Research Project Summary

Project Complete

The overall objective of the proposed project is to investigate the role of the cerebellum in sensorimotor integration (SMI) following spinal adjustments in human participants who have pre-existing spinal dysfunction in the form of vertebral subluxations. The general hypothesis is that the cerebellum is the central integrator of proprioceptive input and that when the balance of afferent input is normalized by spinal adjustments, it helps to normalize sensorimotor integration and motor control via the cerebellar interactions with the basal ganglia, cortex and periphery.

Understanding the mechanisms of the changes in SMI will help clinicians understand who is most likely to benefit from chiropractic care, help identify patients with disordered SMI who may need adjustments to be combined with other approaches or who may need a longer course of care, potentially providing a rationale for treating people with recurrent neck and back pain as a way of normalizing sensorimotor integration to break the cycle of recurrence. This research has the potential to shift away from the "pain treatment" model into a "normalization of SMI" model to prevent the development of chronic pain, to enhance function, to decrease the risk of injury in occupational, domestic and recreational settings.

Impact of Research

Publications


Publications


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• Daligadu, J., Yelder, P., Behbahani, H. Holland, L., Murphy, B. “The feasibility of using cerebellar stimulus response curves to investigate changes in excitability of cerebellar projections to primary motor cortex” International Society of Electromyography and Kinesiology (ISEK) Biannual Meeting, Brisbane, Australia, July 17-21, 2012 (poster)

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