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STREAMS

Studies and Translational Research at the AUBMC Nehme and Therese Tohme Multiple Sclerosis Center

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المركز الطبي في الجامعة الأميركية في بيروت

RESEARCH IS AT THE HEART OF THE MS CENTER

In October 2011, the Nehme and Therese Tohme Multiple Sclerosis Center (MSC) was inaugurated at the American University of Beirut Medical Center (AUBMC). The MSC Center is the first in the Middle East and North Africa region, and it comprises of a dedicated team offering comprehensive and personalized clinical plans and social support. It is also a center committed to high quality MS-related studies and clinical trials. It mainly focuses on the collaboration between the research fellows, associates, and assistants with physicians to better understand the disease at the clinical and molecular level.

This bi-annual newsletter will present some of the most recent research findings in ongoing studies in Lebanon and the world. In this first issue of STREAMS, we would like to highlight the largest MS database in Lebanon, the AUBMC Multiple Sclerosis Interdisciplinary Research (AMIR). This study represents a comprehensive longitudinal study in which variables such as clinical history, quality of life, composition of blood, urine, brain volume, and the thickness of the retinal layer in the eyes are observed in MS patients as well as in healthy individuals. By examining all these aspects, we are able to investigate new research questions and gain better insight on what causes MS. We can also have better insight of how it works, how can people live with it, and what is the most effective treatment for every individual case.

Currently, over 900 individuals have volunteered to participate in research at the MS Center. We are collaborating with other MS Centers around the world, pooling knowledge and sharing resources, assisting in the development of current and emerging MS therapies, and seeking to determine the biological basis of the disease.

We would like to extend our appreciation and gratitude to all those who have been and still are involved in studies at the Nehme and Therese Tohme Multiple Sclerosis Center since its opening. Together, we will be able to make breakthroughs in the treatment and care of MS.

THE SAMPLES DONATED FOR RESEARCH ARE GIVEN EXTRA CARE

The Nehme and Therese Tohme Multiple Sclerosis Center has its own research lab named Khoury Lab. Research at Khoury Lab aims at understanding the molecular mechanisms of MS in order to ultimately find a cure. Currently, experiments focus on exploring the role of immune cells in causing MS, identifying proteins specific for MS, and examining the effect of vitamin D on the immune system. For that purpose, we work on biological samples collected from MS patients and healthy donors. These samples are labelled using a barcode system specific to the MSC Center, which safeguards the privacy and confidentiality of research participants. Samples are processed and frozen following the latest protocols for bio-banking and, with the help of the barcode system, can be tracked and retrieved to be used for future studies.

VITAMIN D AND COGNITION

We know that vitamin D deficiency is a risk factor for developing MS. Studies conducted at MSC have demonstrated that vitamin D levels are lower in the Lebanese population than the normal range and that the levels in patients with MS are even lower than the rest of the Lebanese population[1]. Another study from our center focused on the role of vitamin D in cognition. Patients with low vitamin D levels were compared to those with normal vitamin D levels in terms of mental abilities or cognition. Patients with low vitamin D levels were prescribed supplementation, and were retested three months later. We found that vitamin D helps improve specific memory functions[2]. It is important to ensure that your vitamin D levels are within the proper range. If you have any questions about vitamin D or are worried about your levels, please follow up with your physician.

1. Mouhieddine, T. H., et al. (2015). "Risk factors for multiple sclerosis and associations with anti-EBV antibody titers." Clin Immunol 158(1): 59-66.
2.Darwish, H., et al. (2017). "Effect of Vitamin D Replacement on Cognition in Multiple Sclerosis Patients." Sci Rep 7: 45926

STEM CELL THERAPY, IS IT FOR ME?

Bone marrow stem cell transplant has been used for decades in other autoimmune diseases and cancer conditions. This procedure aims to prevent further damage by removing the harmful immune cells attacking the brain and spinal cord and replacing them with a newly re-grown immune system. Stem cell therapy has life-threatening risks because it wipes out the body's immunity before replacing it. Although recent studies have shown promise, more trials are needed to evaluate the long-term outcomes of stem cell therapy. It should only be done in the setting of clinical trials in patients with aggressive disease who have not responded to other treatments and are not in the progressive phase. Bone marrow stem cell transplant is different than other clandestinely advertised stem cell treatments claiming to reverse disability. It is very important to assess your individual condition with your MS specialist and discuss the possible benefits and risks of each therapy.

LATEST RESEARCH ON MS IN THE WORLD

This September, the European committee for treatment and research in MS (ECTRIMS) had its annual conference in London to discuss new developments and discoveries related to the disease.
This conference is attended by multiple sclerosis experts from around the globe to discuss new updates
in research, medications, and treatments.
Some of the relevant findings that were highlighted during the meeting included:

- Vitamin D deficiency and smoking increase the risk of developing MS and other disabilities in patients diagnosed with Clinically Isolated Syndrome (CIS)[3].
- Obesity is another factor which increases the risk of developing MS in both pediatric and adult patients[4].

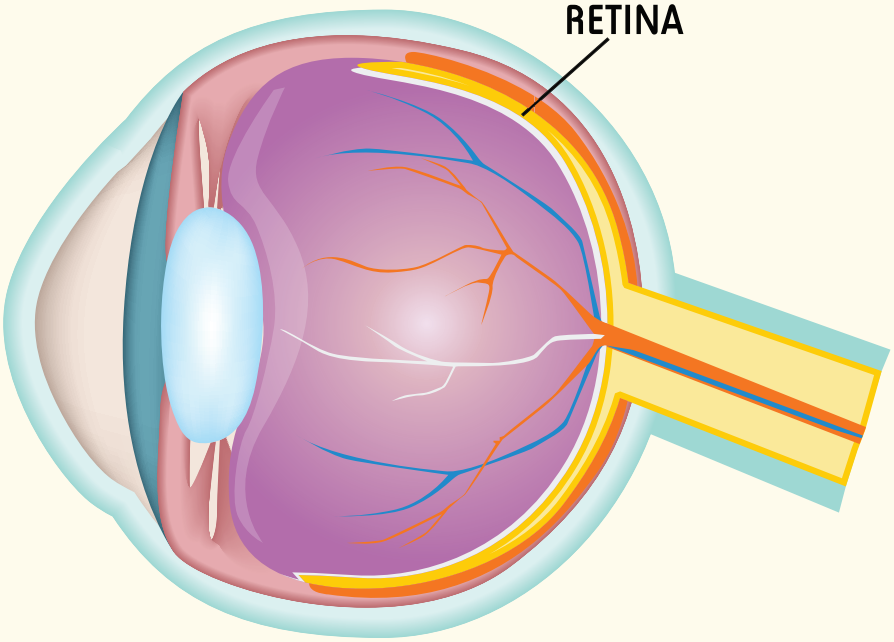
ROLE OF BIOTIN INVESTIGATED IN PROGRESSIVE MULTIPLE SCLEROSIS

Biotin, also known as vitamin B7 or vitamin H, is used to support healthy skin, hair, and nails. A recent study[5] that included 154 patients with progressive multiple sclerosis revealed that around 12.6% of participants showed some clinical improvement when patients were given high doses of biotin.
It is suggested that the drug stimulates necessary processes that activate key enzymes in myelin formation. Therefore, high doses of biotin may benefit some progressive MS cases. These findings need to be replicated in larger studies before recommending it as a treatment. Even in high doses, this vitamin doesn't have any known side effects and is considered to be nontoxic. Pregnant women or those who are planning to become pregnant should not take this vitamin. It is possible for Biotin to interact with other drugs or lab tests; therefore, you should consult with your doctor before starting it.

3. Zuluaga, M. I., et al. (2016). Severe vitamin D deficiency and smoking increases the risk of multiple sclerosis and disability accumulation in clinically isolated syndromes. ECTRIMS Online Library. London, UK, European Committee for Treatment and Research in Multiple Sclerosis.
4. Barcellos, L. F., et al. (2016). Body mass index is causally associated with pediatric and adult multiple sclerosis onset: a study of over 20,000 individuals using Mendelian Randomization. ECTRIMS Online Library. London, UK, European Committee for Treatment and Research in Multiple Sclerosis.
5. Tourbah, A., et al. (2016). "MD1003 (high-dose biotin) for the treatment of progressive multiple sclerosis: A randomised, double-blind, placebo-controlled study." Mult Scler 22(13): 1719-1731.

OCT MEASURES RELATED TO COGNITION AND DISABILITY

Optical Coherence Tomography (OCT) is an imaging technique that measures the thickness of the retina. The retina is the nerve layer in the eye that allows us to see. Dr. Nabil El Ayoubi and the research team at the Nehme and Therese Tohme Multiple Sclerosis Center have found that the retinal layers are thinner in patients with MS as compared to healthy patients[6]. It was also found that those people with thinner retinal layers had worse cognitive and physical disability[6]. In the future, such measures may be used to monitor disease progression in a non-invasive and less expensive manner. We are currently examining the OCT measures that were taken over two years and will keep you up to date with any new findings.



6. El Ayoubi, N. K., et al. (2016). "Retinal measures correlate with cognitive and physical disability in early multiple sclerosis." J Neurol 263(11): 2287-2295.

If you have any questions or comments, please contact us at:

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