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Dynamic functional cranial nerve assessment tool

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Statement of the Problem: Chronic pain has a variety of causes, ranging from an initial injury or an ongoing illness, but there may also be no clear cause. Because of this, chronic pain can be very hard to treat and can have negative impacts on the patient's lifestyle. Presently there are many baselines for creating a diagnosis as the symptoms can be elusive. Following the patient's symptoms can contribute to the perception of always chasing the pain. Since pain fibers create signals, the inclusivity of a traditional neurological assessment could reveal information to improve the accuracy of diagnosis. Returning to a cranial nerve assessment can offer brainstem input as to its role in deciphering sign and symptoms. This elucidates the new concept that each brain has its own unique sensory map which can be identified non-invasively through a Dynamic Functional Cranial Nerve Assessment Tool (DFCNAT). Typically, the DFCNAT reveals mis-mapping in the sensory cortex to some degree. This mis-mapping evokes inaccurate sensory topography, with inaccurate feedback loops. The reentrant signaling does not equate to the motor map, the inhibitory system is abnormal and the cortical dimension will exhibit asymmetrical, inaccurate neuromodulation. Thus the chronic pain cycle is not discovered as to the abundant signal location.

Literature Review: Multiple recent studies have demonstrated somatosensory mis-mapping due to chronic pain^{1,2}, surgery², trauma^{3,5}, amputation⁴, and palsy⁶.

Conclusion & Significance: With the DFCNAT locating the dysfunction cranial nerve and its mis mapping, noninvasive resynchronization with non-noxious inputs to the sensory cortex will override the mis mapping and mis signaling. Results to be more fully researched can offer brain/body systems therapeutic interventions at all ages.

Recent Publications:

1. Woojin Kim, Sn Kwang Kim & Junichi Mabekura, Functional and structural plasticity in the primary somatosensory cortex associated with chronic pain, *Journal of Neurochemistry*, 141, 4,(499-506), (2017)
2. Chapman, CR & Vierck, CJ, The Transition of Acute Postoperative Pain to Chronic Pain: An integrative overview of research on Mechanisms, *The Journal of Pain*, 10.1016/j.pain.2016.11.004, 18, 4, (359.e1-359), (2017)
3. Bjorkman, A & Weibull, Loss of inhibition in somatosensory areas following altered afferent nerve signaling from the hand, *Neuroscience Research* (2017)
4. D'Alonzo, M. et al, Electro-cutaneous stimulation on the palm elicits referred sensations on intact but not on amputated digits, *Journal of Neural Engineering*, 15, 1, (016003), (2018)
5. Kraft, AW, et al, Sensor deprivation after focal ischemia in mice accelerates brain remapping and improves functional recovery through arc-dependent synaptic plasticity, *Science Translational Medicine*, 10, 426,(eaag1328), (2018)
6. Papadelis, C, et al, Reorganization of the somatosensory cortex in hemiplegic cerebral palsy associated with impaired sensory tracts, *NeuroImage: Clinical*, 10.1016/j.nicl.2017.10.021, 1, (198-212), (2018).

Biography

Lois Laynee is a dynamic pioneer and passionate lecturer in the fields of Education, Sleep, Scar Release Healing, Cranio Facial Neuro development, and concussion/TBI. Her work with the Laynee Restorative Breathing Method™ and Dynamic Functional Cranial Nerve Assessment Tool™ are leading to better recovery rates from brain injury.

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