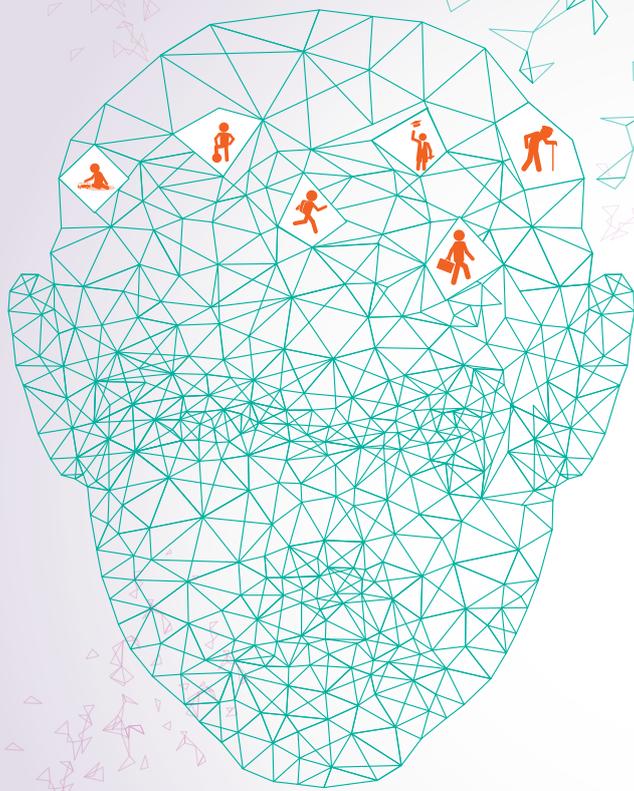


Volume 7 / Fall 2017-2018



ABU-HAIDAR
NEUROSCIENCE
INSTITUTE

THE INSTITUTE



49TH MEMA

MENTAL HEALTH ACROSS THE LIFESPAN

APRIL 19 - 22, 2018 | AUB

SAVE-THE-DATE

Preliminary Program Highlights:
Mental Health in Primary Care
Mental Health of Refugees
Women's Mental Health and Sexuality Issues
School and College Mental Health
Children's Mental Health
Updates in Mood and Anxiety Disorders
Updates in Psychotic Disorders
Updates in Substance Use Disorders
Updates in Eating Disorders
Mental Health in Chronic Medical Conditions
Mental Health in Multiple Sclerosis
Mental Health Research and Collaboration in the Arab World
Behavioral Neurology and Neuropsychology, etc ...

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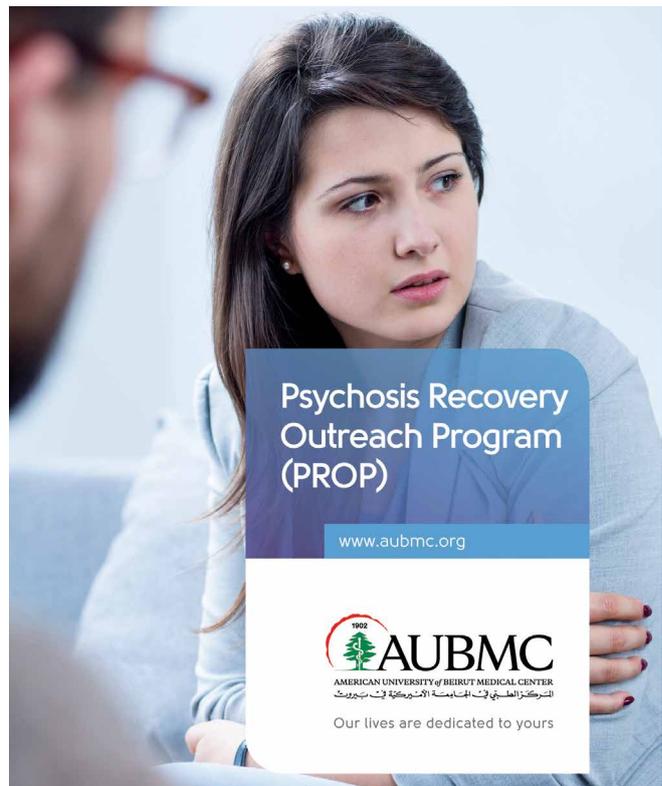


NEWS FROM PSYCHIATRY

TAKING SPECIALIST CARE TO THE PATIENTS: THE PSYCHOSIS RECOVERY OUTREACH PROGRAM (PROP)

Psychosis is a psychiatric disorder in which a person experiences detachment from reality. It is characterized by emotional and cognitive impairment and can manifest as an isolated episode or as part of a broader mental disorder such as schizophrenia or bipolar affective disorder. Affected individuals develop positive symptoms such as hallucinations or delusions, and negative symptoms such as decline in function, social withdrawal, and decreased emotional expression. Protracted active psychosis is believed to be toxic to the brain, and recent efforts have focused on the importance of early detection. Effective intervention in the first episode is linked to a better global outcome, improved quality of life, fewer relapses, and less readmission rates.

The Psychosis Recovery Outreach Program (PROP) was established in February 2016 in the Department of Psychiatry at AUBMC. It brings a tried and tested approach from the US, UK and other developed health economies to the MENA region. It aims to deliver the best quality of care by a dedicated team of psychiatrists, psychotherapists, and psychiatric nurses. The team, led by the Program Director, Dr. Joseph El-Khoury, comprises of enthusiastic members who are constantly developing their knowledge and skills to offer an optimal person-centered approach. These are Ms. Rassil Ghazzawi (psychologist) who is trained at specialized therapeutic interventions for psychosis, in addition to the psychiatric nurses, Najji Khatib, Oussama Abdel Nabi, Samer Hajj-Shehade,



and Lubna Rajab. Communication and experience sharing between clinicians allow for integrating the bio-psycho-social perspectives on mental disorders into effective care plans and case management.

Admission into the program is through referral from any treating physician at AUBMC, and it is followed by a comprehensive clinical assessment. A family and patient induction meeting is then arranged with the treating team. Services provided by PROP include a once per week free-of-charge drop-in nurse-led clinic scheduled on Mondays, weekly individual sessions with the psychotherapist, and regular appointments with the psychiatrist. Since there is compliance between a major hurdle in schizophrenia and related disorders, community outreach comes in as a necessary next natural step. As of August 2017, the PROP started providing nursing home visits that are held under close supervision. Future additions to the program could include occupational therapy, employment support, and in the longer term, a day program.

PROP strives to deliver the most up-to-date evidence-based therapies for patients. Family psychoeducation is known to improve

patient outcomes by providing a stable and understanding environment at home. When it comes to family members, intervention aims to alleviate perceived burden and psychological distress. PROP offers sessions either to individual families or multiple families together. These sessions provide recommendations related to dealing with crises, emotional support, and coping skills that are needed in the case of mental illness. In addition to family psychoeducation, Cognitive Behavioral Therapy for Psychosis (CBTp) is being offered to patients. This type of therapy has proven to improve patients' understanding of their illness, which eventually leads to the reduction of stress levels and better functioning. Currently, a pilot research study supported by a seed grant is underway to assess the implementation and feasibility of group CBTp in the Lebanese context, measure established parameters of recovery in psychosis, and evaluate the acceptability of group therapy by this patient group.



Our team has grown bigger with the joining of a new psychotherapist last December. Development has also become a major target that we continuously seek; accordingly, our nurses have received additional training on the best practices in community mental healthcare in a training workshop that was held in the United Kingdom. So far, over fifty patients have benefited from our services, minimized relapse, and avoided hospitalization. Our patients have expressed their satisfaction s, and early signs of improved overall outcomes have also been detected.

Through clinical advancement, training, and research, PROP is quickly establishing itself as a model of care that can be readily replicated across Lebanon and the region.

For more information and to contact us, please refer to our page on the AUBMC website. <http://www.aubmc.org.lb/clinical/Psychiatry/Pages/main/Psychosis-Program.aspx>

ANNUAL BIOMEDICAL RESEARCH DAY: AWARD FOR CLINICAL CASE STUDY POSTER

The best poster presentation in the clinical research category at the Annual Biomedical Research Day 2017 was awarded to Mrs. Rama Kanj for a study written by herself, Mrs. Cynthia Roukoz, and Dr. Fadi Maalouf, under the mentorship of Dr. Pia Zeinoun.

This clinical case study reported for the first time, the neuropsychological profile of a rare genetic illness - Hamamy syndrome that impacts cognition, behavior and physiology. The child had presented to the Psychological Assessment Center in the American University of Beirut Medical Center, and it is one of a six reported cases.



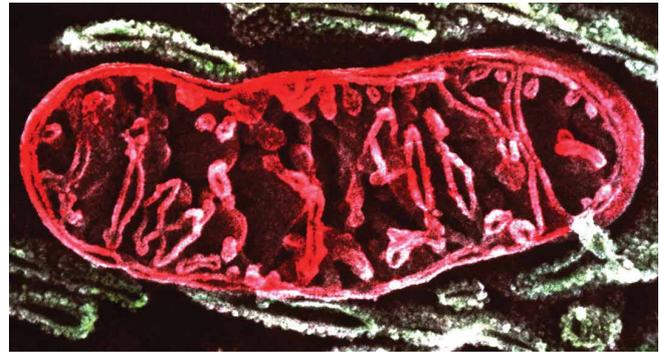
NEWS FROM THE BENCH

DISCOVERIES FROM THE CELL'S BELLY: MITOCHONDRIA AT 50 DEGREES

"Although the body as a whole is maintained at a relatively cool 37 °C, the power plants of our cells, mitochondria, operate at a much higher temperature, a sizzling 50 °C."

A team of scientists from France, Germany, and South Korea including our faculty member, Dr. Riyad El-Khoury found that the temperature inside the mitochondria when fully active is maintained close to 50°C. This compelling discovery will undoubtedly prompt a re-examination of many aspects of classical biochemistry, taking account of the inferred high temperature. Mitochondria are highly dynamic multifunctional organelles that are essential for the survival of nearly all our cells. They play fundamental roles in several cellular processes, including calcium and iron homeostasis, hormone synthesis, intermediary metabolism, inflammation, cell signaling, apoptosis...(Wallace et al., 2010). However, mitochondria are best described as the cell's power house where they generate the bulk of the energy needed to fuel thousands of essential biochemical reactions. In mammalian mitochondria, the energy-producing machinery, also known as respiratory chain, converts part of the energy released by food oxidation into ATP and other useful forms of energy needed by the cell. This process is powered by the electron transfer through the respiratory chain to molecular oxygen. As a matter of fact, ~90% of the O₂ we respire is used by mitochondria to sustain ATP production. However, this energy conversion process is far from being 100% efficient and a significant fraction of

the released energy is dissipated as heat. This raises the hitherto unexplored question of the effect of this heat production on the temperature of mitochondria and other cellular components.

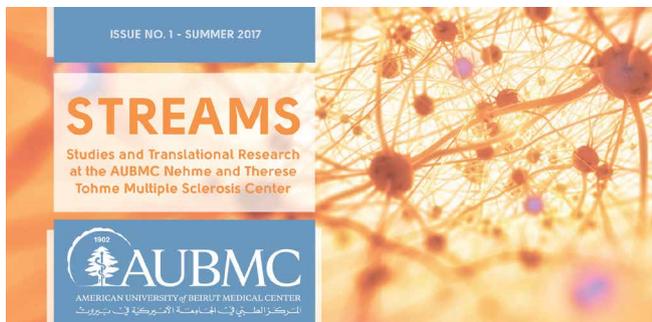


To address this issue, the group of scientists made use of the recently developed, temperature-sensitive fluorescent probe, MitoThermo Yellow (MTY). As a major conclusion of their study, based on the fluorescence changes of MTY, they found that the rise in mitochondrial temperature due to full activation of respiration is as high as ~10 °C. They have also shown that respiratory chain activities measured in intact mitochondria increase up to 300% when assayed at the mitochondrial temperature measurable in intact cells. Their findings raise numerous questions concerning the biochemistry, physiology and pathology of mitochondria. In light of the new findings, they proposed a careful consideration of physical, chemical and electrical properties of the inner mitochondrial membrane and of mitochondria in general. They also urged considering mitochondria as a source of heat, potentially relevant in specific cellular or physiological contexts, and not just in specifically thermogenic tissues like brown fat. Their current work entitled: Mitochondria are physiologically maintained close to 50°C, is currently being reviewed by Plos Biology and available on the preprint server for Biology ([bioRxiv.org](https://www.biorxiv.org)).

Reference: Wallace, D. C., Fan, W., & Procaccio, V. (2010). Mitochondrial energetics and therapeutics. *Annual Review of Pathological Mechanical Disease*, 5, 297-348.

NEWS FROM NEHME AND THERESE TOHME MULTIPLE SCLEROSIS CENTER

NEWSLETTER FOR MS PATIENTS: STREAMS



STREAMS (Studies and Translational Research at the AUBMC Nehme and Therese Tohme Multiple Sclerosis Center) was first launched in 2017. It is a bi-annual newsletter presenting some of the most recent research findings in ongoing studies taking place in Lebanon and around the world. The first issue introduced readers to the AUBMC Multiple Sclerosis Interdisciplinary Research (AMIR), a comprehensive longitudinal study aiming to gain better insight about the causes of MS.

FRIENDS OF MS AT AUBMC

Activities

Friends of MS at AUBMC is a support group of committed volunteers at the Nehme and Therese Tohme Multiple Sclerosis Center. Since February 2012, all their efforts focused on raising funds to support needy patients with Multiple Sclerosis (MS), help in clinical research related to this disease, and increase MS awareness.



Since 2012, more than 160 needy MS patients have received financial support at the center. The friends of MS at AUBMC created a fund under their name, and so far around \$780,000 were raised.

In collaboration with the Nehme and Therese Tohme Multiple Sclerosis Center at AUBMC, major awareness events that involved MS patients, their families, and the community were organized on a regular basis. These efforts have contributed to wider recognition of the center and its services:



September 2016: A cycling class was organized to support patients with MS under the name SPIN FOR MS



November 2016: U Energy team participated in raising awareness at the Beirut Marathon by standing up on stage and informing all runners about the disease.



March 2017: 5th Friends of MS Fundraising Brunch.



October 2016: MS awareness messages and ads were played to a huge number of viewers at the first Screening of Film Amerky Tawil.



May 2017: Drama Therapy and Screening of 100 Metros with Ms. Zeina Daccache.



November 2016 MS Patient Day: Latest discoveries about MS treatment were communicated.



July 2017: A patient education day on "How to Cope with MS" took place in Hotel Gefinor where patients and their families were given tips on how to cope with MS and its symptoms.

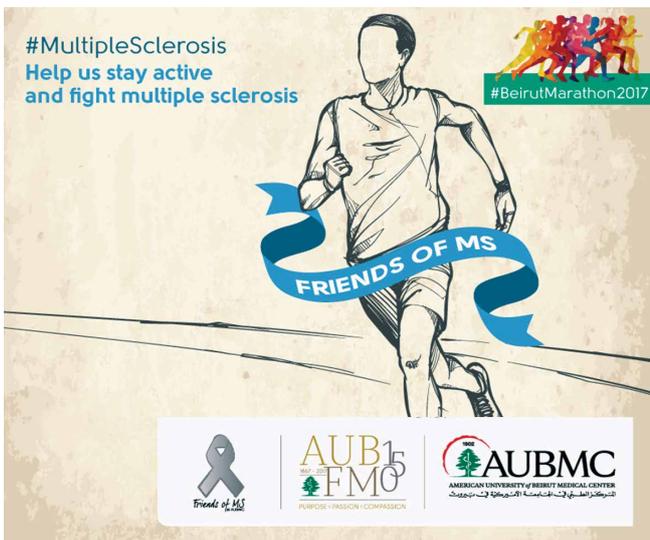
NEWS FROM NEUROLOGY



October 2017: Al Riyadh supporting MS cause and raising awareness during their opening ceremony.



RUN WITH FRIENDS OF MS



Friends of MS participated in the 2017 Beirut Marathon.



The Department of Neurology proudly held its annual graduation dinner in Villa Linda Sursock on June 01, 2017.

Our graduate residents for this academic year 2016-2017 were: Dr. Hassan Doumiati, Dr. Stephanie Bustros and Dr. Elia Malek in addition to our graduate fellows: Dr. Maya Dirani (Epilepsy and Clinical Neurophysiology Fellowship Program), and Dr. Nabil El Ayoubi (Multiple Sclerosis Fellowship Program).





The graduates were:

- Dr. Hassan Doumiati - Neurology Residency Program
- Dr. Stephanie Bustros - Neurology Residency Program
- Dr. Elia Malek - Neurology Residency Program
- Dr. Maya Dirani - Neurology - Epilepsy and Clinical Neurophysiology Fellowship Program
- Dr. Nabil El Ayoubi - Neurology Multiple Sclerosis Fellowship Program

The awards given were:

- The Distinguished Teacher Award: Dr. Johnny Salameh
- The Resident as Teacher Award: Dr. Gilbert Youssef
- The Resident Research Award: Dr. Stephanie Bustros



MEET THE NEUROSURGEON



Dr. Omeis recently joined the Department of Surgery – Neurosurgery Division as an Associate professor. He sees patients with general neurosurgical diseases as well as spinal diseases including degenerative disc diseases, trauma, tumors, and spinal deformity/scoliosis at the neuroscience outpatient center, Building 23.

1. Tell us a about your education and work: AUB, after AUB, and back to AUB.

After Graduating from High School in Lebanon, I immigrated to the US. Upon my graduation in Biochemistry from the University of Texas at Austin and followed by the University Of Vermont College Of Medicine where I earned my MD, I joined the NYMC

Neurosurgery Program. Then I joined The Johns Hopkins University in Baltimore where I did a fellowship in surgical spine oncology and deformity under the mentorship of Dr. Ziya Gokaslan. Then I joined Baylor College of Medicine, as an Assistant Professor of Neurosurgery then promoted to Associate Professor, where I practiced Neurosurgery in Houston, Texas for 8 years. My practice in Houston grew exponentially over a span of 2 years. There I developed a spine deformity program as well as minimally invasive one in addition to the surgical spine oncology service. I was also heavily involved in the residency program and training residents. In addition to my clinical work, I was involved in clinical and laboratory (biomechanical) research. Likewise, my "other" responsibilities grew as well. I was entrusted as the Neurosurgery Spine Program Director and the Director of the Neurosurgery Outpatient Clinics. I also served and still serving on many US scientific committees in world renown societies such as NASS (North American Spine Society) and SRS (Scoliosis Research Society). Returning to Lebanon and joining AUBMC was an idea that has grown to become a reality that I am very pleased with.

2. What triggered your interest in the field of Neurosurgery?

I was always fascinated with the complexity and intricacy of the nervous system. It is an ever evolving field of medicine. I realized that Neurosurgery was the way to get involved in this specialty of medicine. I had the opportunity to start materializing my dream with rotation on neurosurgery where I felt attached and this was truly what I wanted to do. The other aspect of being interested in neurosurgery was the skills required to practice such a specialty and that there is a very small margin of error that can be afforded.

3. What triggered your interest in the field of spine surgery in particular?

Interest in spine care from a neurosurgical standpoint came later in my residency training. There is a variety of diseases that need be treated differently. Whether it was a simple discectomy, resecting a spinal cord tumor, or reconstructing the whole spine, it had an impact on the patients and their quality of lives.

4. Who was the most significant influence on your development as a Neurosurgeon?

Several Neurosurgeons that I worked with during my career have influenced and shaped me as a neurosurgeon. I am a person who learns by watching, and that gave me the opportunity to learn from many neurosurgeons and be influenced by them. The first true person to truly influence me, was the chairman of my Neurosurgery program. He had a tremendous influence on shaping my personality in terms of how to look at things, prepare, and rehearse in my mind prior to any surgical procedure. He would always give these unique idioms prior to starting a certain surgery. For example, when we are about to clip an aneurysm, or resect a tumor, he would say: Today we are going to fix a Swiss watch, we are not changing a tire. If we are resecting a spinal cord tumor, he would say: "We are going to remove the lead from the pencil without destroying the pencil". If we are resecting an acoustic neuroma that is trapped within the cranial nerves, he would say: "We are going to free a prisoner from jail without breaking into the jail or leave a trace." Other neurosurgeons who influenced me is my fellowship mentor who always had the drive to move forwards and don't be distracted. Likewise, others such the chairman of the department where I practiced

in Houston and other personnel that I met in national meetings and developed a good friendships with them. Sometimes, a simple advice will turn things acutely.

5. How do you see your area over the next ten years at AUBMC?

Neurosurgery keeps evolving in terms of our understanding of the true state of the disease and in terms of advancement of technology that allows us to change/modify our treatment modalities when we approach a specific disease. Although I perform general neurosurgery, I have a subspecialty in surgical treatment of spine diseases that ranges from simple discectomy to reconstructing a deformity or resecting a tumor. At AUBMC I am trying to bring the most advanced technology to the operating theater in order to minimize "approach related complications" to treat certain pathology and to improve the clinical outcome. For example minimally invasive spine surgery where I started performing procedures here that addresses spine pathology through a minimally invasive approach. I am planning to expand this to address deformity pathology in a minimally invasive fashion the same way I used to do them in the US. I am hoping to grow this kind of treatment modality, so AUBMC can be an attraction center of spine disease treatment.

Upon my arrival, I have started an annual spine symposium that will be addressing the up to date information about management of spine diseases. We have invited several world known spine surgeons to participate in it. I am hoping to make it a yearly event that will eventually leave its high marks on the practice of spine surgery in Lebanon and the Middle East.

In other parts of neurosurgery, I am working on Traumatic brain injury symposium that is set to occur in early December. I am hoping this will set a cornerstone in the management brain injury in a tertiary center setting.

Similarly, I am interested in bringing workshops to train residents and fellow spine surgeons. I have also started planning to establish a skull base laboratory for our residents, so they can practice and familiarize themselves with different approaches to the skull base. Finally, I have started on several research projects both clinical and animal research. Several grant proposals have been written and submitted. I hope this will blossom over the next few years and will have great yield in terms of publications and new advancements.

6. Tell us more about your involvement in research, and how do you intend to promote that at AUBMC?

Since my medical school, I was adamant about being involved in research. Likewise in residency where I had worked with subarachnoid hemorrhage animal models (rats) where I tested slow drug release hydrogels. Also, when my interest in spine surgery grew, I started working on spinal cord injury model in knockout mice to limit the secondary injury effect. We found very promising results that I intend to pursue here at AUBMC. Subsequently, I have already wrote grant proposal to perform research in spinal cord injury model but in higher vertebrate (porcine spinal cord injury model). I am hoping for this to move forwards once we get funding and I am hoping for great results that can minimize the detrimental effect of injuring the spinal cord. We have also started on another project (a proposal has been submitted) in collaboration with colleagues from the mechanical engineering department on bioheat vest for paraplegic patients to improve their endurance in the outside environment. Third we are looking in a specific tumor type at markers that will guide us into risks of recurrence and its aggressiveness. Again, I am hoping that we will have a very flourishing research future at

AUBMC. I think there are a lot of opportunities here. I believe there is true collegiality among colleagues here that will benefit us all.

7. What fascinates you the most about neuroscience?

It is a field that we easily explain in terms of a general idea, yet it is so complex and unforgiving when we go into its fine details. It is a field that new things can always be discovered. This reminds me when my kids ask me to give a talk in their elementary school about the nervous system. I start by showing an object that is very familiar to their age i.e. a spoon. Then I go with them through a journey in the brain from the time we see that object (through the eye) to naming it using the muscles involved/vocal cord etc. In other words, a simple thing that we take for granted to name it, it involves so many pathways in our brain (vision, processing center, memory bank of words, executive center to give order to initiate the involved structures i.e. the muscles/vocal cord/ etc) to come to the end of the task and name the object.

8. What are the factors that make you excited about practicing neurosurgery every day?

That I am able to help someone whether it is reassurance, offering them surgery that can alleviate their symptoms and concerns, or even try to explain their symptoms and counsel them about the natural history of the disease they are concerned about. Another point that always amazes me, is the trust given to me to treat them surgically. This is something magnificent and invaluable.

9. What were some of the most rewarding moments of your career?

A "thank you" or a prayer from a patient. It never fails to make me happy.

10. Outside work, what do you enjoy doing the most?

I am blessed with a wonderful wife and two wonderful boys and a princess. I love being with them. Whenever I get the chance to watch them play sports, I'd take that opportunity.

Friends and Family are one of the main reasons to come back to Lebanon, so I take as much advantage of this. Nature and hiking.

11. If you were to address a group of medical students interested in neurosurgery, what would be the message you'd like them to know that will impact their future careers?

Whenever I talk to medical students, I advise them to choose a career that can be also considered a hobby for them. If neurosurgery is something that can drive them to go to work every day then they should pursue it. It entails several subspecialties that are all open to new technology and further refinement. There are tremendous opportunities for research, so it is not a boring specialty. It is demanding yet rewarding. Although the practice of neurosurgery is very rewarding, it can be very humbling at times. It is an evolving specialty that requires us to constantly engage any new advancement in our daily practice.

AHNI RETREAT

Around 44 members of the AHNI met on October 21 2017 at the Kempinski Summerland Hotel & Resort

Updates on different constituents and programs of the institute were presented. The meeting started with Introductions from the psychiatry and neurology departments, and the neurosurgery and basic neuroscience divisions followed by presentations on the epilepsy, sleep, neuropsychology and Multiple sclerosis programs. After Lunch, small working groups discussed common clinical and research interests, and suggestions. Future clinical and research plans were discussed among all members. The meeting was fruitful and opened doors for several collaborative initiatives among the team members. This was also an opportunity for new members to be introduced to more seasoned faculty members and ongoing clinical and research activities.



Based on the discussions and recommendations, an action plan will be implemented in the coming few years.

The retreat was moderated by Dr. Lina Daouk Öyry from the Olayan School of Business and the Evidence based health care management unit.

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