities with special needs.

As the new Head of the School I am committed to continue the school's strive for excellency. As the first graduate (class of 1986) ever to be elected as the School's Head I feel not only pride and gratitude

but above all also love, belonging and long lasting commitment to the place which shaped me as a dentist, a professional and a scientist. I have seen the School going through turbulent times and I know for sure that with the collaboration and support of my colleagues, fraters and friends our beloved School will conquer new heights.

One of the immediate plans is to perform a thorough revision of the undergraduate DMD program so that it complies with international DMD programs. Among others, we are considering opening an international DMD program for international students, side by side with the already successfully functioning international post graduate program in orthodontics. Additional international post graduate programs are also planned in fields such as endodontology and periodontology. The programs will not only contribute to the School's income but also increase its professional prestige worldwide.

In recent years, a new law was passed which assures free basic dental treatment for children till the age of 18 and adults above the age of 75. This blessed approach enables low income populations to receive proper dental care.

Regretfully, the program also revealed an acute shortage of qualified dentists, which led us to enlarge the various internship programs while maintaining the highest academic and clinical achievements. In these

MESSAGE FROM THE HEAD OF THE SCHOOL

programs the best graduates continue their studies for another 3-5 years so as to become accredited specialists in the fields of pediatric dentistry, endodontology, periodontology, prosthodontics, oral medicine, oral pathology and orthodontics. The residents are involved not only in advanced clinical practice but also in basic and clinical research. At present, the plan is that the postgraduate studies will enable the residents to acquire concomitantly MSc/PhD degrees. This will break the ground for generations of science-oriented clinicians who will lead high-quality research.

The coming years are going to be challenging and interesting. We will need to invest a lot of metaphorical “blood, toil, tears and sweat”. As dentists, we know how to turn bleeding tissue into a healthy one, toil is nothing we are afraid of, sweat is something we experience daily and we will turn the tears into smiles and achievements. A lot has been done and a lot is still awaiting us. I look forward to the future with anticipation, hope and optimism!

SUMMARY OF THE VOLUNTEER ACTIVITY AT THE KESHET SCHOOL

On the morning of Tuesday 10/12/19 two buses left the School of Dental Medicine for the Keshet school in the south of Tel Aviv.

There were 35 sixth and last year students on the buses and 10 interns of pediatric dentistry accompanied by Dr. Sigalit Blumer, Head of the Pediatric Dentistry Department and Dr. Moran Robenko, coordinator of the 6th

year course. The students arrived at the school with their hands full of gifts for the children, sponsored by Orbatol, Colgate and CZT. Each child received a gift that included brushes and toothpaste, stickers and Certificates of Excellence.

The students and interns were divided into groups in two rounds and provided guidance to all the grades 2, 3 and 4 at the Keshet

school - in total 7 grades, 372 pupils.

In every grade a comprehensive lecture was given on the subject of healthy nutrition and oral health, how to take care of teeth and what is important in care at school and at home. During the lectures examples of daily life were provided. The presentation matched the children's



OPENING TO THE COMMUNITY

understanding and age, and was combined with illustrations, explanations and a video of clarification. At the end of the lecture each class was divided into small groups of 3-4 pupils. Each group received personal guidance and a demonstration of correct brushing, a demonstration of the manner or examination at the dentist, carried out on the pupils and plastic jaws brought along by the students for this purpose. Finally, a demonstration was given with an illustrative solution (that

colors the layer in pink) and it was explained what the layer is and how important it is to remove it.

At the end of the presentations and explanations a ceremony was held of granting Certificates of Excellence. Each child was called by his name to the group of students and interns who guided his class and received a sticker and personal and signed Certificate of Excellence.

Before the break, the children received a number of painting and

activity pages on the subject of teeth with which they can play and paint in their time of leisure. The aim of the work papers is to sum up the subject learned, to make accessible and simplify the subject and turn it from a "threatening" or "fearful" subject into a light, daily, routine and fun subject.

The pupils were very excited about the day of activation. At the start of the activity they were afraid but as the activation progressed it was obvious that they relaxed,



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participated, were excited, laughed and showed curiosity about what was going on.

It should be mentioned that the children of grade 3 of this school also receive dental treatment by 6-year students during the entire study year.

They come to the School of Dental Medicine each week (financed by the School of Dental Medicine) with 2 teachers. The pupils come from a very low socio-economic level, and for most of them this is their first experience with a dental chair. Most of them have vast experience with caries and are very much in need of treatment and pain relief. The children receive personal and fair treatment from the students free of charge and supervised by experts and interns from the pediatric dentistry department.



“TOOTH FAIRY” PROJECT’S

The “Tooth Fairy” project’s annual summary evening took place on Monday July 1st at the “Hachug Hatzfoni” bar in Tel Aviv. The evening was attended by representatives from the School of Dentistry, Prof. Shlomo Matalon-Incoming Head of the School of Dental Medicine, Prof. Efraim Vinocur- representative of “Alpha-Omega” in Israel, Dr. Alona Emodi, secretaries and assistants who all work day and night for the success of the project.

The evening was also attended by representatives from donor dental companies: Dentorient Fuss, Botiss, Strauss, NDM, MDT, Adin and Divident. The representatives received certificates of honor in gratitude of their donations.

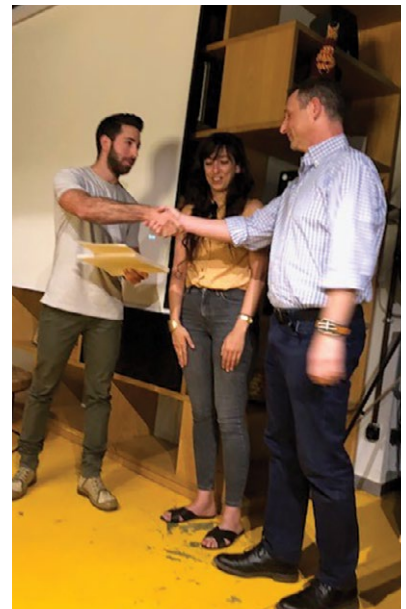
Our volunteer doctors Dr. Yael Marom, Dr. Larissa Feivel, Dr. Tom Rozner and Dr. Itay Aharon received a new set of dental drills

from our donor companies, as well as a certificate of honor from our organization. The volunteer students at the project also took part in the evening, and received a dental products package gift from the Colgate Company.

In the evening a documentary was screened that tells the

story of one of our patients.

The film depicts the harsh story of the patient, which includes her abduction from Ukraine to Israel for prostitution, and her incredible story of rehabilitation and occupation as a volunteer in a women’s rehabilitation project. The woman today is being treated



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as part of the “Tooth Fairy” project at the University’s specialty clinics, and is currently in the midst of comprehensive rehabilitative care.

We would like to thank all the participants in the evening, and wish the project another successful year of activity.



THE CLINIC FOR PATIENTS WITH SPECIAL NEEDS

At the Dental Clinic For Patients With Special Needs we treat patients with various disabilities that include but are not limited to: physical, intellectual, medical and mental disabilities among them: intellectual developmental disability, cerebral palsy, autism, Down syndrome, hearing and vision impairments and more.

The treatment is extended to people with disabilities of all ages. So far about 85 patients have been treated at the Center For Special Needs.

Most of the patients come with family members who accompany them through the whole process together with the Center's medical staff.

The staff at the clinic consists of a highly experienced professional team with many years of experience in caring for people with special needs.

The treatment at the Clinic is carried out in a relaxing atmosphere that contributes to reducing the patients' concerns. We gradually expose the patients to the dental environment. This requires patience, long chair time and sometimes several sessions to build trust between the patient and staff. In turn, this results in an increase in collaboration and creates a positive experience.

Patients receive a wealth of treatments ranging from examination, dental care, oral hygiene training, preservation therapy: dental reconstructions, dental displacement, root canal and rehabilitation, as required.

The uniqueness of this clinic is that it allows patients with special needs to receive dental care, a treatment they usually fail to receive at regular dental clinics.



THE SPECIAL NEEDS CLINIC

From:

Drs. B. Karkabe, Psychotherapist

Ha Slosa 9

4992500 Maas

RE: Quality of work at the Dept. of Dental Care

To whom it may concern,

In 2019, my daughter Lela Tamar Karkabe, born 16/02/04, has begun to receive regular treatment by Dr. Bat-Chen and the dental hygienist, Tzipi.

Being the father, I am absolutely satisfied with the treatment of Lela itself, as well as with the way my daughter is being guided by the team through the whole process. As an experienced behavioral psychotherapist who has worked with children in Holland as well as in Israel for almost 30 years, I think I am in the position to judge the professionalism of Dr. Bat-Chen and Tzipi. The relaxation techniques and what in behavioral therapy would be labeled as a technique of gradual exposure are simply effective. Lela does not exhibit fear or tension when we enter and leave the building or the treatment room, after months of regular treatment. She makes contact with the workers in the dental team easily and feels at ease with them.

Compared to the practice in the past, where the only option was: treatment under narcosis, the treatment by Dr. Bat-Chen and Tzipi implies huge advantages on all levels.

I would strongly recommend any parent(s) of children with special needs, and/or anxiety issues, to turn to the dept. of dr. Bat-Chen and Tzipi for specialized treatment.

I would also stress the importance of keeping the conditions for her team optimal; financially and otherwise.

Dental care for children with special needs is a vital issue, and Israel should be and remain proud of the level of quality it has reached in this area. As far as I know, even the Netherlands have not reached a similar level of quality. Keep it that way!

Sincerely,

Drs. B. Karkabe

SMILE! A UNIQUE VOCATIONAL OPPORTUNITY FOR PEOPLE WITH INTELLECTUAL DISABILITIES



A participant in AKIM Dental Training Program. Courtesy of Howard Blas



OPENING TO THE COMMUNITY

AKIM's Dental Training Program, in collaboration with the TAU Dental School and Israel's Ministry of Labor and Social Affairs teaches employment skills in the dental field.

Visitors to Tel Aviv

University's Goldschleger School of Dental Medicine see something innovative and unsurprising as they enter the building—a vending machine sponsored by Colgate dispensing toothbrushes, mouthwash and other dental equipment. A red heart on the glass reads in Hebrew “My health begins in my mouth.”



When visitors go down one flight, they see something even more extraordinary and innovative—four enthusiastic men and women from AKIM, the National Organization for People with Intellectual Disabilities, in their white lab coats, studying and working at the dental school. These young adults with intellectual and developmental disabilities make up the first cohort in the Dental Sterilization Officer Training Program, a collaborative venture of AKIM, the TAU dental school, and the Ministry of Labor and Social Affairs.



DEPARTMENT OF ORAL PATHOLOGY, ORAL MEDICINE AND MAXILLOFACIAL IMAGING INTELLIGENCE DEMONSTRATED BY MACHINES

WE ARE GOING ARTIFICIAL INTELLIGENCE IN ORAL RADIOLOGY!

Artificial intelligence (AI) has been defined as computer systems that are able to mimic tasks normally requiring human cognitive functions, like visual perception, decision making, solving problems, speech recognition, and language translating. In other words, we can describe AI as the ability of a computer program or a machine to become “smart”, to think and learn, and to work on their own without being encoded with commands. AI was founded academically in 1956, but its beginning lies about a decade earlier with the extraordinary works of Alan Turing (1912-1954), who provided a formalization of

the concepts of algorithm and computation.

Modern machine capabilities that are now considered as AI can compete at the highest level in strategic games, such as chess and Go, operate autonomous cars, calculate routes in delivery networks, and program military simulations. There is an increasing use of AI in solving specific problems in various everyday fields, including statistics, economics, mathematics and medicine.

In regard to the medical use, we have witnessed the development of AI-driven robotic arms for surgical

procedures, but it seems that it is radiology, a field that is naturally technology-oriented, in which AI has a potentially “game-changing” role in the process of diagnostics. As the field of radiology goes hand-in-hand with the introduction of advanced technologies, we are on the edge of an era when radiology curricula will include basic information about AI programming languages.

Although, AI has been rapidly progressing as a highly innovative area in the field of radiological science in recent years, not much advance has been noted in the specific niche of oral radiology. Dr. Lazar Kats is not only a specialist in oral medicine but he is also a computer wizard! He has acquired knowledge in programming language used for writing AI algorithms for radiology and together with algorithm developers, they managed to create a research platform in which application of AI algorithms on routine x-rays, performed in all dental clinics all over the world, can lead to the detection of findings that have an impact

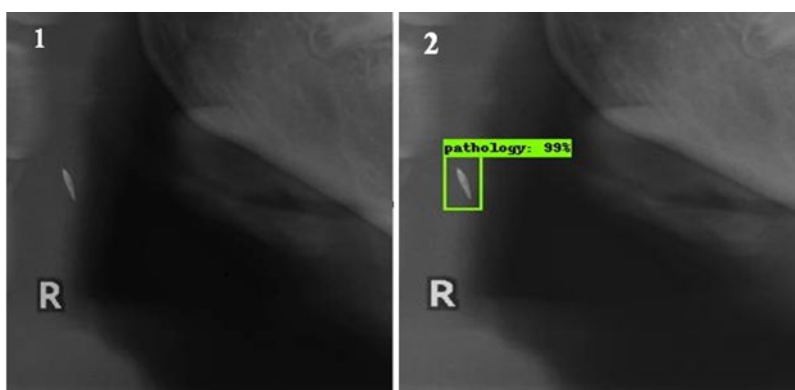


Figure 1: Example of detection of an Atherosclerotic Carotid Plaque (ACP): Automatically cropped right region of interest (ROI) of the panoramic image (1) and corresponding detection of ACP by neural network (2)

SPOT ON THE STUDY

on dental surgical procedures and even on the lives of the patients. More specifically, they have developed an algorithm that can identify atherosclerotic carotid plaques on routine panoramic radiographs (Figure 1) (1). These carotid plaques constitute the main etiological factor in about 15% of strokes! A simple analysis

of the panoramic images using the AI algorithm has the potential to prevent strokes, save the patients' lives, spare them from stroke sequelae and lower the economic burden on the health system!

The future contribution of Dr. Kats in the field of AI in oral radiology has the potential to place our

School at the forefront of global research in this "hot-spot" field!

Kats L, Vered M, Zlotogorski-Hurvitz A, Harpaz I. Atherosclerotic carotid plaque on panoramic radiographs: neural network detection. *Int J Comput Dent.* 2019;22(2):163-169.

"EYES WIDE SHUT" – DENTAL SLEEP MEDICINE AT ITS BEST AT TAU

On September 19-20, 2019, the Department of Oral Pathology, Oral Medicine and Maxillofacial Imaging organized a comprehensive course on Essentials of Dental Sleep Medicine, in collaboration with The Israeli Society of Oral Medicine (ISOM). Two distinguished guests from the USA were invited to lecture. One of them, Prof. Davis Thomas, Master in Orofacial Pain and in Sleep Medicine, presented the theoretical basics of sleep medicine, including sleep neurophysiology, sleep disorders, sleep bruxism, snoring and sleep breathing disorders and sleep and pain associations. The other lecturer, Dr. Larry Lockerman, a Diplomate of the American Board of Orofacial Pain and the American Board of Dental Sleep Medicine, now part of the staff of our department, covered the clinical and practical aspects of dental sleep medicine while demonstrating treating snoring and obstructive sleep apnea patients by different kinds of dental appliances

(Mandibular Advancement Devices). Most of the participants were specialists and interns in Oral Medicine. In addition, the course hosted practitioners from other dental disciplines. In general, the feedback of the course was excellent, especially regarding the remarkable experience, knowledge and professionalism of the invited speakers.

Special thanks go to Dr. Osnat Grinstein-Koren, from our department for her organization of this successful meeting and also to Dr. Shoshana Reiter, another member of the department, for her essential contribution. Appreciations also go to the members of the Committee of Orofacial Pain, ISOM, for their assistance.



Dr. Larry Lockerman (TAU, left), Prof. Davis Thomas (USA, middle) and Dr. Giannina Katzmann (Chile, right)



Dr. Giannina Katzmann (left), Prof. Davis Thomas (USA, middle) and Dr. Divya Kohli (right) in front of the School



Celebrating the successful course. On the left side of the picture: Dr. Alona Emodi (Dept. of Oral Rehabilitation, TAU), Dr. Yaron Haviv (Dept. of Oral Medicine, Faculty of Dentistry, Jerusalem), Dr. Shoshana Reiter (Dept. of Oral Pathology, Oral Medicine & Maxillofacial Imaging, TAU), Dr. Eli Michaeli (Head of the ISOM, Oral Medicine Unit, Barzilai Medical Center, Ashkelon), Dr. Osnat Grinstein-Koren (Treasurer of the ISOM, Dept. of Oral Pathology, Oral Medicine & Maxillofacial Imaging, TAU), Dr. Galit Almozmino (Faculty of Dentistry, Jerusalem), Dr. Larry Lockerman (Dept. of Oral Pathology, Oral Medicine & Maxillofacial Imaging, TAU), Prof. Davis Thomas (USA), Dr. Divya Kohli (India), Prof. Efraim Winocur (Dept. of Oral Rehabilitation, TAU) and Dr. Pessia Friedman-Rubin (Dept. of Oral Rehabilitation, TAU)

FIRST YEAR STUDENTS RECEPTION EVENT

This year the School decided to combine the New Year celebration with welcoming our new family members at the School at the start of their studies. The ceremony was conducted, organized and set up by the committee members of Year 2- Or Laks, Alon Stafnovsky and Ilya Dayeb, while many volunteers of this study year joined them and wanted to take part in the warm reception prepared for them. The Head of the School, Prof. Shlomo Matalon, Dr. Alona Emodi, Prof. Efraim Vinokur, the Chairman of the Dental Studies Students Association and representatives

of various student ventures at the School took part in the ceremony, and on top of it all enjoyed the particularly enjoyable guest lecture by Dr. Melamed. As part of the reception prepared by the School the new participants received presents distributed by the Students Association, important points and the essence of what awaits them on their new path, personally summarized and transmitted by all the volunteers of Year 2. We are grateful to all those who took part in this happy event and wish the new students success.

TO WHOM IT MAY CONCERN

Dear friends and colleagues,

We are happy to inform you that this is the second year of operation of the dentistry students committee.

This year, with the assistance of the senior staff of the School of Dental Medicine, among them: Ms. Revital Lusky, Dr. Eran Dolev, Dr. Alona Emodi, we have continued our activity with the School's students.

The students committee includes an executive chairman and 2 elected representatives of each

year, while our School has 6 full study years. These are the functions:

Chairman: Ofir Deutsch

**Representatives of year 1:
Alon Stafnovsky**

**Representatives of year 2:
Moshe Asher and Noa Dor**

**Representatives of year 3:
Tomer Goldberger and
Shai Telem**

**Representatives of year 4:
Hadar Arel and Neta
Dagan**

**Representatives of year 5: Ofir
Deutsch and Ravit Ginat**

**Representatives of year 6:
Maram Advi and Basal
Ayad**

During the past year the students' committee's primary aim was to unite and consolidate the students of the 6 study years and turn the School into their second home. This year our aim was to improve the students' life at the School and that was our guideline during the entire year. First and foremost, after many efforts, we at the committee

managed to obtain a budget for our activity. The School's Teachers Association donated NIS 10,000 to the students on behalf of the students' activity in all the 6 study years.

This blessed donation is an additional aspect in our being recognized as a body that strengthens its position among the staff of teachers at the School and vis a vis the students.

This year, as every year, the Day of Research was held at the School of Dental Medicine. This year too we organized the Day of Research on behalf of the students and lecturers who took part, and this year we increased the number of participants at the Day. From year to year our activity gains momentum and we engage additional people on behalf of our regular activity. This year we drew the conclusion from the first year as active committee, we organized better and more interesting lectures, we encouraged the students to take a more active part in the Day of Research and we increased the sport competitions which take place after the lectures and lunch.

Moreover, this year we set up a study corner for the students where we place a computer and printer for everyone's benefit. The corner is situated at the center of the School and serves all the students inside the building. Unlike in previous years, when the students had to go to the library which is outside of the studies building, they now enjoy this service at

their study floor. We continue to renovate the existing club as the result of the increase of the amount of students who are there from year to year. This year we painted the club's walls, we added a new sofa, hang up a television for those at the club and later on in the year we will add curtains, new chairs and tables, so that everyone will be able to enjoy the club.

We also continued a number of activities for each separate year. In the course of the year we continued to play "Huge Dwarf" in which during one week one student surprises his friend by sending Purim gifts. In addition, we continued to hold a magnifying glass fair for students going on to their fourth year of studies. The opening of the year ceremony for students accepted at the School. Before the start of their studies they come to ask questions, consult senior students and hear about the upcoming study program.

As in previous years, this year too the committee organized projects on behalf of the community. The first one: cooperation with AKIM children. This year the School hosted 4 adults on each day of the week.

On each Tuesday the students gave a lecture to this group on the topic of medicine, and each week on another and different subject. In the course of the year a number of students came to give the lectures. Another project that continued this year, after last year's positive reactions, is the blood donations

by the students, teaching staff and administrative staff at the building. This year too, we gathered food donations before the Passover holiday for the needy and this year we decided to hand over the donations to the Emek Hefer council, which distributed the food to needy families in settlements belonging to the council.

The students committee ended a successful and fruitful year and this is also the time to thank all the students and staff of the School who cooperated with our activity and our ideas. We are happy to be the first to represent the students of dentistry! We undertake to continue to represent, produce, act, initiate and listen all the time in order to do all we can for the benefit of the students!

THE WHITE COAT CEREMONY 2019



DMD CEREMONY





THE FREEMASON SCHOLARSHIP CEREMONY



DENTAL PATHOLOGY CAMPAIGN - ARTICLE FOR MICHAEL TENENBAUM

CANADIAN FRIENDS OF TEL AVIV UNIVERSITY AND ALPHA OMEGA
CANADA

2019 CAMPAIGN IN SUPPORT OF ORAL PATHOLOGY DEPARTMENT
AT TAU'S SCHOOL OF DENTAL MEDICINE



Canadian Friends of Tel Aviv University (CFTAU) has launched a nationwide fundraising campaign to support the renovation of Tel Aviv University's (TAU) Oral Pathology Department. This joint effort aims to raise CAD \$500,000 to finance urgently needed renovations and to purchase the required technical equipment to up-grade the oral pathology lab. This will allow students and researchers to

expand on their great work with the latest technology available.

We are very excited that Alpha Omegas have stepped forward in Montreal, Toronto and Vancouver to be involved in this most important project.

Ruth Remer - Chairwoman, 2019 Dental Campaign

We are proud and honoured that

Montreal-born Mrs. Ruth Remer, who moved to Israel in 1971, where she now lives on a small moshav near Netanya, has graciously agreed to chair this vital campaign.

In light of the fact that we are the only academic department in Israel to train oral pathologists, the importance of our lab at a national level is another important aspect of this much needed renovation.

The Department of OPOM offers

THANK YOU FRIENDS



five major courses:

- Oral Pathology
- Oral Medicine
- Oral Diagnosis -- Treatment Planning and Emergency Dental Procedures
- Dental Treatment to Medically Compromised Patients

- Oral Radiology

In addition to the five courses, the undergraduate students participate in the Oral Medicine Clinic, which provides special care in the following areas:

- Mucosal Diseases and Oral Cancer

- “Dry Mouth”
- “Burning Mouth”
- Geriatric Oral Care
- Oral and Facial Pain
- Medically-Compromised Patients
- Oral Radiology

There are two postgraduate programs:

Specialty of Oral Pathology - 3.5 years

Specialty of Oral Medicine - 4.0 years

If you wish to be involved please contact Michael Tenenbaum for more information



Prof. Ervin Weiss with Dr. Rachel Sarig & Miki Roitman

Supported the dental anthropology laboratory by donating new lenses for the Nanofocus surface texture scanner .

THANK YOU FRIENDS

המרכאה לרפואת הפה
תרומת
הרב ויאסטיין שטיין
אד ואתל שטיין
קליפורניה

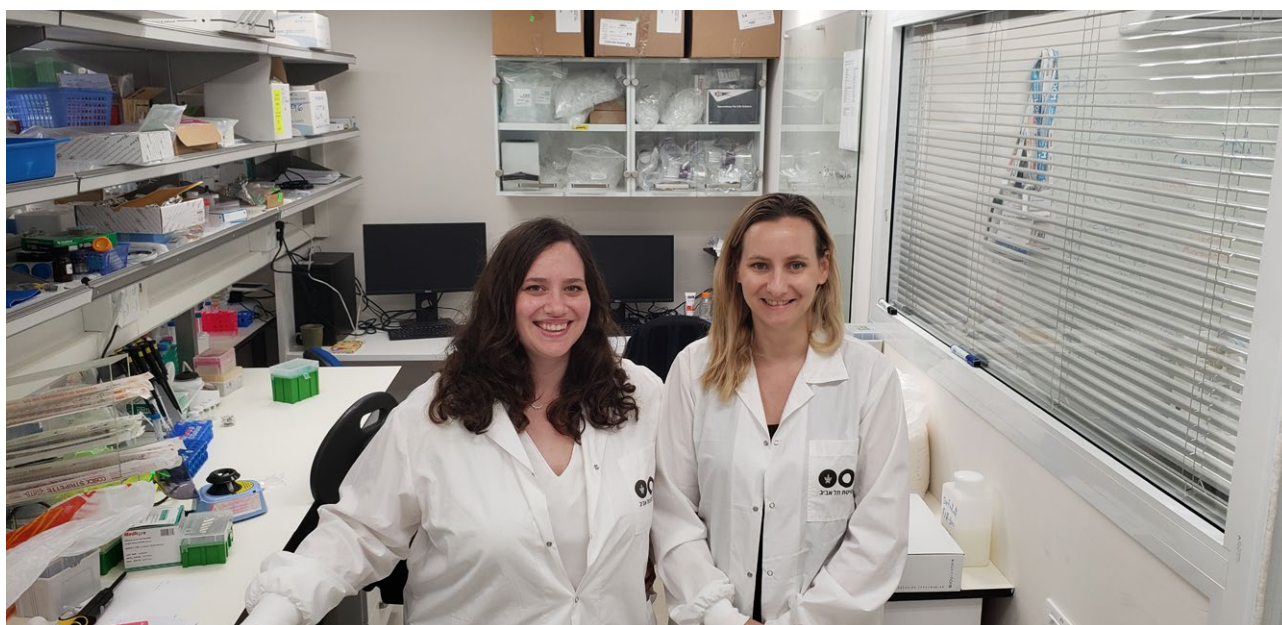
CLINIC IN ORAL MEDICINE
DONATED BY
HERB AND JUSTINE STEIN
ED AND ETHEL STEIN
CALIFORNIA



The Stein family

NOVEL ANTIBACTERIAL FILLINGS MAY COMBAT RECURRING TOOTH DECAY

TOOTH DECAY IS ONE OF THE COSTLIEST AND MOST PREVALENT BACTERIAL DISEASES IN THE WORLD, TEL AVIV UNIVERSITY RESEARCHERS SAY



Tel Aviv - Tooth decay is among the costliest and most widespread bacterial diseases. Virulent bacteria cause the acidification of tooth enamel and dentin, which, in turn, causes secondary tooth decay. A new study by Tel Aviv University researchers published in ACS Applied Materials and Interfaces finds potent antibacterial capabilities in novel dental restoratives, or fillings. According to the research, the resin-based composites, with the addition of antibacterial nano-assemblies,

inhibit and hinder bacterial growth and viability on dental restorations, the main cause of recurrent cavities which can eventually lead to root canal treatment and tooth extractions.

Research for the study was led by Dr. Lihi Adler-Abramovich and the Ph.D. students Lee Schnaider in collaboration with Prof. Ehud Gazit, Prof. Rafi Pilo, Prof. Tamar Brosh, Dr. Rachel Sarig and colleagues from the Maurice and Gabriela Goldschleger School of Dental Medicine and George S. Wise

Faculty of Life Sciences.

"Antibiotic resistance is now one of the most pressing healthcare problems facing society, and the development of novel antimicrobial therapeutics and biomedical materials represents an urgent unmet need," says Dr. Adler-Abramovich. "When bacteria accumulate on the tooth surface, they ultimately dissolve the hard tissues of the teeth. Recurrent cavities, also known as secondary tooth decay, at the margins of dental restorations, result

from acid production by cavity-causing bacteria that reside in the restoration-tooth interface.

“This disease is a major causative factor for dental restorative material failure, and has been estimated to affect over 100 million patients a year, at an estimated cost of over \$30 billion.”

“In this study, we demonstrate the substantial antibacterial activity and biocompatibility of an enhanced restorative material incorporated with the nano-assemblies formed by a minimal self-assembling building block,” explains Mrs. Schnaider.

Historically, amalgam fillings composed of a metal alloys were used for dental restorations and had some antibacterial effect. However due to the Amalgam disadvantageous (e.c., bold color, potential toxicity of mercury and the lack of adhesivity to the tooth) new restorative materials based on composite resins became the preferable choice of treatment. Yet, the lack of antimicrobial property of the composite resin remained a major drawback. “In this study, we have developed an enhanced material that is not only aesthetically pleasing, and mechanically rigid but is also intrinsically antibacterial due to the incorporation of these antibacterial nano-assemblies,” says Mrs. Schnaider. “Resin composites fillings that display bacterial inhibitory activity have the potential to substantially hinder the development of this widespread oral disease. “The scientists first

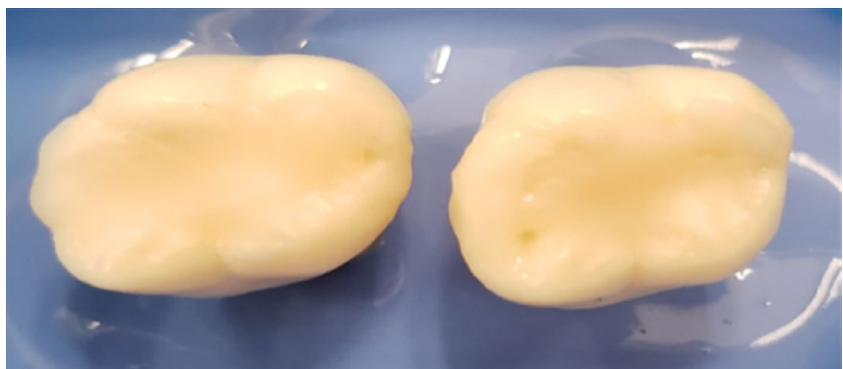
discovered the potent antibacterial activity of a self-assembling building block, Fmoc-pentafluoro-L-phenylalanine, which is comprised of both functional and structural subparts. Once the researchers established the antibacterial capabilities of this building block, they developed methods for incorporation the nano-assemblies within dental composite restoratives. Finally, they evaluated the antibacterial capabilities of composite restoratives incorporated with nanostructures as well as their biocompatibility, mechanical strength and optical properties.

“This work is a nice example of the instances in which the biophysical nanoscale characteristics of the antibacterial assemblies affect the development of an enhanced biomedical material, on a much larger scale,” says Mrs. Schnaider. “The minimal nature of the antibacterial building block, along with its high purity, low cost, ease of embedment within resin-based materials and biocompatibility, allows for the facile scale-up of this approach towards the development of clinically available enhanced antibacterial resin composite

restoratives,” concludes Dr. Adler-Abramovich.

Going forward, the researchers are evaluating the antibacterial capabilities of additional minimal self-assembling building blocks and developing methods for their incorporation into various biomedical materials, such as wound dressings and tissue scaffolds.

American Friends of Tel Aviv University supports Israel's most influential, comprehensive, and sought-after center of higher learning, Tel Aviv University (TAU). TAU is recognized and celebrated internationally for creating an innovative, entrepreneurial culture on campus that generates inventions, startups and economic development in Israel. TAU is ranked ninth in the world, and first in Israel, for producing start-up founders of billion-dollar companies, an achievement that surpassed several Ivy League universities. To date, 2,500 US patents have been filed by Tel Aviv University researchers - ranking TAU #1 in Israel, #10 outside of the US, and #43 in the world.



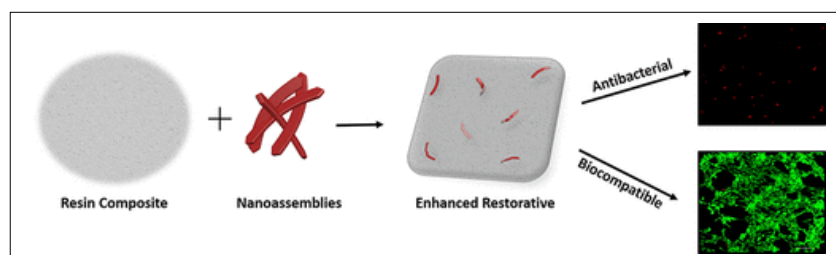
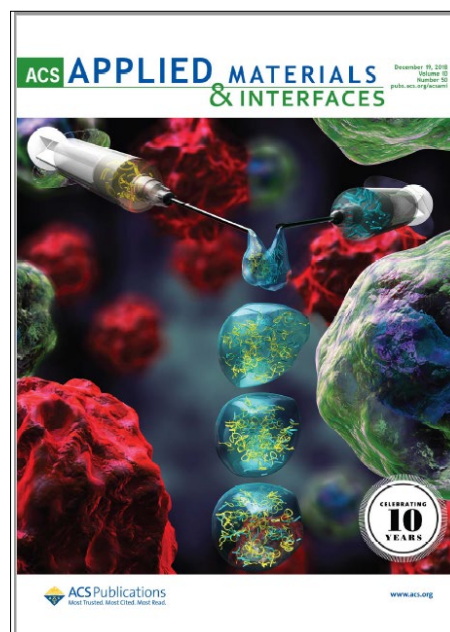
ENHANCED NANO-ASSEMBLY INCORPORATED ANTIBACTERIAL COMPOSITE MATERIALS

LEE SCHNAIDER, MOUMITA GHOSH, DARYA BYCHENKO, IRENA GRIGORIANTS, SARAH YA'ARI, TAMAR SHALEV ANTSEL, SHLOMO MATALON, RACHEL SARIG, TAMAR BROSH, RAPHAEL PILO, EHUD GAZIT AND LIHI ADLER ABRAMOVICH.

ACS Appl. Mater. Interfaces 2019

The rapid advancement of peptide- and amino-acid-based nanotechnology offers new approaches for the development of biomedical materials. The utilization of fluorenylmethyloxycarbonyl (Fmoc)-decorated self-assembling building blocks for antibacterial and anti-inflammatory purposes represents promising advancements in this field. Here, we present the antibacterial capabilities of the nanoassemblies formed by Fmoc-pentafluoro-l-phenylalanine-OH, their substantial effect on bacterial morphology, as well as new methods developed for the functional incorporation of these nanoassemblies within resin-based composites. These amalgamated materials inhibit and hinder bacterial growth

and viability and are not cytotoxic toward mammalian cell lines. Importantly, due to the low dosage required to confer antibacterial activity, the integration of the nanoassemblies does not affect their mechanical and optical properties. This approach expands on the growing number of accounts on the intrinsic antibacterial capabilities of self-assembling building blocks and serves as a basis for further design and development of enhanced composite materials for biomedical applications.



TEL AVIV SCIENTISTS COULD MAKE ROOT CANALS HISTORY

New nano-filling prevents the secondary tooth decay that takes place beneath cavities; could reach trial stage in a year or two

Dentist attends to a patient at his clinic in Managua, Nicaragua, March 27, 2019. Oswaldo Rivas/ Reuters

Sorry, sadists: You may want to find a more dependable profession now that Tel Aviv University has invented fillings that prevent tooth

decay from recurring. The study was published in ACS Applied Materials and Interfaces.

It is true that clinical trials of the nanostructure on humans aren't even on the horizon yet, Dr. Lihi Adler-Abramovich tells Haaretz. But assuming the safety tests pan out and a corporate ally comes on board, theoretically their breakthrough invention could reach human trials in a year or two, she says.

Tooth decay has been a problem

since teeth began to evolve. Caries were even identified in a flat-headed omnivorous lizard named *labidosaurus hamatus* that lived 275 million years ago and must have been in horrible pain.

But the scourge of modern cavities resulted from two things: Around 12,000 years ago, humans transitioned from a hunting-gathering lifestyle to farming; and, more recently, we began to live longer.

Archaeological research into Neolithic communities around the world has found that the transition didn't increase our disease burden, but changed it. Cavities weren't unknown before, but they became much more common — and the discovery of sugar helped not at all. Then the discovery of modern medicine extended our lifespans by decades.

So, chewing on wheat and candy, cavities have become among the most widespread bacterial conditions in the world. Then, as those of us beyond our teen years have discovered, we develop more cavities beneath the fillings. That is called "secondary tooth decay."

Secondary decay can ruin dental restoration. It affects an estimated 100 million patients a year at an estimated cost of over \$30 billion, the Tel Aviv team says.



STUDY: HUMANS MIGRATED FROM EUROPE TO THE LEVANT CA. 40,000 YEARS AGO

DISCOVERY OF SIX HUMAN TEETH IN MANOT CAVE SHEDS LIGHT ON THE AURIGNACIAN ENTITY, KNOWN FOR THEIR REMARKABLE CULTURAL CONTRIBUTIONS, ACCORDING TO TEL AVIV UNIVERSITY RESEARCHERS

A study on the new findings was published recently in the Journal of Human Evolution.

Tel Aviv - Who exactly were the Aurignacians who lived in the Levant ca. 40,000 years ago? Until recently, little evidence, human remains or otherwise, had been found to tell their story.

Now, researchers from Tel Aviv University, the Israel Antiquities Authority and Ben-Gurion University have found that these culturally sophisticated humans migrated from Europe to the

Levant some 40,000 years ago, shedding light on a significant era in the region's history.

The Aurignacian culture first appeared in Europe some 43,000 years ago and is known for having produced bone tools, artifacts, jewelry, musical instruments and cave paintings.

For years researchers believed that modern man's entry into

Europe led to the rapid decline of the Neanderthals, either through violent confrontation or wresting control of food sources. However, recent genetic studies have shown that Neanderthals did not vanish but rather assimilated into modern human immigrant populations. This new study adds further evidence to substantiate this theory.

Through cutting-edge dental research on six human teeth discovered at Manot Cave in the Western Galilee, Dr. Racheli Sarig, of TAU's School of Dental Medicine and Dan David Cente's center for Human Evolution and Bio-History Research, in collaboration with **Dr. Omry Barzilai** of the Israel Antiquities Authority and colleagues in Austria and the U.S., have shown that Aurignacians arrived from Europe in modern-day Israel some 40,000 years ago - and these Aurignacians were comprised of Neanderthals and Homo sapiens alike.



Dr. Rachel Sarig

RESEARCH

A study on the new findings was published in the Journal of Human Evolution.

“Unlike bones, teeth are preserved well as they are made of enamel, which is the substance in the human body most resistant to the effects of time,” Dr. Sarig explains. “The structure, shape, and topography - surface bumps - of the teeth provided important genetic information. We were able to use the external and internal shape of the teeth found in the cave to associate them with typical hominin groups: Neanderthal and Homo sapiens”

The researchers performed in-depth lab tests using micro-CT scans and 3D analyses on four of the teeth. The results surprised the researchers: two teeth showed a typical morphology for Homo

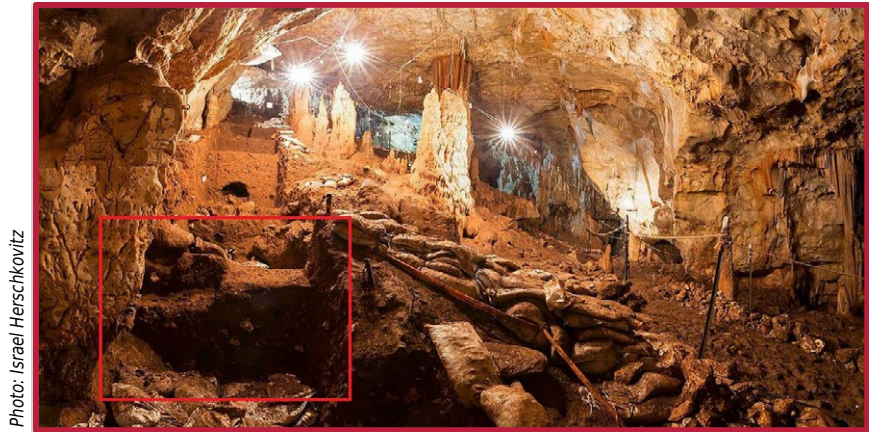


Photo: Israel Herschkovitz

A view to Manot cave with a mark of the area where some of the teeth were found

sapiens; one tooth showed features characteristic of Neanderthals and the last showed a combination of Neanderthal and Homo sapiens features.

This combination of Neanderthal and modern human features has, to date, only been found in European populations from the early Upper Paleolithic period,

suggesting their common origin.

“Following the migration of European populations into this region, a new culture existed in our region for a short time - approximately 2-3,000 years - and then disappeared for no apparent reason,” adds Dr. Sarig. “Now we know something about their makeup.”

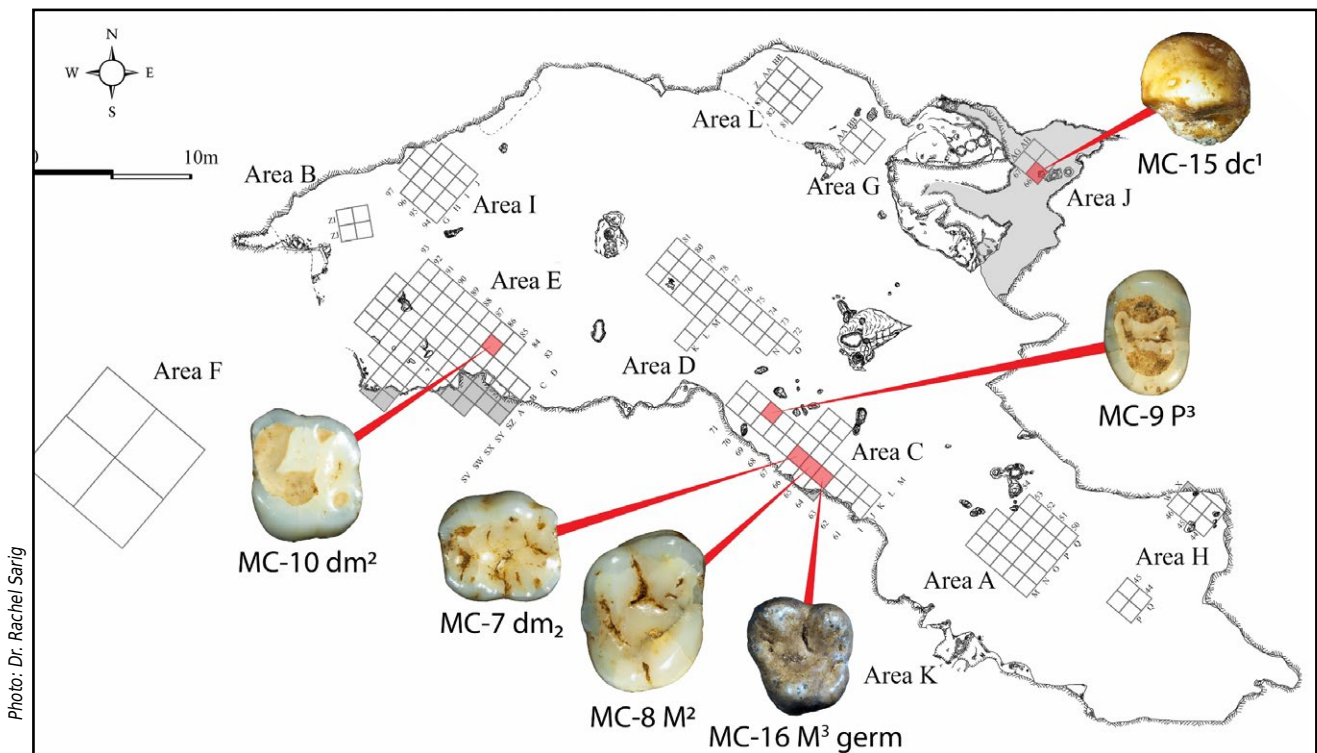
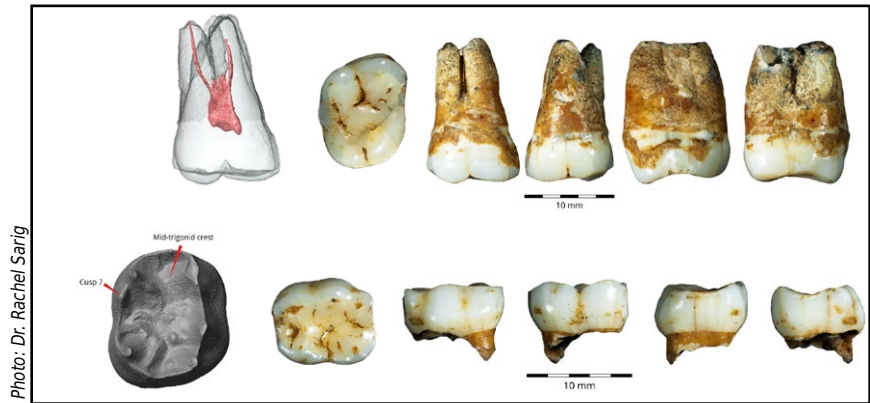


Photo: Dr. Rachel Sarig

A map of Manot cave excavations cites with indication for the location of the teeth

RESEARCH

“To date, we have not found any human remains from this period in Israel,” adds **Prof. Israel Hershkowitz**, Head of the Dan David Center, “so the group remains a mystery. This groundbreaking study brings for the first time the story of the population responsible for some of the world’s most important cultural contributions.”



Upper and lower molars from Manot cave, dated to 38,000 years before present, showing a mixture of characteristics.



Shells ornaments from Aurignacian and Ahmarian contexts in Area C



Aurignacian bone pendants from Area C

INNOVATION IN TEACHING AND LEARNING

PROF. TAMAR BROSH, HEAD, DEPARTMENT OF ORAL BIOLOGY

Prof. Tamar Brosh: received a grant this year from TAU Online for her Dental Biomechanics course in order to provide innovation to the course she teaches for many years.

The course links between basic engineering fields and the dental profession. The course aims to provide the 2nd year students basic knowledge, theory and principles of mechanics and materials science and their

application to various fields in research and clinical dentistry. For example, biomechanical systems operating in the chewing system, dental rehabilitation systems and orthodontic treatments. In other words, to make the dental students understand that although dentistry is a clinical profession, it is strongly connected to the mechanical field, not just in research but in almost any clinical aspect. However,

dental students are not interested in engineering but in dentistry and my challenge is to show throughout the course, at a level they can understand, the strong, close and important relationship between mechanics and clinical dentistry.

The grant allowed purchasing models presenting relevant clinical situations, constructing laboratory models to be presented in class and to employ a course assistance.



3M™ Health Care Academy

The Maurice and Gabriela Goldschleger School of Dental Medicine
Tel Aviv University

JULY 21, 2019

Re.: 3M *Dentists of The Future* winner announcement

Dear Faculty members,

3M is proud to announce that **Samah Jazmawi** has been chosen by a panel of academic judges as the winner of the ***Dentists of The Future*** program which was conducted during the current academic year among the fifth-year students.

Samah uploaded several clinical cases to the program's website and one of them was the top scoring case. Therefore, she was chosen to represent Israel in the regional competition that will take place on September 4-5th, 2019 at the 3M Customer Innovation Center in Seefeld, Germany. In addition, during her stay, she will participate in a scientific training course.

All local accommodations, meals and transportation will be covered by 3M.

The purpose of this event is solely scientific, and poses no commercial obligations or conditions whatsoever to Tel Aviv University.

3M would like to congratulate Samah and wish her the very best of luck in Seefeld.

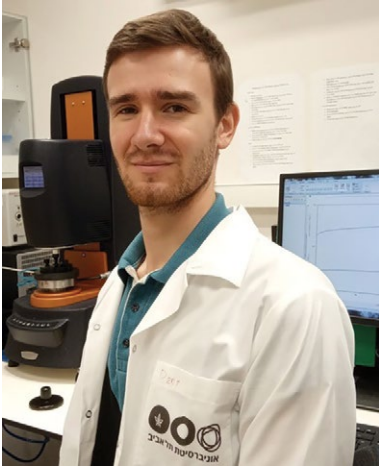
Kind Regards,

Dr.Efrat Labzovsky, DMD,MHA

Scientific Affairs & Education coordinator
3M Oral Care Solutions Division, Israel

Cc: Prof. Erwin Weiss, Dr. Zeev Ormianer, Dr. Eran Dolev

3M Science
Applied to Life.™



Nathan Schiffmann has been awarded a fellowship to pursue a research project for a year.

Born and raised in France, Nathan Schiffmann earned a B.Sc. Med. Magna cum Laude in Bio-Medical Sciences from the Hebrew University Hadassah Medical School. He went on to serve as a clinical researcher in the IDF Medical Corps' Institute of Military Physiology, conjointly with the Heller Institute of Medical Research at the Sheba Medical Center. Nathan is currently a 2nd year D.M.D. student at the Goldschleger School of Dental Medicine, conducting a research project under the guidance of Dr. Lihi Adler-Abramovich at the Laboratory of Bioinspired Materials and Nanotechnology, Department of Oral Biology. Nathan investigates the self-assembly processes of short peptides into nanostructures and their application in the development of a novel targeted drug delivery strategy in the field of dental medicine. Nathan's

vision is to combine the practice of dentistry with his passion for scientific research in order to participate in shaping the future of oral healthcare.

The TAU-MED program enables medical students to perform a summer research project. The most successful projects are awarded fellowships to continue for the year. The program is coordinated by Dr. Oren Kobilier, Prof. Jonathan Leor and Prof. Karen Avraham.



Dr. Itzhak Chen, aspects we did not know

As is well known, Dr. Itzhak Chen, Chairman of the Israel Dental Association, resigned from his position. The dentistry sector and the Israel Dental Association in Israel were shocked by his resignation. Dr. Chen explains his resignation by his wish "to hand over the reins to the next generation which has to move dentistry forward in the coming years. There are doctors among those active at the Israel Dental Association, who will be able to continue to lead the Association in the battles and achievements to promote the profession." I

have known Dr. Chen for quarter of a century. I believe that with Dr. Chen's resignation we should shed light, if only a little, on some additional sides of the man who for 30 years headed the Israel Dental Association in Israel as its Chairman, professional and personal aspects that perhaps are not known to the dentists and which have become known to me in the course of the years of our acquaintance.

Dr. Itzhak Chen was born in World War II, and is recognized in Israel as a Holocaust survivor. In 1969 he completed his dental studies with distinction and received the title of Dr. of Dental Medicine. He worked as an instructor at the School of Dental Medicine in Komorov, the town where he completed his studies. In 1973 he immigrated to Israel, enlisted into the IDF and completed an officers' course. After his release from the army he opened a private dental clinic.

In 1985 he started his activity at the Israel Dental Association, was chosen Chairman of the Tel Aviv branch, and member of the central committee. In 1991 he was chosen to serve as Chairman of the Israel Dental Association -first term. In the framework of his public activity in the line of dentistry he raised large sums for the financing of the "Absorption of New Immigrant Dentists" program , organized professional training courses and later on set up a fund to assist new dentists and new immigrants to purchase dental equipment and clinics. He initiated and organized

the volunteer activity on behalf of the needy and Holocaust survivors in Israel.

In addition to the daily activity to promote the profession, Dr. Chen occupied a number of positions in various lines: in 1995 he was asked to serve as consultant on dental medicine affairs to the Minister of Health in Romania. He coordinated the program of privatization of dental medicine in Romania. In 1997 he was chosen member of the plenum of the Broadcasting Authority. In 1998 he was chosen Chairman of the Executive Committee of the World Zionist Congress. In 2002 he was chosen to a second term as Chairman of the Executive Committee of the World Zionist Congress.

In 2003 he obtained the title of honorary member of the School of Dental Medicine at Tel Aviv University, and in that same year he received the title of honorary member of the faculty of dental medicine at Hadassa Jerusalem. In 2004 he received the title of Deputy Head of the School of Dental Medicine at Tel Aviv University.

In 2014 Dr. Chen received the " Decoration of Light" from the fund for the welfare of Holocaust victims in Israel. In addition, Dr. Chen is registered in the golden book of the Israel Lands Administration for his contribution to the Jewish people.

Dr. Chen is an honorary professor of universities in Moscow, Bukarest and Komrov. An interesting fact:

Dr. Chen is also a composer and poet. His song : "Violin of Sorrow", which he composed and wrote, was performed at the Holocaust Day at the Knesset, the Parliament of Israel, at the "Every person has a name" ceremony at the Yad Vashem museum, at the European Union at the international Holocaust day, Babyar in Kiev, at Auschwitz at the ceremony commemorating 70 years of the camp's liberation and the March of Life last year in Auschwitz. The song was translated into four languages and hundreds of thousands listened to it all over the world.

In addition, Dr. Chen is a sports fan, and played in the Israel baseball veterans team at the Maccabiah. He and his team won the gold medal.

All these are some of Dr. Chen's other sides, and they were carried out in silence and with modesty.

Well done Dr. Chen and success on your new path.

Prof. Benny Peretz

Dr. Itzhak Chen receives a certificate of appreciation from Tel Aviv University

In mid-June Dr. Itzhak Chen, for many years the Chairman of the Israel Dental Association, and the former Deputy Head of the School of Dental Medicine, received a certificate of appreciation from Prof. Erwin Weiss, Head of the School of Dental Medicine in the name of Morris and Gabriela Goldschlaeger at Tel Aviv University. The certificate of appreciation praises Dr. Chen's many years of work on behalf of the citizens of Israel, dentists and the School of Dental Medicine. In the course of the stirring ceremony some of Dr. Chen's lesser known sides were surveyed.



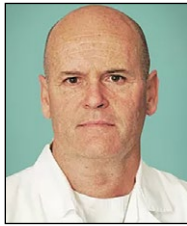
PRIZES AWARDING CEREMONY

GETTING OUTSTANDING TEACHER OF THE YEAR

- Dr. Salmon Breslaor
- Dr. Tal Ratson
- Dr. Adar Man
- Dr. Shoshana Reiter



ACADEMIC PROMOTION



Prof. Ofer Moses was promoted to the rank of Associate Professor in Periodontology



Dr. Eytan Mijiritsky was promoted to the rank of Clinical Associate Professor in Prosthodontics



Dr. Efraim Winocur was promoted to the rank of Clinical Associate Professor in orofacial pain and TMD



Dr. Daniel Bar was promoted to the rank of Senior Lecturer in Oral Biology



Dr. Hagay Slutzki was promoted to the rank of Senior Lecturer in Restorative Dentistry



Dr. Rachel Sarig was promoted to the rank of Senior Lecturer in Oral Biology



Dr. Yifat Manor was promoted to the rank of Senior Lecturer in Oral and Maxillofacial Surgery



Dr. Johny Kharouba was promoted to the rank of Lecturer in Pediatric Dentistry



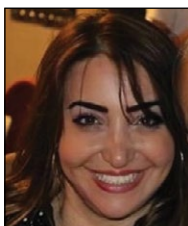
Dr. Block Jonathan was promoted to the rank of Lecturer in Oral Rehabilitation

OUTSTANDING WORKERS

During Passover celebrations, we distributed certificates to seven workers for their admirable job.

Orit Avisar, Ilana Zehavi, Yehudit Pardes

The selected employees for this year were:



Yehudit Pardes



Ilana Zehavi



Orit Avisar



Dr. Eran Dolev was appointed to the Director of the clinics

THE ORAL REHABILITATION ASSOCIATION MEETING AT SCHOOL

The Dental School collaborates and supports the Israeli Oral Rehabilitation Association.

Among other things, hosting various events of the association at school and providing attending faculty members as speakers at the Association's meeting. To those events all the Faculty members are invited as well as the students in the clinical years and the Hadassah Faculty members.

On December 13th 2019 a unique seminar of Oral Rehabilitation was held at the School by senior three Chinese dentists from Chinas' largest stomatogenic hospital' belonging to Peking University were the key note speakers. One of the guests speakers, Dr. Liu Feng, also serves as the President of the Chinese Dental Digital

Association which is affiliated with the international Dental Digital Association the DDS. The Israeli association for Oral Rehabilitation is also affiliate to the DDS.

The subject of the seminar was "Updates on modern dentistry in China". The participates of the conference were very impressed by the high professional level of the speakers , including the therapeutic and the digital techniques presented by them.

The guests from China were welcomed by the Head of the School, Prof. Shlomo Matalon, who showed them the new post graduates students clinics and the well-equipped new operating rooms. At the end of the tour, a meeting was held at Prof. Matalon's office during which we defined the

future collaborations between our institutions. And when it comes to a country like China, the sky is the limit!





DS Academy Bensheim Germany



IADR meeting , Vancouver

VISITORS



Adam, grandson of our dearest friend Dr. Ben Williamowsky



Howard & Mrs. Raphaele Moog, of the Israel Export Institute



The Williamowsky family



DR. HAIM BAHARAV

Dr. Haim Baharav joined the department of Oral Rehabilitation on November 1979.

Since then he instructed undergraduate students at the clinics and his main research topic was in the field of dental materials properties.

Above all, Haim was a “Mensch”. He loved to teach and he loved his students. He always talked to them

if they were already his colleagues, with dignity and honor.

Haim shared his love for his family with us, the faculty members. He was very proud of them and their achievements and in the same way, he was proud of his students.

We will remember his modesty and his smile, his “commercial sign” every time he entered the clinics.

May he rest in peace.

VISITING THE AREA IN THE WESTERN GALILEE- ROSH HANIKRA AND ADMIT PARK

This year the administration team visited the area in the Western Galilee, Rosh Hanikra and Admit Park. Here are some highlights and suggestions for the next year in Israel

Rosh HaNikra is a geologic formation on the border between Israel and Lebanon, located on the coast of the Mediterranean Sea, in the Western Galilee. It is a white chalk cliff face which opens up into spectacular grottos, cavernous tunnels formed by sea action on the soft chalk rock.

A tunnel was built by the British for the Haifa-Beirut railroad line, and in 1968 a second one was dug, both connecting the grottoes with each other and allowing access along the former route of the British railroad. For many years though, the only access to the grottoes was from the sea and the native swimmers and divers were the only ones capable of visiting. Soon after a cable car was built to take visitors down from the top of the cliff to the tunnels. With a 60-degree gradient, this cable car is advertised as the steepest in the world.



A DAY OUT OF SCHOOL

Recognition of the potential offered by the unusual Rosh Hanikra grottoes led to the development of this beautiful site as a tourist attraction for Northern Israel.

Some History: The Book of Joshua mentions "Misraphot Mayim" as a place south of Rosh HaNikra that was the border of the Israelite tribes of the time. In the First Book of the Maccabees, it is referred to as the place that Shimon

HaHashmonai was responsible for in 144BCE (1 Maccabees 11:59). Josephus Flavius also describes Rosh Hanikra as the northern border of the city of Acre, Israel. The archaeological tell is today situated within the kibbutz.

In the Jewish apocryphal First Book of Maccabees, a cape in this region is referred to as the "Ladder of Tyre" (Hebrew: סולם צור; Greek: Η κλίμαξ Τύρου); the author could

have meant either the cliffs at Rosh HaNikra, or one of two other capes jutting out into the sea slightly north or south of them. The site was later named an-Nawakir ("The Grottoes") by the Arabs.

Rosh HaNikra has served as a passage point for trade caravans and armies between Lebanon, Syria, Israel, Egypt, and Africa. During the Second World War, South African forces blasted



A DAY OUT OF SCHOOL

railway tunnels through the nearby rocks for trains running along the Cairo-Istanbul line. The railway bridge at Rosh HaNikra was spared by the Haganah during the 1946 Night of the Bridges operation but, following a late-1947 British announcement that it would withdraw from Palestine months ahead of schedule, the bridge was destroyed by the 21st Battalion under the Palmach in late February 1948 to hinder Lebanese arms shipments to Arab forces opposing the UN Partition Plan. As repairs were prohibitively expensive, the tunnels were later completely sealed. The Lebanese railways have been largely dismantled while the Coastal Railway in Israel currently ends near Nahariya, several kilometers to the south.

Rosh Hanikra was the location where Israeli and Lebanese officials negotiated and concluded an armistice agreement in 1949 which ended the Lebanese-Israeli component of the 1948 War of Israeli Independence. A border passage across the Blue Line into



Lebanon at the site is sometimes used by UNIFIL personnel.

The Rosh HaNikra cable car is a cable car serving tourists wishing to visit the grottoes. The Cable car is situated very close to the Lebanese border. The site is popular with tourists, and is one of the facilities available to tourists in Kibbutz Rosh HaNikra. The cable car was manufactured by Austrian manufacturer Doppelmayr Garaventa Group, and claims to be the steepest cable car in the world, ascending at a gradient of 60 degrees. In as much as its lower

base station is located on the sea, the cable car is occasionally affected by stormy weather.

Adamit Park: situated in the upper Galilee on the border with Lebanon, provides breathtaking views of the Western Galilee and Haifa Bay all the way to the Lebanon border, including Nahal Betzet and Nahal Namer ("leopard gully").

The park's main scenic road is one-way only. We recommend the easy hike along the Terrace path to the Arch Cave (Me'arat HaKeshet in Hebrew). The path is concrete paved and easily accessible for



A DAY OUT OF SCHOOL

everyone including the disabled. The cave is really interesting as most of the cave roof collapsed over time leaving a narrow strip of rocky land suspended over the void like a hanging bridge.

After visiting the Arch cave, you can simply return to the parking lot on the same path that you arrived or continue eastward along the top of the cliff following the red markings until you arrive at Amir lookout. From this vantage point, you have a beautiful panoramic view of the Upper Galilee from the coastal plain to the Meron Hills.

Garden Trail: Another hiking option if you have more time and don't mind a healthy exercise is the Garden or Orchard Trail which winds through the forest following wooden signs. This path offers different views of the North and the Israel - Lebanon border.

