

SiNAPSA Neuroscience Conference 2019

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Plenary lectures and special talks



Sleep research and sleep medicine-what comes next?

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Sleep is fascinating and still a mysterious state of consciousness, which is mandatory for the metabolic balance of all the living beings.

The consequences of sleep deprivation and sleep disorders include impaired physical and cognitive functions, social and emotional burden, significant decrease in performance and productivity and a critical financial load on the health system.

Thus, there is an urgent need for the next step in sleep research and sleep medicine.

Amyotrophic lateral sclerosis (ALS) is a relentlessly progressive neurodegenerative disease which is presently incurable.

Since the discovery of disease-causing mutations in gene SOD1 in 1993, increasing efforts have been made to understand the genetic component of ALS, with the expectation that this insight will not only aid diagnosis and classification, but also guide personalized treatment and reveal the mechanisms that cause motor neuron death.

Genetics and ALS – where are we now?

Ammar Al-Chalabi

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How are Advances in Neuroimaging Helping Us Understand the Human Brain

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The human brain is massively redundant in its organisation. When brain systems are damaged, or when reinforced by learning mechanisms, they reorganise by a variety of methods including strengthening or renewing synaptic connections, or by engaging new pathways or constituent brain regions in the learning and recovery processes.

Clinical scientists have deployed novel, quantitative MR imaging protocols to track such differential changes by using new, non-linear, multi-variate analytical and statistical methods to explore whether human imaging patterns improve complex brain image classification and hence diagnostic or prognostic precision. The results are encouraging. The eventual ambition is to link genetic, proteomic, electrophysiological, biochemical and clinical features of many patients within a standardised anatomical framework.

In the end, the aim is a rewriting of diagnostic manuals that seeks to classify diseases in clinical-biological terms. Implications for personal privacy and other ethical issues resulting from this strategy will be discussed. Recent advances in terms of how diagnostic accuracy, prognosis and personal therapeutics will result from such a strategy and a description of state-of-the-art will be presented with reference to the dementias.

This talk will first examine what the impact of diet and lifestyle COULD BE on the human condition if knowledge were power. It will then consider the toll associated with our failure to use what we know. The talk will then look closely at the body of evidence relating dietary pattern to human health- and make the case that we are NOT clueless about the basic care and feeding of our species. Endless debate about the details of optimal diets, and an insatiable pop culture fascination with scapegoats and silver bullets- distract us from the well-known fundamentals of healthful eating, and forestall the stunning advances in public health that would ensue were we to turn what we know into what we do. The case will be made that lifestyle is the best, readily available medicine; and culture could be the spoon that helps it go down.

Lifestyle is The Medicine. What's The Spoon?

David L. Katz

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We shall explore how finding of Babinski sign of the plantar reflex response described in 1896 can be interpreted in contemporary human neurophysiology of motor control of upper motor neuron.

We shall stress that this valuable clinical sign for the corticospinal lesion is still major neurological sign for clinical evaluation. We will provide evidence of differentiations of motor control of Babinski sign by the spinal cord, brain stem and brain.

In conclusion we shall outline how Babinski sign contributes to the development of clinical practice for restoration of movement due to lesion of upper motor neuron.



Babinski sign of Clinical neurology and human neurophysiology of the upper motor neuron

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50 years of Clinical Neurophysiology Institute in Ljubljana

This year's neurophysiology symposium, which will accompany the SNC19, will focus on the 50th Anniversary of the Institute of Clinical Neurophysiology at the University Medical Centre Ljubljana.

The programme includes a series of talks on past, present and future of research and practice in clinical neurophysiology, including electrophysiology, neuromuscular disorders and epilepsy.